

*Fukushima-is-still-news*

- vol. 5 -

# **Nuke Safety 2016-2019**



**Odile Girard**



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# INTRODUCTION

J'ai « découvert » l'écologie au début des années 70, croisant dans le même temps la pollution, les luttes paysannes et la malbouffe, la médecine qui avait (déjà) perdu son âme, les mouvements sociaux et bien sûr le nucléaire qui a occupé une grande partie de ma vie.

Après la catastrophe de mars 2011 au Japon, j'ai suivi chaque jour une partie des grands journaux japonais anglophones pour essayer de sauvegarder un maximum d'articles ayant trait à Fukushima. L'idée était de conserver une sorte d'archive accessible à tous, qu'ils soient écrivains, journalistes ou tout simplement intéressés.

Le blog « [Fukushima-is-still-news](#) » a été poursuivi jusqu'en 2019. Ci-dessous, la conclusion parue le jour où j'ai décidé d'arrêter mon blog.

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## End of March 2019: Time to stop this blog

29 Mars 2019

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I have been collecting and spreading information on the Fukushima disaster for more than 8 years. More than ever I am convinced that the name of my blog « Fukushima-is-still-news » was aptly chosen. Or perhaps I should have called it « Fukushima should still be news ». What I'm getting at is that I know the disaster is going on and we cannot simply forget Fukushima and turn the page. But the mode of action I chose 8 years ago has its limits and it is time for me to stop this blog.

I don't want the contents to be lost, so I will try and publish the lot with the Éditions de Fukushima so that the information remains available online.

Good bye for now. I am not doing a disappearing act. I'm still there tracking what's going on in the world of nukes.

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C'est maintenant chose faite. Le blog *fukushima-is-still-news* est désormais disponible aux Éditions de Fukushima. Une fois de plus merci à mon ami Pierre, qui m'a convaincue à l'époque de tenir ce blog et m'a aidée à le lancer.

Odile Girard

<p><i>Explication des différentes couleurs de texte utilisées :</i></p> <ul style="list-style-type: none"><li>• <i>Tous les titres originaux (issus pour la plupart des journaux japonais) sont en noir.</i></li><li>• <i>Les titres qui apparaissent en bleu sont des résumés de l'article/des articles suivant(s).</i></li><li>• <i>Les parties en rouge représentent des infos particulièrement intéressantes ou révélatrices.</i></li></ul>	<p><i>Why different colours in the print ?</i></p> <ul style="list-style-type: none"><li>• <i>All the original titles (from the Japanese newspapers for the most part) are in black.</i></li><li>• <i>Some extra titles appear in blue: they are an attempt to summarise the following article(s).</i></li><li>• <i>Whatever appears in red in the text underlines some information I found particularly interesting or revealing.</i></li></ul>
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Le présent volume est le cinquième d'une collection de 16 ouvrages qui sont édités petit à petit.

**Vol. 1 : Daiichi Nuclear Plant (2012-2014)**

**Vol. 2 : Daiichi Nuclear Plant (2015-2019)**

**Vol. 3 : Radioactive Fallout And Waste,  
No.4 Fuel Removal,  
Nuclear Workers,  
and UN Conference**

**Vol. 4 : Nuke Safety (2012-2015)**

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**Vol. 6 : Reprocessing,  
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December 24, 2015

## More and more foreigners in decontamination jobs

### Record 790,000 foreigners work in Japan, many tackling risky jobs

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201512240039](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201512240039)

Japan is increasingly depending on foreign workers to meet a shortfall in the domestic working population, but many of the jobs are menial or ones that nobody else wants.

Official figures show that a record 790,000 foreign nationals are now working in Japan, but the Japan Civil Liberties Union estimates there are more than 1 million.

According to the labor ministry, the number of working foreigners has increased by about 300,000 over a six-year period.

#### **Many of them are doing jobs that most Japanese shun, such as decontamination work in**

**Fukushima Prefecture** stemming from the 2011 disaster at the Fukushima No. 1 nuclear power plant.

Childcare, nursing care and caring for seniors, as well as work on construction sites, provide employment for many foreign nationals.

A 41-year-old Bolivian of Japanese descent spent the summer doing decontamination work in Iitate, Fukushima Prefecture. His main task was cutting grass along main roads.

He received 16,000 yen (\$133) for an eight-hour shift.

The man came to Japan when he was 23 to find work and said the pay he received for the decontamination work was the highest he had seen in his 18 years in Japan.

Even though his wife was opposed, the man submitted an application for the decontamination work.

There were 10 people in his group, and four, including himself, were foreigners.

An executive with the worker dispatch company that recruits workers for the decontamination work said foreigners are used because of a **"lack of (Japanese) workers."**

Earlier this year, the company for the first time sent six foreigners to do decontamination work.

Previously, those in charge on site had cringed at using foreigners, citing concerns about possible accidents or other problems. However, from this year, no such restrictions on foreigners have been put in place.

An official with a major construction company said, **"With the Tokyo Olympics approaching, there will be an even greater shortage of workers, so there will likely be an increase in the number of foreigners doing decontamination work."**

While the Japanese-Bolivian man thought he was receiving good wages, the Environment Ministry had suggested to companies a wage standard of 25,000 yen a day for the work he was doing.

Moreover, there are unscrupulous companies that are not upfront about paying their workers.

The man at first did not receive about 289,000 yen that was due him for a month's work in August and September.

When he asked the worker dispatch company that hired him, the man was told, "A different construction company will pay you."

The man contacted the three other foreigners who had all worked with him and he learned they had not been paid as well.

The man was only told in November by the construction company that he would be paid after he consulted with a labor union.

Even with all those problems, the man said, "I want to do decontamination work again. I used to work at a car parts factory, but I was not treated like a human being there. It was different at the decontamination work site."

The 790,000 figure for foreign workers comes from statistics for 2014 compiled by the labor ministry. However, because not all companies report on their foreign workers, the labor ministry number may only cover about 70 percent of the actual figure, according to Akira Hatate of the Japan Civil Liberties Union who is knowledgeable about issues related to foreign workers.

Hatate said that at least 1 million foreigners were already working in Japan.

**With one estimate projecting a decrease of the Japanese working population by at least 20 million over the next 30 years, foreign workers will undoubtedly play an increasingly important role in the future.**

December 28, 2015

## **Nuclear gypsies risking their lives in Fukushima**

### **‘Nuclear Gypsies’ Risk Their Lives to Clean Up Fukushima**

Cole Mellino

The Fukushima nuclear disaster happened more than four years ago and yet Japan is still reeling from the impacts and spending billions of dollars to clean up what photographers and filmmakers who've entered the so-called "no go zone" have described as a "post-apocalyptic wasteland."

More than 100,000 people remain displaced from the disaster, and the Japanese government is still working to decontaminate the area, which it estimates will cost \$50 billion. The people on the frontlines of that cleanup are known by some as the "nuclear gypsies," who are exposing themselves to dangerous amounts of radiation as they attempt to remove the nuclear waste.

**Watch the "nuclear gypsies" risk their lives in this video from Seeker Stories:**

### **The Nuclear Gypsies Risking Their Lives In Fukushima**

[https://www.youtube.com/watch?v=\\_Ng20Yl4j5Q](https://www.youtube.com/watch?v=_Ng20Yl4j5Q)



January 4, 2016

## Forest decontamination not sufficient

### **Fukushima asks govt. for forest decontamination**

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

Officials from Japan's Fukushima Prefecture and its municipalities have called on the central government to extend decontamination work deeper into forests.

They made the request to Environment Minister Tamayo Marukawa in Tokyo on Monday.

**The government has placed an in-principle limit on the clean-up of radioactive substances from the 2011 nuclear accident to areas up to 20 meters of communities.** It says it doesn't plan to go beyond that as it has no confirmation that hazardous radioactive matter has scattered further.

Toshiyuki Hata, deputy governor of Fukushima Prefecture, called on the government to review its plan and look at ways to clean up entire forests. He cited the concerns of residents who are eager to return home, and workers in the forestry industry.

Minister Marukawa said only that the government will continue to hear the opinions of local communities.

The deputy governor said after the meeting that many people are worried about the situation as their homes are surrounded by forests.

## Duck and cover

### **Japan's nuclear disaster drills: the modern version of duck-and-cover**

<http://nf2045.blogspot.fr/>

<http://nf2045.blogspot.fr/2016/01/japans-nuclear-disaster-drills-modern.html>

One of the more famous aspects of American cold war culture of the 1950s was the propaganda campaign for civil defense planning, consisting of duck-and-cover drills at schools, tests of the emergency broadcasting system,[1] and sales promotions for backyard fallout shelters.

The nuclear arms race presented a dilemma for planners. The public would feel terrified of a nuclear attack if the government did nothing to teach them how to defend themselves. Yet if the government attempted to teach the public how to survive a nuclear war, they would be all the more terrified by the realization that most people wouldn't survive a nuclear war and the survivors would envy the dead. Many people of the time fell for the government propaganda and bought fallout shelters, but not everyone. Looking back on the era, we find it easy to laugh at the absurdity of the "duck-and-cover" drills, but most people probably had a jaded view of it even at the time, just as they did toward the color-coded terror alerts that followed the terrorist attacks on Washington and New York in 2001.

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but mistaken spreaders of despair and

*(continued on BACK COVER)*

By COL. MEL MAWRENCE  
With John Clark Kimball

Another aspect of the dilemma was in the fear of the enemy's reaction to government efforts to prepare citizens for nuclear attack. It seemed like it would be a good idea for the president to order a nation-wide week of drills so the country could be ready for the real thing. But doing so might have made the Soviets think an attack was imminent, and they might have decided to pre-empt this plan with their own first strike. What to do? The only solution, obviously, was disarmament, but when people rule out doing the obvious thing, they feel they are confronted with a "dilemma."

In 1994, Guy Oakes revealed in his book *The Imaginary War: Civil Defense and American Cold War Culture* that the effort to prepare the public to survive a nuclear war was a conscious and entirely cynical ploy to keep the American public from objecting to the nuclear arms build-up and the policy of deterrence. He wrote in his conclusion:

In the 1950s, no one in government was more ruthlessly clear-sighted than Vice President Richard Nixon in his understanding of the connection between a civil defense policy of deception and mendacity and the higher moral exigencies of the Cold War. In the NSC meeting on March 27, 1958, Nixon dissected with brutal consistency the rationale and limits of government support for fallout shelters. Speculative calculations concerning how many millions of Americans would die in a nuclear war, Nixon observed coolly, were beside the point. From the perspective of national survival, did it really matter whether the casualties numbered 30 million or 50 million? According to Nixon, this was a distinction without a difference. If 30 million Americans failed to survive a nuclear attack, "there would be no hope of the United States surviving."

American security rested not on the passive defenses of civil defense, but on the active defense provided by the American nuclear deterrent. Therefore, why waste any money at all on civil defense? Nixon's answer was that the government had to make some gesture in the direction of a shelter program "because the country demands it." It was necessary to maintain the public illusion of security through civil defense. Otherwise, the tolerance for deterrence would collapse. Accordingly, the government's civil defense policy was clear: The state should spend whatever was necessary, but not a penny more, to sustain this illusion. Because a shelter program could produce only the appearance of security and not security itself, "we should do as little as we can to satisfy this demand." On these grounds, civil defense was marketed to American people as self-protection for survival. It was a necessary illusion: indispensable to the moral underpinning of national security, but ultimately irrelevant to survival under nuclear attack.[2]

This is all history, and perhaps it seems irrelevant, but if we look carefully, we can see that a similar dilemma and a similarly cynical policy of necessary illusions has been maintained for much longer by the nuclear energy industry.

The premature, rapid decommissioning of the Fukushima Daiichi NPP caused a crisis in the global nuclear industry. When the presumed impossible event proved possible, no one had developed procedures for evacuation or for the distribution of potassium iodide (KI) pills to protect thyroid glands from radioactive iodine. Thus, after the catastrophe, nuclear regulators and energy utilities throughout the world decided they had to convince the public that they would learn the lessons from the "accident" and carry out measures to protect the public during an emergency. Now they were going to develop evacuation plans, carrying out drills involving thousands of citizens in some places, and creating a system for timely delivery of potassium iodide at the local level.

Of course, the reason this had never been taken too seriously before was the same reason President Eisenhower had for being ambivalent about alarming the public with civil defense drills. If residents near a nuclear power plant are put through evacuation drills and taught the importance of having access to potassium iodide, they might start to learn too much about this hazardous industry that operates in their neighborhood, and they might start to call for its abolition.

Response to a nuclear power plant accident is similar to the civil defense dilemma in another important way. The people in charge are just as cynical as Richard Nixon was. They know that the evacuation plans and the KI pills will be useless, or even harmful, in a real emergency. It is impossible to evacuate everyone in a timely manner, and no one knows how the weather, time of day, triggering natural disaster or organizational failings would affect the best-laid plans. If a leak of radiation seemed imminent, operators would continue to hope that it could be contained until it was too late to tell people to take their pills or run away. Critical hours or days of denial would pass, then they would be just as well protected by leaving the area or consuming uncontaminated food and water. There would be those who would get injured or killed in the evacuation, or those whose health would be damaged by the dose of potassium iodide itself.[3]

The nuclear engineers and scientists who work in the nuclear industry-regulatory complex know all of this, and they also know that the evacuation zone radius and the tolerable limits of contamination will be set according to the size of the population affected. The smaller the population, the more “generous” they can afford to be with precautions. In spite of all this knowledge, they now cynically go along with the need to carry out a nuclear energy civil defense plan “because the country demands it,” as Richard Nixon said. It’s a bureaucratic requirement now, a performance for public consumption only. Just as we knew about a nuclear attack, if it really happens all bets are off and there is no way to stay safe. Substituting a few words from Guy Oakes’ description of civil defense policy during the Cold War, we could say it’s a necessary illusion: indispensable to the moral underpinning of continuing to operate nuclear reactors, but ultimately irrelevant to survival under a nuclear meltdown.

In Japan, one of the regulatory hurdles for the nuclear reactor restarts is that operators and local authorities have to have an evacuation plan and a plan for distributing potassium iodide, and they have to carry out drills involving the local communities. Reports on these drills have revealed what a desultory exercise they are.[4] Few people come out for them, and the ones who do could be compared to the suckers who bought fallout shelters for their backyard in the 1950s.



In the event of an accident, residents living north of the nuclear fuel reprocessing facility in Rokkasho would supposedly be able to evacuate southward.

As the drills are conducted, their flaws become readily apparent to all participants. In many cases, residents would be stuck on peninsulas where the only land-based evacuation route would be past the damaged nuclear plant. The hopeful plan is to evacuate residents before “allowing” the broken reactor to release radioactive substances into the atmosphere. The plans are also ridiculously hopeful in that they assume there will be no landslides, snowstorms or shortage of personnel at the power plant. Nuclear engineer Arnie Gundersen pointed out that the Fukushima disaster happened during the 9-5 working day when the plant was fully staffed. If it had happened at night, it is doubtful that, in the aftermath of the earthquake and tsunami, the brave “Fukushima fifty” would have been able to go to the plant from their homes, even if they had wanted to go there instead of fleeing toward safety.

The authorities have acknowledged that it may not be possible to evacuate residents past a nuclear reactor undergoing a meltdown, so they promise that rescue boats and helicopters will come. These plans are also overly hopeful because they involve the mobilization of civil servants and military personnel. Even if they were able to get to the area in time, this would consist of moving additional people *into* the danger zone, so there would be an increase in overall endangerment of human life. And it would be

painfully obvious through the whole exercise that everyone fleeing or coming to the rescue would already be contaminated, and residents would be saying sayonara to their homes on two hours' notice. All of this is done with utmost cynicism. The people who planned this charade know the drills are meaningless and they are content to devote the nation's resources to them, and waste the time and energy of thousands of citizens and civil servants.

Most disturbing of all is the degree to which the powerful and the dis-empowered have internalized and normalized the idea that people in rural areas must live with these dangers and be inconvenienced with evacuation drills so that city folk can have electricity that could be produced by safer means. However, we can see something positive in the fact that most people in the affected communities see through the absurdity of evacuation drills, whether they participate in the drills or not. Those who refuse to participate understand the situation the way Bob Dylan understood the futility of fallout shelters in the 1950s and 60s. He wrote in his autobiography [6] that he recalled many people from his hometown shutting the door on the fallout shelter salesmen who came around in the 1950s. This memory inspired one of the first songs he wrote, *Let Me Die in my Footsteps*, in which he sang of his refusal go along with the fallout shelter craze. Anyone watching the evacuation drills in Fukushima this year would agree with Bob: "I don't know if I'm smart, but I think I can see when someone is pullin' the wool over me."

January 5, 2015

## Underage workers to clean Fukushima?

### Labor shortage sucks underage workers into Fukushima nuclear cleanup

<http://mainichi.jp/english/articles/20160105/p2a/00m/0na/016000c>

It was the spring of 2015, and a 37-year-old construction company owner in Fukushima Prefecture got a call on his phone from an unknown number.

"Can you use me again?" the person on the other end said, the voice tugging at the man's memory. Ah, that's right. It was a young man who'd worked for him about two years before, doing decontamination work near the Fukushima No. 1 nuclear plant. The problem was, the worker had only been 17 at the time. It was July 2013 when the man was arrested on suspicion of violating the Labor Standards Act, which states that it is illegal to assign dangerous work to anyone under the age of 18. Cleaning up a nuclear disaster zone certainly qualified. The then 17-year-old was one of four underage workers -- all aged 16 or 17 -- in the man's cleanup team, eventually bringing the police to his door.

At the time, the man was working for a construction firm owned by his foster father, leading decontamination teams in the field. He looked at his roster of workers, but saw no problems with the ages that went along with the names. The birthdays listed put all the workers safely above 18; they'd been falsified on the orders of the man's foster father. The man himself did not know this, and so was not indicted. His foster father, however, was arrested and found guilty of labor standards violations.

The formerly under-age worker on the phone, now 20, showed no signs he was upset over the events of 2013. The man told the youth that, if he was willing to work hard, he'd give him a shot at the man's firm, founded after the arrests about two years before.

The cleanup effort began in earnest in summer 2012, a little more than a year after the March 2011 triple-meltdown at the nuclear plant. Virtually the entire construction sector in Fukushima Prefecture became involved in the work, starting with major construction firms who actually took the work orders and then fed them into a vast trickle-down pyramid of subcontractors. The man's foster father's firm was one such subcontractor, taking work that had already been subcontracted three or four times already -- a practice that does not officially exist. With these hand-me-down contracts in hand, the foster father's firm recruited workers.

The 37-year-old man planned out the jobs and also spent a lot of time on-site, even in high radiation areas. His dosimeter beeped so relentlessly that it became just another background noise, and he began to ignore it. He regularly took his mask off outside to drink, and walked into the vehicle serving as a break room -- an area that is supposed to be hermetically sealed from the outside air -- without changing out of his protective suit.

The man thought that some members of his team -- the four boys under 18 -- looked a little too young, and though he had doubts about the birthdays listed on the worker roster, he didn't investigate further. If the firm was found employing under-age workers, it would have to report the violation to the contractor above it, which could impact future orders. The man kept his suspicions to himself.

His July 2013 arrest apparently came after one of the boys submitted a complaint to authorities. At the time, the national government was offering regular nuclear cleanup workers per diem wages of between 21,700 yen and 25,000 yen. Once a work order had trickled down from the primary contractor through the layers of subcontractors, however, the workers actually on the ground never saw the full amount. The men in the 37-year-old's cleanup team were being paid less than a third the official wage. It seems the boy who reported the man had grown frustrated with his paycheck.

All the men on the team applied freely for the job. From his detention center cell, the man's foster father wrote him a letter saying, "We have to be very thorough when it comes to (worker) ages. I've learned a lot from this." The man also came to the realization that, as adults, they had to act responsibly.

Across Fukushima Prefecture, some 30,000 people go to work at decontamination sites every day. The companies, always short of workers, as well as the workers themselves have for the most part become numb to the dangers of radiation. Most of the underage workers at the man's foster father's firm said they wanted to stay on even after their employer's arrest. The Japanese Constitution urges caution on youth labor, but the reality on the ground is a far cry from the constitutional ideal.

Child and youth labor has a storied history in Japan. In the Meiji period, groups of child laborers in match and textile factories included kids under the age of 10. From 1911 on, the law was slowly updated to ban employment of children under 12, though loopholes for apprentice nursemaids and other jobs remained. The student mobilization of World War II saw children return to factories in large numbers, churning out weapons and ammunition for the war effort.

All this led to a ban on child exploitation being included in the postwar Constitution, while the minimum employment age was raised to 15 in the 1947 labor standards law, which also forbade dangerous work for anyone under 18.

The 37-year-old man himself joined the workforce as a teenager. His mother died when he was in the first grade, and he never knew his father. After his mother's death, his grandmother took him in and raised him, but she, too, passed away when he was 16. He dropped out of high school after just two months and became a construction worker. Looking around at other people his age spending their time enjoying themselves, he decided that the only way to win in life was with money and qualifications, and he threw himself into work.

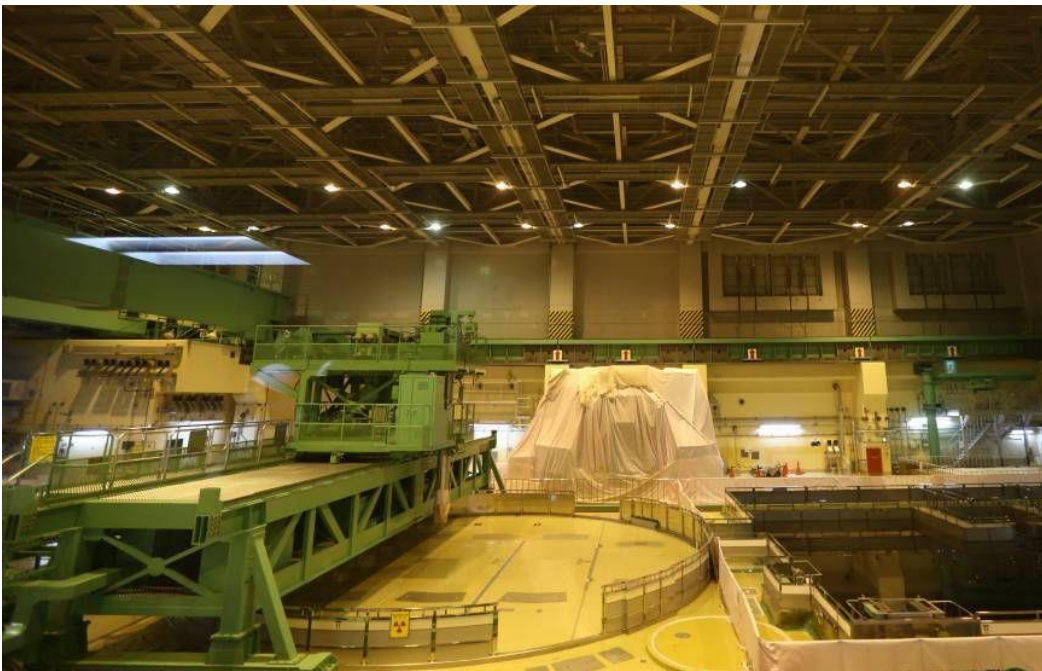


In April last year, the man started his own company with seven employees. Among them was the young man who had called him. The 20-year-old, saying he wanted a high salary, went to work in the still evacuated town of Namie. The man told him the radiation was high in Namie, but his young employee said he didn't care. If the youngster was so keen, the man thought, he'd give him the work he wanted, as well as a monthly salary topping 300,000 yen. It was the most he could pay for a young worker.

The man's 17-year-old son quit a vocational school and also went into construction, working at a different firm than his father's. The boy isn't involved in the decontamination, but his company has been subcontracted to do many nuclear cleanup jobs, which worries his father. In the dying days of 2015, the man called up his son and told him he should become a painter. It didn't cost much to get into and he could start his own business relatively quickly. His son said he'd think about it.

January 6, 2015

## Sendai and Takahama exempt from cable safety checks



A crane stands on a reactor (left) while nuclear fuel rods are stored in a pool in the operation floor inside the Unit 6 reactor building at Tokyo Electric Power Co.'s Kashiwazaki-Kariwa nuclear power station in Kariwa, Niigata Prefecture, in February. | BLOOMBERG

## NRA to call for checks of safety-related cables at nuclear plants

<http://www.japantimes.co.jp/news/2016/01/06/national/nra-call-checks-safety-related-cables-nuclear-plants/#.VoZuOIIR-ot>

JJI

The Nuclear Regulation Authority decided Wednesday to urge power companies to inspect for possible problems related to the installation of electric cables for safety equipment at their nuclear power plants. At Tokyo Electric Power Co.'s Kashiwazaki-Kariwa plant in Niigata Prefecture and other nuclear power stations, **safety-related cables were found to have been laid in combination with other cables. That violates the nation's new safety standards introduced in July 2013, which calls for them to be separated.** The NRA will call on power companies to check if there are similar problems at other nuclear plants and report the results of their probes by the end of March.

**But the No. 1 and No. 2 reactors at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture and the No. 3 and No. 4 reactors at Kansai Electric Power Co.'s Takahama plant in Fukui Prefecture will be exempt from the cable checks.**

The two Sendai reactors are the only active reactors in the country at present, while preparations for a restart are under way for the Takahama reactors.

Although these four reactors have passed the NRA's safety inspections under the new standards, the authority failed to conduct on-site inspections on whether their safety equipment cables are properly separated from other cables.

Even during pre-use inspections, the final procedure required before the restarts, the NRA checked only some of the cables.

Kyushu Electric and Kansai Electric have both said that there is no need to carry out cable investigations at the four reactors because they have already passed the NRA's safety inspections.

Under the new safety standards, established after the March 2011 nuclear accident at Tepco's disaster-stricken Fukushima No. 1 plant, cables for safety equipment must be installed separately from other cables for the purpose of fire management. Power firms are required to take necessary measures, such as using boards to separate the cables.

At the No. 6 and No. 7 reactors of the Kashiwazaki-Kariwa plant, where the problem was first discovered, safety equipment cables under the floors of the central control rooms were installed together with other cables.

The NRA decided in August last year to conduct safety inspections of these two units, but it was not aware of the cable problem until Tepco reported it to the authority in September.

Since boiling water reactors (BWRs), including the reactors at the Kashiwazaki-Kariwa plant, feature a design where many cable lines are located under the floors of the central control rooms, the NRA at first regarded the mixing of cables to be a problem unique to BWRs.

Given that the mixing of cables was found to be greater than expected at BWRs, the NRA came to believe the problem might be pervasive at pressurized-water reactors as well.

**Cable mixing has so far been discovered at all seven reactors at the Kashiwazaki-Kariwa plant; the No. 3 and No. 4 reactors at Tepco's Fukushima No. 2 plant; the No. 4 reactor at Chubu Electric Power Co.'s Hamaoka plant in Shizuoka Prefecture; the No. 1 reactor at Hokuriku Electric Power Co.'s Shika plant in Ishikawa Prefecture; the No. 3 reactor at Tohoku Electric Power Co.'s Onagawa plant in Miyagi Prefecture and the No. 1 reactor at Tohoku Electric's Higashidori plant in Aomori Prefecture.**

The NRA has concluded that some of the cable flaws at the Kashiwazaki-Kariwa plant are long-term problems that have existed since the plant's construction or since before the introduction of the new nuclear safety standards. It has ordered Tepco to report what preventive measures it will take by Jan. 29.

## **NRA orders utilities to check nuclear plant cables**

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

Japan's nuclear regulators have urged Tokyo Electric Power Company to take the necessary steps to properly lay electrical cables for the main safety equipment in the Kashiwazaki-Kariwa nuclear power plant.

The reactors at the plant in Niigata Prefecture on the Japan Sea coast are currently offline after the 2011 Fukushima Daiichi nuclear accident.

Last year, at least 1,700 safety-related cables were found to have been jointly laid with other cables under the floor of the Kashiwazaki-Kariwa plant's central control room and in other areas.

New government requirements introduced after the nuclear accident require safety-related cables to be installed separately for fire management.

On Wednesday, the Nuclear Regulation Authority said the way the electrical cables are installed could cause the plant's safety functions to go down.

The authority concluded that this violates the new requirements and instructed TEPCO to take necessary measures.

It also ordered the utility to inspect whether proper installation procedures have been followed for the other main safety equipment.

Similar problems have been identified at 5 other nuclear plants across the country.

The authority called on all nuclear plant operators to conduct probes and report by the end of March.

January 7, 2015

## **Restrictions on Fukushima food imports to EU to be eased**

### **EU to ease rules on Japanese food imports**

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

The European Union this week will ease restrictions on food imports from Japan that were introduced in the aftermath of the Fukushima Daiichi nuclear accident in 2011.

The restrictions require Japan to conduct radiation checks on food products from Fukushima Prefecture and neighboring areas before they can be shipped to EU countries.

The European Commission decided on Wednesday to lift those measures for certain products, if their radiation levels have stayed below safety limits long enough. The changes will take effect on Saturday.

Almost all of the agricultural goods from Fukushima will be exempted, such as vegetables, buckwheat, tea, beef and other meat products, and fruits other than persimmon.

In addition, all food products from Aomori and Saitama, as well as rice and soybeans from 6 other prefectures in northeastern Japan will be exempted.

Japanese government officials say they will work to have the remaining restrictions lifted as soon as possible.

January 8, 2015

## Fishermen hold New Year ceremony

### Struggling Fukushima fishermen hold 1st New Year's ceremony in 5 years

<http://ajw.asahi.com/article/0311disaster/recovery/AJ201601080053>

By TAKURO NEGISHI/ Staff Writer

IWAKI, Fukushima Prefecture--Fishermen held a traditional New Year's ceremony here on Jan. 8 for the first time since the 2011 earthquake, tsunami and nuclear disaster killed their colleagues and ruined their livelihoods.

With their vessels flying colorful banners, the fishermen gathered at Hisanohama fishing port in the northern part of Iwaki in the morning to pray for a safe and bountiful harvest.

After traditional Shinto rituals were performed, the fishermen set off from the port to cleanse their 30 or so boats with seawater and sake. From their boats, they offered prayers to the Shinto shrines and "torii" gates located along the coast.

"Today is our New Year's Day 2016," said Akira Egawa, the 68-year-old head of the Hisanohama branch of the Iwaki city fishery association. "All the fishermen looked happy."

Although the ceremony is an annual event, the fishermen had refrained from holding it until now in light of the misery that the March 2011 disaster brought to the area.

The tsunami spawned by the Great East Japan Earthquake on March 11, 2011, slammed into the Hisanohama district around the port, killing about 60 people.

One of the biggest hurdles they continue to face is the spread of negative publicity about food safety in the area in light of the crippled Fukushima No. 1 nuclear power plant north of Iwaki.

Leaks of contaminated water from the nuclear plant are another reason why the fishermen are unable to resume large-scale operations.

But with 2016 being the hallmark fifth year since the disaster, the fishermen decided to resume the ceremony.

Fishermen on the Fukushima Prefecture coast are currently operating on a trial basis, targeting 71 species of marine animals deemed safe by authorities.

The fish catch in the region in 2014 was about 740 tons, a mere 3 percent of the annual haul before the 2011 disaster.

Prefectural authorities in 2015 tested 8,577 marine specimens for radioactive substances. Only four of the specimens exceeded government standards for contamination.

## Plutonium & Japan

### Nuclear Watch: Concerns over the growing amount of plutonium (Pt. 61)

<http://mainichi.jp/english/articles/20160108/p2a/00m/0na/006000c>

Japan has declared repeatedly since the 1990s that it will never possess surplus plutonium. While the plan to develop fast-breeder reactors has been deadlocked, Japan plans to use mixed-oxide fuel consisting of plutonium blended with natural uranium in light-water reactors in order to spend plutonium, which has been produced by reprocessing spent nuclear fuel in Britain and France. The government had intended to use such fuel at 16 to 18 nuclear reactors across Japan by 2010.

However, the plan collapsed following the March 2011 outbreak of the Fukushima nuclear crisis.

Shunsuke Kondo, 73, who served as chairman of the Japan Atomic Energy Commission (AEC) until March 2014, had described accumulated plutonium in Japan as "plutonium in stock" instead of "surplus plutonium," on the assumption that the material would be used for MOX fuel even after the outbreak of the nuclear disaster.

However, Japan became unable to consume plutonium even if the country wanted to. As such, the stockpile of plutonium in Japan has snowballed to 47.8 metric tons.

Nobuyasu Abe, 70, a member of the AEC, says, "Now, nobody knows how much plutonium Japan will use in the future."

The Nuclear Regulation Authority (NRA) is currently examining 26 reactors for which applications for permission to restart have been filed, but it is expected to take a considerable amount of time before the NRA determines if these reactors meet the new safety regulations.

Even if many of these reactors are to be reactivated, there are no prospects that MOX fuel can be used for them because it is necessary to gain consent from local communities.

Abe compares this situation to "an equation with a large variable number," and says, "For now, the only choice is to maintain the policy of not increasing the amount of plutonium Japan stockpiles."

The current Japan-U.S. agreement on the peaceful use of nuclear energy, which went into force in 1988, expires in July 2018. Since the accord includes clauses that allow Japan to reprocess spent nuclear fuel and enrich uranium, the pact needs to be extended if Japan is to continue its nuclear fuel cycle project. Like the bilateral security treaty, however, the nuclear energy pact can be automatically extended.

A senior Foreign Ministry official says, "The two countries intend to extend the accord."

Since the U.S. nuclear energy industry has close relations with its counterpart in Japan, the United States will likely benefit from extending the pact.

However, concern remains as to the moves of U.S. Congress. "China and South Korea are lobbying U.S. Congress in launching a negative campaign (against Japan's stockpile of plutonium)," says former Defense Minister Satoshi Morimoto, 74.

China criticized Japan's policy regarding plutonium during a meeting of the First Committee of the U.N. General Assembly in October 2015. South Korea, which the United States does not allow to reprocess spent nuclear fuel, criticizes the situation as unequal. China and South Korea could intensify their criticism of Japan. (By Haruyuki Aikawa, Senior Writer)  
(Next installment to be published on Jan. 11)

January 9, 2016

## Fukushima foods: EU eases restrictions

### EU due to start easing restrictions on food imports from Fukushima

<http://www.japantimes.co.jp/news/2016/01/09/national/eu-due-start-easing-restrictions-food-imports-fukushima/#.VpDoHFIR-ot>

Kyodo

The European Union will start easing restrictions Saturday imposed on Japanese food imports over the Fukushima nuclear disaster, including vegetables and beef produced in the prefecture, the farm ministry said.

Tsuyoshi Takagi, Cabinet minister in charge of rebuilding from the March 2011 quake, tsunami and nuclear crisis, on Friday welcomed the bloc's decision. At present, all food items from Fukushima except alcoholic beverages must be shipped with radiation inspection certificates.

That requirement will be removed for vegetables, fruit excluding persimmons, livestock products, tea and soba, because the radiation levels of these items never exceeded permissible levels in 2013 and 2014, according to the farm ministry.

Other food from the prefecture such as rice, mushrooms, soybeans and some fishery products — excluding scallops, seaweed and live fish — will remain subject to the requirement.

The allowable limits are set at 100 becquerels per kilogram for vegetables and fruit, 50 Bq/kg for milk beverages and infant food, and 10 Bq/kg for drinking water, in accordance to Japanese standards.

The EU move follows the Agriculture, Forestry and Fisheries Ministry's announcement in November that the bloc would ease the restrictions after gaining approval from the European Commission.

**The decision also comes as the European Union and Japan are in the midst of negotiations for a free trade agreement. In the talks, Tokyo is seeking the elimination of duties on Japanese vehicles, while Brussels is looking to expand exports through the reduction of tariffs on pork, cheese, wine and other agricultural products.**

"We will make persistent efforts so (restrictions) on all items (from Fukushima) will be eliminated," Takagi said at a press conference Friday.

The minister added that he will continue to work with other countries to lift similar restrictions imposed after the triple meltdown at the Fukushima No. 1 nuclear power plant raised concerns over the safety of food produced in Japan.

The European Union will also remove restrictions on all food imports from Aomori and Saitama prefectures.

Aside from Fukushima, restrictions will remain in place for some items produced in 12 prefectures in northeastern, eastern and central Japan.

At least 14 countries, including Australia and Thailand, have abolished restrictions on Japanese food imports, while dozens of countries like South Korea maintain special rules.

January 11, 2016

## Takahama holds emergency drills

### Emergency drill held at Takahama nuclear plant

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

The operator of a nuclear power plant in central Japan started an emergency drill on Monday ahead of the scheduled resumption of operations at 2 of its reactors.

**Kansai Electric Power Company hopes to restart the Takahama plant's No.3 reactor late this month and the No.4 reactor in late February.**

The utility has equipped the plant with emergency devices and other equipment based on requirements introduced after the Fukushima Daiichi crisis in 2011.

It is also required to carry out a drill for a severe accident to show it can handle major emergencies.

**The 3-day drill is based on a scenario in which the plant has lost cooling water due to ruptured pipes, and nuclear fuel has begun to melt.**

About 80 employees are taking part in the drill. Media crews have been allowed to watch their work to cool the containment vessel of the No.3 reactor.

The employees connected cables to a power vehicle to send electricity to a newly equipped temporary pump.

They also attached a hose to the pump to inject sea water into the containment vessel, while confirming that the correct procedures were observed.

About 20 officials from the Nuclear Regulation Authority checked that the employees followed the instructions in the manuals, and whether or not they completed tasks within prescribed time limits.

## M4.5 quake hits North Eastern Japan

### M4.5 quake hits northeastern Japan, no tsunami alert issued

<http://mainichi.jp/english/articles/20160111/p2g/00m/0dm/075000c>

TOKYO (Kyodo) -- An earthquake with a preliminary magnitude of 4.5 jolted northeastern Japan on Monday but there were no fears of tsunami, the Japan Meteorological Agency said. There were no immediate reports of damage or injuries from the 3:26 p.m. quake that centered on Aomori Prefecture at a depth of around 10 kilometers. It registered lower 5 on the Japanese seismic scale of 7 in the southeast of the prefecture and 4 in Hachinohe and other places.

## Singapore may also ease restrictions on Fukushima foods

### Singapore to consider easing import restrictions on Fukushima food items

<http://www.japantimes.co.jp/news/2016/01/11/national/social-issues/singapore-consider-japanese-request-ease-restrictions-fukushima-food-items/#.VpNpBFIR-ot>

JJI

SINGAPORE – Singapore has agreed to “positively” consider a request to ease its import restrictions on food and other farm products from Fukushima Prefecture, according to Japanese officials. Lawrence Wong, Singapore’s national development minister, said in a meeting Sunday with agriculture minister Hiroshi Moriyama that he will consider the request while examining moves on the matter by the European Union and others. Moriyama told reporters after the meeting that he explained the EU’s recent decision and asked Wong to ease the restrictions based on scientific grounds. The EU on Saturday substantially eased its import restrictions on Japanese food and farm products, including those from Fukushima Prefecture. The curbs were introduced after the March 2011 crisis at Tokyo Electric Power Co.’s Fukushima No. 1 nuclear plant.

January 12, 2016

## Former fishermen seek compensation

### More former fishermen to seek worker's compensation over 1954 Bikini Atoll nuclear test

<http://mainichi.jp/english/articles/20160112/p2a/00m/0na/007000c>

More former fishermen **who developed cancer after sailing near a 1954 United States hydrogen bomb test site at the Bikini Atoll in the Pacific Ocean** are planning to seek worker's compensation, it has been learned.

The nuclear tests, of which there were six, took place from March 1 through May 14 in 1954 primarily at the atoll, located in the Marshall Islands. After the first test, the 23-crew Daigo Fukuryu Maru, located about 160 kilometers east and outside of the designated danger zone, was exposed to radioactive fallout. The ship's head radio operator, 40-year-old Aikichi Kuboyama, died half a year later. Other ships were also affected across a large area, and were forced to throw away their fish catches.



Until now only crew members aboard the Daigo Fukuryu Maru tuna boat have been compensated, and should the seamen's insurance payments be granted to others, it will raise hopes for yet further aid. A citizens' group, "Taiheiyo Kakuhisai Shien Center" (Pacific Ocean nuclear disaster support center), is supporting the former fishermen newly seeking compensation. According to the center, around 10 people in Kochi Prefecture, including bereaved family members of former fishermen who died after developing cancer, are expected to apply to the Japan Health Insurance Association's seamen's insurance department in February or March this year **for recognition of their radiation exposure as an on-the-job injury. They will argue for a causal relationship between their exposure and their illnesses,** and seek monetary compensation.

From Jan. 10, staff from the center, three Kochi Prefecture organizations and doctor Hajime Kikima, 71, who was involved with the application of former crew members of the Daigo Fukuryu Maru for insurance compensation, visited the former fishermen who are considering the new applications and confirmed their intentions about whether or not to seek compensation. On Jan. 11, members of the three Kochi Prefecture organizations met together with lawyers in the city of Kochi, where they created a support team for the former fishermen.

In 1955, the U.S. gave Japan 2 million dollars (worth about 720 million yen at the time) in "consolation money" and ended the issue at a political level. The crew members of the Daigo Fukuryu Maru were each given 2 million yen, but for people aboard the other nearby ships, there has not been a true investigation of their circumstances.

In September 2014, the Ministry of Health, Labor and Welfare, in response to a demand from the center, did release, for the first time, documents on a survey of the radioactive exposure of ships apart from that of the Daigo Fukuryu Maru. However, it held that the ship crews, other than that of the Daigo Fukuryu Maru, were only exposed to tiny amounts of radiation, which it said fell short of the amount that international standards deem would affect a person's health.

However, after professor Shin Toyoda of the Okayama University of Science, who specializes in measuring radiation, and others examined the tooth enamel of former seamen who were around 1,300 kilometers east of the nuclear test site, they reported finding up to 414 millisieverts in the enamel. This is about equal to the exposure of people some 1.6 kilometers from the hypocenter of the Hiroshima atomic bomb.

Under the Atomic Bomb Survivors' Assistance Act, people who were within 3.5 kilometers of a nuclear bomb hypocenter and who develop certain ailments such as cancer are recognized as eligible to receive medical allowances. While no such system exists for the former crew members who were near the Bikini Atoll test site, the crew members of the Daigo Fukuryu Maru received compensation through the application of seamen's insurance. Part of the plan for the former crew members newly seeking compensation is to use the results of the survey by professor Toyoda's group when applying for the compensation.

Yutaka Kuwano, 83, who was aboard the Daini Kosei Maru tuna boat when the test occurred and developed stomach cancer, says, "The Japanese government has held that it is unrelated to the issue. I didn't know there was a way for us to receive compensation, and I had mostly given up. I want to work together (with the effort to acquire aid) **also in order to keep the (Bikini Atoll nuclear exposure) incident from disappearing from the public's memory."**

## M6.1 quake off Hokkaido

## **M6.1 temblor hits off Hokkaido, has surface intensity of 3 but poses no tsunami risk**

<http://www.japantimes.co.jp/news/2016/01/12/national/m6-1-temblor-hits-off-hokkaido-surface-intensity-3-poses-no-tsunami-risk/#.VpSxC1IR-ot>

Fp-JJI/reuters

A strong 6.1-magnitude earthquake struck off Hokkaido early Tuesday, the U.S. Geological Survey said. The quake hit off the west coast of the island, about 170 km (106 miles) north of Sapporo, at a relatively deep 236 km.

The Meteorological Agency recorded it as a weaker 6.0 quake.

Japan sits at the meeting place of four tectonic plates and experiences around 20 percent of the world's most powerful earthquakes every year.

But rigid building codes and strict enforcement mean even powerful tremors frequently do little damage.

A 7.8-magnitude quake that struck off the coast in May last year injured a dozen people.

A massive undersea quake that hit in March 2011 sent tsunami barreling into Japan's northeast coast, killing more than 15,000 people and sending three reactors into meltdown at the Fukushima nuclear plant.

Tuesday's temblor struck 75 km (47 miles) south of the town of Rishiri, the U.S. Geological Survey said.

It put the depth of the quake at 236 km, and originally reported the magnitude at 6.3.

The Meteorological Agency said the earthquake had only achieved a maximum seismic intensity of 3 at the surface on land, on a scale of 0-7, and posed no tsunami risk.

January 15, 2016

## **Scary "gaps" in global nuke security system**

### **World must do more to curb nuclear terror threat: watchdog**

<http://www.japantimes.co.jp/news/2016/01/15/world/world-must-curb-nuclear-terror-threat-watchdog/#.VpivrlIR-ot>

AFP-JJI

WASHINGTON – International progress in reducing the threat of nuclear terrorism has slowed in recent years, and the global nuclear security system remains vulnerable, according to a report released Thursday.

**The Nuclear Threat Initiative, a leading U.S. nonproliferation watchdog,** found that even as international security has been rocked by one crisis after another, basic weaknesses persist in securing the world's fissile materials.

**"The current global nuclear security system has dangerous gaps that prevent it from being truly comprehensive and effective,"** NTI President Joan Rohlfing said in a statement.

**"Until those gaps are closed, terrorists will seek to exploit them."**

World leaders are due to meet from March 31 to April 1 in Washington for the fourth and final Nuclear Security Summit under the administration of President Barack Obama.

“Leaders must commit to a path forward when they meet this spring,” Rohlving said.

“The consequences of inaction in the face of new and evolving threats are simply too great.”

Since 2014, there have been no improvements in several areas related to securing highly enriched uranium and plutonium, the NTI said.

“The number of countries taking the most important step to prevent theft — eliminating their materials — also has dropped,” NTI noted.

In the two years ahead of releasing its prior report in 2014, seven countries eliminated their weapons-usable nuclear materials.

But in the run-up to the 2016 edition of its Nuclear Threat Index, only one country — Uzbekistan — has been scratched from the list of countries with weapons-usable nuclear materials.

The NTI Index also finds worrying shortfalls in how well countries protect their nuclear facilities against potential sabotage, as well as from cyber attacks.

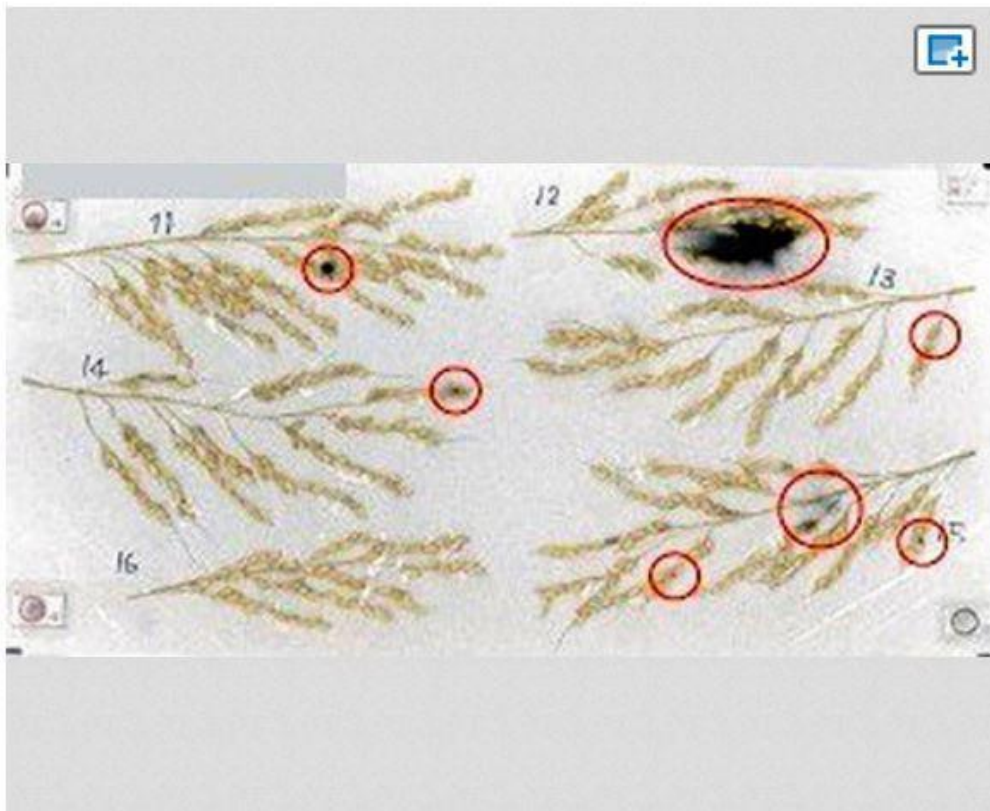
**The report warns many countries considering nuclear power are struggling to implement even basic measures to prevent sabotage** that could lead to a radiological spill similar in size to Japan’s 2011 Fukushima disaster.

**Twenty countries “do not even have basic requirements to protect nuclear facilities from cyber attacks,”** the findings state.

Among several suggested improvements, the NTI recommends the creation of international norms around nuclear security, as well as improved cybersecurity measures.

January 18, 2016

## Rice contamination: Fukushima No.1 was the culprit



The black spots show radioactive particles found on the ears of rice harvested in autumn 2013 in Minami-Soma, Fukushima Prefecture. (Provided by Ministry of Agriculture and Fisheries)

## Researchers: No doubt cleanup at Fukushima nuclear plant contaminated rice crops in 2013

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201601180052>

MINAMI-SOMA, Fukushima Prefecture--Radioactive substances that contaminated rice paddies here in 2013 came from the crippled Fukushima No. 1 nuclear plant, an **international group of researchers** said, rejecting a denial issued by Japan's nuclear safety authority.

**The researchers, led by Akio Koizumi, a professor at Kyoto University's Graduate School of Medicine,** reached the conclusion after analyzing radioactive substances and taking spot readings of radioactivity levels around Minami-Soma.

Koizumi presented the final report of the group, consisting of 11 researchers from Japan, Europe and the United States, to local farmers and other parties at a community center in Minami-Soma on Jan. 17.

"The cause of further contamination was the radioactive particles dispersed from contaminated rubble during the cleanup effort at the Fukushima No. 1 nuclear plant," Koizumi concluded in the report.

Earlier, the agriculture ministry and the Nuclear Regulatory Authority (NRA) gave different views on the source of the contaminated rice.

In 2013, rice crops from areas of Minami-Soma were found with unexpectedly high radioactivity levels more than two years after the triple meltdown at the nuclear plant located 20 kilometers south of the city.

One theory was that highly radioactive substances were dispersed when workers were lifting and removing contaminated rubble at the Fukushima plant on Aug. 19 that year. Two workers at the plant were exposed to high doses of radiation during the cleanup process.

The Ministry of Agriculture, Forestry and Fisheries said the cause of the contaminated rice was “unknown” although it acknowledged “the possibility of the dispersal of contaminated dust.” The farm ministry discontinued its investigation without specifying the source of the contamination.

The NRA, however, said the contaminated rice was not related to the cleanup work at the nuclear plant. The Minami-Soma city assembly expressed outrage over the NRA’s stance. Some in the city suspected the NRA of a cover-up.

Koizumi and the other researchers digitally recreated an accidental dispersal of contaminated dust from the plant in August 2013.

They used a new analysis system to estimate the amount of radioactive cesium that spread toward Minami-Soma based on radioactivity readings around the city and other factors.

The group’s cesium estimate was more than 3.6 times the amount initially estimated by the NRA.

The research group in September 2014 also collected soil samples from 10 locations around the contaminated rice paddies to determine the amount of strontium 90 in the area.

They confirmed that the ratio of strontium 90 to radioactive cesium in the soil samples was similar to the ratio that would be found near the Fukushima nuclear plant.

Beta-ray emitting strontium 90 is less airborne and tends to remain within close proximity of nuclear weapon testing sites or nuclear accidents. Radioactive cesium is more volatile and can easily adhere to fine dust spread by the wind.

In general, the amount of strontium 90 decreases the farther it gets from a nuclear plant, compared with radioactive cesium. In fact, hardly any strontium 90 has been detected far away from the Fukushima plant. Based on the amounts of radioactive particles recorded around Minami-Soma, the researchers concluded that a highly irregular plume of radioactive cesium reached Minami-Soma on the third week of August 2013.

“Every single piece of data in the paper supports the fact that contamination by radioactive dust came from the debris at the nuclear plant,” Koizumi said.

Asked about the NRA’s conclusion, Koizumi said: “It seems they were blinded by their estimated amount of dispersed particles, and their choice for the analysis system was misguided. This kind of attitude would only increase the anxiety of residents in the affected areas.”

The group’s findings were published in the international academic journal *Environmental Science & Technology* last month after a peer review.

(This article was written by Masakazu Honda and Miki Aoki.)

## **Post-Accident Sporadic Releases of Airborne Radionuclides from the Fukushima Daiichi Nuclear Power Plant Site**

<http://pubs.acs.org/doi/full/10.1021/acs.est.5b03155>

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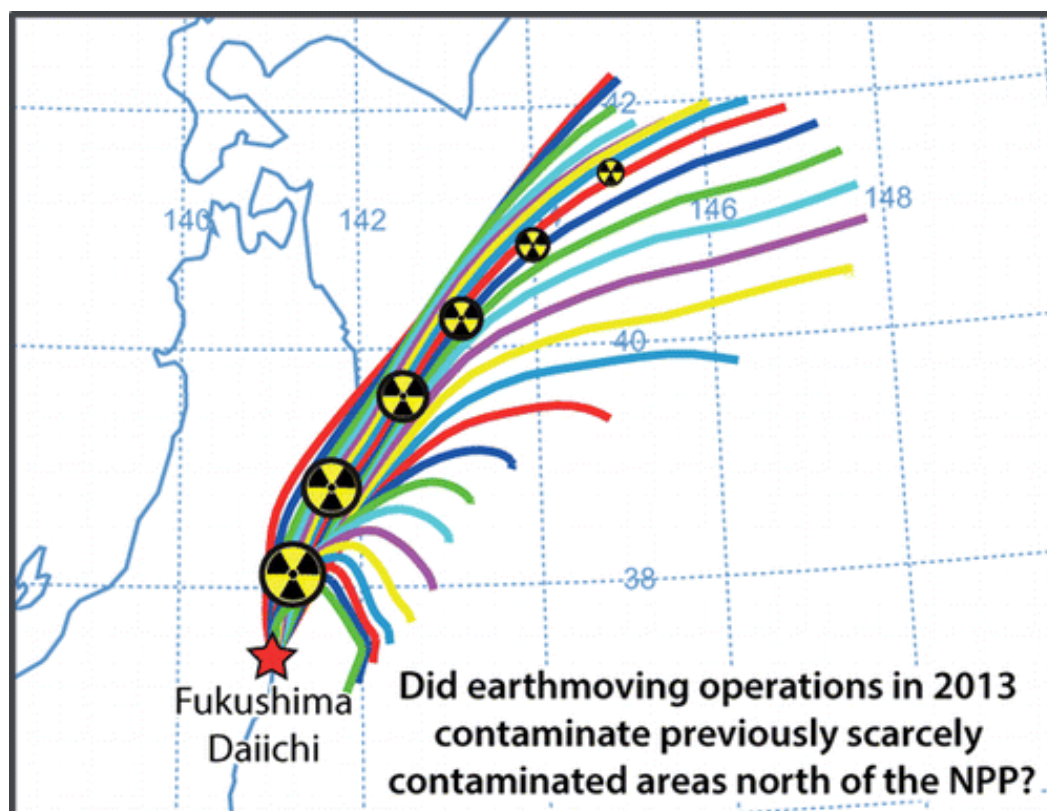
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## Abstract

The Fukushima nuclear accident (March 11, 2011) caused the widespread contamination of Japan by direct deposition of airborne radionuclides. Analysis of weekly air filters has revealed sporadic releases of

radionuclides long after the Fukushima Daiichi reactors were stabilized. One major discharge was observed in August 2013 in monitoring stations north of the Fukushima Daiichi nuclear power plant (FDNPP). During this event, an air monitoring station in this previously scarcely contaminated area suddenly reported  $^{137}\text{Cs}$  activity levels that were 30-fold above the background. Together with atmospheric dispersion and deposition simulation, radionuclide analysis in soil indicated that debris removal operations conducted on the FDNPP site on August 19, 2013 are likely to be responsible for this late release of radionuclides. One soil sample in the center of the simulated plume exhibited a high  $^{90}\text{Sr}$  contamination ( $78 \pm 8 \text{ Bq kg}^{-1}$ ) as well as a high  $^{90}\text{Sr}/^{137}\text{Cs}$  ratio (0.04); both phenomena have usually been observed only in very close vicinity around the FDNPP. We estimate that through the resuspension of highly contaminated particles in the course of these earthmoving operations, gross  $^{137}\text{Cs}$  activity of ca.  $2.8 \times 10^{11} \text{ Bq}$  has been released.

[...] In summary, **this study reveals significant intermittent releases of airborne radionuclides in August 2013, long after the initial releases caused by the Fukushima nuclear accident in spring 2011.** Increased activities were observed at the air filter station in Haramachi/Minamisoma in the week of August 15 to 22, 2013. Although the resuspension of deposited radionuclides has been identified as a potent source for transport of radioactive contaminants,(24, 25) we could show herein that in fact **the site of FDNPP is likely to be the source of one of the most pronounced sporadic releases since the accident.** Modeling confirms that debris removal actions taking place in this week are likely to have contaminated the area of Minamisoma that has had very low contamination levels previously. Total  $^{137}\text{Cs}$  and plutonium deposition as well as  $^{134}\text{Cs}/^{137}\text{Cs}$  activity ratios and  $^{240}\text{Pu}/^{239}\text{Pu}$  isotopic ratios observed in soil remain inconclusive to support the hypothesis. However, one extraordinary high contamination of soil with  $^{90}\text{Sr}$  in the center of the simulated plume indicates the contamination of the location with dust particle stemming from the FDNPP site. The high non-uniformity of the contamination levels and  $^{134}\text{Cs}/^{137}\text{Cs}$  signatures is most probably due to non-uniform deposition of radioactive particulate matter, causing high local fluctuations in the soil samples taken in the course of this study. **Our results indicate that a total of  $2.8 \times 10^{11} \text{ Bq } ^{137}\text{Cs}$  has been released from the FDNPP site by resuspension in the course of the debris removal operations on August 19, 2013.** This release corresponds to approximately 1/50 000 of Fukushima's total atmospheric releases of  $^{137}\text{Cs}$  (14.5 PBq).(33) **Finally, this study evidences that significant secondary releases of radionuclides by resuspension processes and eolian transport of contaminated particles are conceivable scenarios in the future. Most importantly, the ongoing decommissioning and dismantling activities of the crippled Fukushima reactors, thereby, pose an imminent health threat for future decades.** A resuspension of highly contaminated particles from the FDNPP site not only involves the risk of a massive radiocesium dispersion; these particles are likely to carry an even more hazardous load such as less volatile, bone-seeking  $^{90}\text{Sr}$  or actinides (including plutonium).

January 19, 2016

**Quake-absorbing or quake-resistant ?**

## Utilities scrap plans for quake-absorbing structures at 15 nuclear reactors

<http://mainichi.jp/english/articles/20160119/p2a/00m/0na/012000c>

Power companies have abandoned or reconsidered their original plans to equip emergency response facilities for 15 reactors at seven nuclear plants with quake-absorbing devices and instead simply make them quake-resistant, it has been learned.

These seven reactors are among 26 reactors at 16 nuclear plants across the country for which their operators have applied with the Nuclear Regulation Authority (NRA) for safety screening. **Although the quake-absorbing structure excels in curbing tremors and is being used in buildings and other structures, it is difficult to verify its safety because little research data on it is available.** Therefore, power companies are thinking twice about equipping their emergency response facilities with quake-absorbing systems.

While the quake-resistance structure is designed to enhance the strength of a building itself, the quake-absorbing structure is equipped with a buffer placed between the ground and the building to absorb tremors. **Some experts say the quake-absorbing structure prevents facilities in a building from being destroyed easily so that workers can do their jobs calmly even in the event of aftershocks.** An emergency response facility built with a quake-absorbing structure is called an "important anti-seismic building," and one such building at the Fukushima No. 1 Nuclear Power Plant played a major role as a command post in responding to the nuclear crisis there. But the base isolation structure is created using a relatively new technology and therefore there is only a small amount of accumulated data on the technology. According to a senior official of a major power company, if a major earthquake occurs, components such as a buffer containing lead change shape to absorb tremors, but it is difficult to verify that buildings with the quake-absorbing structure can return to their original shape after the earthquake and even withstand aftershocks.

A total of five reactors at three nuclear plants have so far passed the NRA's safety screening for resuming their operations. These are the No. 1 and 2 reactors at Kyushu Electric Power Co.'s Sendai Nuclear Power Plant in Kagoshima Prefecture, the No. 3 and 4 reactors at Kansai Electric Power Co.'s Takahama Nuclear Power Plant in Fukui Prefecture and the No. 3 reactor at Shikoku Electric Power Co.'s Ikata Nuclear Power Plant in Ehime Prefecture. As for emergency response facilities, Takahama and Ikata nuclear reactors passed the NRA's safety screening after switching their original plans for anti-seismic buildings to the ones for quake-resistant structures.

New regulatory standards for emergency response facilities stipulate that such facilities should "be built in such a way as to prevent their functions from being lost to the biggest assumed earthquake through quake-absorbing and other means." **It is said to cost more to build ordinary quake-absorbing buildings than quake-resistant ones.** In reference to the quake-resistance facility at the Sendai Nuclear Power Plant, NRA Chairman Shunichi Tanaka said, "If the move is for saving money, we will inspect it severely." But **the NRA explains that both quake-absorbing and quake-resistant structures are acceptable if they do not lose their functions.**

Hokkaido University professor Masaru Kikuchi said, "After the Great East Japan Earthquake, nuclear plant operators assumed bigger earthquakes would occur, and I think power companies abandoned their plans for quake-absorbing structures for a technological reason. Research should be made on a sophisticated quake-absorbing structure capable of fully responding to major earthquakes."



## What has happened to Japan's radioactive cars?

<http://nf2045.blogspot.fr/2012/11/what-has-happened-to-japans-radioactive.html>

When the nuclear reactors in Fukushima exploded in 2011, approximately 8,000 square kilometers were heavily contaminated with fallout and residents were forced to evacuate, probably for the rest of their lives. This news has been widely reported, but another aspect of the contamination received almost no coverage. It took a while for authorities to lock down the evacuation zones, and in those first few weeks there appeared to be no awareness of the need to control the movement of contaminated property out of the zone. People's clothes and belongings, even their cash, were likely covered in radioactive dust, but the objects of most obvious concern should have been vehicles.

Because the government failed to quickly control the movement of vehicles and guarantee fair compensation to owners, people stuck with a "hot car" had to choose between taking a total loss on an expensive and essential personal asset, or selling it as soon as possible before the market woke up to the risk and valued these cars at zero. Within a few months there were reports of radioactive cars showing up in used car lots far from Fukushima. It seems to have not occurred to any journalists writing about this problem that TEPCO and the Japanese government had a moral obligation to compensate car owners whose vehicles were ruined by radiation. People wring their hands about what can be done to stop these sales, but they fail to see that the only question is whether the guilty parties, and/or insurance companies, are going to offer the fair value that these vehicles had on March 10, 2011.

Dealers recognized that there was going to be a lot of trouble from shifting radioactive cars around domestically, so they also turned to the export market. There were reports of hundreds of Japanese used cars being turned away at ports in Russia and Australia. Then the Japanese government cracked down, as much as they could (always reactive rather than proactive – a day late and a dollar short), so more radioactive cars started showing up at domestic dealers. But dealers and consumers got wise and bought dosimeters to make sure that they didn't get stuck with a worthless car. Still, unscrupulous exporters had enough control over some ports to get some cars out, and they turned to countries that were least likely to be checking. In the fall of 2012 reports came out of African nations telling of radioactive Japanese imports showing up there. Apparently, they are not all as easy to fool as the Japanese exporters believed. Some countries, lacking the instruments to check every used car imported from Japan, have entirely banned them. African policy specialist and journalist, Chika Ezeanya, reported from Nigeria:

"Cars having up to twenty times the permissible level of radiation have found their way to African countries where several governments are clueless or unconcerned about such health risks. Governments of Kenya and Tanzania however, are among the few African countries, who, unable to afford the high cost of testing all incoming vehicles, have expressly banned the importation of cars from Japan into their markets. The Kenyan government went as far as destroying some cars after it hired independent firms to test for radiation levels."

Sadly, this is just one more example of how Japan deliberately and/or neglectfully blunders through international soft diplomacy and tarnishes its own image. It is incredible that Toyota, Nissan, Mazda, Honda and Suzuki don't care more about what radioactive car exports could do to their brands. If they cared, they would pressure the government to assert control over used car exports. Whether it's a First World, valuable market or a Third World nation that buys mostly used cars, these struggling Japanese brands cannot afford to be complacent.

[...]

Updates:

July 2014:

Jay Ramey. "Radioactive cars from Japan keep turning up in Central Asia." *Autoweek*. July 11, 2014.

This report states that persistent exporters are finding ways to get through strict controls at major ports. Radioactive used cars are now coming to market in Central Asia through minor road border crossings. A director of the Disease Prevention Department in Bishkek, Kyrgyzstan said the cars can't be sent back, so they might turn them into scrap. I'm not sure how they think that is a solution because scrapping means recycling the material into other consumer goods.

If the Japanese car industry were being managed intelligently, the major manufacturers would have long ago set up a buy-back program for radioactive cars, just as they can afford to do with recalls on other defective products. It would save their brand reputation overseas. It's shameful that they so badly disregarded the safety of consumers in the the developing world and underestimated their ability to detect radioactive cars.

July 10, 2014

## **Radioactive cars from Japan keep turning up in Central Asia**

Read more: <http://autoweek.com/article/car-news/radioactive-cars-japan-keep-turning-central-asia#ixzz3xd3450j6>

<http://autoweek.com/article/car-news/radioactive-cars-japan-keep-turning-central-asia>

A total of 70 used cars imported from Japan and found to have increased levels of radiation are being stored in Bishkek, Kyrgyzstan, and cannot be sent back, according to Silk Road Reporters citing local news outlets. Car retailers in Kyrgyzstan, who have been importing significant numbers of used cars from Japan for resale in the country, have been finding cars that exhibit levels of radiation above normal. Several batches of cars have been seized by the government during the last three years and have at times been sent back to Japan through an agreement with the Japanese government. However, irradiated cars keep turning up in Bishkek, the capital, and not all of them are being detected in a timely manner.

"These cars cannot be dispatched back. Neither China nor Japan will accept them. For this reason, we have to keep them here and deal with their further disposal," Tolo Isakov, director of the Disease Prevention Department in Bishkek, told the AKIpress news outlet, according to Silk Road Reporters.

Isakov told AKIpress and Novosti.kg, another Bishkek-based news outlet, that currently a decision is being made whether to scrap the cars. The cars have been quarantined in an impound lot, but the local authorities do not know what to do with them. The batch of (so far) 70 cars has been building up in the impound lot over time, with cars having come through several other countries. Isakov did not mention the levels of radioactivity that have been detected in these cars, though it is expected to vary from car to car.

The import of used Japanese cars is big business in Central Asia, especially in Mongolia and the Russian far-east regions that are the largest consumers of used Japanese cars in the area. In cities like Vladivostok, Russia, RHD Japanese cars make up roughly 50 percent of all registered passenger cars.

A shipment of 132 irradiated cars was recently detected coming into the port of Vladivostok in January 2014, with the cars having been barred from entry in port, according to the Australian website CarsGuide. Russia has been more successful at detecting irradiated cars coming in from Japan due to stringent checks in the ports of Vladivostok and Khabarovsk. However, that is mainly due to the direct route that cargo ships with used cars normally take, in addition to systematic screenings by customs officials. The routes that used Japanese cars usually take to small Central Asian countries like Kyrgyzstan are more circuitous, and cars with radiation levels above normal frequently escape detection as they are driven across the border on license plates from neighboring countries.

January 2014:

Livern Baret. "[Radiation Alert - Harmful Elements Detected At Ports In Shipments From Japan.](#)" *The Gleaner*, Jamaica, January 10, 2014.

"It could be that there is a weakness in the inspection process..."

[More than 130 radioactive cars from Japan seized by Russia in 2013.](#)

September 2013:

[Russia's Far East Beset with Toxic Japanese Cars](#)

[Chinese Customs Seize Radioactive Scrap Metal from Japan](#)

## Worrying: 2016 Nuclear Security Index

### Index Highlights 'Vulnerable Nations' For Nuclear Security

<http://www.nucnet.org/all-the-news/2016/01/19/index-highlights-vulnerable-nations-for-nuclear-security>

**Of the 24 countries that had nuclear stockpiles of at least 1kg in 2015, Iran and North Korea are the worst in the world at securing these from theft**, according to an index from the Nuclear Threat Initiative and the Economist Intelligence Unit. Among the safest countries are Australia, Switzerland, Canada and Poland. Globally, progress is being made, but it is slowing, the index shows. A dozen countries have eliminated their stockpiles, but only Uzbekistan has done so since the 2014 index. Several countries have increased their stockpiles in that time, including India, Japan, the Netherlands, North Korea, Pakistan, and Britain. **Almost 2,000 tonnes of weapons-usable nuclear materials remain stored around the world.** There is also a growing risk of sabotage by a number of methods which includes cyberattacks, the index shows. Around 45 countries have some form of nuclear facilities, and would be vulnerable to a radiological leak on the same scale as the Fukushima-Daiichi accident. The most vulnerable nations are,

again, Iran and North Korea. **Of the countries with nuclear facilities, developing countries with new nuclear programmes such Egypt and Algeria are least secure.** Details online: <http://ntiindex.org>

January 20, 2016

## 2016's Nuclear Security Index

Nongovernmental organizations (NGOs) play the roles of research, advocacy and norm promotion, agenda setting, lobbying public authorities, implementing programs and delivering services and humanitarian assistance, monitoring implementation of international commitments, and direct action. Without their decadeslong efforts on human and labor rights, environmental and consumer protection and other social, economic and political activism, the world would be a far harsher place for all of us today.

NGOs have also long been active on nuclear issues, in relation both to nuclear power and weapons. While several Nobel Peace Prizes have been controversial, one that received general acclaim was to the International Physicians for the Prevention of Nuclear War in 1985. One of the key messages from IPPNW was the shared interests of U.S. and Soviet scientists in averting a nuclear war. They were preceded by the Pugwash Conference founded in 1957 and have been joined by other NGOs like Global Zero and Reaching Critical Will, also animated by grave concerns about the acute risks posed by nuclear weapons.

With the collapse of the Soviet Union the world faced the threat of so-called "loose nukes": nuclear weapons and materials that were stored in anything but secure locations and conditions across the vast country, as well as a large number of unemployed and badly paid but highly skilled nuclear scientists. Once again visionary Americans worked with Russian colleagues to try to gradually reduce, contain and eliminate the risks. But after the terrorist attacks of Sept. 11, 2001, the world awoke to the new danger of nuclear terrorism. **The very notion of deterrence was utterly irrelevant to groups who prided themselves in suicide attacks and held no territory or fixed assets that could be threatened in retaliatory attacks.**

U.S. President Barack Obama took office with a vision for a world freed of the threat of nuclear weapons. Curiously, in his final State of the Union address on Jan. 13, with the exception of the Iran deal, he failed to mention nuclear issues. Yet while he may not have succeeded in the vision of a world free of nuclear weapons, he did initiate and will preside over the final nuclear security summit whereby all the world's leaders with relevant nuclear programs signed on to the agenda of securing all civilian nuclear materials and facilities. The first summit was held in Washington in April 2010 and the final one will be held there this year.

In this endeavor, too, NGOs have been active, with the most prominent being the Washington-based **Nuclear Threat Initiative**. (Disclosure: The Asia-Pacific Leadership Network, of which professor Chung-in Moon from Yonsei University in Seoul and I are the co-convenors, is supported by NTI.) Founded in 2001 by philanthropist businessman Ted Turner and former U.S. Sen. Sam Nunn, NTI is actively engaged in shaping, developing and implementing nuclear security programs. In 2008, in partnership with others and collaboration with the IAEA, NTI helped to set up the **World Institute for Nuclear Security in Vienna**. With over 3,000 members from 115 countries, WINS brings together those responsible for looking after nuclear security to swap ideas, share best practices and exchange lessons learned. Last year

NTI also helped set up the IAEA-administered, low-enriched uranium international nuclear fuel bank in Kazakhstan to facilitate the peaceful use of nuclear energy with minimal proliferation threats.

The flagship NTI publication is the biennial Nuclear Security Index, the third edition of which was published Jan. 14 in Washington ( [ntiindex.org](http://ntiindex.org) ). Prepared jointly by NTI and the Economist Intelligence Unit with the mission of **developing global standards and best practices for securing all nuclear materials**, the release of all three has been widely covered by the global media.

The 2016 index tells us a lot that is interesting. Australia maintains its overall top ranking among the world's 24 states with weapons-useable nuclear materials, but it is joined by six other states with a perfect score of 100. Of the 24, four became parties to key international agreements related to nuclear materials security during the biennium, six made new voluntary commitments (such as contributing to the IAEA Nuclear Security Fund), and eight passed or updated laws and regulations on cybersecurity. Readers of this newspaper will be pleased to learn that Japan is assessed as the most improved state, bettering its score by 27 from two years ago to join the group at the top with perfect scores. Among nuclear-armed states, France, the U.S. and the United Kingdom score the highest while the U.S., India, Russia and the U.K. are the most improved.

Rankings aside, on the upside, 12 countries decreased their quantities of weapons-usable nuclear materials over the four-year period measured by the index, and Uzbekistan removed all of its weapons-usable nuclear material. On the downside, no improvements have been made in the core protection and control measures assessed by the NTI Index.

More worrying, **the current global system for securing nuclear materials has major gaps that prevent it from being comprehensive and effective: No common set of international standards and best practices exists, there is no mechanism for holding states with lax security accountable, and the legal foundation for securing materials is neither complete nor universally observed.**

Most worrying, as my center reported in our own state of play on nuclear weapons last year, **83 percent of all fissile stocks are military materials and thus remain outside existing international security mechanisms.** Moreover, participation in international peer review — a very effective tool for improving performance and building confidence in others about the integrity of a state's security remains — limited: only 16 of the 24 states with weapons-usable nuclear materials have had a nuclear security peer review in the past five years, and seven have never had one.

An act of sabotage against a nuclear facility could result in a significant radiological release, similar in scale to the release when a tsunami hit the Fukushima nuclear power plant in 2011. The 2016 index for the first time assesses nuclear security conditions related to the protection of nuclear facilities against acts of sabotage for 45 countries with nuclear power plants or research reactors.

**The index finds troubling shortfalls in how well countries are protecting nuclear facilities against sabotage and the emerging threat of cyberattacks. Twenty states lack even basic requirements to protect nuclear facilities from cyberattacks and score zero.** Too many countries remain unprepared to deal with cyberattacks that might lead to sabotage.

Overly sensitive governments will attack the messenger with full "Yes Minister-style" efforts to belittle and discredit the index and NTI, casting aspersions on methodology, motives, bias, data reliability, etc. But sensible states will make full use of the NTI Nuclear Security Index as a global benchmark against which to track and improve their own record.

*Ramesh Thakur is a professor in the Crawford School of Public Policy and director of the Center for Nuclear Non-Proliferation and Disarmament, Australian National University.*

January 22, 2016

## IAEA mission makes recommendations

### **IAEA Mission Says Japan's Regulatory Body Made Fast Progress, Sees Challenges Ahead**

<https://www.iaea.org/newscenter/pressreleases/iaea-mission-says-japan%E2%80%99s-regulatory-body-made-fast-progress-sees-challenges-ahead>

An International Atomic Energy Agency (IAEA) team of experts said Japan's regulatory body for nuclear and radiation safety has demonstrated independence and transparency since it was set up in 2012. The team also noted that it needs to further strengthen its technical competence in light of upcoming restarts of nuclear facilities.

The Integrated Regulatory Review Service (IRRS) team today concluded a 12-day mission to assess the regulatory framework for nuclear and radiation safety in Japan which was modified following the accident at the Fukushima Daiichi Nuclear Power Station. The modification included the establishment of the Nuclear Regulation Authority (NRA) in September 2012.

"In the few years since its establishment, the NRA has demonstrated its independence and transparency. It has established new regulatory requirements for nuclear installations and reviewed the first restart applications by utilities," said team leader Philippe Jamet, Commissioner of the French Nuclear Safety Authority. "This intensive and impressive work must continue with equal commitment, as there are still significant challenges in the years to come."

IRRS missions are designed to strengthen the effectiveness of the national nuclear regulatory infrastructure, while recognizing the responsibility of each State to ensure nuclear safety.

Before being halted following the Fukushima Daiichi accident, Japan's nuclear power reactors produced about 30 per cent of the country's electricity generation. Two reactors were restarted in 2015 with NRA authorization, and the regulatory body is reviewing other restart applications using the new requirements. The country also has fuel cycle facilities, research reactors and widely uses nuclear applications in other fields.

The team of experts made recommendations and suggestions to the NRA and the Government to help them enhance the implementation of Japan's regulatory framework to strengthen nuclear and radiation safety.

They reviewed the responsibilities and functions of the Government and the regulatory body for safety, the authorization of nuclear and radiation facilities and activities, safety assessments, inspections of nuclear facilities, emergency preparedness and response, and several other areas in the field of nuclear and radiation safety.

The experts met with staff of the NRA, observed regulatory activities including inspections, and visited nuclear-related sites. They also met with other Japanese officials.

The IRRS team comprised 19 experts from 17 countries - Argentina, Australia, Brazil, Canada, the Czech Republic, Finland, France, Ireland, the Republic of Korea, the Russian Federation, Slovenia, South Africa, Spain, Sweden, Switzerland, the United Kingdom and the United States of America - and five IAEA staff.

“The IRRS team members made great efforts to thoroughly review the activities of the NRA,” said NRA Chairman Shunichi Tanaka. “NRA will seriously consider the findings in striving to further enhance nuclear safety and security in Japan.”

“Japan has reformed its regulatory system with impressive speed and effectiveness following the Fukushima Daiichi accident. Today, the system provides for clearer responsibilities and greater authority to the regulatory body,” said Juan Carlos Lentijo, IAEA Deputy Director General and Head of the Department for Safety and Security. “The NRA is on a good path to continue this crucial progress in the future. Its work must continue to ensure that the new regulatory system is applied fully to all facilities and activities.”

The IRRS team identified good practices:

- The swift establishment of a legal and governmental framework that supports a new independent and transparent regulatory body with increased powers.
- NRA’s prompt and effective incorporation of lessons learnt from the Fukushima Daiichi accident in the areas of natural hazards, severe accident management, emergency preparedness and safety upgrades of existing facilities, into Japan’s new regulatory framework.

The mission provided recommendations and suggestions for improvements in most of the areas covered by the review. Examples include:

- **The NRA should work to attract competent and experienced staff, and enhance staff skills relevant to nuclear and radiation safety through education, training, research and enhanced international cooperation.**
- **Japanese authorities should amend relevant legislation to allow NRA to perform more effective inspections of nuclear and radiation facilities.**
- **The NRA and all entities it regulates should continue to strengthen the promotion of safety culture, including by fostering a questioning attitude.**

The final mission report will be provided to the Japanese Government in about three months. The Japanese Government has announced that it plans to make the report public.

January 24, 2016

## Has Kyushu Electric been cheating?

### **Kyushu Electric accused of 'cheap trick' in forgoing quake-proof center at Sendai plant**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201601240026](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201601240026)

Kyushu Electric Power Co. is being lambasted by the public and scholars after backtracking on plans for a quake-proof building at its Sendai nuclear plant after two reactors were restarted.

The utility will forgo the project since an alternative building at the plant in Kagoshima Prefecture has passed inspection by the Nuclear Regulation Authority.

The decision was made after two reactors at the Sendai plant resumed operations last year.

Kyushu Electric's change of heart has infuriated citizens' groups opposed to nuclear energy, with some calling it a "cheap trick."

Tadahiro Katsuta, associate professor of nuclear energy policy at Meiji University, who was involved in drawing up new safety standards that called for facilities from where nuclear reactors could be safely operated even in emergencies, criticized the utility.

"It seems that Kyushu Electric, which had been concerned about the NRA response, has gone on the counter-offensive now that the safety screening results are in," Katsuta said. "Unless this trend is stopped, it could continue on to affect other issues beyond the quake-proof building and return to the days before the Fukushima nuclear disaster when regulatory agencies were not in an advantageous position (vis-a-vis the utilities)."

Before the Sendai reactors resumed operations in August and October 2015, Kyushu Electric had announced plans to build the quake-proof building by the end of fiscal 2015. However, in December 2015, the utility turned around and said it would cancel the building plan and use a much smaller building to handle major emergencies at the Sendai plant.

Even Shunichi Tanaka, NRA chairman, appeared taken aback by the shift in position by Kyushu Electric.

"The company obtained approval with the quake-proof building as a precondition so it should fundamentally abide by that stance," Tanaka said. "While we would welcome any change that moves in a safer direction, if it is only being done to save money then we will have to significantly intensify the screening process."

The NRA is expected to hear an explanation from Kyushu Electric on Jan. 26.

The need for quake-proof buildings arose from the lessons learned after the Kashiwazaki-Kariwa nuclear power plant in Niigata Prefecture, operated by Tokyo Electric Power Co., was damaged in the 2007 Niigata Chuetsu-oki Earthquake.

Such buildings played an important role in bringing the nuclear accident at the Fukushima No. 1 nuclear power plant under control after the 2011 Great East Japan Earthquake and tsunami.

Kyushu Electric applied for a safety screening with the NRA in July 2013 after it said it would construct a three-story quake-proof building and include in it an emergency response center with a planned floor space of about 620 square meters.

Such centers have become mandatory under new safety standards for nuclear plants. While those rooms have to be able to function even after being hit by earthquakes and other natural disasters, the structure does not have to be quake-proof.

Because Kyushu Electric was hurrying to restart the Sendai reactors, it completed an alternative emergency response center in September 2013 that has about 170 square meters of floor space. The one-story structure is quake-resistant, but not quake-proof.

Kyushu Electric said that center would only be used until the quake-proof building was completed.

That alternative center allowed Kyushu Electric to become the first utility to pass the NRA safety screening under the stricter safety standards.

Kyushu Electric also said it was upgrading the alternative center into its permanent emergency response center because it had been found acceptable and there was no longer a need to build the quake-proof structure.

In addition, Kyushu Electric will construct a quake-resistant two-story building with two basement floors next to the emergency response center that will have lodging space for workers who will be on call to provide support in an emergency.

(This article was written by Junichiro Nagasaki, Maiko Kobayashi and Hiromi Kumai.)



January 25, 2016

## IAEA on NRA

### **Japan's Regulator Needs To Prepare For Restarts, Says IAEA**

<http://www.nucnet.org/all-the-news/2016/01/25/japan-s-regulator-needs-to-prepare-for-restarts-says-iaea>

Japan's regulatory body for nuclear and radiation safety has demonstrated independence and transparency since it was set up in 2012, but needs to further strengthen its technical competence in light of the planned restart of nuclear reactors following the March 2011 Fukushima-Daiichi accident, an International Atomic Energy Agency (IAEA) team of experts said.

The Integrated Regulatory Review Service (IRRS) team on Friday concluded a 12-day mission to assess Japan's regulatory framework for nuclear and radiation safety, which was modified following the Fukushima-Daiichi accident. The modifications included the establishment of the Nuclear Regulation Authority (NRA) in September 2012.

The IAEA team – made up of 19 experts from 17 countries and five IAEA staff – warned of “significant challenges” ahead and called on the NRA to work to attract competent and experienced staff, and improve staff skills.

The team said Japanese authorities should amend legislation to allow the NRA to perform more effective inspections of nuclear and radiation facilities.

The NRA and all the organisations it regulates should continue to strengthen the promotion of safety culture, including by fostering “a questioning attitude”, the team said.

The team praised Japan for swiftly establishing a legal and governmental framework that supports a new independent and transparent regulatory body with increased powers.

It also said the NRA had incorporated lessons learnt from Fukushima-Daiichi in the areas of natural hazards, severe accident management, emergency preparedness and safety upgrades of existing facilities, into Japan's new regulatory framework.

“In the few years since its establishment, the NRA has demonstrated its independence and transparency,” said team leader Philippe Jamet, commissioner of the French Nuclear Safety Authority. “It has established new regulatory requirements for nuclear installations and reviewed the first restart applications by utilities. This intensive and impressive work must continue with equal commitment, as there are still significant challenges in the years to come.”

The IAEA said IRRS missions are designed to strengthen the effectiveness of the national nuclear regulatory infrastructure, while recognising the responsibility of each state to ensure nuclear safety.

Before being halted following the Fukushima-Daiichi accident, Japan's nuclear power reactors produced

about 30 percent of the country's electricity generation, the IAEA said. Two reactors were restarted in 2015 with NRA authorisation, and the NRA is reviewing other restart applications using the new requirements. The country also has fuel cycle facilities, research reactors and widely uses nuclear applications in other fields.

The IAEA team reviewed the responsibilities and functions of the government and the regulatory body for safety, the authorisation of nuclear and radiation facilities and activities, safety assessments, inspections of nuclear facilities, emergency preparedness and response, and several other areas in the field of nuclear and radiation safety.

The team met NRA staff, observed regulatory activities including inspections, and visited nuclear-related sites. They also met with other Japanese officials, the IAEA said.

Juan Carlos Lentijo, IAEA deputy director-general and head of the department for safety and security, said Japan has reformed its regulatory system with "impressive speed and effectiveness" following the Fukushima-Daiichi accident.

"Today, the system provides for clearer responsibilities and greater authority to the regulatory body," he said. "The NRA is on a good path to continue this crucial progress in the future. Its work must continue to ensure that the new regulatory system is applied fully to all facilities and activities."

All of Japan's 48 commercial reactor units were shut down for safety checks and upgrades following Fukushima-Daiichi. Five reactors have been earmarked for permanent shutdown, bringing the number of potentially operable commercial units in the country to 43.

In May 2015 Japan's government said it wanted to see a 20-22 percent nuclear share in the country's energy mix by 2030, down from about 30 percent before Fukushima-Daiichi.

January 26, 2016

## Sendai emergency building: Safety claim groundless, says NRA

### Regulator rejects plant's emergency office plan

[http://www3.nhk.or.jp/nhkworld/english/news/20160126\\_35.html](http://www3.nhk.or.jp/nhkworld/english/news/20160126_35.html)

Japan's nuclear regulator has rejected an application by the operator of the Sendai plant to continue using an existing building as an emergency office.

It says **the operator's revised plan to keep using the building as an emergency office will not ensure improved safety.**

The No.1 and No.2 reactors at the Sendai plant in southwestern Japan were put back online last year.

During the reactors' screening process, Kyushu Electric Power Company submitted a plan to build a structure with the latest quake-absorbing technology, including the emergency office, by the end of March this year.

The utility cleared the screening by constructing a temporary building for use until the quake-absorbing one is completed.

But last month, the utility submitted a revised plan to the Nuclear Regulation Authority, saying the existing building is fully capable of serving as an emergency office.

Under the revised plan, the utility will not construct a quake-absorbent structure and will only build a quake-resistant support facility with break rooms and a doctor's office.

Utility officials explained at Tuesday's meeting of the regulator that the quake-resistant technology has already passed the screening process, and so the new building **could be opened earlier**. They say this would ensure greater safety at the plant.

Authority member Toyoshi Fuketa said the application does not explain when the facility could be put into service, and so **the claim of improved safety is groundless**. He asked Kyushu Electric Power to submit a new application.

The utility says it will consider what to do, with an eye to reapplication.

The issue of the emergency office does not affect the regular operations of the plant.

## Fukushima waste to remain dispersed in Ibaraki Pref.

### Environment ministry to OK dispersed storage of radioactive waste within Ibaraki Pref.

<http://mainichi.jp/english/articles/20160126/p2a/00m/0na/006000c>

The Ministry of the Environment is set to allow radioactive waste emanating from the Fukushima No. 1 Nuclear Power Plant disaster to **remain spread out among multiple storage locations in Ibaraki Prefecture rather than begin construction of a longer-term storage facility there**, it has been learned.

The ministry plans to notify local officials as soon as next week. The plan until now has been to create a single waste disposal center for radioactive material in each of the prefectures of Miyagi, Tochigi, Gunma, Ibaraki and Chiba, but five years after the disaster the locations for these centers have yet to be decided. In allowing the dispersed storage in Ibaraki Prefecture, the ministry is adopting a more flexible approach in an attempt to move the situation forward.

The ministry will enter into talks with Gunma and Chiba prefectures, which also store most of their waste spread out among municipal facilities, on whether to continue the dispersed method of storage in those prefectures as well.

Under the earlier plan, the government had decided in November 2011 to create concrete-covered centralized waste disposal sites in the five prefectures. However, the selection of candidate sites -- Kurihama, Kami and Taiwa in Miyagi Prefecture, Shioya in Tochigi Prefecture and the city of Chiba -- has sparked protests from residents and municipal governments, hindering surveying work prior to construction.

In Ibaraki Prefecture, 14 municipalities are storing a combined amount of around 3,500 metric tons of radioactive waste. In late December last year, Ibaraki Gov. Masaru Hashimoto told the environment ministry that the shared opinion of the heads of the 14 municipalities was that they wanted to continue with this dispersed method of storage.

After receiving Hashimoto's message, Shinji Inoue, state minister of the environment, said, "The circumstances and desires of each prefecture are different. We will take their requests seriously and consider options including dispersed storage."

The waste consists of material giving off more than 8,000 becquerels of radiation per kilogram. In Ibaraki Prefecture, almost all of it is being kept at municipality-managed trash-incineration sites and at prefecture-managed sewage processing sites. The environment ministry says the waste is being "stored under comparatively stable conditions" in the prefecture.

Possibly in early February, the ministry will meet with Ibaraki Prefecture municipal heads to hear local opinions on matters such as reputational damage from storing radioactive waste, and will officially make its final decision on whether to allow the waste to continue being stored in a dispersed manner. The ministry says the possibility of gathering the waste into a centralized location in the future will remain. In Miyagi and Tochigi prefectures, much of the radioactive waste consists of things like rice straw, and over 60 percent of it is kept in storage by residents. A senior environment ministry official says the waste is "in unstable circumstances, and it needs to be managed centrally in a robust facility." For these prefectures, the ministry is expected to keep to its plan of storing the waste in a single facility, but there are no prospects for when the location will be decided.

Fukushima Prefecture, which has the most radioactive waste from the disaster, will process its waste at an existing facility in the town of Tomioka as it accepted a national government plan in December last year. Waste with a level of radioactivity of 100,000 becquerels or more per kilogram is due to be stored at midterm storage facilities in the towns of Okuma and Futaba in the prefecture.

## **Needed: Faster communication for nuclear accidents**

### **Faster communication sought for nuclear accidents**

[http://www3.nhk.or.jp/nhkworld/english/news/20160127\\_05.html](http://www3.nhk.or.jp/nhkworld/english/news/20160127_05.html)

**The Japanese government is to consider introducing a dedicated communication system between central and local officials to ensure they can share crucial information in the event of a nuclear accident.**

Officials at the Cabinet Office and the Nuclear Regulation Authority will study connecting local governments to the computer system from fiscal 2017.

The officials say this system displays the development of an accident and the responses to it in

chronological order and stores evacuation instructions and other documents.

They say the system is used for communications between a government task force and the offsite emergency response center of a nuclear power plant.

Such information is mainly sent to local governments by fax.

Central and local officials who took part in a disaster drill at the Ikata plant in Ehime Prefecture last November complained that faxing was too slow and they could not be sure if the other party had received the information.

Immediately after the 2011 Fukushima accident, some of the evacuation information sent from the central government did not reach local authorities.

A fax about iodine tablets was not noticed for some time at the offsite center of the Fukushima Daiichi plant.

The Cabinet Office says it wants to connect local authorities to the system to secure multiple communication routes and to make sure that information will be delivered quickly and accurately.

January 27, 2016

## Reducing 20-km ban radius?

### **Fukushima fishermen to expand operations off crippled nuclear plant**

<http://www.japantimes.co.jp/news/2016/01/27/national/fukushima-fishermen-to-expand-operations-off-crippled-nuclear-plant/#.VqkknFKDmot>

JJI

FUKUSHIMA – Fishermen in Fukushima Prefecture said Wednesday they plan to scale down their self-imposed fishing ban in waters off the damaged nuclear power plant due mainly to a **substantial decline in radioactive cesium levels**.

**The Fukushima Prefectural Federation of Fisheries Cooperative Associations is considering narrowing the area subject to the ban to a 10-kilometer radius from the Fukushima No. 1 nuclear power plant from the current 20-kilometer radius.**

The move comes as plant operator Tokyo Electric Power Co. last autumn completed the construction of a shielding wall to prevent leaks of contaminated groundwater into the sea. Since the completion, radiation levels in sea waters at the plant's port have been declining.

In addition, **prefectural research shows the radioactive cesium levels of marine products caught in coastal areas have dropped substantially.**

The proportion of marine products with cesium levels exceeding the state standards of 100 becquerels per kilogram fell to less than 0.1 percent last year from some 40 percent between April and December 2011, soon after the nuclear accident at the plant in March that year. No products have surpassed the level in checks since last April.

The federation is scheduled to make a **final decision late next month.** “The environment of the seas of Fukushima has improved, and conditions for reviving fisheries are being laid out,” federation leader Tetsu Nozaki told reporters.

After the tsunami-triggered triple meltdown at the nuclear plant, the federation voluntarily halted all of its coastal fishing. In June 2012, it started trial operations in a limited area, which has since expanded in steps.

January 28, 2016

## Takahama restart ignores safety concerns

### **EDITORIAL: Takahama reactor restart raises fresh nuclear safety concerns**

<http://ajw.asahi.com/article/views/editorial/AJ201601280025>

The No. 3 reactor at Kansai Electric Power Co.’s Takahama nuclear power plant in Takahama, Fukui Prefecture, is set to restart on Jan. 29.

It will be the third nuclear reactor to be brought back online under stricter safety regulations drawn up by the Nuclear Regulation Authority after the Fukushima nuclear disaster in 2011.

The No. 1 and No. 2 reactors of Kyushu Electric Power Co.’s Sendai nuclear plant in Kagoshima Prefecture were brought back online in August and October, respectively.

This March will mark the fifth anniversary of the catastrophic accident at the Fukushima No. 1 nuclear power plant.

Electric utilities have formally requested that the NRA inspect 25 of the 43 reactors across the nation, plus one under construction, to determine whether they meet the new safety standards.

The No. 3 unit at Shikoku Electric Power Co.’s Ikata nuclear power plant in Ehime Prefecture is expected to be the next reactor to go online following the ones at the Sendai and Takahama plants.

We are deeply concerned about offline reactors starting up again one after another, especially as there are troubling signs that the bitter lessons from Fukushima are being lost.

Once again we express our opposition to the plan to restart the Takahama plant reactor.

### **SAFETY CONCERNS BEING IGNORED**

In a July 2011 editorial, we called for a major shift in the government’s energy policy to build a society without nuclear power generation.

Before the 2011 calamity, nuclear energy accounted for nearly 30 percent of power supply in Japan.

There was concern that terminating nuclear power generation immediately would trigger a massive power crunch and soaring electricity bills, seriously impacting people's livelihoods.

We argued that Japan should sharply reduce its dependence on atomic power and strive to build a society powered mainly by renewable energy sources.

We also maintained that offline nuclear reactors should be allowed to resume operations only after their safety has been ascertained and they were clearly necessary for meeting demand for electricity.

The first thing to point out about the plan to bring the reactor at the Takahama plant back on stream is that the "safety first" principle has been ignored.

The grim lesson we learned from Fukushima is that nuclear accidents far above anyone's expectations can actually happen.

Fifteen nuclear reactors are located around Wakasa Bay in Fukui Prefecture, including some that are being decommissioned. This area has one of the highest concentrations of nuclear power facilities in the world. What would happen if a natural disaster, for instance, triggers severe accidents at more than one nuclear power plant in a particular area?

No clear answer has been given to this question, which was raised by the Fukushima triple meltdown.

The NRA paid scant attention to this risk in its safety inspection of the reactor at the Takahama plant.

Last year, Kansai Electric Power decided to scrap two small and aged reactors in Fukui Prefecture, where it has 11 reactors in total. But the utility also decided to continue operating three reactors beyond their 40th year of service.

There is no denying that efforts to minimize the safety risks involved in the reactors in the prefecture have been grossly insufficient.

The No. 3 unit at the Takahama plant is a so-called plutonium-thermal reactor which burns mixed oxide (MOX) fuel consisting of plutonium blended with uranium. It should not be forgotten that this fact further increases safety concerns among local residents.

## **POOR SAFETY PROTECTION FOR RESIDENTS**

The emergency evacuation plan, which should serve as the last protective shield for local residents during nuclear emergencies, is far from reliable.

Local governments of areas within 30 kilometers of a nuclear power plant are required to develop plans for emergency evacuations of local residents.

A total of 12 municipalities in the three prefectures of Fukui, Kyoto and Shiga are located within that distance of the Takahama plant. They have a combined population of 179,000.

Late last year, the government's Nuclear Emergency Preparedness Commission approved the wide-area evacuation plans that have been worked out by the three prefectures.

In the worst case scenario, local residents living within a 30-km radius would be evacuated to 56 cities and towns in the four prefectures of Fukui, Hyogo, Kyoto and Tokushima, according to these plans.

But only seven cities of the 56 municipalities have devised plans to accept evacuees in such a situation, according to a survey by The Asahi Shimbun.

Most of the municipal governments surveyed said they had concerns about factors such as their ability to secure necessary facilities, manpower and materials to accept evacuees and the possibility of vehicles contaminated with radiation entering their areas.

Their anxiety is by no means surprising given that before the Fukushima accident it was not assumed that residents living outside a 10-km radius of a nuclear power plant might have to be evacuated in a nuclear emergency.

Ensuring the effectiveness of evacuation plans requires repeated drills and reviews to evaluate the blueprints.

But no evacuation drill has been conducted under an evacuation plan for an area around the Takahama plant. It is deeply worrisome to see the reactor being restarted without confirmation of the feasibility and effectiveness of the evacuation plans.

In response to anxiety among local residents, many of the local governments of areas within 30 km of the plant asked Kansai Electric Power to give them the right to consent to a plan to restart a reactor.

But the utility rejected their requests, while the central government has stuck to the position that all that is required for a reactor restart is consent from the local governments of the area where it is located.

Restarting a reactor without solving these safety issues can only be described as a premature move.

## **ROAD MAP NEEDED FOR NUCLEAR-FREE FUTURE**

Electric power companies have stressed concerns about stable power supply and rises in electricity charges due to increasing fuel costs as main reasons for their efforts to resume operations of idle reactors. But the situations related to these problems have been clearly changing prior to the fifth anniversary of the Fukushima disaster.

All nuclear reactors remained out of operation for nearly two years until last summer. But no serious power shortage occurred during the period.

In addition to various maneuverings by utilities to meet demand, such as delaying regular safety checks of their thermal power plants, spreading power-saving efforts among the public also contributed significantly to preventing a power crunch.

Kansai Electric Power's sales of electricity, for instance, have fallen by about 10 percent from before the Fukushima accident.

Deregulation of the power retail market will allow households to choose their suppliers, starting in April. This will make consumers even more conscious of the efficiency of their use of electricity.

After growing for a while because of factors blamed on the economic effects of shutting down reactors, Japan's trade deficit has started shrinking thanks to falls in fuel costs due to lower crude prices.

Kansai Electric Power says it can lower its electricity charges if the reactor at the Takahama plant starts running again. But amid serious safety concerns, this offers no convincing rationale for restarting the reactor.

Another big question related to reactor restarts is how to find a location for interim storage of spent nuclear fuel that is piling up in pools within nuclear power complexes.

The dispute over the plan to restart the reactor in Fukui Prefecture has underscored differences in the stance of the local communities calling for the implementation of the plan, and that of the Kansai region, which has generally been cautious about supporting the plan despite the fact that it consumes the electricity generated at the nuclear plant.

There can be no realistic vision for a future without nuclear power generation without support from the local communities that have been hosting nuclear plants for many years.

All the parties involved, including not only the central government but also areas that consume electricity generated at nuclear power plants, should work together to lay out such a future vision.



January 29, 2016

## Kashiwazaki-Kariwa: Cable mix-up

### TEPCO report on mistakes at plant in Niigata

[http://www3.nhk.or.jp/nhkworld/english/news/20160129\\_36.html](http://www3.nhk.or.jp/nhkworld/english/news/20160129_36.html)

Tokyo Electric Power Company submitted a report on Friday to the Nuclear Regulation Authority on an installation error at a nuclear power station in Niigata Prefecture.

**2,500 electrical cables were incorrectly laid.** The problem was found last year at the Kashiwazaki-Kariwa plant on the Sea of Japan coast. **Safety cables and regular ones were mixed up. The safety-related cables are used for sending signals to a secure emergency power supply.**

New regulations adopted following the Fukushima Daiichi nuclear accident in 2011 require operators to lay the 2 types separately.

The Nuclear Regulation Authority had instructed Tokyo Electric to find the cause of the error.

The utility says in the report that **the mistake was found at all 7 of the plant's reactors.**

**The company says it left the installation work to the contractor. It notes there was no drawing showing cable routes, and that its employees did not check the work.**

The company says it will take measures to prevent a recurrence.

The reactors at the plant are currently offline.

January 31, 2016

## Takahama: from 5.3 to 18.5 tons of MOX

### Restarts threaten to increase amount of deadly MOX at Takahama plant to 18.5 tons

<http://www.japantimes.co.jp/news/2016/01/31/national/restarts-threaten-increase-amount-deadly-mox-takahama-plant-18-5-tons/#.Vq4jY1KDmot>

JII

Restarting a second reactor at the Takahama nuclear power plant in Fukui Prefecture will raise the amount of highly toxic spent mixed-oxide (MOX) fuel present there to an estimated 18.5 tons, Jiji Press has learned.

The plant run by Kansai Electric Power Co. in the town of Takahama had 5.3 tons of MOX — a blend of uranium and plutonium extracted from spent nuclear fuel — there before Friday's restart of the No. 3 reactor.

**But lingering problems threaten to ruin the government's long-laid plans for recycling nuclear fuel, leaving spent MOX in need of a home.** This means it is likely to join the standard uranium fuel being kept in the nation's rapidly dwindling storage pools until a solution can be found.

The Takahama plant is set to hold the largest amount of spent MOX among domestic nuclear facilities that have engaged in so-called pluthermal power generation utilizing the blended fuel, which can contain weapons-grade plutonium.

**Takahama No. 3 is slated to use 24 units of MOX, according to Kansai Electric. Reactor 4 will use four units. Each fuel unit weighs about 660 kg, according to statistics from the Finance Ministry and other data.**

Kepeco imported 12 French-made MOX units in June 2010 and an additional 20 in June 2013. The utility's Genkai plant in Saga Prefecture and Shikoku Electric Power Co.'s Ikata plant in Ehime Prefecture have about 10.7 tons of spent MOX each — more than any other commercial nuclear plants in Japan.

Among noncommercial facilities, the Japan Atomic Energy Agency currently has 63.9 tons stored at Fugen, an advanced converter reactor in Fukui, 23.1 tons at its nuclear fuel reprocessing facility in Ibaraki Prefecture, and 6.1 tons at the experimental Monju fast-breeder reactor in Fukui.

Takahama No. 3 is the nation's third reactor to be rebooted under new safety standards compiled since the Fukushima nuclear disaster began in March 2011.

Kansai Electric plans to reactivate Takahama's No. 4 reactor later this month.

## Chiyo Nohara (in Nature 2012 & 2014)

### The biological impacts of the Fukushima nuclear accident on the pale grass blue butterfly

<http://www.nature.com/articles/srep00570>

- Atsuki Hiyama
- , Chiyo Nohara
- , Seira Kinjo
- , Wataru Taira
- , Shinichi Gima
- , Akira Tanahara
- & Joji M. Otaki
- *Scientific Reports* **2**, Article number: 570 (2012)
- doi:10.1038/srep00570

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- Corrigendum (06 August 2013)

The collapse of the Fukushima Dai-ichi Nuclear Power Plant caused a massive release of radioactive materials to the environment. A prompt and reliable system for evaluating the biological impacts of this accident on animals has not been available. Here we show that the accident caused physiological and genetic damage to the pale grass blue *Zizeeria maha*, a common lycaenid butterfly in Japan. We collected the first-voltine adults in the Fukushima area in May 2011, some of which showed relatively mild abnormalities. The F1 offspring from the first-voltine females showed more severe abnormalities, which were inherited by the F2 generation. Adult butterflies collected in September 2011 showed more severe abnormalities than those collected in May. Similar abnormalities were experimentally reproduced in individuals from a non-contaminated area by external and internal low-dose exposures. We conclude that artificial radionuclides from the Fukushima Nuclear Power Plant caused physiological and genetic damage to this species.

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## The biological impacts of ingested radioactive materials on the pale grass blue butterfly

<http://www.nature.com/articles/srep04946>

- Chiyo Nohara
- , Atsuki Hiyama
- , Wataru Taira
- , Akira Tanahara
- & Joji M. Otaki
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### *Abstract*

A massive amount of radioactive materials has been released into the environment by the Fukushima Dai-ichi Nuclear Power Plant accident, but its biological impacts have rarely been examined. Here, we have quantitatively evaluated the relationship between the dose of ingested radioactive cesium and mortality and abnormality rates using the pale grass blue butterfly, *Zizeeria maha*. When larvae from Okinawa, which is likely the least polluted locality in Japan, were fed leaves collected from polluted localities, mortality and abnormality rates increased sharply at low doses in response to the ingested cesium dose. This dose-response relationship was best fitted by power function models, which indicated that the half lethal and abnormal doses were 1.9 and 0.76 Bq per larva, corresponding to 54,000 and 22,000 Bq per kilogram body weight, respectively. Both the retention of radioactive cesium in a pupa relative to the ingested dose throughout the larval stage and the accumulation of radioactive cesium in a pupa relative to the activity concentration in a diet were highest at the lowest level of cesium ingested. We conclude that the risk of ingesting a polluted diet is realistic, at least for this butterfly, and likely for certain other organisms living in the polluted area.

\_\_\_\_ See <http://www.fukushima-is-still-news.com/article-butterflies-damages-by-radiation-from-fukushima-109033739.html>

February 4, 2016

## Reclassifying radioactive waste & multiple site storage

### **Government OKs multiple-site storage of radioactive waste**

<http://www.japantimes.co.jp/news/2016/02/04/national/government-oks-multiple-site-storage-radioactive-waste/#.VrOD3FKDmot>

JJI

MITO, IBARAKI PREF. – The Environment Ministry on Thursday allowed Ibaraki Prefecture to continue storing waste contaminated with radioactive substances from the March 2011 nuclear disaster in multiple locations within the eastern prefecture for the time being.

The ministry conveyed its tolerance of multiple-site storage at a meeting with officials from Ibaraki Prefecture and 14 municipalities in the prefecture that are currently storing such designated waste on a temporary basis.

This is the first time the ministry, which has upheld a policy to construct one designated waste disposal facility in each of the prefectures of Miyagi, Ibaraki, Tochigi, Gunma and Chiba, to give the green light to multiple-site storage within a prefecture.

Designated waste, including incineration ash, sewage sludge and paddy straw, is contaminated with radioactive substances exceeding 8,000 becquerels per kilogram as a result of the triple meltdown at

Tokyo Electric Power Co.'s Fukushima No. 1 nuclear power plant caused by a major earthquake and tsunami.

Although the ministry has been pursuing the policy of concentrating such waste in one location in each of the five prefectures for disposal, the construction of disposal facilities has yet to transpire five years after the nuclear accident amid strong opposition from local residents.

The ministry's decision to tolerate multiple-site storage is apparently intended to overcome the situation. The ministry plans to have the municipalities in Ibaraki Prefecture continue safely storing designated waste for now, and have them dispose of the waste after radiation levels fall below 8,000 becquerels per kilogram.

As a result, the ministry forecasts that the amount of designated waste will drop to about 0.6 ton in about 10 years from 3,643 tons at present.

It will examine whether multiple-site storage can be continued in Gunma and Chiba prefectures, where municipalities are storing designated waste indoors just like those in Ibaraki Prefecture.

At Thursday's meeting, the ministry proposed rules that would require the central and local governments to hold talks in advance if the radioactive waste designation is to be lifted.

The ministry also indicated a plan to consider providing financial support to municipalities that dispose of the waste after removal of the designation as radioactive waste at their existing facilities.

### **Some radioactive waste to be reclassified**

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

Japan's Environment Ministry will allow some of the waste previously confirmed to have radioactivity levels above the government-set limit to be dumped in ordinary landfill sites.

The ministry cites the decline in radiation levels in such waste 5 years after the Fukushima Daiichi nuclear crisis.

The waste includes piles of rice straw and ash produced at garbage incinerators contaminated with radioactive materials exceeding 8,000 becquerels per kilogram due to fallout from the accident.

Under ministry rules introduced in the aftermath of the nuclear accident, such waste must be disposed of separately from ordinary, non-radioactive waste.

170,000 tons of such waste has been stored in 12 prefectures in eastern Japan, with nowhere to go because of local opposition to construction of disposal facilities.

The Environment Ministry says the radiation level of all that waste has fallen significantly over the last 5 years. Some now has a radioactivity level low enough to permit it to be dumped as regular waste.

The ministry explained its new policy on Thursday at a meeting with local officials in Ibaraki Prefecture. The prefecture, located south of Fukushima, has about 3,500 tons of the radioactive waste in storage.

**Ministry officials explained that about 70 percent of that waste now has a radioactivity level below the threshold of 8,000 becquerels. They said it is deemed safe enough to be disposed of with**

**regular waste.**

The ministry estimates that 10 years from now, Ibaraki will only have about 0.6 tons of waste that still has radioactivity above the limit.

The ministry hopes to start the disposal project in Ibaraki, and will cover the expenses.

February 5, 2016

## Mount Sakurajima erupts



### Mount Sakurajima erupts in fiery blast

<http://www.japantimes.co.jp/news/2016/02/05/national/volcano-eruption-rocks-kagoshimas-sakurajima/#.VrSVAVKDmot>

AP, Reuters, Staff Report

Mount Sakurajima, a volcano that overlooks the city of Kagoshima, erupted Friday with a fiery blast that sent lava rolling down its slope.

The Japan Meteorological Agency said Sakurajima, which is about 50 km from Kyushu Electric Power Co.'s Sendai nuclear plant in Kagoshima Prefecture, erupted at 6:56 p.m.

Local television showed an orange burst out of the side of the volcano, near the summit, accompanied by lightning-like flashes. Dark gray smoke billowed into the sky.

The Meteorological Agency banned entry to the area, expanding an existing no-go zone around the crater to a 2-kilometer radius, according to public broadcaster NHK.

Given the eruption, the weather agency upgraded the volcanic alert from level 2 to level 3, which prohibits people from entering the mountain. The agency warned areas near residential districts on the mountain's foot could be gravely affected.

There were no immediate reports of injuries.

The Sendai nuclear plant resumed operations last year. It was shut down, along with all of the nation's nuclear plants, after the 2011 earthquake and tsunami triggered a meltdown at a nuclear plant north of Tokyo.

Kazuhiro Ishihara, professor emeritus at Kyoto University and an volcano expert, was quoted by NHK as saying that the eruption was unlikely to have an immediate serious impact on nearby residential areas because the live video images appeared to show rocks flying only 2 km from the mountain's top.

Friday's eruption, while dramatic, was average compared to Sakurajima's past eruptions, Ishihara told NHK. The mountain's last major eruption was in September.

The Japanese archipelago sits atop the Pacific "Ring of fire" and has more than 100 volcanoes. The 2014 eruption of Mount Ontake in central Japan killed 57 people.

## Kagoshima Pref. volcano Sakurajima erupts violently

<http://mainichi.jp/english/articles/20160205/p2a/00m/0na/024000c>

Sakurajima, a volcano in Kagoshima Prefecture, erupted at approximately 6:56 p.m. on Feb. 5, the Japan Meteorological Agency (JMA) reported.

The agency raised the volcano's alert level from 2 to 3 on the 5-point scale, restricting entry. The agency reported large deposits from the eruption extending to the third station of the mountain (ranging 1,300 to 1,800 meters from the Showa crater).

The Meteorological Agency is warning local residents within 2 kilometers from the Showa crater as well as the Minamidake (southern peak) crater to take precautions against large cinders and pyroclastic flows. The agency additionally warned that volcanic ash and small cinders could be carried far by wind and fall on the leeward side of the mountain. Windows could also be shattered by violent eruptions, the agency said.

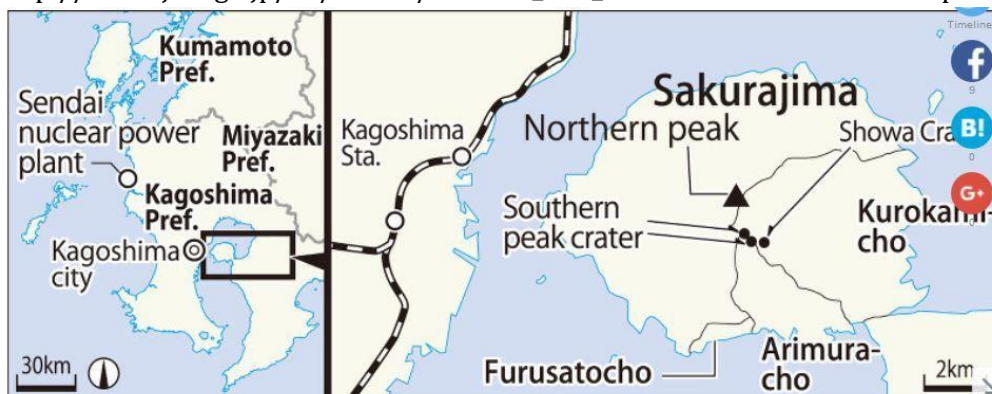
The agency had lowered the alert level for the 1,117-meter volcano to 2 on Nov. 25, 2015.

(Related link)

JMA volcanic warnings: <http://www.jma.go.jp/en/volcano/>

JMA volcanic ash fall forecast:

[http://www.jma.go.jp/en/ashfall/detailed\\_506\\_20160205192000.html#explain](http://www.jma.go.jp/en/ashfall/detailed_506_20160205192000.html#explain)



## 4.6 quake rocks Eastern Japan

### **M4.6 quake jolts eastern Japan, no tsunami warning issued**

<http://mainichi.jp/english/articles/20160205/p2g/00m/0dm/023000c>

TOKYO (Kyodo) -- An earthquake registering a preliminary magnitude of 4.6 shook eastern Japan including Tokyo on Friday morning, the weather agency said, but no tsunami warning was issued. The 7:41 a.m. quake registered 4 on the Japanese seismic intensity scale of 7 in Machida, western Tokyo, and Kawasaki, Kanagawa Prefecture, the Japan Meteorological Agency said. The quake, originating at a depth of some 30 kilometers in eastern Kanagawa, briefly disrupted sections of bullet train operations of the Tokaido Shinkansen Line.

February 10, 2016

## Only "the first stage of a mountain"

### **Nuclear plant head says another disaster would not threaten cleanup**

<http://www.japantimes.co.jp/news/2016/02/10/national/fukushima-nuclear-plant-head-says-another-disaster-would-not-threaten-cleanup/#.Vrtk3VKDmot>





A worker wearing a protective suit and mask is seen from a bus transporting journalists during a media tour near the No. 3 reactor building at Tokyo Electric Power Co's tsunami-crippled Fukushima No. 1 nuclear power plant in Fukushima Prefecture on Wednesday. | AFP-JIJI/POOL

AFP-JIJI

The chief of Japan's shuttered Fukushima nuclear power plant warned Wednesday that the biggest risk the crippled facility faces is another major earthquake and tsunami — though he insisted the chaos of nearly five years ago would not be repeated.

On March 11, 2011, a magnitude 9.0 undersea earthquake off the northeastern coast of Honshu sparked a massive tsunami that swamped cooling systems and triggered reactor meltdowns at the Fukushima No. 1 plant, run by operator Tokyo Electric Power Co.

Radiation spread over a wide area and forced tens of thousands of people from their homes — many of whom will likely never return — in the worst nuclear disaster since Chernobyl in 1986.

Now with the fifth anniversary of the disaster approaching next month, Tepco opened up the facility to journalists on Wednesday to provide an update on the cleanup process, which is expected to take decades.

"If a major earthquake hits and then a tsunami comes again, that would be the most tense moment for us," Akira Ono, head of the plant, told reporters when asked what would be the greatest risk to the plant.

Tepco has been blamed for a delay in securing power to cool fuel in the reactors that triggered meltdowns and subsequent hydrogen explosions that spewed radiation over the area and forced residents to flee.

"But we will not fall into confusion like before," Ono said, explaining that **energy levels at the plant are much lower than those after the accident, while the company has carried out disaster drills to prepare.**

He also said **the firm had built temporary coastal barriers that can block waves of up to 15 meters, matching levels of the 2011 tsunami.**

Some 8,000 workers, ranging from nuclear experts to civil engineers, are still battling daily to control the reactors that melted down, as their decommissioning process is still in the initial stage.

Some progress has been made as massive wreckage, including overturned vehicles, was removed and workers are no longer required to wear full-face masks in many areas of the site.

In a newly built rest station inside the facility, workers can have hot meals and check their radiation exposure levels through state-of-the-art whole-body counters.

But the scar of the catastrophe is still visible in other areas as steel frames gnarled by the hydrogen explosions can be seen at the plant's No. 3 reactor, where radiation levels are still extremely high.

About 1,000 huge tanks for storing contaminated cooling water occupy large parts of the site some 230 km northeast of Tokyo.

And more tanks will be needed as massive amounts of groundwater flows into the reactors each day and mixes with the cooling water.

Ono, the plant chief, says the reactors are now stable but need to be kept cool to prevent them running out of control again.

Tepco estimates that it is likely to take up to four decades to completely clean up the site, but some experts warn the unprecedented decommissioning may be delayed further.

**"I feel like we have just climbed over the first stage of a mountain," Ono said, using a colloquial Japanese expression meaning that only 10 percent of the journey is finished.**

## Takahama: A "problematic" restart

### Takahama's problematic restart

<http://www.japantimes.co.jp/opinion/2016/02/10/editorials/takahamas-problematic-restart/#.VrtmGlKDmot>

The No. 3 reactor of Kansai Electric Power Co.'s Takahama nuclear power plant in Fukui Prefecture, which was restarted in late January, is expected to start commercial operations in late February. Its No. 4 reactor is also set to be restarted around the same time. Although the Takahama Municipal Government and Fukui Prefecture gave their consent to the restart, there are serious concerns, including those expressed by nearby municipalities and their residents.

Following the restart of the No. 1 and No. 2 reactors at Kyushu Electric Power Co.'s Sendai nuclear power plant in Kagoshima Prefecture, Takahama unit 3 is the third reactor to come back online under the safety regulations introduced by the Nuclear Regulation Authority following the shutdown of the nation's nuclear plants in the wake of the March 2011 disaster at Tokyo Electric Power Co.'s Fukushima No. 1 plant. But it is the first to run on mixed oxide (MOX) fuel, which contains not only uranium but also plutonium extracted from spent nuclear fuel. The No. 4 reactor at Takahama will also use MOX fuel. Japan has accumulated 48 tons of plutonium — enough to make an estimated 6,000 nuclear bombs — as a result of the government's nuclear fuel cycle policy, which aims to reprocess spent fuel to extract uranium and plutonium to be used again as fuel. The Takahama restart may help the government show its resolve to cut its plutonium stockpile to address U.S. concerns over nuclear proliferation. But the restart will pose a problem in the not-too-distant future. The spent fuel storage facilities for reactors 3 and 4 are expected to become filled in seven or eight years after they are reactivated. Spent uranium fuel from nuclear power plants is to be sent to a fuel reprocessing facility in Rokkasho, Aomori Prefecture, still on a trial run, but the plant cannot reprocess used MOX fuel — meaning that there will be no place to store overflowing spent fuel from the Takahama reactors. Although Kansai Electric aims to choose a site for a medium-term storage facility outside Fukui by around 2020, no prefectures seem willing to host it.

In the wake of the 2011 Fukushima disaster, local governments within 30 km of a nuclear power plant are now required to devise plans to evacuate their residents in the event of a major accident. In the case of Takahama, nearly 180,000 residents in 12 municipalities in Fukui, Kyoto and Shiga prefectures live in the 30-km zone. Part of the city of Maizuru, Kyoto Prefecture, is within 5 km of the Takahama plant. Despite this, Kansai Electric stuck to the position that to restart the reactors it only needs consent from the host town of Takahama and Fukui Prefecture, and it ignored calls from Kyoto and Shiga prefectures and many other municipalities within the 30-km zone that it should also gain their consent. The same situation happened when Kyushu Electric Power Co. pushed to restart the Sendai reactors. The power companies should address the concerns harbored by municipalities and residents that do not host plants but lie close enough to be affected by a nuclear disaster.

Despite the requirement for compiling evacuation plans, no evacuation drills with local residents have been carried out in the municipalities around Takahama and many residents have received no instructions on where they should evacuate to in the event of a severe accident. Maizuru, for example, won't release a new evacuation plan for its residents until March. While there are plans to evacuate some Fukui residents to Hyogo, Kyoto and Tokushima prefectures, many municipalities are not ready to receive them. In addition, evacuations may not proceed as planned in extreme weather conditions such as heavy snow or when roads are congested. The Fukushima disaster also exposed the evacuation difficulties faced

by inpatients at hospitals and elderly people in nursing care facilities. And as there are few access roads to the Takahama facility, the evacuation of plant workers and dispatch of emergency teams may be hindered. The Takahama facility is among 14 nuclear power plants concentrated by Wakasa Bay in Fukui Prefecture. If a major disaster hits the plants simultaneously, the area will be highly vulnerable.

In December, the Fukui District Court quashed an injunction issued by the same court in April against restarting the Takahama reactors, paving the way for Kansai Electric to put them back online. Although the ruling upheld the NRA's new safety standards for restarting reactors as rational and endorsed the authority's decision that the Takahama reactors met the standards, both Kansai Electric and the NRA should not forget that the ruling also stated that the NRA's decision does not rule out the possibility of a severe accident and that high-level efforts for safety must be constantly maintained because there is no such thing as absolute safety. Since it is believed that controlling a reactor that burns MOX fuel is more difficult than one that uses uranium, Kansai Electric cannot be too cautious in operating the Takahama plant.

## **NRA calls for more monitoring of radiation...**

### **More radiation monitoring in evacuation areas**

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

Japan's Nuclear Regulation Authority is planning to step up radiation monitoring in evacuation zones caused by the Fukushima Daiichi accident. **This is part of efforts to help residents return to the areas after radiation levels drop.**

In the wake of the 2011 accident the NRA now has about 3,000 radiation monitoring posts across Fukushima Prefecture.

The new policy was disclosed at its meeting on Wednesday.

It calls for setting up more monitoring posts in zones where evacuation orders have already been lifted or will be lifted in future.

The regulator says more information on radiation would promote the residents returning to the areas or be helpful for those who are considering returning.

The NRA plans to reduce the number of monitoring posts in other areas.

As for areas which received the highest doses of radioactive fallout from the crisis, it plans to introduce mobile monitoring facilities.

The regulator says it will finalize detailed plans after hearing from local governments and related central-government's ministries.

Chairman Shunichi Tanaka said there has been some lack of monitoring in some high-radiation zones. He

notes he wants to focus on such areas because decontamination work may be changing the radiation levels in these places.

He also said he believes the state is responsible for creating an environment where people can return.

## 1,106 water tanks: Rapidly running out of space



Rows of massive tanks storing radiation contaminated water line the compound of the Fukushima No. 1 nuclear power plant in early February. (Satoru Semba)

February 13, 2016

### **PHOTO: More than 1,100 water storage tanks at Fukushima plant ... and counting**

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201602130025>

By SATORU SEMBA/ Staff Writer

OKUMA, Fukushima Prefecture--From the air, the rows of different colored water storage tanks at the crippled Fukushima No. 1 nuclear power plant resemble a giant integrated circuit board.

As the fifth anniversary approaches of the earthquake and tsunami disaster that unleashed the nuclear catastrophe, **the stricken facility is fast running out of space to position the tanks holding highly contaminated radioactive water.**

**As of Feb. 12, there were 1,106 massive water tanks on the premises.**

Tokyo Electric Power Co., operator of the plant, constructed the tanks to store radiation-contaminated water that has been accumulating at the plant since the disaster unfolded in March 2011.

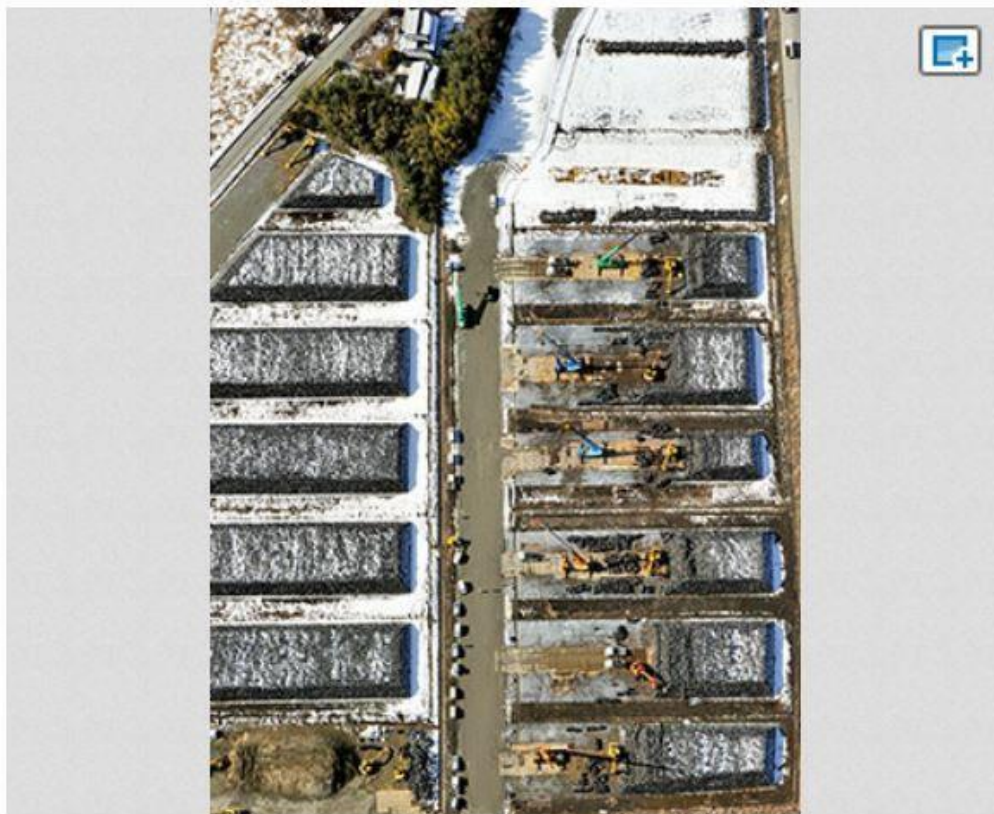
**The utility plans to construct 20 more water storage tanks to accommodate 30,000 tons of water that is expected to be generated in the remaining months of 2016.**

**As the tanks occupy much of the parking lots, green spaces and vacant areas, TEPCO has no choice but to build new tanks in the narrow alleys between the huge containers.**

The accumulation of contaminated water has been a persistent problem at the plant, which is only in the very early stages of decommissioning, a process that will take 30 to 40 years.

February 14, 2016

## Very little progress made on interim storage



Thousands of bags containing soil contaminated with radioactive materials lie out in the open in Tomioka, Fukushima Prefecture. (Satoru Semba)

## Little progress made in securing land for interim storage facilities for radioactive soil

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201602140022>

With thousands of bags of radioactive soil piling up, **less than 1 percent of the land needed for interim storage facilities in Fukushima Prefecture has been acquired even a year after the project started.**

The mountain of paperwork in finalizing the real estate transactions and insufficient manpower are the main factors behind the slow progress.

That, in turn, could affect plans to have Fukushima residents return to their homes after evacuation orders are lifted.

Because the interim storage facilities have not yet been completed, thousands of bags of contaminated soil are stacked up in the open in parts of Fukushima. Until those bags are moved to the interim storage facilities, local residents may not be willing to return because of the high radiation levels being emitted from the contaminated soil.

The Environment Ministry and local governments in Fukushima Prefecture are continuing with work to remove soil contaminated with radioactive materials. As of the end of September 2015, a total of about 9 million cubic meters of such contaminated waste were being temporarily stored in about 115,000 locations around Fukushima. Government officials estimate that a total of 22 million cubic meters of contaminated soil will eventually be collected.

That soil will all be moved to the interim storage facilities to be constructed in the Fukushima towns of Okuma and Futaba where the Fukushima No. 1 nuclear power plant is located. Total land of about 16 square kilometers will be acquired for the interim storage facilities.

Plans call for leaving the contaminated soil at the interim facilities for a maximum of 30 years before processing it somewhere outside of Fukushima Prefecture.

Land registration records contain the names of 2,365 individuals as owners of the land and buildings where the interim storage facilities will be constructed. However, as of the end of January, Environment Ministry officials have signed contracts with 44 landowners, or just 2 percent of the total. In terms of land, those contracts only covered about 0.15 square kilometer, which does not even total 1 percent of the total land that needs to be acquired.

Environment Ministry officials are trying to push ahead with appraising the land, but they face a mountain of problems as well as other issues unique to the Fukushima situation. In terms of land, about 10 percent is owned by individuals whom ministry officials have been unable to contact.

But in terms of the names on the land records, ministry officials have been unable to contact about 990 individuals, or about 40 percent of the total. Some of the people on the land records may be deceased, meaning that those with inheritance claims could run into the thousands.

Moreover, the lack of land appraisers with background about the Fukushima situation has meant that negotiations often have taken longer than expected. Some landowners also are hesitant about selling off land that has been in the family for generations, even if there are no prospects of returning to the family plot anytime soon because of the high radiation levels in the community.

In March 2015, the Environment Ministry began a trial project by leasing some of the projected land for the interim storage facilities and transporting in contaminated soil. Over 11 months, about 36,000 cubic meters of soil were hauled there, but that only represents about 0.2 percent of the expected total.

Environment Ministry officials are unable to put together a specific plan for full-scale transporting of the contaminated soil to the interim storage facilities because in fiscal 2016 only about 1 percent of the total land needed for the interim storage facilities will likely be acquired.

(This article was written by Yu Kotsubo and Yoshitaka Ito.)

February 15, 2016

## Undersea debris within 20km off plant still there

### Five years on, tsunami debris on ocean floor near Fukushima nuclear plant remains untouched

<http://www.japantimes.co.jp/news/2016/02/15/national/five-years-on-tsunami-debris-on-ocean-floor-near-fukushima-nuclear-plant-remains-untouched/#.VsGiVuaDmov>



The Fisheries Agency will continue to subsidize efforts by Fukushima Prefecture to remove tsunami-related debris from the ocean floor.

**The newest tranche of cash will be used to lift vehicles, concrete blocks and smashed buildings from the seabed within 20 km of the Fukushima No. 1 nuclear plant.**

**However, there is no agreement yet on where to dump it.**

Fukushima fishermen are asking authorities to demarcate a trial fishing zone up to 10 km from the plant. This means removal of the debris is a pressing matter.

Waters within a 20-km radius from the plant were designated a no-go zone in April 2011, but restrictions were scaled back in stages and were lifted in May 2013.

In fiscal 2011, the Fukushima Prefectural government began sweeping debris from the ocean floor outside the 20 km zone. That year, 33,430 tons were removed, followed by 2,241 tons in fiscal 2012, 664 tons in fiscal 2013, and 213 tons in fiscal 2014.

The Fisheries Agency has subsidized the operation to the tune of about ¥4.8 billion up to fiscal 2014.

But **undersea debris within 20 km of the plant remains untouched, due partly to the question of who should remove it.**

Given the local fishermen's call to expand the trial fishing zone closer to the plant, the agency plans to speed up the removal of debris by giving the prefecture subsidies for it.

The prefectural government will now negotiate with municipalities over where to dump the debris, and that process may take time, according to prefectural officials.

Ports near the nuclear plant, including those of Tomioka and Ukedo, are still undergoing post-tsunami repairs. The next candidates are Manogawa port, north of the plant, and Hisanohama port to the south, but **their residents do not want potentially radioactive debris dumped in their backyards.**

"Even if we pull debris out of the water, it's not easy to find a place for it," a prefectural official said.

The official urged the central government to weigh in on where to put the debris.

Meanwhile, Fukushima fishermen hope to expand the trial fishing zone as early as next month.

An underwater survey conducted by the prefecture in 2013 confirmed that several houses, cars and tetrapods are lying on the ocean floor. The survey was unable to determine the total amount of debris within the 20 km area.

**"Unless the debris is removed, fishing nets may be caught and the risk of accidents will rise,"** said an official of the Soma-Futaba Fisheries Cooperative. "We want the debris removed soon."

*This section features topics and issues covered by the Fukushima Minpo, the largest newspaper in Fukushima Prefecture. The original article was published on Jan. 31.*

## Short video on Fukushima plant

### Scars from 2011 disaster still visible at crippled Fukushima nuclear plant

<http://mainichi.jp/english/articles/20160215/p2a/00m/0na/020000c>

2 minute-video



FUKUSHIMA -- Mainichi Shimbun reporters entered the crippled Fukushima No. 1 Nuclear Power Plant on Feb. 12 ahead of the fifth anniversary of the Great East Japan Earthquake and ensuing tsunami. The levels of radiation dosage remained high around No. 1 to 3 reactors that melted down, still showing scars from the disaster.

February 17, 2016

## Radioactivity in Miyagi has decreased

### Levels of radioactive materials in Miyagi Pref. waste down to 1/3 of previous figures

<http://mainichi.jp/english/articles/20160217/p2a/00m/0na/021000c>

Follow-up readings of designated waste in Miyagi Prefecture, which includes radioactive materials from the Fukushima No. 1 Nuclear Power Plant disaster, showed that the amount of waste that exceeded existing standards for the concentration of radioactive materials had decreased to about one-third of the previous figure, the Ministry of the Environment said on Feb. 17.

Shinji Inoue, state minister of the environment, relayed the news to Miyagi Gov. Yoshihiro Murai at the Miyagi Prefectural Government office. It is expected that there will be a resulting impact upon the plan for disposal sites for the waste within the prefecture, which is an issue that has run into difficulties.

State Minister Inoue commented, "It will be ideal if we can concentrate (the waste) at one single location within the prefecture." He indicated that three municipalities within the prefecture are being considered as possible candidate sites for construction (of the waste facility).

**Designated waste is waste whose radiation levels exceed 8,000 becquerels per kilogram, and includes tainted rice straw. Some 3,404 metric tons of such waste is presently being temporarily stored within the prefecture on farmers' properties and other locations.**

The follow-up measurements, which were conducted between August of last year and January of this year, revealed that the total amount of the waste whose radiation levels exceeded the existing standards had fallen to a total of 1,090 tons.

**It is thought that the reduction is due to factors including the natural attenuation that has occurred along with the passage of time since the nuclear disaster.**

The environment ministry announced this month that in cases where the concentration of radioactive substances within waste materials has decreased to a level below that of existing standards, such waste would be removed from the category of designated waste.

While the national government is responsible for the disposal of designated waste materials, it is possible for municipalities to dispose of the materials as regular waste once this designation has been lifted.

### Amount of radioactive waste decreasing

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

Experts say the concentration of radioactivity in waste from the 2011 Fukushima Daiichi accident will continue to drop significantly in Miyagi Prefecture, northeastern Japan.

State Minister of Environment Shinji Inoue conveyed the estimate to Miyagi Governor Yoshihiro Murai on Wednesday.

Inoue said the latest measurement shows that temporary storage sites in the prefecture hold 1,090 tons of waste contaminated with radioactive materials exceeding 8,000 becquerels per kilogram. The waste includes soil and rice straw.

The amount has decreased over time. It is about one-third of the initial amount of 3,404 tons.

An expert estimate sponsored by the Environment Ministry says the amount will drop to 252 tons in 2 years and to 38 tons in 20 years, about 1 percent of the initial figure.

The ministry says waste below the 8,000-becquerel-per-kilogram level can be treated as ordinary waste.

The estimate may affect the central government's plan to build a disposal site for contaminated waste in the prefecture.

The prefectural government plans to discuss the matter with municipalities by the end of March.

February 18, 2016

## Highly dangerous radioactive material stolen in Iraq last November

### **'Highly dangerous' radioactive material stolen in '15 in Iraq has arms potential**

<http://www.japantimes.co.jp/news/2016/02/18/world/highly-dangerous-radioactive-material-stolen-15-iraq-arms-potential/#.VsW7NeaDmov>

Reuters

BAGHDAD – Iraq is searching for “**highly dangerous**” radioactive material stolen last year, according to an environment ministry document and seven security, environmental and provincial officials who fear it could be used as a weapon if acquired by Islamic State.

**The material, stored in a protective case the size of a laptop computer, went missing in November from a storage facility near the southern city of Basra belonging to U.S. oilfield services company Weatherford, the document seen by Reuters showed and officials confirmed.**

A spokesman for Iraq's environment ministry said he could not discuss the issue, citing national security concerns.

Weatherford said in a statement that it was not responsible or liable for the theft. "We do not own, operate or control sources or the bunker where the sources are stored," it said.

The material, which uses gamma rays to test flaws in materials used for oil and gas pipelines in a process called industrial gamma radiography, is owned by Istanbul-based SGS Turkey, according to the document and officials.

An SGS official in Iraq declined comment and referred Reuters to its Turkish headquarters, which did not respond to phone calls and emails.

The U.S. State Department said it was aware of the reports but has seen no sign that Islamic State or other militant groups have acquired it.

A U.S. official said separately that Iraq had reported a missing specialized camera containing highly radioactive Iridium-192 to the International Atomic Energy Agency (IAEA), the Vienna-based U.N. nuclear watchdog, in November.

"They've been looking for it ever since. Whether it was just misplaced, or actually stolen, isn't clear," said the official, who requested anonymity because of the sensitivity of the matter.

The environment ministry document, dated Nov. 30 and addressed to the ministry's Center for Prevention of Radiation, describes "the theft of a highly dangerous radioactive source of Ir-192 with highly radioactive activity belonging to SGS from a depot belonging to Weatherford in the Rafidhia area of Basra province.

A senior environment ministry official based in Basra, who declined to be named as he is not authorized to speak publicly, told Reuters the device contained up to 10 grams (0.35 ounces) of Ir-192 "capsules," a radioactive isotope of iridium also used to treat cancer.

The material is classed as a Category 2 radioactive source by the IAEA, meaning that if not managed properly it could cause permanent injury to a person in close proximity to it for minutes or hours, and could be fatal to someone exposed for a period of hours to days.

How harmful exposure can be is determined by a number of factors such as the material's strength and age, which Reuters could not immediately determine. The ministry document said the material posed a risk of bodily and environmental harm as well as a national security threat.

Large quantities of Ir-192 have gone missing before in the United States, Britain and other countries, stoking fears among security officials that it could be used to make a dirty bomb.

A dirty bomb combines nuclear material with conventional explosives to contaminate an area with radiation, in contrast to a nuclear weapon, which uses nuclear fission to trigger a vastly more powerful blast.

"We are afraid the radioactive element will fall into the hands of Daesh," said a senior security official with knowledge of the theft, using an Arabic acronym for Islamic State.

"They could simply attach it to explosives to make a dirty bomb," said the official, who works at the interior ministry and spoke on condition of anonymity as he is also not authorized to speak publicly.

There was no indication the material had come into the possession of Islamic State, which seized territory in Iraq and Syria in 2014 but does not control areas near Basra.

A State Department spokesman declined comment on whether the missing material might be suitable for use in a dirty bomb.

The security official, based in Baghdad, told Reuters there were no immediate suspects for the theft. But the official said the initial inquiry suggested the perpetrators had specific knowledge of the material and the facility. "No broken locks, no smashed doors and no evidence of forced entry," he said.

An operations manager for Iraqi security firm Taiz, which was contracted to protect the facility, declined comment, citing instructions from Iraqi security authorities.

A spokesman for Basra operations command, responsible for security in Basra province, said army, police and intelligence forces were working “day and night” to locate the material.

The army and police have responsibility for security in the country’s south, where Iranian-backed Shiite Muslim militias and criminal gangs also operate.

Iraqi forces are battling Islamic State in the country’s north and west, backed by a U.S.-led coalition. The Sunni Muslim militant group has been accused of using chemical weapons on more than one occasion over the past few years.

The closest area fully controlled by Islamic State is more than 500 km (300 miles) north of Basra in the western province of Anbar. Islamic State controls no territory in the predominantly Shiite southern provinces but has claimed bomb attacks there, including one that killed 10 people in October in the district where the Weatherford facility is located.

Besides the risk of a dirty bomb, the radioactive material could cause harm simply by being left exposed in a public place for several days, said David Albright, a physicist and president of the Washington-based Institute for Science and International Security.

“If they left it in some crowded place, that would be more of the risk, if they kept it together but without shielding,” he said. “Certainly it’s not insignificant. You could cause some panic with this. They would want to get this back.”

The senior environmental official said authorities were worried that whoever stole the material would mishandle it, leading to radioactive pollution of “catastrophic proportions.

A second senior environment ministry official, also based in Basra, said counterradiation teams had begun inspecting oil sites, scrapyards and border crossings to locate the device after an emergency task force raised the alarm on Nov. 13.

Two Basra provincial government officials said they were directed on Nov. 25 to coordinate with local hospitals. “We instructed hospitals in Basra to be alert to any burn cases caused by radioactivity and inform security forces immediately,” said one.

February 21, 2016

## Radioactive leak at Takahama No.4

### Water leakage from Takahama nuclear power plant

<http://www3.nhk.or.jp/nhkworld/english/news/nuclear.html>

The operator of Takahama nuclear plant in Fukui Prefecture has found radioactive water leaking at one of its buildings. The utility says the radiation level is lower than the safety standard and the leakage caused no harm to the environment. The authorities say assessing the situation may delay the planned restart of the reactor.

Kansai Electric Power Company says workers at the Takahama plant's No. 4 reactor were alerted on Saturday by the water leakage alarm at the building adjacent to the reactor.

**They found that 8 liters of cooling water containing radioactive substances had leaked and spread on the floor. They also found radioactive water seeping into other equipment in the building. The**

**total amount of leakage was 34 liters.** All was removed.

The company says the water that spread on the floor contained 14,000 becquerels of radioactive substances, less than one-200th of what is required to report to the government. The utility also says no one was exposed to the radiation and no abnormally high readings of radiation levels were measured at monitoring posts.

**Takahama's No.4 reactor is to restart later this month.** The company officials say workers started running water in some of the plumbing right before the alarm went off. The leakage was found where a filter to remove impurities has been installed. But they have not figured out where and how exactly the leakage came about.

The utility will stop some of the preparatory works and start examining the problem with the Nuclear Regulation Authority on Sunday. Authority officials say they need to first assess the status. They added **the reactor restart schedule may be affected.**

## **Radioactive water leak near Takahama reactor puts planned restart in doubt**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201602210028](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201602210028)

Days before a reactor was to go back online at the Takahama nuclear plant in Fukui Prefecture, a pool of radioactive water was discovered in a building, possibly delaying the reactivation, the plant operator said Feb. 20.

Kansai Electric Power Co. said 34 liters of contaminated water were discovered in an auxiliary structure of the No. 4 reactor building but is not aware of any environmental impact outside the building as a result. However, the utility did not rule out the possibility of a delay in the resumption of the No. 4 reactor, planned as early as Feb. 26 if all the preparations went well.

“We cannot say anything about the effect of the leak on the restart definitively at this point since we are looking into the cause,” said a Kansai Electric public relations official.

The pool was found at the facility to treat water used to cool the reactor. Workers at the plant were alerted to the leak when an alarm sounded at 3:42 p.m. on Feb. 20 after they sent water through piping at the facility.

The utility, based in Osaka, reported the incident to the Nuclear Regulation Authority and the prefectural government at 4:55 p.m.

The company said radioactivity of the leaked water was estimated at 60,000 becquerels, below the level that requires operators of a nuclear plant to notify the central government.

After the leak was found, Kansai Electric suspended part of the work to prepare for the restart of the No. 4 reactor.

The company had planned to conduct a test on Feb. 21 to check the reactor’s status by bringing it to a condition similar to actual operation.

Kansai Electric said it remained unknown whether it can proceed with the planned test on Feb. 21. The No. 4 reactor can produce 870 megawatts of power, using plutonium-uranium mixed-oxide (MOX) fuel. This year marks the 30th since it began operations.

The No. 3 reactor at the plant, which also uses MOX fuel, is expected to resume commercial operations on Feb. 26 after being restarted in late January.

The No. 3 reactor was the third brought back online under stricter safety regulations drawn up by the NRA after the Fukushima No. 1 nuclear plant disaster in March 2011.

## Radioactive leak at Takahama No.4 (2)

### Utility examines western Japan reactor after coolant leak

<http://mainichi.jp/english/articles/20160221/p2g/00m/0dm/038000c>

FUKUI (Kyodo) -- Kansai Electric Power Co. on Sunday began looking into the cause of a radioactive coolant water leak at a reactor at the Takahama nuclear power plant in western Japan the previous day. The utility has suspended preparation work for the restart of Takahama's No. 4 reactor, scheduled for late February, pending an assessment of the small leak. An official from the operator declined to say whether the accident may affect the resumption schedule.

Kansai Electric said Saturday an estimated 34 liters of coolant water leaked within a building attached to the No. 4 reactor, containing a radioactivity level below that which is needed to be reported to the state. The utility said the leak does not affect the environment.

The company has already finished loading nuclear fuels into the No. 4 reactor at the plant in Takahama, Fukui Prefecture, on the Sea of Japan coast.

The No. 3 reactor at the same plant resumed operation Jan. 29, becoming the third reactor to be reactivated under stricter safety rules set after the 2011 Fukushima nuclear disaster.

The government is pushing ahead with nuclear plant restarts after all of the country's 48 reactors were shut down for safety reviews following the Fukushima accident.

The state is looking to generate at least 20 percent of Japan's overall electricity via nuclear power by 2030, despite public opposition to nuclear power remaining strong since the disaster at the Tokyo Electric Power Co. plant.

### Radioactive water leak found at Takahama No. 4 reactor, posing restart delay

<http://www.japantimes.co.jp/news/2016/02/21/national/radioactive-water-leak-found-takahama-no-4-reactor-discovery-delay-restart/#.VsmIH-aDmov>

Jiji, AFP-JIJI

FUKUI – Kansai Electric Power Co. has found a puddle of radioactive water inside an auxiliary building at the Takahama nuclear plant's No. 4 reactor — an announcement that could throw a wrench into plans to reboot the unit later this month.

The Fukui Prefectural Government's nuclear safety division said the leak, announced by the utility Saturday, did not affect the environment.

"Resumption procedures have been suspended in light of the incident because we are still investigating the cause," a Kepco spokesman said.

The suspension could affect the reactivation timetable.

According to the company, an alarm went off after the utility injected water into a pipe connected to the No. 4 reactor's first cooling system at around 3:40 p.m. Saturday. Water was found dripping from two valves on a coolant water filter in the auxiliary building, and the radioactivity of the resulting 8-liter puddle was 14,000 becquerels.

Judging from other traces on the floor, roughly 34 liters were leaked overall, amounting to about 60,000 becquerels.

The No. 4 reactor is 30 years old and has idle for more than 4½ years since being taken offline in July 2011 for a scheduled checkup. That's longer than the No. 3 reactor, which was reactivated in January, and reactor Nos. 1 and 2 at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture, which were rebooted last year.

All four reactors have cleared the stiffer safety requirements set up after the March 2011 triple core meltdown at Tokyo Electric Power Co.'s poorly protected Fukushima No. 1 plant, which is now defunct. In December, the Fukui District Court overturned an injunction on restarting the two Takahama reactors that had been brought by residents who said their safety had not been proven, despite being greenlighted by the Nuclear Regulation Authority.

In Kagoshima, the two Sendai reactors were restarted in August and October 2015, ending a two-year hiatus.

February 22, 2016

## Just insufficient bolt tension...

### **Reactor coolant leak caused by weak bolt tension, Kansai Electric says**

<http://www.japantimes.co.jp/news/2016/02/22/national/reactor-coolant-leak-caused-weak-bolt-tension-kansai-electric-says/#.VssbKOaDmot>

Kyodo

Kansai Electric Power Co. said Monday that a radioactive coolant water leak at one of its idled reactor at the Takahama nuclear plant in Fukui Prefecture was caused by insufficient tension of a bolt in a valve installed in a pipe.

The power company said Saturday that an estimated 34 liters of coolant water leaked in a building attached to the No. 4 reactor. It said the radioactivity level was below that which requires notifying the government.

Kansai Electric's efforts to prepare the reactor for a restart have been put on hold since the leak was discovered.

It would be the fourth reactor in Japan to come back online under stricter safety rules set after the 2011 Fukushima crisis.

The No. 4 unit is also expected to become the second reactor to run on uranium-plutonium mixed oxide (MOX) fuel under post-Fukushima regulations.

MOX fuel is a key component of the nuclear fuel cycle program pursued by the nuclear power industry and the government. It is created by plutonium and uranium extracted from spent nuclear fuel.

The No. 3 reactor at the Takahama complex was brought back online in January.

## **Reactor coolant leak caused by weak bolt tension: Kansai Electric**

<http://mainichi.jp/english/articles/20160222/p2g/00m/0dm/072000c>

TOKYO (Kyodo) -- Kansai Electric Power Co. said Monday that a radioactive coolant water leak at an idled reactor in western Japan was caused by insufficient tension of a bolt used in a valve installed in a pipe. [...]

## **Stolen "goods" recovered**

### **Stolen radioactive device found in Iraq**

[http://www3.nhk.or.jp/nhkworld/en/news/20160222\\_04/](http://www3.nhk.or.jp/nhkworld/en/news/20160222_04/)

Radioactive material that went missing in Iraq has been found near a petrol station in the south of the country.

The Iraqi health ministry said on Sunday that a passer-by found the device dumped near a petrol station in the town of Zubair near Basra.

The ministry also said security officials recovered the undamaged device and that there are no concerns about radiation.

The device contains the radioactive material iridium-192. It was stolen in November last year from a storage facility of a US oilfield service company near the southern city of Basra.

The material is classified as a Category 2 radioactive source by the IAEA. That means a person who handles the radioactive material for minutes to hours can be permanently injured. It can kill those who come into close proximity to it over a period of hours to days.

There had been concerns that terrorist groups such as Islamic State militants could have used the material to make a dirty bomb.

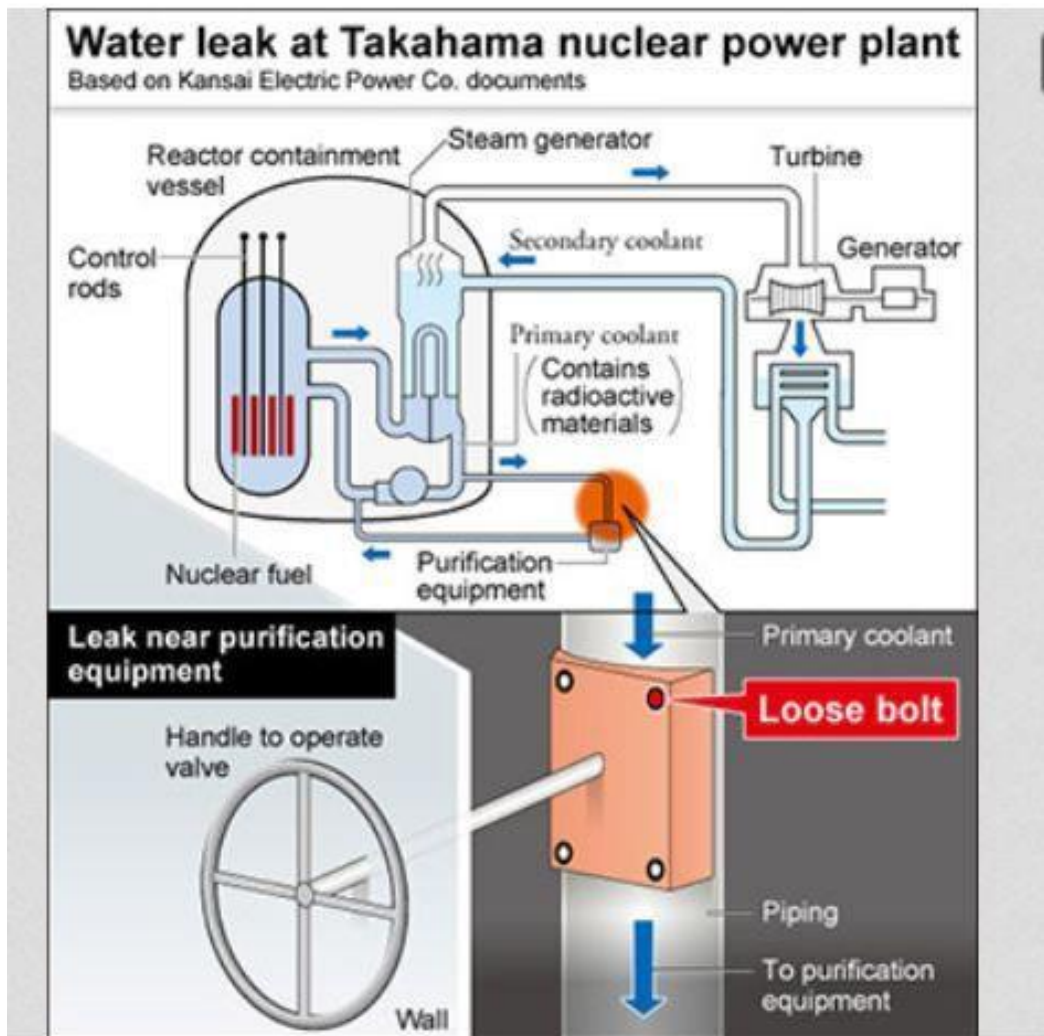
February 23, 2016

## **No need to delay restart**

### **No Takahama reactor restart delay after loose bolt found to be source of leak**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201602230044](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201602230044)





OSAKA--The radioactive water leak discovered recently at the Takahama nuclear power plant in Fukui Prefecture was caused by a loose bolt in the piping system and won't delay the planned restart of a reactor, its operator said Feb. 22.

The Kansai Electric Power Co. plant in the town of Takahama is currently undergoing procedures to restart its No. 4 reactor.

The discovery of the pool of contaminated water delayed the startup test at the reactor by a day, to the night of Feb. 22, but it is set to resume operations on Feb. 26 as scheduled.

Some 34 liters of radioactive water were found leaking near the purification equipment installed in the auxiliary structure of the No. 4 reactor building on Feb. 20 during a test to send water down the primary coolant pipe connected to the reactor.

When Kansai Electric examined the fault, they discovered that one of the four bolts attaching a valve to the pipe leading to the purification equipment was loose. The operator believes that water running through the pipe at a higher pressure than when the reactor is in operation had also contributed to the leak. The bolt was tightened manually and although records stated that the procedure was completed in accordance with protocol, the operator said that it may not have been sufficiently tightened due to the limited space in the area.

Following the discovery of the leak, **Kansai Electric examined all similar valves of the No. 4 reactor installed in about 80 locations** and went on to conduct the startup test on Feb. 22.

Once the operator confirms that the control rods are functioning in the eight-day test, they will remove them and restart the reactor on Feb. 26.

The valves installed on the No. 3 reactor, which resumed operation on Jan. 29, were also checked for defects. **The reactor will start commercial operation on the same day the No. 4 reactor restarts, if all goes according to plan.**

Kansai Electric notified the Nuclear Regulation Authority and the Fukui prefectural government of the latest leak just one hour after the discovery, but took six hours to announce the matter publicly.

February 24, 2016

## Greenpeace: 5 years and far from over

### Five years on and the Fukushima crisis is far from over

<http://www.greenpeace.org/international/en/news/Blogs/nuclear-reaction/fukushima-nuclear-crisis-japan-radiation-research/blog/55623/>

Blogpost by **Shaun Burnie**

*Five years ago the Rainbow Warrior sailed along the Fukushima coast conducting radiation sampling. Now it's back, and has Japan's ex-Prime Minister on board.*

Scotland is over 9,000 km from Japan, but there's something the two countries have in common. Along the Scottish coastline, buried in riverbeds, and mixed into the Irish Sea, you can find significant radioactive contamination coming from the other side of the world. Yes, radioactive contamination. All the way from Japan.

Since the 1970s, Sellafield, a nuclear-reprocessing plant in northwest England has been contracted to process high level nuclear waste spent fuel from Japanese reactors. More than 4000 tonnes of spent nuclear fuel was shipped from Japan to Sellafield, including waste from Tokyo Electric Power Company (TEPCO), the owner of the Fukushima Daiichi nuclear plant. As result of reprocessing at Sellafield, more than 8 million litres of low level nuclear waste is discharged into the ocean every day. It's been labelled the "most hazardous place in Europe" - with levels of contamination in the fields, soils and estuaries at a level that can only be described as a nuclear disaster zone. In fact, the Irish Sea is arguably the most radioactively contaminated sea in the world

We're about to approach the five-year anniversary of the Fukushima Daiichi nuclear disaster, and this is a stark reminder that no matter where you are or how far away, nuclear power has a local and global impact.

I remember waking up to the news on March 11, 2011. Though I was at home in Scotland, I've never felt so connected to the people of Japan. Having spent decades with Greenpeace actively campaigning against nuclear power in Japan, I knew deep down that a catastrophic accident was only a matter of time. With media requests coming in thick and fast, I recall appearing on BBC World News live. In mid-interview, as I

was talking about the specific threat at Fukushima, I was interrupted as the news crossed to Japan where Reactor 3 exploded.

Greenpeace Japan sent a team to the Fukushima evacuation zone to conduct independent radiation testing; and researchers on the Rainbow Warrior, kitted up in full body chemical suits, pulled floating seaweed from the surrounding area to use as samples. Our results were unfortunately as you would expect – high levels of contamination. Subsequently, we've also found radiation is still so widespread that it's unsafe for people to return across large parts of Fukushima.

Nearly five years later and I'm in Japan on-board the Rainbow Warrior - this time with the famously anti-nuclear former Prime Minister of Japan, Mr. Naoto Kan. It's truly an honour and privilege to hear him describe the first hours and days of the accident in March 2011, as well as show him the research that we are carrying out. As we sailed within 2km of the nuclear plant the feelings are both profound and surreal. From the deck we've seen steel tanks holding hundreds of thousands of tons of contaminated water; the four reactors now shielded behind temporary structures in an effort to contain some of the radioactive material from being released into the atmosphere; and inside the reactors themselves lie hundreds of tons of molten reactor fuel for which there are no credible plans to deal with.

But there's another reason the Rainbow Warrior is here. A Greenpeace Japan research vessel is conducting underwater marine radiation surveys within a 20km radius of the Fukushima Daiichi plant, with the Rainbow Warrior acting as campaign ship. As with the radioactive contamination near my home in Scotland, Greenpeace is aiming to further the understanding of the impacts and future threats from nuclear power and in particular the Fukushima Daiichi nuclear accident.

For Mr Naoto Kan, who was Japan's leader when the disaster hit, this voyage is as much personal as it is political. In the years since 2011 he has spoken out publicly against the nuclear industry, standing alongside millions of Japanese people opposed to nuclear power – a far cry from the current “tone-deaf” Abe administration, which is desperately trying to save a nuclear industry in crisis. Opposed by the majority of citizens, and beset by enormous technical, financial and legal obstacles, it's an effort that I believe is doomed to failure.

But there's hope.

Like the many communities across the country that are switching to innovative renewable power projects, Mr Kan knows that nuclear should be buried in the past. Renewables in Japan are rising. In the 2015 fiscal year, solar power capable of generating an estimated 13 TWh was newly installed - more than the two Sendai reactors in southern Japan that were restarted that year can produce.

For Japan to go 100% renewable it must urgently formulate more ambitious targets; stop all planned investments in new coal power plants and finally abandon plans to restart its ageing reactors and remove the institutional and financial obstacles to renewable energy growth.

A nuclear free future is not only possible it is essential. Renewable energy is the only safe and secure energy for the people of Japan and the world. .

*Shaun Burnie is a senior nuclear specialist with Greenpeace Germany.*

## **Analysis: Nuclear watchdog's green light for Takahama reactors a threat to '40-year rule'**

<http://mainichi.jp/english/articles/20160224/p2a/00m/0na/017000c>

In putting together what is essentially a passing grade for the No. 1 and No. 2 reactors at the Takahama Nuclear Power Plant in Fukui Prefecture -- which have been in operation for over 40 years -- to further extend their operation, the Nuclear Regulation Authority (NRA) could be signaling a trend of brushing aside what is supposed to be a general rule of decommissioning reactors after 40 years of service. Applications to have the NRA screen the two reactors for extensions were made in March last year. They were among the later applications on the list, numbering 22nd and 23rd. But the NRA has held evaluations on the two reactors nearly every week since last fall, and they have become the sixth and seventh to have rough drafts of their evaluations approved.

**This preferential treatment is irregular** when considering that other nuclear reactors have been waiting over 2 1/2 years for their evaluation results.

**Speeding up evaluations of the Takahama plant reactors paved the way for the NRA to beat a legal time limit that would require the reactors to be shut down if they weren't approved for extension by July this year.**

**Should the NRA's evaluation have dragged on past this time limit, it might have been sued by the reactors' owner, Kansai Electric Power Co.**

The government wants to avoid older reactors being shut down so it can keep to its policy of having nuclear power account for 20 to 22 percent of Japan's power supply in fiscal 2030. However, an extension of reactor operations by up to 20 years beyond their designated operational life of 40 years is supposed to be limited to "exceptions."

At a press conference in 2012 right after the NRA's establishment, NRA Chairman Shunichi Tanaka commented, "It would be quite hard to get a 20-year extension." But after only 11 months of evaluation, the possibility of such an extension has come forward for the Takahama reactors. The Takahama case could serve as a springboard for more reactors to bypass the "40-year rule" on decommissioning.

**The 40-year-rule was put together in the Diet to reduce the nation's dependence on nuclear power in the wake of the lessons learned from the Fukushima No. 1 Nuclear Power Plant disaster. It may be time for the NRA to return to the spirit of that original initiative.**

February 25, 2016

## **Takahama's extension a way of bypassing 40-year rule?**

### **Extension of nuclear reactor operations could water down 40-year rule**

<http://mainichi.jp/english/articles/20160225/p2a/00m/0na/017000c>

The Nuclear Regulation Authority (NRA) gave de-facto safety clearance to the No. 1 and No. 2 reactors at the Takahama Nuclear Power Station in Fukui Prefecture on Feb. 24, effectively marking the first time for reactors aged over 40 years to pass new safety regulations introduced in the wake of the Fukushima No. 1 Nuclear Power Plant disaster.

While a rule limiting the operational period of reactors to 40 years has been passed in the Diet based on bitter lessons from the Fukushima No. 1 Nuclear Power Plant disaster, the NRA's move shows the country

has moved a step forward toward prolonging the service life of aging reactors ahead of the fifth anniversary of the onset of the nuclear catastrophe.

As the government is also setting goals for a future energy mix on the premise of extending reactor operations, the 40-year rule appears destined to be watered down.

"We can overcome technical issues (with aging reactors) if we spend money on them," NRA Chairman Shunichi Tanaka told a press conference on Feb. 24, suggesting that reactors that have been running for over 40 years can be operated for longer if large amounts of money are spent on their refurbishment. When the NRA was launched in 2012, Tanaka had stated, "My understanding is that reactors reach a turning point after about 40 years," and "It would be quite a challenge to extend the service life (of aging reactors) by 20 years." Tanaka's latest remarks represent a major turnaround in his stance on the matter.

**The 40-year rule is based on precedents in the United States**, and was included in the revised Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, which came into force in 2013. The then administration led by the Democratic Party of Japan (DPJ) explained in the Diet that the 40-year rule was based on the timing of pressure vessel deterioration resulting from exposure to neutrons. The DPJ government also ruled out the possibility of ordinarily extending the service life of aged reactors by up to 20 years, calling this an "exception."

The Federation of Electric Power Companies of Japan, however, opposed the introduction of the 40-year rule, saying that the rule would undermine technical achievements and spark confusion. The 40-year rule has also been "treated like a nuisance" within the Liberal Democratic Party (LDP), according to a senior LDP official, with legislators elected in prefectures hosting nuclear plants drawing up a statement calling for a review of the rule.

Amid such circumstances, Kansai Electric Power Co., which operates the Takahama nuclear plant, spent some 380 billion yen on the renovation of the plant's four reactors before obtaining de-facto safety clearance from the NRA.

In general, old, flammable cables are used at dated reactors. If nuclear plants are to extend their operations, utilities must implement large-scale fire-prevention measures. **Kansai Electric Power Co. replaced 60 percent of old cables -- stretching a total of 1,300 kilometers -- with flame-resistant ones at the No. 1 and 2 reactors at the Takahama plant, and also took measures to prevent fire from spreading by wrapping the remaining cables in fireproof sheets.** These efforts won the NRA's de-facto stamp of approval. **If such a method is adopted at the seven other nuclear plants in Japan that use similar cables, it could create a loophole in the 40-year rule.**

The NRA, meanwhile, is under pressure to accelerate its safety screenings on the two reactors at the Takahama plant. For reactors over 40 years in service to be reactivated, they must not only pass safety screenings but also have their construction plans and the extension of operations approved before the legal deadline. The NRA is now set to conduct full-scale inspections on the pressure vessels and other apparatus at the plant to check the rate of their deterioration. The legal deadline for putting the No. 1 and 2 reactors back into operation is looming on July 7 -- the three-year mark since the new safety regulations came into force -- and the reactors must clear the relevant conditions before that deadline, or else they must be decommissioned.

Since last autumn, the NRA has had workers focus on screening the No. 1 and 2 reactors, effectively giving priority to the Takahama plant over the other plants awaiting screenings. The Feb. 24 issuance of de-facto approval for the two reactors' operation came only 11 months after Kansai Electric Power Co. filed an application for the safety review in March last year.

**Swift measures were taken because the NRA may face litigation if a delay in screening results in reactor decommissioning.**

There remain many hurdles ahead, however, before the two reactors can be reactivated. The NRA shelved work to examine the quake resistance of equipment inside the reactors until after the safety clearance. Even if the reactors manage to pass the quake resistance evaluations and gain final approval by July, the utility must also build domes shielding against radiation on top of the reactor buildings, among other construction work, in order to have their service life extended. Therefore, the resumption of operations of the two reactors is expected to come **sometime after October 2019**, even if all conditions are met.

**"If the Takahama plant manages to have the extension of the reactors' service life approved, it will serve as a model for other plants in terms of expenses and the response to regulations,"** said a senior official with a major power company.

## Is the 40-year limit becoming meaningless?

### **EDITORIAL: Extending life of nuclear reactors should not be left solely up to utilities**

<http://ajw.asahi.com/article/views/editorial/AJ201602250031>

Japan's nuclear regulator has endorsed the safety of two reactors that have been in service for more than four decades.

The Nuclear Regulation Authority (NRA) announced on Feb. 24 that the No. 1 and No. 2 reactors of Kansai Electric Power Co.'s Takahama nuclear power plant in Fukui Prefecture meet the new safety standards introduced after the 2011 Fukushima nuclear disaster.

The NRA's verdict has opened the door to an extension of the operating lives of the aging reactors to up to 60 years, one of Kansai Electric's key goals for its nuclear power generation.

A revision to a law following the catastrophic accident at the Fukushima No. 1 nuclear power plant has set the legal life of nuclear reactors at 40 years. But one extension by up to 20 years is allowed with NRA approval.

To extend the operational lives of the two reactors, the operator must receive several approvals from the NRA. If the NRA decides that the reactors have fulfilled all the related criteria, this will become the first case of an extension of the legal life of reactors under the new system.

The 40-year limit was introduced by the government led by the Democratic Party of Japan, which was in power when the nuclear disaster occurred, to demonstrate its commitment to weaning Japan from its dependence on atomic energy. It was aimed at ensuring a steady phasing out of nuclear power generation through the decommissioning of aging reactors.

The provision for an extension of the life span was added in response to concerns about possible power shortages due to insufficient capacity.

But **no specific rules have been set with regard to what kind of circumstances should justify permitting extended operations.**

What is vital for electric utilities is the economic viability of their nuclear power plants. Five small reactors that are not sufficiently cost-effective under the 40-year limit on operations have been set for retirement. Of the remaining 43 reactors, 18 units have been in service for more than 30 years. **Utilities will apply for permission to run aging reactors beyond the 40-year legal life span if it makes economic sense.** Some applications for a longer license have already been filed with the NRA.

## **If an extension of the legal life of reactors is approved one after another, the 40-year limit could become meaningless.**

With such decisions, we are concerned that the government's nuclear energy policy and the energy future of this nation are being defined under the initiative of electric utilities focused on generating profits.

Where is the political will that transcends the profit equations of power suppliers?

If aging reactors are allowed to exceed the 40-year life span in rapid succession, the disturbing safety risk posed by a thick cluster of reactors in Fukui Prefecture will not be reduced.

Prime Minister Shinzo Abe has repeatedly pledged to reduce Japan's dependence on nuclear energy as much as possible. **The government should make it clear that an extension can be made as an exception.**

Before the harrowing nuclear accident, there was no legal life for nuclear reactors. Initially, electric power companies said the operational life of their reactors was around 30 to 40 years.

Later, the former nuclear regulator, which has been replaced by the NRA, introduced a system that allowed utilities to operate reactors for up to 60 years if they submit maintenance plans every 10 years after the 30th year of service. The regulator cited progress in analysis technology as the reason for extending operational licenses for reactors.

**The previous government's decision to replace this system with the new 40-year rule reflected its will to phase out nuclear power generation in this nation.**

Immediately after assuming the post, NRA Chairman Shunichi Tanaka was skeptical about extending the life of reactors, saying it was "considerably difficult."

In assessing the safety measures Kansai Electric has taken for the reactors at the Takahama plant, however, the NRA has given the green light to the utility's plan to cover electric cables with a fire-resistant sheet where it is difficult to replace them with flame-retardant cables.

The NRA's move has greatly encouraged utilities seeking to gain permission to run reactors past the 40-year limit because this has been a major technical obstacle to meeting the safety standards.

**In his policy speech at the beginning of the current Diet session in January, Abe made no reference to nuclear power generation. Does this indicate that the government will not do anything to stop the growing trend toward longer-term reactor operations?**

If so, the government will act against both the past words of the prime minister concerning the issue and the wishes of many Japanese to see their nation free from nuclear energy.

February 26, 2016

## **TEPCO start burning contaminated clothing**

### **TEPCO begins burning radiation-tainted work clothes at Fukushima plant**

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201602260071>

By HIROMI KUMAI/ Staff Writer

OKUMA, Fukushima Prefecture--Tokyo Electric Power Co. has started to incinerate the thousands of boxes of lightly contaminated waste, including clothing used by workers, at the Fukushima No. 1 nuclear power plant to reduce the amount of tainted waste on the site.

TEPCO, the plant operator, fired up a special on-site incinerator on Feb. 25 to burn protective suits, gloves, socks and other work clothes worn by plant workers that became contaminated with low-level radiation.

The operation will reduce the amount of tainted work clothing accumulating at the plant during decommissioning operations since the nuclear disaster unfurled in March 2011. The garments cannot be processed outside the plant due to the radiation.

The clothing being incinerated are items with the lowest levels of contamination that have been stored in tens of thousands of 1 cubic-meter special boxes. The number of containers reached 66,000 at the end of last year.

**The incinerator is equipped with two types of filters that can reduce the radioactive levels of the exhaust air to less than one-millionth, while reducing the capacity of the waste to about 2 percent.**

The incinerator can burn a maximum of 14 tons of items per day when it is operated to capacity for 24 hours. **The ash residue will be stored in metallic barrels on the plant compound.**

The incineration project was authorized by the Nuclear Regulation Authority in July 2014. TEPCO began operational tests of the incinerator using untainted waste last fall.

## Radiation contamination of marine life off Fukushima

### Five years on, Greenpeace assessing marine contamination off Fukushima

<http://www.japantimes.co.jp/news/2016/02/26/national/five-years-greenpeace-assessing-marine-contamination-off-fukushima/#.VtBNW-aDmov>



Greenpeace researchers gather samples Monday on a chartered fishing boat some 20 km south of the Fukushima No. 1 nuclear power plant. | AFP-JIJI



by Harumi Ozawa and Quentin Tyberghien  
AFP-JJI

ONAHAMA, FUKUSHIMA PREF. – Fish market vendor Satoshi Nakano thinks he knows which fish caught in the radiation-tainted sea off the Fukushima coast should be kept away from dinner tables.

Yet five years after the worst nuclear accident since Chernobyl there is still no consensus on the true extent of the damage — exacerbating consumer fears about what is safe to eat.

Environmentalists are at odds with authorities, warning that the huge amounts of radiation that seeped into coastal waters after the disaster in 2011 could cause problems for decades.

The government is confident it has stemmed the flow of radioactive water, but campaigners insist contaminated ground water has continued to seep into the Pacific Ocean, and the situation needs further investigation.

“It was the single largest release of radioactivity to the marine environment in history,” Greenpeace nuclear expert Shaun Burnie said, speaking aboard the campaign group’s Rainbow Warrior ship, which has sailed in to support a three-week marine survey of the area the environmental watchdog is conducting.

Fukushima is facing an “enormous nuclear water crisis,” Burnie said.

**“The whole idea that this accident happened five years ago and that Fukushima and Japan have moved on is completely wrong.”**

Fishermen are banned from operating only within 20 kilometers of the plant.

Although there are no figures for attitudes on seafood alone, the latest official survey by the government’s Consumer Affairs Agency showed in September that more than 17 percent of Japanese are reluctant to eat food from Fukushima.

Nakano knows it is best for business to consider carefully the type of seafood he sells, in the hope it will quell consumer fears.

“High levels of radioactivity are usually detected in fish that move little and stick to the seabed. I am not an expert, but I think those kinds of fish suck up the dirt of the ocean floor,” he said in his coastal hometown of Onahama.

Greenpeace is surveying waters near the Fukushima plant, dredging up sediment from the ocean floor to check both for radiation hot spots as well as places that are not contaminated.

On Monday, the Rainbow Warrior sailed within 1.6 kilometers of the Fukushima coast as part of the project — the third such test it has conducted, but the closest to the plant since the nuclear accident.

Researchers Tuesday sent down a remote-controlled vehicle attached with a camera and scoop in order to take samples from the seabed, which will then be analyzed in independent laboratories in Japan and France.

**“It’s very important (to see) where is more contaminated and where is less or even almost not contaminated,”** Greenpeace’s Jan Vande Putte said, stressing the importance of such findings for the fishing industry.

Local fishermen have put coastal catches on the market after thorough testing, which includes placing certain specimens seen as high risk through radiation screening — a program Greenpeace lauds as one of the most advanced in the world.

**The tests make sure no fish containing more than half of the government safety standard for radiation goes onto the market.**

The 2011 disaster was caused by a magnitude-9.0 earthquake off Japan's northeastern coast, which sparked a massive tsunami that swamped cooling systems and triggered reactor meltdowns at the Fukushima No. 1 plant, run by operator Tokyo Electric Power Co.

Today, about 1,000 huge tanks for storing contaminated water occupy large parts of the site, but as 400 tons of groundwater a day flows into the damaged reactor buildings, many more will be needed.

Tepco's measures to reduce the water influx include building an underground wall, freezing the land itself and siphoning underground water.

The government, too, insists the situation is under control.

"The impact of the contaminated water is completely contained inside the port of the Fukushima plant," Tsuyoshi Takagi, the Cabinet minister in charge of disaster reconstruction, told reporters on Tuesday.

But Greenpeace's Burnie says stopping the groundwater flow is crucial to protecting the region.

"What impact is this having on the local ecology and the marine life, which is going on over years, decades?" Burnie asked.

"We can come back in 50 years and still be talking about radiological problems" at the nuclear plant as well as along the coast, he said.

AFP-JIJI

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“We can come back in 50 years and still be talking about radiological problems” at the nuclear plant as well as along the coast, he said.

February 29, 2016

## Bad start

### **Takahama reactor automatically shuts down after alert: Kansai Electric**

<http://mainichi.jp/english/articles/20160229/p2g/00m/0dm/083000c>

FUKUI, Japan (Kyodo) -- Kansai Electric Power Co. said Monday that a reactor at its Takahama plant in western Japan shut down automatically after a problem with an generator triggered an alarm.

The No. 4 reactor at the plant, which was brought back online last Friday, was deactivated after the automatic alarm system prompted control rods to be inserted. There is no problem with the reactor's cooling system, the company said.

The latest incident follows a coolant water leak on Feb. 20 in a building attached to the reactor, caused by insufficient tightening of a bolt in a pipe valve.

### **Takahama reactor automatically shuts down after alert: Kansai Electric**

<http://www.japantimes.co.jp/news/2016/02/29/national/takahama-reactor-automatically-shuts-alert-kansai-electric/>

Kyodo

FUKUI – Kansai Electric Power Co. said Monday that a reactor at its Takahama power plant in Fukui Prefecture shut down automatically after a problem with a generator triggered an alarm. [...]

## **New NEA report on safety**

### **Evaluation Of External Hazards Needs To Be Improved, Says NEA Fukushima Report**

<http://www.nucnet.org/all-the-news/2016/02/29/evaluation-of-external-hazards-needs-to-be-improved-says-nea-fukushima-report>

Countries with nuclear programmes need to develop and improve their approach to the evaluation of external hazards because there has traditionally been a more thorough and detailed consideration of internal hazards in safety cases and analysis, says a report by the Nuclear Energy Agency on lessons learnt from the March 2011 Fukushima-Daiichi nuclear accident in Japan.

The report, published today by the Paris-based agency, says **the accident did not reveal any “unknown initiators, sequences or consequences”.** However, the combination and severity of initiating events had never occurred before, and the evolution of the accident in three different units simultaneously was also new.

The report says that since the accident regulatory authorities in NEA member countries have performed “diverse activities” that have led to the establishment of new requirements. The focus of these requirements has been the potential impact of external hazards such as floods and earthquakes, and plant improvements related to the diversity of equipment, improvements to the robustness of safety functions, and continuing efforts to improve organisational behaviour.

Specific actions have led to improvements to the robustness of electrical systems, enhancement of the robustness of the ultimate heat sink, protection of the reactor containment system, and protection of

spent fuel in spent fuel pools.

The ability to quickly provide “diverse equipment and assistance” from onsite and offsite emergency preparedness facilities has been improved. Safety culture has been improved and safety research is continuing, the report says.

The report also makes it clear that **regulatory frameworks in the nuclear industry need to be strengthened and the independence of regulatory bodies enforced.**

**“The principal of regulatory independence, in particular the effective separation between the functions of the regulatory body and those of any other organisation concerned with the promotion or use of nuclear energy, is fundamental and requires vigilance to ensure it is maintained,”** the report says.

A 2012 report by Japan’s government said there had been a lack of regulatory independence in Japan at the time of the accident and collusion between regulators and operators. The independent Nuclear Regulation Authority was established in September 2012 to meet the need for clear separation of regulation from promotion.

The same report identified other contributory factors in the accident such as a flawed safety culture, organisational failures and weaknesses, weak emergency preparedness and response, and poor onsite and offsite disaster handling.

Today’s NEA report says **the accident demonstrated the challenges involved when managing the consequences of a large-scale accident.** As time progressed, radiological and social consequences became increasingly evident, while decisional responsibilities were shifting from central government to regional and local governments, and to affected individuals.

The International Atomic Energy Agency said in a September 2015 report that at the time of the accident, separate arrangements were in place to respond to nuclear emergencies and natural disasters at national and local levels. **There were no coordinated arrangements for responding to a nuclear emergency and a natural disaster occurring simultaneously.**

Another report, the official report of the Fukushima Nuclear Accident Independent Investigation Commission, said it was a manmade disaster – the result of collusion between the government, the regulators and plant operator Tepco and the lack of governance by these three parties.

The commission said it had verified that on 11 March 2011, the structure of the Fukushima-Daiichi nuclear plant was not capable of withstanding the effects of the earthquake and the tsunami. Nor was the plant prepared to respond to a severe accident.

“In spite of the fact that Tepco and the regulators were aware of the risk from such natural disasters, neither had taken steps to put preventive measures in place. It was this lack of preparation that led to the severity of this accident,” the commission concluded.

NEA director-general William Magwood said: **“Much work is still before us to address new lessons, including how to effectively deal with more complex issues such as the human aspects of nuclear safety reflected in safety culture, training and organisational factors.”**

On 11 March 2011 an earthquake caused damage to the electric power supply lines to the Fukushima-Daiichi nuclear site on the northeast coast of Japan, and a tsunami caused substantial destruction of the operational and safety infrastructure on the site. The combined effect led to the loss of offsite and onsite electrical power.

This resulted in the loss of the cooling function at the three operating reactor units as well as at the spent fuel pools. Despite the efforts of the operators to maintain control, the reactor cores in Units 1, 2 and 3 overheated, the nuclear fuel melted and the three containment vessels were breached.

Hydrogen was released from the reactor pressure vessels, leading to explosions inside the reactor buildings in Units 1, 3 and 4 that damaged structures and equipment and injured personnel. Radionuclides were released from the plant to the atmosphere and were deposited on land and on the ocean. There were also direct releases into the sea.

The NEA report, ‘Five Years After the Fukushima-Daiichi Accident: Nuclear Safety Improvements and Lessons Learnt’, is online: <http://bit.ly/1RzYLSj>

The NEA is a specialised agency within the Organisation for Economic Co-operation and Development (OECD) and operates as a forum for sharing information and promoting cooperation. It has 31 member countries in Europe, North America and Asia-Pacific.

March 1, 2016

## **"Very regrettable" indeed**

### **Latest mishap at restarted Takahama reactor leaves Kansai Electric in the dark**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201603010066](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201603010066)

Just three days after restarting, a reactor at the Takahama nuclear power plant came to a sudden halt when an automatic stop signal activated Feb. 29, the second recent incident that has local officials concerned.

The stoppage occurred in the No. 4 reactor at the plant in Takahama, Fukui Prefecture, in which radioactive water had been found leaking from a pipe on Feb. 20.

Radioactive material was not emitted in the latest mishap, according to Kansai Electric Power Co.

The problem occurred in the vicinity of the transformer, but the exact cause has yet to be determined, the operator announced in a news conference at its head office in Osaka on March 1.

The transformer boosts the voltage of the electricity produced by the generator from 23,000 volts to 500,000 volts before transmitting it through power lines.

“We find the continuous mishaps at the No. 4 reactor, the water leak on Feb. 20 and the latest halt of the reactor, highly regrettable,” Fukui Prefecture Deputy Governor Tatsuji Sugimoto told Kansai Electric executive Vice President Hideki Toyomatsu in a videoconference at 4 p.m. on Feb. 29.

Kansai Electric has halted all work regarding the resumption of the reactor until it can pinpoint the source of the problem.

The reactor ceased operations automatically shortly after it had started generating and transmitting power. The shutdown occurred as the power generation and transmission procedures were being monitored by media representatives at a nearby Kansai Electric facility.

Although the utility plans on starting the commercial operation of the reactor in late March, the latest setback could cause a significant delay as the investigation into the problem “will take days,” according to a company official.

Despite the Feb. 20 leakage incident, the No. 4 reactor went back online Feb. 26 after passing new safety checks introduced to nuclear power plants in the aftermath of the Fukushima nuclear disaster, which unfolded five years ago.

An alarm went off in the control room at 2:01 p.m. on Feb. 29 just as the operator started transmitting power at 5 percent output, bringing the generator to a halt. Electricity had been generated by rotating the turbine with the steam from the heat of the nuclear reaction taking place inside the reactor. A second later, the No. 4 reactor automatically stopped and all its control rods were inserted to terminate the reaction of the nuclear fuel.

The operator shortly afterward notified the Nuclear Regulation Authority and the Fukui prefectural government of the incident.

Kansai Electric divides its incidents into five categories between Level 0 for mishaps that do not have to be publicized and Level 4 for those that require swift announcements. With the reactor forced to halt, the latest incident was designated a Level 4.

Local government officials are becoming uneasy over the series of problems that have continued to plague the reactor's restart.

“With these errors happening so often, we're thinking, ‘Enough is enough,’” said Ryozo Tatami, the mayor of neighboring Maizuru, Kyoto Prefecture.

Maizuru is just west of Takahama, and some parts of the city are less than 5 kilometers from the nuclear plant.

Keiji Yamada, the governor of Kyoto Prefecture, which has seven municipalities that are within 30 kilometers of the plant, said, “We urge them to find the cause of the error and report the preventative measures properly.”

(Hiroki Ito contributed to this article.)

## **Kansai Electric to put off troubled reactor's commercial operation**

<http://www.japantimes.co.jp/news/2016/03/01/national/kansai-electric-put-off-troubled-reactors-commercial-operation/#.VtXL1eaDILN>

Kyodo

FUKUI – Commercial operation of the troubled reactor 4 at the Takahama facility in Fukui Prefecture will likely be pushed back to April after the Nuclear Regulation Authority said it will be difficult to proceed until preventive steps are approved.

Kansai Electric Power Co. had initially planned to start commercial operation of the reactor in late March.

The change in schedule became necessary after the reactor shut down automatically Monday, only three days after coming back online under safety regulations strengthened following the 2011 Fukushima meltdowns.

Kansai Electric said there was no leak of radioactive substances in the incident. But the shutdown followed a leak of radioactive coolant water at the reactor just days before its restart.

The utility said Tuesday a strong electrical current beyond a preset level may have been detected by a monitoring device around a transformer of the reactor, causing an alarm to go off upon the start of power generation and power transmission.

Also Tuesday, the utility began the process of bringing the unit to a state of cold shutdown by lowering the temperature of coolant water.

The NRA will eventually have to examine Kansai Electric's analysis of the cause of the emergency halt and measures to prevent a similar incident.

Even if it gets the go-ahead for another restart, the No. 4 reactor will need to go through a final inspection by the NRA again before reactivation and subsequent commercial operation.

The latest incident was the second halt of the reactor in 10 days, following the radioactive coolant water leak on Feb. 20 in a building attached to the reactor. Kansai Electric had rebooted it, deeming it had taken sufficient steps to prevent a similar leak.

The rash of incidents come as the government aims to bring more reactors back online after the disaster at the Fukushima No. 1 nuclear power plant led to a nationwide shutdown of nuclear plants, as it is seeking to generate at least 20 percent of Japan's electricity through nuclear power by 2030.

"It's very regrettable," industry minister Motoo Hayashi said of the latest incident. "I hope Kansai Electric will do its utmost to find the cause of the incident and work extra carefully," putting safety ahead of the need to restart the reactor quickly.

March 2, 2016

## Cold shutdown for Takahama No.4

### Halted Kansai Electric reactor in cold shutdown for probe

<http://mainichi.jp/english/articles/20160302/p2g/00m/0dm/003000c>

The No. 4 reactor, forefront, is seen at the Takahama Nuclear Power Plant in Takahama, Fukui Prefecture, in this picture taken from a Mainichi Shimbun helicopter on Feb. 29, 2016. (Mainichi)

FUKUI, Japan (Kyodo) -- Kansai Electric Power Co. has put a nuclear reactor at its Takahama plant in a state of cold shutdown to investigate why the automatic suspension of the unit was triggered earlier this week, the utility said Wednesday.



The No. 4 reactor at the nuclear power plant in Fukui Prefecture on the Sea of Japan shut down automatically Monday, just three days after coming back online under Japan's stricter safety regulations following the 2011 Fukushima meltdowns.

An electrical current exceeding a preset level may have been detected by a monitoring device around a transformer of the reactor, triggering a safety mechanism upon the start of power generation, the company said Tuesday.

The latest incident was the second stoppage of the reactor in 10 days, following a radioactive coolant water leak on Feb. 20 in a building attached to the same reactor.

Deeming it had taken sufficient steps to prevent a similar leak, Kansai Electric then rebooted the reactor on Feb. 26.

Commercial operation of the reactor will likely be pushed back to April from the initial plan to start it in late March, as the Nuclear Regulation Authority said Tuesday it will be difficult to restart the facility until preventive steps are approved.

The nuclear regulation watchdog will examine analysis of the cause of the emergency halt and measures to prevent a similar incident that Kansai Electric will put forward in due course.

Even if it gets the go-ahead for another restart, the No. 4 reactor will need to go through a final inspection by the regulator again before reactivation and subsequent commercial operation.

March 3, 2016

## Fault under Shika plant likely active

### Fault under Shika nuclear reactor likely to be active: NRA expert panel

<http://mainichi.jp/english/articles/20160303/p2a/00m/0na/015000c>

The Shika Nuclear Power Plant is seen in Shika, Ishikawa Prefecture, on Nov. 2, 2011. (Mainichi)

An investigative panel of experts with the Nuclear Regulation Authority (NRA) compiled a new draft report on March 3 in which it says that a fault running just below the No. 1 reactor at the Shika Nuclear Power Plant in Ishikawa Prefecture is likely to be active.

In the report, the panel says, "It is reasonable to understand that the fault had moved." In its first draft report prepared in July 2015, the group of experts had pointed to the possibility of the fault being active. The new regulatory standards adopted in the wake of the 2011 Fukushima nuclear disaster forbid construction of key facilities such as a nuclear reactor right above an active fault. Unless Hokuriku Electric Power Co., the operator of the Shika plant, can overturn the NRA expert group's conclusion, it will become increasingly likely that the No. 1 reactor will be decommissioned.

Furthermore, as for two other faults running right below a key facility of the No. 2 reactor that has been going through NRA safety screening, the draft report said, "There is a possibility that they had moved." Using as strong a language as what was used for the No. 1, reactor, the expert panel pointed out the possibility of the fault being active. Reactivation of the No. 2 reactor will likely be delayed substantially because there will be even a higher possibility of it being unable to clear the NRA screening process unless large-scale work such as relocation of its facilities is carried out.

The investigative panel is to draw up a formal report and submit it to the NRA. If Hokuriku Electric were to seek to reactivate the reactors, the NRA would conduct safety screenings on them again to determine whether the faults are active. If the faults are confirmed to be active after the screening, the No. 1 reactor is expected to be decommissioned.

Hokuriku Electric is planning to apply for NRA screening of the No. 1 reactor as well. In that case, attention will be focused on whether the utility will be able to show new data to overturn the NRA's final conclusion during the fresh round of screening by the nuclear watchdog.

There are three faults in question: the 780-meter-long "S-1" fault situated just below the No. 1 reactor; and the "S-2" and "S-6" faults just beneath cooling pipes for releasing sea water, extending a combined total of 550 meters. Hokuriku Electric had insisted that none of the faults are active. After compiling a draft report in July 2015 that said the possibility of the faults being active "cannot be denied," the NRA expert group heard the opinions of other experts.

### **Panel: Fault below Shika reactor may be active**

[http://www3.nhk.or.jp/nhkworld/en/news/20160303\\_34/](http://www3.nhk.or.jp/nhkworld/en/news/20160303_34/)

A panel of scientists at Japan's nuclear regulator says a fault under a reactor at the Shika power plant in central Japan could slip in the future.

The conclusion could lead to the reactor's decommissioning, although the panel does not rule out additional study if fresh data are presented.

The panel of the Nuclear Regulation Authority met Thursday to discuss whether the fault right below the No.1 reactor at the plant in Ishikawa Prefecture is active or not.

A similar meeting last July came up with a draft assessment indicating the possibility of a shift of the fault in the future. The judgment was based on research conducted by the plant's operator, Hokuriku Electric Power Company, and other data.

But the panel members were later criticized by a group of other scientists for not presenting a full explanation, which led to the fresh meeting.

On Thursday, panel members reaffirmed that it makes sense to think the fault shifted during or after a geological period called the Late Pleistocene, between 120,000 and 130,000 years ago.

They agreed to retain the previous conclusion, which didn't rule out the possibility the fault could slip in the future. But they added that additional data on the fault is needed to make a more accurate assessment. The panel will report the results to the regulator.

New regulations adopted after the 2011 Fukushima Daiichi accident do not allow the construction of reactor buildings and other key nuclear plant facilities above faults that could slip in the future. The assessment could lead to scrapping of the No.1 unit.

The evaluation can be revised depending on the nature of additional data provided by the utility. Attention is focused on how the plant operator will respond to the conclusion and what decision the

regulator will make.

The panel has also upheld its earlier assessment that another fault running beneath cooling pipes leading to the plant's No.1 and No. 2 reactors could distort the ground foundation in the future. The operator may be required to relocate or reinforce facilities.

March 4, 2016

## Utilities only interested in overturning safety assessment

### Utilities aim to overturn NRA expert panel's fault assessment

<http://mainichi.jp/english/articles/20160304/p2a/00m/0na/012000c>

With the latest draft report from an expert panel at the Nuclear Regulation Authority (NRA), which pointed out the possibility of an active fault running beneath the Shika Nuclear Power Plant in Ishikawa Prefecture, fault assessments for all nuclear plants that face questions about their geological safety have been reported. The operators of these nuclear stations are now looking to overturn the panel's judgment in the NRA's safety screening process.

- **【Related】** Fault under Shika nuclear reactor likely to be active: NRA expert panel

Of 10 nuclear reactors at six nuclear power plants, three stations, including the Shika plant operated by Hokuriku Electric Power Co., have been judged to be likely situated above active faults. As the nuclear plant operators have raised objections to the panel's assessment results, the focal point of future safety screenings is whether they will be able to prove the panel's conclusion wrong.

The NRA had established an on-site field survey team with experts and carried out investigations of the six nuclear plants, over which the organization's predecessor the Nuclear and Industrial Safety Agency claimed that additional screening was necessary.

In addition to the No. 1 and No. 2 reactors at the Shika nuclear plant, the expert team recognized the possibility of active faults under the No. 2 reactor at Japan Atomic Power Co.'s Tsuruga nuclear station in Fukui Prefecture and the No. 1 reactor at Tohoku Electric Power Co.'s Higashidori nuclear power plant in Aomori Prefecture.

The new regulatory standards for the operation of nuclear power plants adopted in the wake of the 2011 Fukushima nuclear disaster forbid construction of key facilities such as a nuclear reactor right above an active fault. Since the No. 1 reactor at the Shika plant and the No. 2 reactor at the Tsuruga plant have been judged to be possibly located directly above active faults, they face higher chances of being decommissioned.

As for the No. 2 reactor at the Shika plant and the No. 1 reactor at the Higashidori plant, they are located near active faults, meaning that drastic anti-seismic reinforcement measures or relocation of facilities is necessary. This will likely push back the timing of the restart for these nuclear reactors.

Hokuriku Electric applied to the NRA for safety screening for the No. 2 reactor at the Shika nuclear plant in August 2014, and the nuclear watchdog will debate on the existence of an active fault at the safety inspection.

Meanwhile, the utility released a comment following the March 3 draft report on the Shika nuclear plant, saying, "The draft report is far from acceptable. We will submit new geological data to back our argument." The company also plans to apply for a safety inspection of the No. 1 reactor at the Shika plant, which was pointed out to be located directly above an active fault.

## **Active fault likely runs under Shika nuke plant**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201603040047](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201603040047)

A Nuclear Regulation Authority panel has concluded that an active fault line likely runs under a reactor at the idled Shika nuclear power plant, which could threaten the reactor with decommissioning if the findings are confirmed.

The NRA panel of experts compiled its conclusions on March 3 regarding a study into the Shika plant in Ishikawa Prefecture.

"It is rational to interpret the fault (under the No. 1 reactor) as active," the panel said.

The panel is comprised of four outside specialists on geological faults and Akira Ishiwatari, an NRA commissioner.

Hokuriku Electric Power Co., the operator of the plant, intends to contest the panel's findings. The utility faces the possibility of having to mothball the No. 1 reactor if an active fault is confirmed to run under an important facility of the plant.

New safety standards for nuclear plants, which were put into effect after the March 2011 Fukushima nuclear disaster, prohibit major facilities in locations that lie above an active fault.

The panel plans to submit a report of its findings to the NRA in the near future. The NRA is expected to handle the report as "significant findings."

A final determination on whether active faults lie under the Shika plant will be made during safety screenings that will be conducted under the new standards.

The focus of the study was on three faults that run under the plant.

In the summer of 2015, the expert panel compiled a draft report that said, "The possibility of an active fault cannot be denied."

An additional expert asked to evaluate that draft concurred with the findings.

At the March 3 meeting, the panel examined the S-1 fault that runs beneath the No. 1 reactor building. The panel looked over detailed sketches of the geographical formation made when the nuclear plant was being constructed.

That led to the wording, "It is rational to interpret the fault (under the No. 1 reactor) as active," supporting past findings about the fault.

The panel indicated that its assessment was made based on a limited number of documents and called on Hokuriku Electric Power to provide additional data.

The panel also looked at the S-2 and S-6 faults, both of which run under important facilities of the No. 1 and No. 2 reactors. The panel concluded there was the possibility that those two faults were also active. Such findings would mean that the No. 2 reactor could also not meet the new safety standards unless major anti-quake measures were implemented.

On March 3, Akizumi Nishino, an executive vice president with Hokuriku Electric Power, insisted that none of the faults were active and indicated that the utility would challenge the findings during safety screenings for the No. 2 reactor. He also said the company will seek to have a safety screening for the No. 1 reactor as well.

A major question will be whether Hokuriku Electric Power can submit additional geological data that can overturn the findings of the expert panel.

(This article was written by Masanobu Higashiyama and Koji Kitabayashi.)

March 5, 2016

## Fire at decontamination waste site in Namie

<http://nuclear-news.net/2016/03/06/fire-at-namie-nuclear-waste-site-in-fukushima/>

TV Asahi (ANN) March 5th (Sat) 19:15

There was a fire at the temporary storage of decontamination waste in Namie, Fukushima Prefecture, for about 5 hours.

According to the police, at 5:00 in the morning, a fire started at the temporary storage of decontamination waste in Namie, dead branches and dead grass coming from decontamination which had been stacked on site before to be packed in bags.

It took about five hours to extinguish it. Although there was decontamination work at that time, no fire was being used, the police will look to determine the cause of the fire.

The video is available here (in Japanese) :

<http://headlines.yahoo.co.jp/videonews/ann?a=20160305-00000034-ann-soci>

## 40-year rule should be upheld

### Extending Takahama reactor life

<http://www.japantimes.co.jp/opinion/2016/03/05/editorials/extending-takahama-reactor-life/#.VtsFI-aDmot>

The Nuclear Regulation Authority has adopted a draft certification that the No. 1 and No. 2 reactors at Kansai Electric Power Co.'s Takahama nuclear power plant in Fukui Prefecture meet the post-Fukushima nuclear safety standards — effectively giving its basic safety clearance for reactors that have already passed the legal threshold of 40 years in operation. Pending additional procedures, the two reactors may become the first to have their operation extended beyond the 40-year limit set after the 2011 disaster at

Tokyo Electric Power Co.'s Fukushima No. 1 nuclear power plant. The NRA's decision risks undermining the rule that reactors, in principle, be decommissioned after they have been in operation for 40 years. The law regulating nuclear reactors was revised in 2012 — under the previous Democratic Party of Japan-led government — to establish the rule prohibiting reactors from being operated for more than 40 years. But it also allowed a one-off extension of up to 20 more years upon receiving a safety clearance from the NRA, which the following year put into force more stringent safety standards on nuclear power plants. The rule set a grace period for power firms to get the NRA's nod for the extension — up to this July for the two aging Takahama reactors. Eleven reactors — five that have passed or were nearing the 40-year period, along with the six at Tepco's Fukushima No. 1 plant — have since been decommissioned. True, the 40-year rule is not based on objective scientific grounds that prove or disprove the safety of reactors after a certain period in operation. But it must not be forgotten that the rule was introduced from the standpoint of ensuring safety in view of the following fact: if the inside of a reactor's pressure vessel, which is made of steel, is irradiated by neutrons for a long time, its resistance to destruction weakens as its viscosity lowers. The 40-year rule should be upheld as a reasonable criteria that uses prudence on the safe side. The one-off extension for up to 20 years was allowed in view of overseas trends, in particular practices in the United States. But the government at the time of the rule's introduction was saying an extension of a reactor's operation beyond 40 years should be "the rarest of exceptions."

What NRA chief Shunichi Tanaka said in adopting the draft certification for the Takahama reactors — that power companies can overcome the technical problems of aging reactors by spending money on renovating their facilities — can have the effect of turning an extension of the life of reactors beyond 40 years into a normalcy, rather than an exception. Even though the Abe administration has reversed the DPJ-led government's policy of seeking a phaseout of nuclear power by the 2030s, it has not revised the 2012 legal provision and the 40-year rule remains in place.

The administration of Prime Minister Shinzo Abe, which seeks to reactivate idled nuclear power plants once they have cleared the NRA's screening, also says the government will aim to reduce the nation's reliance on nuclear power "as much as possible" through energy conservation, introduction of more renewable energy sources and greater efficiency of thermal power plants. But the administration's energy mix outlook — which estimates the share of nuclear power in the nation's electricity generation at 20 to 22 percent in fiscal 2030 — assumes that several reactors will be operated beyond the 40-year limit. Since construction of new nuclear power plants will remain effectively difficult given post-Fukushima public sentiment, the share of nuclear power in fiscal 2030 will likely be around 15 percent at most if all existing reactors have been reactivated — unless some aging reactors are run for more than 40 years.

In March last year, Kansai Electric asked the NRA to screen not only the two Takahama reactors but also the No. 3 reactor at its Mihama plant, also in Fukui Prefecture, for operation beyond the 40-year limit. The Mihama reactor will reach the 40-year limit this December. These reactors represent three of the five Kansai Electric reactors that are more than 30 years old. The utility has reasons to seek extension of the life of its aging reactors. Highly dependent on nuclear power before the 2011 Fukushima disaster, the company's finances have been severely strained by the cost of imported fuel to run its thermal power plants to make up for the shutdown of its nuclear power plants.

To get permission for extending the operation of the aging Takahama reactors, Kansai Electric will need to reinforce them by upgrading 1,300 km of cables (either replacing them with ones made of new materials or covering old cables with fire-proof sheets), building a concrete dome above the pressure vessels and constructing an emergency commanding center and a seismic isolation building, among others. But the pressure vessels, which may have suffered embrittlement due to bombardment by neutrons, cannot be reinforced or replaced.

The NRA's Tanaka noted that Kansai Electric will be spending roughly half of expense of building a new reactor on renovating the two aging reactors. Completion of the renovation work, estimated to cost some ¥200 billion, is expected to take more than three years even if the NRA's nod is given by July. Kansai Electric apparently thinks that the expense still makes business sense — since restarting the two reactors at Takahama, which have higher output capacity than other aging reactors that have been decommissioned, are expected to improve its earnings by ¥9 billion each month.

Japan currently has 43 nuclear power reactors — 18 of which are more than 30 years old. If the 40-year rule is strictly applied, their number will gradually decline. This conforms not only to the government's policy of reducing Japan's reliance on nuclear power but also to the popular wishes as expressed in media opinion polls, in many of which a majority of respondents oppose the restart of idled reactors and want nuclear power to account for less of the nation's electricity supply than envisaged by the government. **The NRA should uphold the 40-year rule to cut the weight of nuclear power as well as to ensure safety of reactors.**

March 6, 2016

## 331 kg of Plutonium to be returned by boat to United States

### **Ships prepare to return 331-kg plutonium stash from Japan to U.S.**

<http://www.japantimes.co.jp/news/2016/03/06/national/ships-prepare-return-331-kg-plutonium-stash-japan-u-s/#.VtxlPeaDmot>

Kyodo

WASHINGTON – A U.S. civic group said Friday two ships have arrived in Kobe to transport the massive plutonium stash Japan agreed in 2014 to return to the United States.

**The British-flagged ships** will pick up the cargo in the village of Tokai, Ibaraki Prefecture, and take it during **a 52-day voyage to the Savannah River Site**, a U.S. government nuclear facility in South Carolina, according to Savannah River Site Watch.

The Pacific Heron and the Pacific Egret, anchored in Kobe, will transport 331 kg of the highly toxic material, including weapons-grade versions, from the Fast Critical Assembly run by the Japan Atomic Energy Agency in Tokai.

It will be the largest shipment of plutonium to be transported by sea since 1993, when Japan's Akatsuki Maru carried 1 ton of the material from France to Japan, said Tom Clements, head of the civic group monitoring nuclear issues.

It is believed **that much plutonium is enough to make 50 nuclear bombs.**

**The U.S. provided the plutonium, including some from Britain and France, to Japan for research during the Cold War.**

In March 2014, at the Nuclear Security Summit in The Hague, Prime Minister Shinzo Abe agreed with U.S. President Barack Obama to return the plutonium, and to also send highly enriched uranium kept at the FCA.

Once it arrives in the U.S., the plutonium will be disposed of, according to the bilateral agreement.

Obama, who was awarded the Nobel Peace Prize for his policy of seeking a world free of nuclear weapons, will host the next round of the biennial Nuclear Security Summit on March 31 and April 1 in Washington.

## Akio Matsumura: Our lessons from Fukushima

### Our Lessons from Fukushima: New Concerns for the Future

<http://akiomatsumura.com/?s=concerns+for+the+future&id=2546>

*Akio Matsumura*

This week people across the world are commemorating the fifth anniversary of the worst nuclear power accident in history, which occurred at the Fukushima Daiichi Power Plant in Japan on March 11, 2011.



A woman is seen at a temporary housing complex covered in snow that accommodates nuclear evacuees from Okuma, a town inside the exclusion zone next to Tokyo Electric Power Co's (TEPCO) tsunami-crippled Fukushima Daiichi nuclear power plant, in Aizuwakamatsu, Fukushima prefecture, February 17, 2015. REUTERS/Toru Hanai

**Many aspects of the crisis continue to affect human and environmental safety.** There are still 178,000 evacuees in total (99,750 at Fukushima) who do not know when they can return home. 400 tons of contaminated water run into the sea every day. Frequent torrential rains wash away radioactive materials remaining at the site into the sea. 814,782 tons of contaminated water are stored at about 1,000 tanks, with more tanks built every month. The 7,000 workers at the site undertake dangerous tasks every day. The dedicated workers have solved many problems so far, but many continue to perplex managers and cleanup crews. No one approaches reactors 1, 2, and 3 due to strong radiation, and no scientific



solution is expected for at least forty years. Unfortunately, future disruption cannot be discounted – the possibility of another strong earthquake in forty years is non-zero.

Since the Fukushima accident, we were fortunate to quickly receive opinions and recommendations across many fields. Nuclear scientists, medical doctors, military personnel, seismologists, biologists, oceanographers, volcanologists, journalists, spiritual leaders, parliamentarians, students and grass-root organizations, and public opinion leaders all weighed in. The horizontal perspective that emerged offered a different view than was possible from any single discipline, no matter how expert the practitioner. The Japanese benefited from these messages that cut through the confusion that pervaded the media at the time.

On the occasion of the 5<sup>th</sup> anniversary of the Fukushima nuclear accident, I would like to recall the early stages of the event, and share my own appraisal and recommendations from the lessons I have learned from this painful event.

**In the first two weeks, experts and the public alike sought technical solutions. Panic grew when few were available.** Did the cores meltdown? What was the appropriate distance to evacuate? How could we maintain the cooling systems for the reactors through multiple system failures? Are the ventilation systems working? Was this worse than Chernobyl? Can Self-Defense Force helicopters drop water on the spent-fuel pools of units 3 and 4?

It might be impossible to accurately describe the panic shooting through Japan's leaders and the public at the time. Government agencies and the utility in charge, the Tokyo Electric Power Company, were unprepared for the catastrophic nuclear disaster. The public blamed both parties, and they blamed each other, for poor communication and delays.

The confusion and panic were not limited to Japan, but extended to the US government as well. There was a huge gap between the two governments' assessments of the damages of the six reactors, in particular of the fourth reactor, which because of coincidental maintenance was in a unique position. Mixed messages on safety and damage caused more panic: Japan's government decided 12.5 miles (20 km) was an appropriate evacuation zone while the US government settled on 50 miles (80km) for its citizens. The United Kingdom, France, Germany, and other countries told their citizens to consider leaving Tokyo, 125 miles away (200 km).

**From the start, a few experts knew the crisis went beyond current technical solutions, but that any step forward would require more information.** Early in the confusion, my good friend, the late Dr. Hans-Peter Durr, former Director of Astrophysics at the Max Planck Institute in Germany, called me to suggest I inform the Prime Minister of Japan that the Fukushima accident was much worse than Japan's government had let on. Although Japan had not admitted the core meltdown then, Hans-Peter knew that Fukushima had brought us to the edge of our scientific knowledge. He recommended Japan invite an independent assessment team of top nuclear scientists and structural engineers to develop a solution. I passed his urgent message on to the Prime Minister office and party leaders.

What was the scope of the problem? A year after the crisis and we still had little quantitative sense. One way to begin to get a sense was to know the number of spent fuel assemblies on site. TEPCO did not share this information, so I asked Ambassador Mitsuhei Murata to check discretely with inside sources. He informed us that the total number of spent fuel assemblies at the Fukushima Daiichi site, excluding the assemblies in the pressure vessels, was 11,421. Then I asked Robert Alvarez, former Senior Policy Adviser to the Secretary and Deputy Assistant Secretary for National Security and the Environment at the U.S. Department of Energy, an explanation of the potential impact of the 11,421 assemblies.

On April 3, 2012, Bob interpreted this number for us. The results were astounding. The Cesium-137 at the site was 85 times greater than at the Chernobyl accident.

While it would not necessarily go “boom” like a nuclear bomb, this amount of radiation had enormous destructive potential. People were shocked to find this out. The article quickly gained over one million readers and was shared virally through the Internet. There is no doubt that without the warnings by international scientists about the potential global catastrophe of the fourth reactor, Japan’s government would not have made it a priority to remove the 1,535 fuel assemblies, which contained 14,000 times the radiation of the Hiroshima bomb.

**Without experts from multiple fields, important information would have been remained with the government and nuclear utility, rather than with the public.**

But even with this information, large aspects of the crisis and its cause are hidden if the focus remains technical. Mr. Kiyoshi Kurokawa, chairman of the National Diet of Japan Fukushima Accident Independent Investigation Commission, has a different, but definitive, perspective.

*The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. Although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded as a natural disaster. It was a profoundly manmade disaster – that could and should have been foreseen and prevented. And its effects could have been mitigated by a more effective human response.*

*How could such an accident occur in Japan, a nation that takes such great pride in its global reputation for excellence in engineering and technology? This Commission believes the Japanese people – and the global community – deserve a full, honest and transparent answer to this question. What must be admitted – very painfully – is that this was a disaster “Made in Japan.”*

*Its fundamental causes are to be found in the ingrained conventions of Japanese culture: our reflexive obedience; our reluctance to question authority; our devotion to ‘sticking with the program’; our groupism; and our insularity.*

**For me, Fukushima taught that we live with new threats, and have been living with them for**

**decades.** I learned that a nuclear power plant accident can have an unimaginable impact over human life for centuries. The accident has caused untold harm to those whose lives were disrupted by the plant. If things had gone worse, what about the effect of 24,000 years of environmental harm on future generations?

It is one thing if the public had been aware of and accepted these risks when the plant was constructed. Unfortunately, this was not the case in Japan. Those in charge did not even accept these risks, not at the time of construction, nor at the time of the accident. Not even now.

TEPCO has admitted only last month, five years later, that it delayed two months in using the term “meltdown” at the site. Arnie Gundersen of Fairewinds and Mycle Schneider, author of the World Nuclear Industry Status Report, have indicated that it was obvious from the moment there were massive releases of fission gases that a meltdown was underway. But TEPCO’s denial had an impact on how they handled the panic. As Dr. Helen Caldicott suggested, it was obvious that Japan’s government should have evacuated women and children sooner and much farther away. Helen wrote for our blog: *The Nuclear Sacrifice of Our Children : 14 recommendations to help radiation contaminated Japan.* TEPCO and government authorities refused to hear the wake-up call, brushing off the warnings of many experts.

**After five years of reflection, Fukushima has pointed me to new concerns with nuclear power plants.** It is my important discovery from the Fukushima nuclear power accident that we failed to understand the radiation from the nuclear bombs and the radiation from the nuclear accident are little different in terms of the risk for human life. We have long accepted the dangers of attacks by state actors with nuclear weapons, and now we understand the threat of human error and natural disasters like earthquakes, tsunamis, and volcanoes, on nuclear power plants. What about attacks on nuclear power plants? Above all, I am concerned with terrorist attacks on nuclear power plants in volatile countries, especially Pakistan.



Prime Minister Nawaz Sharif and President Xi Jinping shake hands as China agrees to build more nuclear power plants in Pakistan.

The odds are high and increasing that a terrorist group will target one or more of the many nuclear power plants around the world. These as well as many other such plants remain insecure from various threats – and intelligence of some threats remains hard to share between governments. The United States could not warn Japan, a close ally, of some specific threats if they wanted to! Other nuclear threats, like a small suitcase-sized nuclear device exploding in Times Square, continue to give experts and presidents nightmares. Given the probability of these risks in the year ahead, regardless of whether we live in a democratic or authoritarian society it is surprising that the public has no information on the matter. As we saw in Fukushima, so much pain is caused by the sudden realization that we have been asked to live with risks that were hidden from us until it was too late.

Experts will and should do much of the work in defining, examining, and making recommendations for solutions on these risks. This responsibility increases as more nuclear power plants are built and planned – especially in China, India, the United Arab Emirates, Vietnam, and Indonesia. But an open conversation

with the public brings many benefits for preventing attacks and accidents and reacting appropriately once they have occurred. Social media presents itself as a potential bridge between society and experts from many fields when a nuclear accident or attack occurs. Indeed, this could be a powerful tool to complement efforts of other organizations working hard to prevent nuclear disasters. Loss of control of information is difficult for any authority, but Fukushima and other scenarios like Ebola have shown the limits of top-down communication channels.

Politicians face many competing challenges and interests in their jobs as they lead society forward. Nuclear energy looks like a good fit for the challenges of climate change, for example. But no assessment can be considered correct or honest if the risks of any solution are not presented openly to all interested parties, including the public. Fukushima has offered us an opportunity to have a wide-ranging debate on the challenges we face at the intersection of many human needs – carbon-free energy, safety, environmental health, human security, and preservation for future generations. These are issues that will define our human society for centuries to come – we should not miss the chance to discuss them with all the facts on the table.

**A parting note:** Sir Brian Flowers, a prominent British nuclear physicist, pointed out that if nuclear power plants had been built and deployed in Europe before WWII, then large parts of Europe would be uninhabitable today because of conventional warfare and conventional sabotage directed against those nuclear plants.

March 7, 2016

## How long will fishermen have to struggle?

### **FIVE YEARS AFTER: Fukushima fishermen still struggle to prove catches are safe**

<http://ajw.asahi.com/article/0311disaster/recovery/AJ201603070041>

Fukushima fishermen have been stuck in a vicious circle over the past five years. Whenever a glimmer of hope arises that they can resume normal operations, something happens at the Fukushima No. 1 nuclear plant that quashes the optimism.

“Just when we thought the fishing environment had progressed one step forward, it would take a step back,” said Yukio Sato, a 56-year-old fisherman. “The past five years have been such a forward and back zigzag.”

Although radioactivity levels in their catches have fallen considerably, the fishermen are still struggling to convince consumers that the fish are safe to eat.

Any leak of radioactive water from the Fukushima No. 1 plant--and there have been many--into the Pacific Ocean reinforces the negative image of Fukushima fish.

The catches have dropped in size, prices have plummeted and some fishermen are now giving up hopes of making a living from the fishing grounds.

Sato used to take his fishing trawler out five days a week.

But fishermen in the prefecture were forced to suspend operations immediately after the Great East Japan Earthquake and tsunami triggered the crisis at the Fukushima No. 1 nuclear plant. Radiation levels exceeding national standards were detected in the fish they caught.

“We could not catch the fish that we knew were swimming in those waters,” Sato said. “It was just so frustrating.”

Sato now takes his fishing trawler out twice a week.

The waters off Fukushima Prefecture are bountiful because two currents collide there. Close to 200 different types of fish can be caught in those waters.

In early February, Sato’s boat and other trawlers returned to the Matsukawaura fishing port in Soma, Fukushima Prefecture, carrying Pacific cod, monkfish, snow crab and other fish.

Sato’s catch totaled about 500 kilograms, and the fish were sent to local shops as well as the Tsukiji fish market in Tokyo.

“It would be great if we could return to the fishing of the past while I am still alive,” Sato said.

The catch from the coastal waters is still only about 6 percent of the levels before the nuclear accident.

In June 2012, more than year after the triple meltdown at the nuclear plant, experimental operations started to determine the market reaction to fish considered safe in terms of radioactivity levels.

Despite that effort, problems with radiation-contaminated water flowing into the Pacific continued.

Tokyo Electric Power Co., the operator of the Fukushima No. 1 nuclear plant, is still facing difficulties bringing the water problem under control. Every day, tons of groundwater flow under the Fukushima plant and become contaminated with radiation.

At one time, TEPCO came up with a plan to pump up the groundwater and dump it into the ocean before it could reach the plant.

Local fishermen opposed the plan because even dumping safe water into the Pacific would hurt the image of the fish caught in coastal waters.

But if such measures were not taken, the volume of contaminated water could increase to levels that would make it impossible to process.

In March 2014, the fishermen reluctantly agreed to the water bypass plan.

However, a year later, contaminated rainwater spilled outside the port waters. TEPCO’s failure to immediately disclose that problem refueled general concerns about contaminated water.

Other measures have since been taken to deal with the contaminated water, but according to one individual in the fishing industry, “No matter what is done, only the negative image that arises from that time is highlighted.”

Fishermen now depend on compensation from TEPCO for their daily livelihoods. Even those who are not engaged in experimental operations receive compensation equivalent to about 80 percent of their actual catch before the nuclear accident.

With no prospects for a resumption of full-scale operations, some fishermen are not bothering to take part in the experimental operations.

The radioactivity levels in the water and fish have steadily declined.

Three months after the nuclear accident started, half of the fish sampled had radioactivity levels exceeding the national standard of 100 becquerels per kg.

In 2015, 8,500 samples were tested; only four exceeded the national standard.

The decline in radioactivity levels has led to an expansion in the types of fish that can be caught through experimental operations, from three to 72.

While a simple comparison is not possible because the catch level in Fukushima is so low, fish caught through experimental operations fetch between 80 and 90 percent of the prices paid for the same fish types caught in other prefectures.

“With the brand image having fallen so low, it would not be profitable even if operations were allowed to expand,” said Takashi Niitsuma, 56, an official with the Iwaki city fisheries cooperative.

Fish caught further out to sea are also affected. Regardless of where the fish are caught, if they are brought to Fukushima ports, they are classified as being from Fukushima. That has led fishermen to avoid anchoring at Fukushima ports.

According to Fukushima prefectural government officials dealing with the fishing industry, about 5,600 tons of fish, excluding those caught in coastal waters, were brought into Fukushima ports in 2014. The figure is only 40 percent of the pre-nuclear accident level.

The Aquamarine Fukushima aquarium in Iwaki holds monthly events to show that fish caught off Fukushima are safe. At one recent event, a fat greenling was placed in a device to measure radiation levels while visitors looked on. A message flashed on a screen: “None detected.”

“Fish born after the nuclear accident will never exceed the central government’s standard,” said Seiichi Tomihara, 43, a veterinarian at the aquarium.

Local residents are involved in the project to dispel doubts about the trustworthiness of information provided by TEPCO and the central government.

“I first of all want people to understand the fact that the waters off Fukushima are steadily recovering,” Tomihara said.

(This article was written by Takuya Ikeda and Naoyuki Takahashi.)

## New technologies to cope with catastrophes

### More technologies against disaster developed (short video)

[http://www3.nhk.or.jp/nhkworld/en/news/20160307\\_14/](http://www3.nhk.or.jp/nhkworld/en/news/20160307_14/)

Japanese electronics manufacturers are working to create a variety of technologies to cope with catastrophes. It's now days away from the 5th anniversary of the 2011 earthquake and tsunami in northeastern Japan.

Fuji Electric has an early warning system to detect possible damage to buildings soon after an earthquake strikes. It uses sensors to check if a building is at risk of collapsing.

It issues an alarm within minutes of a quake occurring, including one to evacuate.

NEC is working on analyzing camera footage in public places to identify likely accident spots. That's in case an earthquake or other disasters leave many commuters stranded at train stations and other areas.

Mitsubishi Electric wants to commercialize a technology to help with communication.

It sprays sea water into the air to form an antenna to receive television broadcasts or a phone signal. It uses the sea water's ability to conduct electricity.

March 8, 2016

## Vigilance must be redoubled to ensure safety

### Japan's nuclear watchdog chief urges safety vigilance by government, utilities

<http://www.japantimes.co.jp/news/2016/03/08/national/japans-nuclear-watchdog-chief-urges-safety-vigilance-government-utilities/#.Vt6im-aDmot>

Kyodo

The head of the Nuclear Regulation Authority is urging the government and utilities to redouble their vigilance to ensure reactor safety, warning them not to drop their guard simply because units have cleared the NRA's tough safety screening.

NRA Chairman Shunichi Tanaka, chairman of the Nuclear Regulation Authority, said passing the screening is "not enough" during an interview Monday ahead of Friday's fifth anniversary of the Fukushima No. 1 disaster.

The government calls the new regulations the best in the world and has promoted the restart of reactors that were taken offline in the wake of the Fukushima crisis.

Tanaka said the strict regulations should not promote any new "safety myth," referring to the pre-Fukushima situation in which nuclear plants in Japan were assumed to be accident-free.

"If they are to establish a new safety myth, it would be better to cancel nuclear power," he said.

Tanaka stressed that it is not just Tokyo Electric Power Co. but the entire nuclear industry that should bear responsibility for Fukushima, and that no reactor should be allowed to resume operations unless it is approved under the new regulations.

The NRA chairman said the situation at Fukushima No. 1 is calm, with cleanup work making steady progress.

But he expressed doubts about the efficacy of an underground ice wall that Tepco has built around reactor buildings to prevent groundwater from flowing into their basements.

The wall "will not essentially help reduce the risk" of an increase in toxic water, he said.

Decontamination work, on the other hand, is effective and should help more people return to their homes in the evacuation zones, as radiation levels in many such areas have fallen to acceptable levels, he said.

## Control rod trouble at Niigata plant

### Niigata nuclear reactor has control rod trouble

[http://www3.nhk.or.jp/nhkworld/en/news/20160308\\_29/](http://www3.nhk.or.jp/nhkworld/en/news/20160308_29/)

The operator of a nuclear power plant on the Sea of Japan coast says a control rod in an offline reactor has moved unexpectedly.

Tokyo Electric Power Company, or TEPCO, says the trouble occurred soon after 2 PM on Tuesday at the No.5 reactor of the Kashiwazaki-Kariwa plant in Niigata Prefecture.

TEPCO officials say an alarm indicated that **one of the reactor's 185 control rods moved out of its normal position.**

They say workers were at the time manipulating valves related to the control rods as part of regular inspections, but did not operate the rods.

They also say the rod returned to its normal position after about a minute.

TEPCO says the trouble caused no nuclear fission chain reaction and does not affect the surrounding area.

**Control rods are crucial for security in reactors.** The firm reported the trouble to the government and is investigating into the cause.

The reactor is a boiling-water type, the same as those at the damaged Fukushima Daiichi plant. It has been offline since 2012 for regular inspections.

## Urging Hong Kong to lift ban on Fukushima food

### Fukushima officials brief Hong Kong on food safety

[http://www3.nhk.or.jp/nhkworld/en/news/20160308\\_02/](http://www3.nhk.or.jp/nhkworld/en/news/20160308_02/)

Officials from Fukushima are urging Hong Kong to lift the import ban on food from the prefecture that was imposed after the nuclear accident nearly five years ago.

Hong Kong was the prefecture's biggest export destination before the Fukushima Daiichi nuclear power plant accident.

Japanese food is widely popular with Hong Kong consumers.

**The territory used to account for 80 percent of the prefecture's agricultural, forestry, and fisheries exports, including its specialty peaches.**

Hong Kong banned imports of fruit and vegetables from Fukushima and four other prefectures.

On Monday, Fukushima representatives briefed Hong Kong media and officials about on-going measures to ensure food safety. About 40 journalists and local officials attended the briefing.



Prefectural officials say radiation levels in most areas have dipped to about the same levels found in most other major cities in the world.

They also say none of the food which was tested for radioactive materials last year exceeded permissible levels, excluding some marine products. Prefectural officials are calling for the ban to be lifted.

A representative from a dried persimmon producer group says they peeled and decontaminated the bark from 250,000 persimmon trees.

He says it took three years to resume production.

One Hong Kong newspaper reporter confessed to not knowing about the food checks in the region, but said more trust should be placed in Fukushima.

Kenji Kokubun, who is in charge of agricultural produce distribution in Fukushima, says when people are not informed, they understand things wrongly and demagoguery and false rumors may appear.

He says producers would like to inform people of the checks that are in place, and get people to see how hard the farming community is working.

March 9, 2016

## No cesium found in meals

### Five years on, tests find no radioactive cesium in Fukushima meals

<http://www.japantimes.co.jp/news/2016/03/09/national/five-years-tests-find-no-radioactive-cesium-fukushima-meals/#.VuEg1eaDmot>

by Mizuho Aoki  
Staff Writer

A consumers' organization in Fukushima Prefecture has found no traces of radioactive cesium in meals produced by households in Fukushima Prefecture for a second straight year.

It tested meals prepared by residents with locally grown products and cooked in regular tap water. The findings underscore declining contamination in food five years after the nuclear disaster.

The annual study, conducted by Co-op Fukushima, checked for the presence of cesium-137 and 134 in meals prepared by 100 households in Fukushima over two consecutive days. The sampling was done between July last year and February.

The co-op asked each participant to prepare an extra portion when they cooked meals for their family.

Most of the participants used locally grown produce and tap water, but no cesium was found in the meals for the second year in a row, according to the report released Tuesday.

Given the result, the co-op said the likelihood of Fukushima residents continuously eating cesium-tainted meals is "extremely low."

A similar survey conducted recently by the Japanese Consumers' Co-operative Union (JCCU) also detected no radioactive cesium. It checked meals from 263 households in 19 prefectures, including Tokyo, Fukushima and Kanagawa.

Given the availability of such data, some countries have been easing restrictions on imported Japanese food imposed since the disaster.

In January, the European Union relaxed controls on imports, removing its requirement for some food items from Fukushima, including vegetables, livestock and tea, to be shipped with radiation inspection certificates.

But Japan is struggling to dispel lingering fears in some quarters over the safety of produce from Fukushima and other regions affected by the disaster.

In February, a government event in Seoul aimed at promoting food from Tohoku was cancelled at the last minute when South Korean civic groups lodged a protest over a plan to serve food from Fukushima.

Given such strong anxiety, South Korea has restricted seafood imports from eight prefectures, including Fukushima, Ibaraki, Gunma and Miyagi, since September 2013.

As of February, 12 nations, including South Korea, Taiwan, and the U.S., still had some kind of ban in place, according to the agricultural ministry data.

Many other countries, such as Indonesia, allow imports but require radiation inspection certificates or documents showing the prefecture of origin, the ministry said.

## Log production for Shiitake farming still quasi inexistent

### **FIVE YEARS AFTER: Radioactive forests prevent logging revival in Fukushima**

<http://ajw.asahi.com/article/0311disaster/recovery/AJ201603090060>

By YOSUKE FUKUDOME/ Staff Writer

TAMURA, Fukushima Prefecture--The once-thriving industry of log production for shiitake mushroom farming remains virtually nonexistent in Fukushima Prefecture after the 2011 nuclear disaster contaminated extensive mountain areas.

A year before the Great East Japan Earthquake and tsunami triggered the triple meltdown at the Fukushima No. 1 nuclear power plant on March 11, 2011, the prefecture produced logs for cultivating shiitake totaling 47,800 cubic meters, the third largest volume among Japanese prefectures.

But radioactive fallout from the nuclear accident meant that shiitake log production in the prefecture dwindled to about 1 percent of the pre-disaster level in 2014, which is having a serious impact on local industry.

In the Miyakoji district of Tamura, located about 20 kilometers inland from the crippled nuclear power plant, the lumber industry shipped around 200,000 logs annually before the 2011 disaster.

"More than 80 percent of this area's land is covered by forests, and we cannot think of any other business opportunities that don't involve forestry," said Shoichi Yoshida, a 60-year-old executive of the Fukushima Central Forestry Association.

While the evacuation order covering an eastern strip of the district was lifted in 2014, radioactive levels of trees in the district remain above target levels, and the resumption of shipments is still nowhere in sight.

However, local forestry workers still routinely cut down oak and other trees, which are more than 20 years old, to maintain the mountain area's capability of producing quality logs.

## Iitate after 5 years



The road to the Nagadoro district remains barricaded in this photo taken in the Fukushima Prefecture village of Iitate. (Mainichi)

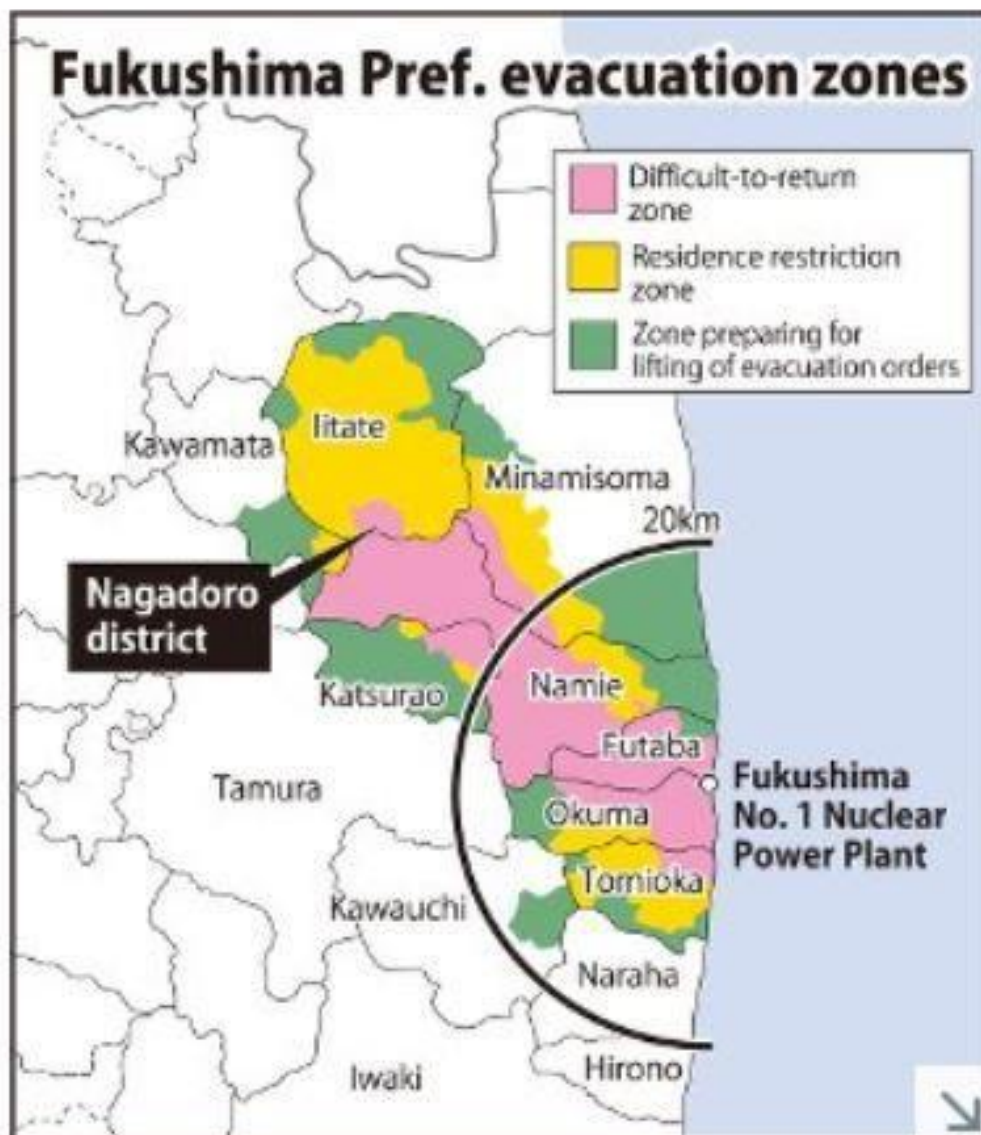
## 5 years after Fukushima meltdowns, off-limits zone in Iitate languishes

<http://mainichi.jp/english/articles/20160309/p2a/00m/0na/021000c>

To date, the government has avoided providing any outlook for decontamination of areas designated as "difficult-to-return" zones in the wake of the Fukushima nuclear disaster. And it has not given residents any idea of when they could return to those areas. But now, nearly five years after the meltdowns at the Fukushima No. 1 Nuclear Power Plant, officials are starting to consider the issue, and it is expected that guidelines will be presented from around this summer. Many evacuees have, however, already begun new lives in different parts of Japan, and it is feared that changing zone designations could drive a wedge between residents over whether to return home.

In the highland Abukuma region of eastern Fukushima Prefecture sit several settlements that have fallen silent. While most of the village of Iitate lies more than 30 kilometers away from the Fukushima No. 1 plant, the whole village was placed under an evacuation order because radioactive materials drifted northwest from the nuclear plant. In July 2012, when evacuated areas were re-designated, the Nagadoro district in the south of the village -- originally home to about 270 people -- was labeled a difficult-to-return zone, where radiation was not expected to fall below a government-set level for allowing residents to return even six years after the meltdowns. The district was the only one of 20 in the area to be barricaded off.

While decontamination proceeded in other areas in preparation for residents' return, the Nagadoro district languished. In December 2012, the Ministry of the Environment's Fukushima Office for Environmental Restoration held a briefing in the prefectural capital, and when a resident asked about decontamination of the Nagadoro district, the head of the office at the time responded, "We will conduct full-scale decontamination, though we can't say when." A year later, the ministry's guidelines for decontamination were revised, and the Nagadoro district was included as a place where decontamination was to be quickly considered. But under subsequent government policy, decontamination of difficult-to-return zones was limited to bases for town development -- and the Nagadoro district was left out. In November 2014, three years and eight months after the outbreak of the disaster, Iitate Mayor Norio Kanno, who was aiming for a return of all residents, held a meeting with central government officials. At a briefing, a resident of the Nagadoro district stated, "If everyone wants it, then we could change the designation from a difficult-to-return zone to a residence restriction zone (with a lower level of radiation), and decontamination work could go ahead." But participants failed to reach agreement. Yoshitomo Shigihara, chief of the Nagadoro district, expressed firm resistance, saying, "Why do we have to bow our heads to the government at this stage?"



A survey conducted by the Reconstruction Agency in fiscal 2014 found that 29.4 percent of Iitate residents wanted to return to the village, while 26.5 percent had decided not to. Restricted to the Nagadoro district, however, just 13 percent of residents said they wanted to return, while 50.7 percent said they would not go back. With no clear outlook from the government, 60 percent of residents are said to have moved into new places outside the village.

One 66-year-old living in an apartment rented for Iitate villagers in the Fukushima Prefecture city of Date commented, "We have no option but to decide to buy land in the places to which we've evacuated and live there." At the same, he expressed concern about fading ties to other villagers.

"If I shift my address, then I'll no longer be a resident of Iitate. Up until now residents have somehow managed to stay connected, but we'll all be split up," he reflected.

Some residents worry that if the Nagadoro district is delisted as a difficult-to-return zone and the evacuation order over the village is lifted, then it will no longer be eligible for the special measures afforded to such areas. Compensation for psychological damage to residents of the district has already been paid in a lump sum, and building sites and structures are regarded as write-offs, so even if the current designation is lifted, the amount of compensation is unlikely to change. Still, the government provides additional measures, such as medical fee exemptions, and in other areas where evacuation orders have already been lifted, the government has cut off support to households earning over a certain amount.

March 10, 2016

## Court questions safety standards

### Court questions credibility of safety standards as it orders suspension of 2 reactors

<http://mainichi.jp/english/articles/20160310/p2a/00m/0na/015000c>

The Otsu District Court's latest decision to issue a provisional injunction ordering Kansai Electric Power Co. to suspend operations at two reactors at its Takahama Nuclear Power Plant could affect efforts by utilities to reactivate other nuclear reactors that have been put offline in the wake of the March 2011 Fukushima nuclear disaster.

It was the first injunction to be issued by a Japanese court for nuclear reactors that were reactivated after clearing what the Nuclear Regulation Authority (NRA) calls the "world's strictest" safety standards adopted after the Fukushima nuclear disaster. As a result of evacuation areas for residents being expanded in the wake of the Fukushima crisis, lawsuits seeking injunctions against operating nuclear reactors have been filed not only in the prefectures hosting atomic facilities but also in their neighboring prefectures, threatening to affect reactivations of reactors at other nuclear plants.

Court decisions over the Takahama nuclear plant in Fukui Prefecture have flip-flopped in the past. In April 2015, the Fukui District Court issued a provisional injunction ordering Kansai Electric to stop operating the two reactors. But the court decided to lift the injunction after examining the utility's objection in December 2015, paving the way for Kansai Electric to reactivate the reactors. On March 9, the Otsu District Court issued a fresh provisional injunction ordering the utility to halt operations of the two reactors.

The key point of the courts' decisions stemmed from the interpretation of the Supreme Court's ruling in 1992 over the Ikata Nuclear Power Plant run by Shikoku Electric Power Co. The ruling has been regarded as a model case for lawsuits filed in recent years over nuclear reactors. It is based on the notion that decisions over the safety of nuclear reactors are virtually left to administrative judgment, and the national government and relevant utilities are responsible for verifying the safety of their reactors.

The first ruling by the Fukui District Court to order Kansai Electric to halt the operations of the Takahama reactors did not touch on whether utilities such as Kansai Electric were held responsible to verify the safety of their reactors, But it pointed out that the "new standards lack rationality."

The two subsequent court decisions, however, were completely opposite to each other over whether power companies are responsible to verify the safety of their reactors. The Fukui District Court's examination panel on objections, that allowed the utility to reactivate the two reactors, stated that "Kansai Electric's responsibility to verify (the safety of the reactors) has sufficiently been fulfilled." The decision paved the way for the reactivation in January this year of the No. 3 reactor at the Takahama plant.

However, while adhering to the Supreme Court's ruling on the Ikata nuclear plant, the Otsu District Court clearly stated, "Kansai Electric has not fully verified (the safety of the reactors) and it is assumed that there are irrational points." It also repeatedly criticized the utility's lack of explanations, saying, "Kansai Electric should present how it has strengthened its safety measures and how it has responded in light of the Fukushima accident."

As for investigations into the causes of the Fukushima disaster, the Otsu District Court stipulated, "The investigations have not moved forward and they are half way through." It went on to criticize the NRA, which compiled the new safety standards, stating, "Investigating the causes of the accident is absolutely necessary to ensure the safety (of nuclear reactors), but if no care is taken over such points, we feel very uneasy (about nuclear reactor safety)." It added, "We must say we are hesitant about reactors immediately becoming a foundation for public peace even if they pass (the new safety standards)."

The Otsu District Court also made reference to the insufficiency of evacuation plans in the event of a nuclear accident. Evacuation plans are not subject to the NRA's safety screening. The central government has no functions to check them, either. The Otsu court emphasized, "There is a need for the government to take the lead in drawing up concrete evacuation plans at an early date."

The latest ruling came after residents of Shiga Prefecture filed a lawsuit seeking a provisional injunction against the operation of the nuclear reactors in the adjoining Fukui Prefecture. The court accepted the plaintiffs' demands, underscoring the trend toward lawsuits being filed in wider areas.

Prior to the Fukushima nuclear disaster, most of the designated evacuation areas were those within an 8- to 10-kilometer radius of nuclear plants. But in response to the Fukushima accident, the central government expanded such evacuation areas to a 30- kilometer radius of a nuclear power plant. Part of Shiga Prefecture falls within a 30-kilometer radius of the Takahama nuclear plant. The plaintiffs argued that if a nuclear accident causes dispersion of radioactive materials, Lake Biwa, which is the source of water for 14 million people in the Kinki region, could be contaminated. If similar lawsuits covering wider areas were to increase, efforts to restart other nuclear reactors could be also hampered.

## **IAEA: Making Nuclear Power Safer**

Includes a  
**7.30 minutes video**

## **Five Years After Fukushima: Making Nuclear Power Safer**

<https://www.iaea.org/newscenter/news/five-years-after-fukushima-making-nuclear-power-safer>

By Nicole Jawerth, IAEA Office of Public Information and Communication

It has been five years since the accident at the Fukushima Daiichi Nuclear Power Plant. In marking the anniversary this week, IAEA Director General Yukiya Amano recognized the progress made in Japan and worldwide in nuclear safety since the accident, but underscored the importance of all countries remaining vigilant in putting safety first.

“The immense human impact of these events should not be forgotten,” said Director General Amano this week. “In the case of Fukushima Daiichi, tens of thousands of people who were evacuated from their homes have still not been able to return.”

“I am confident that the legacy of Fukushima Daiichi will be a sharper focus on nuclear safety everywhere. There is widespread recognition that everything humanly possible must be done to ensure that no such accident ever happens again. This is all the more essential as global use of nuclear power is likely to continue to grow in the coming decades.”

Watch this video to learn more about the accident and the IAEA’s activities: Fukushima — the Road to Recovery: Five Years of IAEA Action.

### **Responding to the crisis**

On 11 March 2011, a massive earthquake and tsunami in Japan led to the worst accident at a nuclear power plant since the Chernobyl accident in 1986. The IAEA’s Incident and Emergency Centre was immediately activated in full response mode, bringing together a team of experts in nuclear safety, emergency response, and radiation protection. The Centre collected and analysed data and provided regular up-dates to IAEA Member States, international organizations, the media and the public. It also coordinated and provided international assistance to Japan.

Three months later, the IAEA hosted a Ministerial Conference on Nuclear Safety. This paved the way for the unanimous endorsement of the IAEA Action Plan on Nuclear Safety by IAEA Member States in September 2011, which has since fostered international collaboration toward strengthening global nuclear safety.

“Although nuclear safety remains the responsibility of each individual country, nuclear accidents can transcend national borders. The Fukushima Daiichi accident underlined the vital importance of effective international cooperation. The IAEA is where most of that cooperation takes place,” said Mr Amano.

### **Acting on lessons learned**

More than 1000 IAEA activities have been undertaken and implemented under the Action Plan, including international experts’ meetings, conferences and workshops. IAEA safety standards have been reviewed to reflect lessons learned, IAEA safety peer review services have been strengthened, and the number of safety peer reviews for operators and regulators in Member States has increased.

Since the accident, there have been many analyses of its causes and consequences, as well as detailed considerations of its implications and measures taken for nuclear safety by IAEA Member States. These measures include carrying out ‘stress tests’ to reassess the design of nuclear power plants against site specific extreme natural hazards; installing additional backup sources of electrical power and supplies of

water, and strengthening the protection of plants against extreme external events; and changes and reforms of organizational and regulatory systems.

The IAEA has supported the efforts in Japan by sending more than ten expert missions to advise the country in various areas, including safety and technological aspects of decommissioning and remediation. The IAEA has contributed to monitoring radioactivity in seawater by providing an independent assessment of Japan's own measurements, and has been supporting several projects in the Fukushima Prefecture. The IAEA continues to assist Japan in communicating factual information to Member States and the public worldwide.

Recently, an IAEA team of international experts assessed the regulatory framework for nuclear and radiation safety including emergency preparedness in Japan, which was transformed and strengthened following the accident. The team made recommendations and suggestions for enhancing Japan's regulatory framework and identified good practices. The mission found that the Japanese regulatory body had demonstrated independence and transparency, but there would be significant challenges in the years to come.

In August 2015, the IAEA published The Fukushima Daiichi Accident Report by the Director General, along with five technical volumes prepared by international experts, assessing the cause and consequences of the accident. The publication brings together lessons learned from the accident and provides a valuable resource to all countries that use, or plan to use nuclear power. It considers the accident itself, emergency preparedness and response, radiological consequences, post-accident recovery and the activities of the IAEA since the accident.

"Some of the factors that contributed to the Fukushima Daiichi accident were not unique to Japan," said Director General Amano. "Continuous questioning and openness to learning from experience are key to safety culture and are essential for everyone involved in nuclear power. Safety must always come first."

### **The way forward**

While much has already been achieved in Japan and elsewhere in strengthening nuclear safety, there can be no grounds for complacency about nuclear safety in any country, said Mr Amano. The IAEA will continue to support its Member States in their efforts to enhance nuclear safety.

"In the last few years, Japan and other users of nuclear power have taken important steps to address these and other nuclear safety issues. In fact, I have seen major improvements in safety in every nuclear power plant that I have visited since the accident," said Mr Amano. "I believe the key message — that complacency about safety must be avoided at all costs — is fully understood."

March 11, 2016

## **Takahama No.3 shutdown**

### **Takahama nuclear reactor shutdown following court order**

<http://mainichi.jp/english/articles/20160310/p2g/00m/0dm/087000c>



FUKUI (Kyodo) -- Kansai Electric Power Co. halted on Thursday a reactor at its Takahama nuclear power plant a day after a court ordered the utility to shut it down.

- **【Related】** Court questions credibility of safety standards as it orders suspension of 2 reactors
- **【Related】** Takahama reactor injunction torpedoes Kansai Electric's business strategy
- **【Related】** Residents rejoice over court order to halt Takahama nuke plant reactors

The other reactor at Takahama subject to the court order, the No. 4 unit, was already offline. The No. 3 unit, which was reactivated Jan. 29, is the first active reactor in Japan to be suspended under a court injunction. The utility cannot reactivate the two units unless the order is overturned.

The No. 4 unit was restarted Feb. 26 but automatically shut down three days later due to an equipment problem. It was brought into a state of cold shutdown to investigate the cause of the trouble.

On Wednesday, the Otsu District Court ordered that the two reactors be halted as requested by local residents, citing "problematic points" in planned responses for major accidents, and "questions" on tsunami countermeasures and evacuation planning.

The ruling was a blow to the government's push for nuclear power under stricter safety requirements introduced after the 2011 Fukushima disaster.

Prime Minister Shinzo Abe said that the government will continue to seek the restart of reactors that have cleared the new safety regulations to ensure stable power supply in resource-poor Japan.

"I hope Kansai Electric will provide further explanations about the safety (of the reactors), and the government will also give guidance," Abe said at a press conference on the eve of the fifth anniversary of the devastating March 11, 2011 earthquake and tsunami, which triggered the Fukushima nuclear plant disaster.

The order came as Japan was on course to become reliant on nuclear power again after two reactors at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture were brought back online last year, followed by another two at the Takahama plant in Fukui Prefecture earlier this year.

The government looks to derive 20 to 22 percent of the country's electricity from nuclear power in 2030 by bringing reactors back online after the Fukushima disaster led to a nationwide shutdown of nuclear plants.

The No. 3 and 4 units run on mixed oxide or MOX fuel, which is created using plutonium and uranium extracted from spent nuclear fuel. It is a key component of the nuclear fuel cycle pursued by the nuclear power industry and the government.

## Long road to decommissioning



Rows of massive tanks storing radiation contaminated water line at the Fukushima No. 1 nuclear power plant in February. (Satoru Semba)

## **FIVE YEARS AFTER: Tougher work awaits TEPCO at Fukushima after water issue ends**

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201603110047>

OKUMA, Fukushima Prefecture--The ever-increasing rows of tanks storing radioactive water continue to eat up the precious available land at the Fukushima No. 1 nuclear power plant.

Five years after the Great East Japan Earthquake and tsunami on March 11, 2011, triggered the triple meltdown at the plant, Tokyo Electric Power Co. is still struggling to bring the contaminated water problem under control.

And the utility has yet to fully tackle the more difficult and time-consuming task of actually decommissioning the ruined nuclear plant.

Each day, TEPCO circulates 300 tons of water inside the No. 1 to No. 3 reactors to cool down the melted nuclear fuel within.

In addition, groundwater keeps flowing into the damaged reactor buildings and inevitably becomes highly contaminated by the radiation.

TEPCO reuses some of this contaminated water to cool down the damaged reactors.

The rest of the water is processed through the ALPS (advanced liquid processing system) multi-nuclide removal system and other equipment to remove highly radioactive substances. The water is then stored in tanks.

The advanced decontamination equipment has helped TEPCO to reduce the amount of highly contaminated water at the plant's compound.

But 400 to 500 tons of less contaminated water still accumulates at the plant site on a daily basis. To reduce the amount of groundwater flowing into the reactor buildings, TEPCO initiated its “subdrain plan” in September to pump groundwater from wells dug around the reactors’ premises and release the water into the ocean after the decontamination process.

On the seaside of the reactor buildings, the utility constructed underground walls to prevent contaminated groundwater from flowing into the sea.

Also around the reactor buildings, TEPCO installed coolant pipes to create an underground frozen soil wall, which is expected to divert the clean groundwater directly to the ocean.

But this is only a stop-gap measure at best.

The number of storage tanks, which are built at the site, has reached 1,000. Rows of tanks cover most of the parking lots, green spaces and vacant areas at the Fukushima plant site. Eventually, space will run out for storing the contaminated water.

The government will start full-fledged discussions on measures to reduce the amount of less contaminated water at the plant in fiscal 2016, which starts in April.

### **LONG ROAD TO DECOMMISSIONING**

Five years after the onset of the nuclear disaster, TEPCO has taken the first step in its decommissioning road map.

The first major challenge in decommissioning the plant is removing spent fuel from storage pools in the upper parts of the reactor buildings.

TEPCO has already removed 1,535 fuel assemblies from the No. 4 reactor, which was offline for a periodic safety check when the tsunami slammed into the plant.

However, a large amount of debris and the high radiation levels have delayed the removal of spent fuel from the No. 1 to No. 3 reactor buildings.

Work is under way to remove debris from the upper part of the No. 3 reactor building. TEPCO plans to start removing the spent fuel in fiscal 2017.

According to TEPCO’s road map, the removal of spent fuel from the No. 1 and No. 2 reactor buildings will start in fiscal 2020. But the utility has not started taking debris out of the upper part of the buildings where the fuel storage pools are located.

The toughest task will be removing the melted fuel inside the No. 1 to 3 reactor containment vessels.

The locations and amount of melted fuel inside the reactors remain largely unknown. Extremely high radiation levels in the reactor containment vessels have prevented workers from analyzing the conditions. Even remote-controlled survey robots have failed to readily approach the core areas.

The preferred way to remove the melted fuel is the “water-covered method.” It involves pumping in water to fill the reactor containment vessels to the upper part and removing the fuel while the water keeps radiation exposure of the workers at low levels.

The government and TEPCO are also considering the “airborne method” if contaminated water keeps leaking from the containment vessels. Under this method, water would fill only the bottom part of the containment vessels, and the melted fuel would be removed through the air.

The two parties also need to develop special equipment to remove the melted fuel and keep it safely stored in containers.

They estimate the decommissioning process will take 30 to 40 years. But they have not specified the conditions that can finally bring an end to the nuclear disaster.

## Fukushima fishermen still worry

### Catch limits, safety worries take toll on Fukushima fishery

<http://features.japantimes.co.jp/march-11-radiation/#part3>

KAZUAKI NAGATA

Staff writer

**IWAKI, FUKUSHIMA PREF.** — Over the past five years, fishermen in the disaster-struck regions of Miyagi and Iwate prefectures have revived their industry, steadily increasing the catch and shipment of oysters, seaweed and other local specialties.

But for the fishing industry in Fukushima Prefecture, the turnaround has been slow, and plagued by the impact of the nuclear disaster that caused massive amounts of radioactive water to flow to the Pacific Ocean.

“I think we are making some progress. The fishermen couldn’t fish for more than a year (after 3/11),” said Yoshihisa Komatsu, deputy director of administration at the Fukushima Prefectural Federation of Fisheries Cooperative Associations. But the speed of the progress “is slow, as it’s been already five years,” he said.

Recovery for Fukushima’s fishing industry has come in small steps. After March 11, 2011, fishermen voluntarily stopped fishing. They resumed in June 2012, although only on a trial basis, and the government slapped an outright ban on the sale of certain species deemed likely to be radioactive. The blacklist affected more than 35 types of fish caught off the Fukushima coast, which was famous for flounder, angler fish and rockfish.

Under the trial, fishing boats were allowed to catch a small amount of other species but were required to check their radiation levels. If the fish were found to be uncontaminated, they were shipped off to market. The goal is to see the reaction of consumers, who have largely avoided eating fish from the prefecture due to radiation worries.

The catch has significantly gone down in Fukushima, with only about 5,600 tons of fish caught in 2015, down from about 38,600 tons before 3/11.

To increase the catch, Komatsu said it was essential to lift the shipping ban.

“We can make the first step (toward full recovery) once the ban is lifted from all fish,” said Komatsu.

While the sales ban on several species has been lifted, 28 kinds of fish remain on the list.

Trial fishing, meanwhile, has been expanded from three species to 72.

In addition, radiation-contaminated fish have drastically decreased.

According to the prefecture, about 50 percent of the fish samples tested for radiation levels exceeded the government-designated maximum of 100 becquerels per kilogram right after the nuclear disaster started in 2011. But after April 2015, no fish has exceeded that limit.

As a result, the Fukushima fisheries cooperative federation is now looking to expand the permissible fishing area closer to the Fukushima No. 1 plant.

Currently, fishermen can only fish outside of a 20-km radius of the plant. They want to expand this to a 10-km radius after Tokyo Electric Power Co. last October completed a sea wall that blocks contaminated groundwater from reaching the Pacific. Since then, the level of contamination near the plant has decreased.

While many take this as a positive sign toward recovery, concerns remain.

“If some fish show high levels of contamination, it could hurt efforts to fight the harmful rumors” about the safety of products from the area, Komatsu said.

Fukushima has suffered from a tainted image due to the Fukushima nuclear plant calamity, affecting everything from farm to marine products — something the prefecture has constantly been fighting.

“The harmful rumors need to end to some degree before the trial fishing ends and full-scale fishing resumes,” said Hiromitsu Endo, who represents distributor in Iwaki, Fukushima Prefecture.

Currently, his association of 28 distributors sell fish caught under the trial to the market.

But once fishing returns to full scale, the association will be disbanded, with each firm left on their own to sell their catch to customers. If the bad image remains, they fear they will have a hard time.

“It will be too late to start fighting the harmful rumors then,” Endo said.

Even five years after the disaster started, the harmful rumors persist, he said.

Although Fukushima Prefecture monitors radiation levels of fish, shipping only products that are not contaminated, distributors said some stores were reluctant to market the products because they didn’t sell well.

To wipe out the bad image, Komatsu of Fukushima fisheries cooperative said the industry needed to keep proving through trial fishing that the fish being sold was safe.

“The harmful rumors need to end to some degree before the trial fishing ends and full-scale fishing resumes.”

March 12, 2016

## **Gov't OKs use of SPEEDI data for local bodies' nuclear evacuations**

<http://mainichi.jp/english/articles/20160312/p2a/00m/0na/020000c>

The government on March 11 decided to allow local bodies to use SPEEDI, a computer system designed to predict the spread of radiation in the event of a nuclear disaster, when they are evacuating their residents. The decision was reached by Cabinet ministers in a meeting on nuclear power. It will be incorporated in the government's basic disaster prevention plan in the near future.

In its guidelines for nuclear emergency preparedness, the Nuclear Regulation Authority (NRA) has a policy of not using SPEEDI, formally known as the System for Prediction of Environment Emergency Dose Information. But bodies including the National Governors' Association have made strong calls to utilize the system, prompting a change in government policy.

SPEEDI was not put to use in evacuations following the outbreak of the Fukushima nuclear disaster, and the NRA has therefore decided to base evacuation decisions on such factors as state of the nuclear reactor and actual measurements in surrounding areas, without using SPEEDI.

With the NRA set on its policy of not using SPEEDI data for evacuations, in the event of a nuclear disaster there may be discrepancies between the decisions of the NRA and local bodies over the evacuation of residents, resulting in confusion.

The government says that it will make arrangements with local bodies over how SPEEDI is used in the future. According to a government plan, when local bodies are instructing residents on evacuation routes and destinations in the event of a nuclear disaster, central government officials will not obstruct the use of SPEEDI as a source of information.

Government officials are set to discuss concrete application of the system in the future, including whether local bodies will use SPEEDI of their own accord or whether they will have the Japan Atomic Energy Agency, which holds SPEEDI information, provide data. If local bodies operate the system, then the government will provide financial support.

Separately, the government has decided to allow local bodies at their own discretion to provide stable iodine tablets to residents within 30 kilometers of a nuclear power plant to prevent thyroid gland radiation exposure to prepare for a nuclear accident. As a rule, officials had previously restricted distribution to a radius of 5 kilometers from a nuclear plant. The government will cover distribution expenses.

SPEEDI, which incorporates weather patterns in its dispersion predictions, was developed following the Three Mile Island nuclear accident in the United States in 1979. Roughly 12.4 billion yen has been spent on the system.

March 13, 2016

## Tarachine: Mothers set up radiation lab

**French translation available at :**

[http://www.fukushima-blog.com/?utm\\_source=\\_ob\\_email&utm\\_medium=\\_ob\\_notification&utm\\_campaign=\\_ob\\_pushmail](http://www.fukushima-blog.com/?utm_source=_ob_email&utm_medium=_ob_notification&utm_campaign=_ob_pushmail)

### **The mothers who set up a radiation lab**

<http://www.bbc.com/news/magazine-35784923?SThisFB>

By Alessia Cerantola BBC World Service, Iwaki

- From the section Magazine



Five years ago an earthquake off the coast of Japan triggered a tsunami and a series of meltdowns at the Fukushima nuclear plant. Kaori Suzuki's home is nearby - determined to stay, but worried about her children's health, she and some other mothers set up a laboratory to measure radiation.

A woman in a white lab coat puts some yellow organic material on a slide, while grey liquid bubbles in vials behind her. Other women, one of them heavily pregnant, discuss some data on a computer screen. A courier delivers a small parcel which is opened and its contents catalogued.

But this is no ordinary laboratory. None of these women trained as scientists. One used to be a beautician, another was a hairdresser, yet another used to work in an office. Together they set up a non-profit organisation - Tarachine - 50km (30 miles) down the coast from the Fukushima nuclear plant, to measure radiation in the city of Iwaki.

Kaori Suzuki, the lab's director, shows me a list of results. "This is the level of strontium 90 in Niboshi, dried small sardines, from the prefecture of Chiba," she says.

"What about this food?" I ask, pointing out a high number.

"Mushrooms have higher levels [of radiation]. The government has forbidden people from eating wild mushrooms, but many people don't care, they take them and eat," she says.

The lab mainly measures the radioactive isotopes caesium 134 and 137, and collects data on gamma radiation. Strontium 90 and tritium were only added to the list in April last year. "Since they emit only beta rays we weren't able to detect them until recently. Specific tools were necessary and we couldn't afford them," says Suzuki. Thanks to a generous donation, they now have the right equipment.

Tarachine publishes its findings online every month, and advises people to avoid foods with high readings as well as the places they were grown.

★Gamma-ray		(Bq/Kg raw:Weight of raw sample Bq/Kg dry:Weight of dried sample)						
Samples	Sampling Point	Sampling Month	Measurement Result	Uncertainty	Total Amount of Caesium	Minimum Limit of Detection		
Rice	Aizu	Oct-15	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	2.5
			Cs134	—	± —		Cs134	2.3
Rice	Ishikawa Ishikawa	Oct-15	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	2.2
			Cs134	—	± —		Cs134	2.1
Brown rice	Sakai Osaka	Oct-15	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	1.1
			Cs134	—	± —		Cs134	1.0
Yuzu (citrus fruits)	Hobara Date	Jan-16	Cs137	8.8	± 2.5	12.0	Cs137	2.4
			Cs134	3.2	± 1.6		Cs134	2.3
Lemon	Ena Iwaki	Jan-16	Cs137	6.5	± 2.4	6.5	Cs137	4.7
			Cs134	—	± —		Cs134	—
Kawano-natsudaidai orange (without peel)	Yunagaya Jyoban Iwaki	Jan-16	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	1.2
			Cs134	—	± —		Cs134	1.1
Apple (without peel)	Fukushima	Dec-15	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	2.7
			Cs134	—	± —		Cs134	2.5
Butterbur sprout	Kubo Kashima Iwaki	Jan-16	Cs137	—	± —	Under Minimum Limit of Detection	Cs137	2.3
			Cs134	—	± —		Cs134	2.6
Dried persimmon	Youno Iwaki	Oct-15	Cs137	3.2	± 1.5	3.2	Cs137	2.1
			Cs134	—	± —		Cs134	1.7
Pollution raw wood shiitake mushrooms	Nagasaki Iwaki	Jan-16	Cs137	198	± 40.0	253	Cs137	8.1
			Cs134	54.9	± 12.8		Cs134	7.4
Thinly sliced and dried strips of radish	Tabito Iwaki	unknown	Cs137	3.4	± 1.9	3.4	Cs137	2.8
			Cs134	—	± —		Cs134	2.5
Thinly sliced and dried strips of radish	Iwaki	unknown	Cs137	4.2	± 2.7	4.2	Cs137	3.9
			Cs134	—	± —		Cs134	3.6

Image copyright Tarachine

## Find out more

- Kaori Suzuki spoke to Outlook on the BBC World Service

Five years ago, Suzuki knew nothing about radiation. She spent her time looking after her two children and teaching yoga. The earthquake on 11 March 2011 changed everything.

"I've never experienced so much shaking before and I was very scared. Right from the moment it started I had a feeling that something might have happened to the nuclear plant," she says. "The first thing I did was to fill up my car with petrol. I vividly remember that moment."

The authorities evacuated the area around the nuclear plant - everyone within a 20km (12-mile) radius was told to leave, and those who lived up to 30km (18 miles) away were instructed to stay indoors. Despite living outside the exclusion zone, Suzuki and her family fled and drove south. The roads were congested with cars and petrol stations ran dry.

"We didn't come back home until the middle of April and even then we wondered if it was safe to stay," says Suzuki. "But my husband has his own business with 70 employees, so we felt we couldn't leave."

Although radiation levels in Iwaki were officially quite low, the "invisible enemy" was all people could talk about. Conversations with friends changed abruptly from being about children, food and fashion, to one topic only: radiation. "You can't see, smell or feel it, so it is something people are afraid of," says Suzuki. Above all, people didn't know what was safe to eat.

"It was a matter of life and death," she says.

Fukushima is farming country and many people grow their own vegetables. "People here love to eat home-grown food and there's a strong sense of community with people offering food to their friends and neighbours," says Suzuki. This caused a lot of anxiety. "A difficult situation would arise where grandparents would be growing food, but younger mothers would be worried about giving it to their children."

Suzuki formed the group "Iwaki Action Mama" together with other mothers in the area. At first they organised demonstrations against nuclear power, but then they decided on a new tactic - they would learn how to measure radiation themselves.

They saved and collected \$600 (£420) to buy their first Geiger counter online, but when it arrived the instructions were written in English, which none of them understood. But they persevered and with the help of experts and university professors, organised training workshops. Soon they knew all about becquerels, a unit used to measure radiation, and sieverts, a measure of radiation dose. They would meet at restaurants and cafes to compare readings.

## Becquerels and Sieverts

- A becquerel (Bq), named after French physicist Henri Becquerel, is a measure of radioactivity
- A quantity of radioactive material has an activity of 1Bq if one nucleus decays per second - and 1kBq if 1,000 nuclei decay per second
- A sievert (Sv) is a measure of radiation absorbed by a person, named after Swedish medical physicist Rolf Sievert



In November 2011 the women decided to get serious and set up a laboratory. They raised money and managed to buy their first instrument designed specifically to measure food contamination - it cost 3 million yen (£18,500, or \$26,400).

They named the laboratory Tarachine, which means mothers - in particular, "beautiful mothers that protect their families" according to Suzuki.

"We felt as though we were on the front line of a battlefield," Suzuki says. "When you're at war you do what you have to do, and measuring was the thing we felt we had to do."

Image copyright Emanuele Satolli

Today Tarachine has 12 employees, and more work than it can handle. People bring in food, earth, grass and leaves from their backyards for testing. The results are published for everyone to see. At first the lab was able to provide results after three or four days, but its service has become so popular it can hardly keep up. "We have so many requests for strontium 90 now that it can take three months," says Prof Hikaru Amano, the lab's technical manager.

Amano confesses he was surprised that a group of amateurs could learn to do this job so accurately, but says it is important work.

People began to mistrust the nuclear contamination data provided by the government and by the Tokyo Electric Power Company (Tepco), which manages the nuclear plant, he says.

About 100 so-called "citizen laboratories" have since sprung up, but Tarachine is unusual because it monitors both gamma and beta rays - most can only measure gamma rays - and because it tests whatever people want, whether it's a home-grown carrot or the dust from their vacuum-cleaner.

The government does take regular readings from fixed points in Fukushima prefecture. It also check harvests and foods destined for the market - for example, all Fukushima-grown rice is required to undergo radiation checks before shipping.

But "if you want to know the level of strontium and tritium in your garden, the government won't do this measurement," says Suzuki. "If you decide to measure it yourself, you'll need 200,000-250,000 yen (£1,535, or \$2,200) for the tests, and ordinary people can't afford to pay these costs. We have to keep doing this job so that people can have the measurements they want." Tarachine only charges a small fee - less than 3,000 yen (£18, or \$27).

Image copyright Emanuele Satolli Image caption Mother of two Kaori Suzuki now spends much of her time at the laboratory

Tarachine also provides training and equipment to anyone who wants to do their own measurements.

"Some of the mothers measure soil samples in their schools. It's fantastic, they really have become quite skilled at doing this," says Suzuki.

And the group keeps an eye on children's health. It runs a small clinic where doctors from all over Japan periodically come to provide free thyroid cancer check-ups for local children. Since screening began, 166 children in Fukushima prefecture have been diagnosed with - or are suspected of having - thyroid cancer. This is a far higher rate than in the rest of the country, although some experts say that's due to over-diagnosis.

And for parents who want to give their children a break from the local environment, Tarachine even organises summer trips to the south of the country.

Suzuki's own life has changed dramatically since 2011. "I was just a simple mother, enjoying her life. But ever since I started this, I've been spending most of my time here, from morning to night," she says. "I must admit, sometimes I think it would be really nice to have a break, but what we are doing is too important. We're providing a vital service."

"If you want to have peace of mind after an accident like the Fukushima one, then I believe you need to do what we're doing."

Kaori Suzuki spoke to *Outlook on the BBC World Service*

March 14, 2016

## Useless radiation monitors

### Half of radiation monitors around Kagoshima plant not up to the job

<http://www.japantimes.co.jp/news/2016/03/14/national/half-of-radiation-monitors-around-kagoshima-plant-not-up-to-the-job/#.VuaLoeaDmot>

Kyodo

KAGOSHIMA – About half of the monitoring posts around an active nuclear power plant in Kagoshima Prefecture are unable to detect the high radiation levels that would spark an immediate evacuation of residents.

Of 48 monitoring posts installed within 5 to 30 kilometers of Kyushu Electric Power Co.'s Sendai plant, 22 can only detect radiation levels of up to 80 microsieverts per hour — far lower than the 500 microsieverts per hour that would spark an immediate evacuation. The plant was restarted last year.

The government's guidelines say residents within a 5-km radius of nuclear plants must evacuate immediately in the event of a severe accident, but that those living between 5 and 30 km of the site should take shelter first and then evacuate if a radiation dose of 500 microsieverts per hour is detected.

A Kagoshima Prefectural Government official said there is "no problem" with its monitoring, because the government will make a decision on any evacuation based on data from nearby devices that can measure high radiation levels, and portable measuring devices can also be used.

But of the 44 portable devices that the government can use, 30 can measure radiation levels of up to only 100 microsieverts per hour. Moreover, the government may be unable to use the devices at the locations it wants to, such as if an earthquake or other natural disaster were to sever roads and disrupt traffic.

The local government installed the 48 monitoring posts ahead of the restart of the No. 1 reactor at the Sendai plant last August, which became the nation's first unit to be brought back online after stricter safety regulations were introduced following the 2011 Fukushima nuclear disaster.

Meanwhile, a newspaper reported Monday that Kyoto Prefecture has missed its own target for setting up monitoring posts around Kansai Electric Power Co.'s Takahama nuclear power plant in neighboring Fukui Prefecture.

The Asahi Shimbun said Kyoto Prefecture planned to set up monitoring posts at 41 locations, but as of the end of February, 27 monitoring posts were not in place.

This means the No. 3 reactor restarted operations in January without the ability in place to assess fully the fallout from an accident. The newspaper quoted the prefecture as saying it will set up the remaining 27 posts by the end of this month.

Takahama's No. 3 reactor was halted after the Otsu District Court last week imposed a provisional injunction on its operation.

## **Useless radiation tools installed for evacuations near Kagoshima plant**

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201603140026](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201603140026)

Nearly half of the radiation monitoring posts installed for issuing evacuation orders around the Sendai nuclear plant in Kagoshima Prefecture are actually useless for that purpose, The Asahi Shimbun has learned.

In the event of a nuclear accident, evacuation orders are issued immediately when airborne radiation levels reach 500 microsieverts per hour. But 22 of the 48 monitoring posts around the Sendai plant can only measure radiation levels up to 80 microsieverts per hour, according to a survey on the equipment. The Kagoshima prefectural government installed the monitoring posts in a range of 5 kilometers to 30 km from the Sendai plant before Kyushu Electric Power Co. resumed its operations in August last year. The No. 1 reactor at the plant was the first to be restarted under the Nuclear Regulation Authority's stricter safety regulations imposed after the 2011 Fukushima nuclear disaster.

An official of Kagoshima Prefecture's nuclear safety measures division played down the limits of the radiation measuring devices if evacuations must be ordered.

"It will be no problem because we can monitor radiation levels with other monitoring posts nearby or transportable monitoring equipment," the official said.

However, The Asahi Shimbun's survey found that 30 of the prefecture's 44 portable monitoring devices are incapable of surveying radiation levels exceeding 100 microsieverts per hour.

The third and fourth reactors to go online under the NRA's stricter standards were the No. 3 and No. 4 units at Kansai Electric Power Co.'s Takahama nuclear power plant in Fukui Prefecture.

The Asahi Shimbun found that neighboring Kyoto Prefecture had installed only 14 of the planned 41 monitoring posts in the vicinity of plant at the end of February, after the No. 3 reactor resumed operations on Jan. 29 and the No. 4 unit was restarted on Feb. 26.

The Kyoto prefectural government compiled a plan to install the 41 monitoring posts within the area between 5 km and 30 km from the Takahama plant in line with the NRA Secretariat's guideline to place them at a distance of every 5 km.

"While we were still deliberating on the locations of the monitoring posts, the plant went ahead with restarting the reactors," said an official at the prefectural government's Environmental Management Division.

The prefecture plans to install the remaining 27 monitoring posts by the end of this month.

"It is problematic for utility companies to restart nuclear reactors before the installation of radiation monitoring posts is sufficient," said an official at the NRA Secretariat.

Technical problems caused the No. 4 reactor to automatically shut down only three days after it was restarted. A landmark court injunction on March 9 ordered Kansai Electric to halt operations of both reactors.

The situation concerning the monitoring posts indicates that local governments compiling evacuation plans cannot keep pace with the drive of utilities to restart their nuclear reactors.

Following the triple meltdown at the Fukushima No. 1 nuclear power plant, triggered by the Great East Japan Earthquake and tsunami in March 2011, the central government revised its guidelines for nuclear disaster countermeasures to mandate residents within 5 km of a nuclear plant to be promptly evacuated in the event of a serious accident.

Residents living between 5 km and 30 km from a plant will be required to stay indoors. The central government will then decide whether to order evacuations based on radiation levels detected by the monitoring posts.

If the radiation levels stay within 20 microsieverts per hour for an entire day, residents will be ordered to evacuate within a week. Immediate evacuations will be ordered if the radiation levels reach 500 millisieverts per hour.

The revised guideline also requires cities, towns and villages located within 30 km of a nuclear plant to map out evacuation plans and prefectural governments to install radiation monitoring posts, including those for assessing the need to issue an evacuation order.

A supplemental document compiled by the NRA Secretariat recommends the installation of stationary radiation monitoring posts to regularly survey airborne radiation levels, partly because it can be difficult to transport portable monitoring equipment following a nuclear accident.

(This article was written by Tomoya Ishikawa and Shinichi Sekine.)

## Moral responsibility of nuclear burden

### Japan Political Pulse: What will become of the nuclear burden?

<http://mainichi.jp/english/articles/20160314/p2a/00m/0na/023000c>

Japan's only option is to get away from nuclear power. The spent nuclear fuel that comes from nuclear plants is nothing but a burden, and the same is true of the plutonium at research facilities. This burden grows and grows, and so not even a final place to store high-level radioactive waste can be decided upon. I would like those pretending that such a place is going to be decided on soon to end such thinking, and those talking as if the nuclear fuel cycle will be completely established soon to stop their lies.

On March 9, the Otsu District Court issued a provisional injunction to halt the Kansai Electric Power Co.'s Takahama Nuclear Power Plant in Takahama, Fukui Prefecture. As always, the various newspapers were divided in their take on this. Even if in the end it is simply considered to be a difference of opinions, I cannot ignore the arguments of the pro-nuclear energy group -- that the injunction is "an outrageous demand for a no-risk solution," or that it is "out of step with the precedent set by the Supreme Court" -- and I wish to respond.

When a severe nuclear disaster happens even once, an area some dozens to hundreds of kilometers from the plant becomes contaminated with radiation. More than 100,000 people have their livelihoods destroyed -- many more if the disaster affects an urban area -- and lose the land that is their home. Because of the effects of radiation on genes, future generations are threatened as well. **In terms of both its scale and nature, it is a whole different level of disaster compared to others. To even be discussing it in the same terms as something like an airplane crash is a mistake.**

Even if the likelihood of such a disaster is said to be "once in a million years per reactor," that doesn't mean we can accept that and agree to reactivate them.

One other thing I wish to say -- to those who criticize the district court's injunction as out of line with the Supreme Court ruling -- is that we must ask, what is wrong with being out of step? The only Supreme Court ruling in a case on nuclear power was in 1992, well before the Fukushima nuclear disaster, for a case involving the Ikata Nuclear Power Plant. The essence of that ruling was that "Whether or not a nuclear plant is safe will be left to the decision of the prime minister after hearing the opinions of experts." There is no reason that we must humbly abide by that ruling, made based on a policy of green-lighting administrative actions after the fact, a policy that formed out of Japan's economic growth years. There have been court rulings allowing for the reactivation of nuclear plants, so it may be too early to say that the tide has turned in the court battles over plant reactivation, but the judges are also citizens of this country, and **it is the original, proper function of the judiciary to hold basic doubts, to think freely and unfettered and speak out against the administration.**

There is also another burden, in the form of **excess plutonium**. According to a special report on March 5, coming out of Washington D.C. through Kyodo News, in the middle of this month a British-registered nuclear fuel transport ship will load up 331 kilograms of research-use plutonium at Tokai, Ibaraki Prefecture, and head to the U.S.

Japan holds 37 metric tons of plutonium in Great Britain and France, where it was sent for reprocessing, and 10.8 metric tons within its own borders. This is by far the greatest amount for a country not armed with nuclear weapons. The plutonium used at research facilities is of high purity and easily converted to military use, and this is why the United States, the standard bearer for the reduction of nuclear material, moved to retrieve it under a publically-released agreement between Japan and the United States.

However, China, seeing no progress on this front, had its ambassador to the United Nations level criticism last fall that Japan had enough plutonium to load in 1,350 nuclear warheads.

While China -- lacking results of its own in reducing its nuclear arsenal -- is not in a position to criticize Japan, Japan and the U.S. are moving forward with the transport of the plutonium so that they will be backed by their actions when they speak at the Nuclear Security Summit in Washington D.C. at the end of this month, which Prime Minister Shinzo Abe will attend.

**Even if Japan sets out now on a path away from nuclear energy, it will have to move forward while shouldering the burden of a massive amount of nuclear waste. We have a moral responsibility to not create any more nuclear pollution than we have already, and to not place additional burdens on our future generations.** (By Takao Yamada, Special Senior Writer)

March 15, 2016

## Evacuation & nukes: Time to get real

### EDITORIAL: Time to get serious about evacuations from nuclear disasters

<http://ajw.asahi.com/article/views/editorial/AJ201603150037>

Nearly half of the radiation monitoring posts installed for issuing evacuation orders around the Sendai nuclear power plant in Kagoshima Prefecture have been found unable to perform the required function.

Twenty-two of the 48 monitoring posts around Kyushu Electric Power Co.'s Sendai plant can only measure airborne radiation levels up to 80 microsieverts per hour, far below the 500-microsievert threshold that triggers immediate evacuation orders, according to a survey by The Asahi Shimbun. The survey also found that monitoring devices have not been installed at many of the designated locations around Kansai Electric Power Co.'s Takahama nuclear power plant, where two reactors were restarted in January and February.

The two reactors, however, are now out of service again in line with a recently issued court injunction. These findings mean there are insufficiencies in the way to obtain crucial data for deciding on whether to evacuate local residents from areas around these nuclear plants during severe accidents.

Despite these serious safety lapses, reactors at the two plants were brought online. How seriously do the utilities, central and local governments take the safety of residents?

Nearby local governments that are in a position to monitor nuclear accidents by using these devices should ask the utilities to suspend reactor operations at least until useful radiation measuring instruments have been installed at all the posts.

Following the triple meltdown at the Fukushima No. 1 nuclear power plant, triggered by the Great East Japan Earthquake and tsunami in March 2011, the central government revised its guidelines on responding to nuclear disasters.

The revised guidelines mandate immediate evacuations of residents within 5 kilometers of a nuclear plant where a serious accident has taken place. Residents living between 5 km and 30 km from an accident-stricken plant will be required to stay indoors while the central government decides whether to order evacuations based on radiation levels detected by the monitoring posts.

Immediate evacuations will be ordered if radiation levels reach 500 microsieverts per hour. If radiation levels rise to and stay at 20 microsieverts per hour for an entire day, residents will be ordered to evacuate within a week. In both cases, the central government will issue the orders.

If the network of radiation monitoring posts fails to function properly, evacuation decisions for specific areas could be delayed or misguided.

With financial support from the central government, local governments concerned are required to install these monitoring posts. It is baffling why the local governments that host the two plants consented to the reactor restarts despite the insufficient monitoring installations.

The Nuclear Regulation Authority should not be allowed to shirk responsibility for the matter by claiming that dealing with issues related to the evacuations of residents is not part of its mandate.

The SPEEDI radioactive fallout-forecasting system failed to work properly during the Fukushima nuclear crisis. So the NRA decided to replace the SPEEDI system with networks of monitoring posts to measure radiation levels around nuclear plants for making evacuation decisions.

The NRA should be the one that checks if the posts will be workable in actual accidents.

Even the stricter nuclear safety standards cannot completely eliminate the risk of accidents. That makes it vital to make adequate preparations based on the assumption that nuclear disasters can occur.

The belated acceptance of this internationally common premise doesn't amount to much if such a lax attitude is taken toward evacuations.

The principle that local governments should take the responsibility to protect local residents from various disasters is reasonable to a certain extent.

However, as far as nuclear disasters are concerned, this principle should not allow the central government to avoid playing a key role and shuffle off its responsibility.

The system needs changes so that the effectiveness of evacuation plans will be sufficiently checked by the central government and especially by the NRA, which has the necessary expertise.

Such reforms will prevent the restarts of reactors under such inadequate evacuation conditions by ensuring central government inspections in addition to safety checks by the local governments concerned. **In some disasters, individuals can make their own decisions concerning their safety. But a nuclear accident is not one of them.**

Both the central and local governments should play far greater roles and assume far more important responsibilities in nuclear accidents than in other kinds of disasters.

March 18, 2016

## Plutonium to be returned to US

### Japan to return 331 kg of plutonium as U.S. official warns of proliferation risk

<http://www.japantimes.co.jp/news/2016/03/18/national/japan-return-331-kg-plutonium-u-s-official-warns-proliferation-risk/#.Vuvr0OaDmov>

Staff Writer

OSAKA – A large shipment of plutonium is expected to depart Japan soon amid a warning from a senior American official saying nuclear reprocessing in East Asia could lead to increased amounts of nuclear material that could be used for nuclear weapons.

By late Sunday, two armed British transport ships currently docked in Kobe, the Pacific Egret and the Pacific Heron, are to be dispatched to the Japan Atomic Energy Agency's port in the village of Tokai, Ibaraki Prefecture, according to Greenpeace, which is monitoring the ships.

The vessels will pick up 331 kg (729 pounds) of plutonium that was sent to Japan by the United States for civil research years ago but can also be used for nuclear weapons. The material will be returned to the U.S. Department of Energy's Savannah River Site in South Carolina in a trip expected to take about two months.

The initiation of the plutonium's return comes less than two weeks before the March 31 to April 1 Nuclear Security Summit in Washington, D.C., which Prime Minister Shinzo Abe and U.S. President Barack Obama are expected to attend.

In 2014, Abe and Obama agreed that Japan would return plutonium which was sent to Japan in the Cold War era for research purposes.

In particular, the material was used for research into the country's failed fast-breeder reactor program at Monju in Fukui Prefecture, which aimed to produce more plutonium from spent nuclear fuel than it consumed.

In addition, Japan is still officially pursuing reprocessing at a facility in Rokkasho, Aomori Prefecture, which extracts plutonium from spent conventional nuclear reactor fuel. The Rokkasho reprocessing plant is decades behind schedule and way over budget, costing over ¥2 trillion by unofficial estimates, due to technological problems. Last November, its start was postponed for the 23rd time, until 2018.

On Thursday, U.S. Assistant Secretary of State Thomas Countryman told the Senate Foreign Relations Committee that the reprocessing of spent nuclear fuel had little, if any, economic justification and creates international nuclear security concerns in a region where tensions are escalating.

"I would be happy to see all countries get out of the plutonium reprocessing business," Countryman told the Senate committee.

"If 331 kilograms of plutonium warrants removal from Japan on the grounds of its vulnerability and in the interests of securing nuclear weapons material, then there is no credible justification for Japan's current program and future plans to increase its plutonium stockpiling," Shaun Burnie, senior nuclear specialist at Greenpeace Germany, said in a press statement.

As of early 2015, the total amount of separated plutonium managed within and outside of Japan was about 47.8 tons. Approximately 10.8 tons was held domestically and about 37 tons was held abroad, according to the Japan Atomic Energy Commission.

March 20, 2016

## **Polyester soil to dispel fears of radiation?**

### **Fukushima farmers grow flowers using polyester 'soil'**

<http://ajw.asahi.com/article/0311disaster/recovery/AJ201603200015>

By TORU FURUSHO/ Staff Writer

KAWAMATA, Fukushima Prefecture--Farmers here have started growing flowers using polyester "soil" in the hope that the cultivation method will dispel concerns among consumers about radioactive contamination from the nuclear disaster.

The farmers are being helped by a team from Kinki University's Faculty of Agriculture in Higashi-Osaka, Osaka Prefecture, and have started cultivating anthurium ornamental plants utilizing the soil, which is made up of filamentous polyester fabrics.

"This cultivation method allows us to grow plants without concern over the negative impact of the nuclear accident," said Yukichi Takahashi, a 76-year-old farmer who is a key member of the project. "My dream is that our flowers will be used in bouquets to be presented to athletes on the podium during the 2020 Tokyo Olympics."

In a test run, 2,000 anthurium plants, known for their colorful, heart-shaped flowers, were grown in a 30-meter-long greenhouse in the Ojima district of Kawamata, located about 50 kilometers northwest of the crippled Fukushima No. 1 nuclear power plant.

Local farmers who participate in the project will set up an agricultural corporation later this year with the aim of eventually starting full-fledged farming and shipment.

The project began in spring 2014 after the university researchers learned about the plight of local farmers when they visited to measure radiation levels in the town, which is located on a high plateau surrounded by mountains.

"By using polyester fabrics as a cultivation medium instead of ground soil, this new method will help protect Fukushima farmers from harmful rumors that may stem from consumers' concerns over soil



contamination," said project leader Takahiro Hayashi, a professor of horticulture at the university, which is known for its advanced aquafarming and agricultural programs.

Kawamata once prospered through livestock and tobacco farming, but the nuclear disaster, triggered by the Great East Japan Earthquake and tsunami on March 11, 2011, dealt a heavy blow to the area's agricultural industry by spreading a large amount of radioactive fallout.

A southeastern strip of the town is still designated as a "zone being prepared for the lifting of the evacuation order," and local residents remain evacuated from the district in temporary housing and elsewhere.

While radiation levels in the town's agricultural produce have passed safety tests, consumers' lingering concerns over possible contamination have undercut market competitiveness.

March 21, 2016

## **SPEEDI or not SPEEDI?**

### **Editorial: Gov't must clarify SPEEDI's status in event of nuclear accident**

<http://mainichi.jp/english/articles/20160321/p2a/00m/0na/008000c>

The government has decided to allow local governments to exercise their own discretion in utilizing the System for Prediction of Environmental Emergency Dose Information (SPEEDI) -- which forecasts the diffusion of radioactive materials in the event of a nuclear accident -- when evacuating their residents to safety.

- **【Related】** Gov't OKs use of SPEEDI data for local bodies' nuclear evacuations
- **【Related】** SPEEDI system omitted from gov't plan for nuclear evacuation policy

The decision, made at a meeting of Cabinet ministers whose work relates to the nuclear power issue, came in response to a request filed by the National Governors' Association. Niigata Gov. Hirohiko Izumida, who chairs the association's Special Committee for Risk Management and Disaster Control, hailed the central government's decision, saying, "It has paved the way for us to map out our evacuation plans."

However, the Nuclear Regulation Authority (NRA), the central government's nuclear watchdog, has decided not to use SPEEDI when evacuating residents on the grounds that the reliability of the prediction system is low and its use would "bring about many adverse effects."

The NRA's decision has bewildered residents in areas surrounding nuclear power plants and left them wondering whether SPEEDI will be of help or not at all. It also raises concerns that unnecessary confusion may occur in the event of a nuclear accident, when the NRA and local governments clash in their decisions over whether to evacuate residents or not.

The SPEEDI system forecasts the extent of the dispersion of radioactive materials and their airborne concentration based on the amount of radioactive substances released into the air, the timing of those emissions and weather conditions, among other factors. However, the system failed to make an accurate

prediction in the wake of the Fukushima No. 1 nuclear plant disaster because the amount of radioactive materials released from the complex and other data were unavailable.

Under the NRA's revised nuclear disaster response guidelines, residents within a 5-kilometer radius of a nuclear plant will be ordered to evacuate in the event of an emergency even before the release of radioactive materials. Residents within a 5- to 30-kilometer radius, meanwhile, will be ordered to stay indoors while officials determine from local radiation dose measurements whether evacuation is necessary.

Technology to accurately predict the time when radioactive materials will be released in the air has yet to be developed. Calculations based on assumptions may be inaccurate because of different wind directions when the actual emissions of radioactive materials occur. It is therefore understandable that the NRA has pointed to the lack of reliability of advance estimates.

The Niigata Prefectural Government is concerned that immediate evacuation of residents would be difficult as roads could be cut off in the event of multiple disasters such as an earthquake followed by a nuclear accident at the Kashiwazaki-Kariwa nuclear plant operated by Tokyo Electric Power Co. The prefectural government thus believes that under such a scenario the use of SPEEDI predictions along with actual measurements would be valuable when considering evacuation routes and other measures.

The Meteorological Society of Japan has also recommended to the NRA that prediction data such as SPEEDI be put to use in nuclear emergencies.

How much can SPEEDI's credibility be enhanced, and can the system be utilized after radioactive substances are emitted into the air? The central government should take responsibility and specify how it is going to use SPEEDI.

The NRA's safety screening of the Kashiwazaki-Kariwa plant has entered its final stage. As reactivation of the nuclear station ultimately requires approval from Gov. Izumida, the central government's latest decision to leave the use of SPEEDI up to local governments -- a decision made at the initiative of the Ministry of Economy, Trade and Industry, which oversees nuclear plant operators -- apparently gave consideration to Izumida's assertions.

The conflict of opinions between the NRA and the National Governors' Association stems from the fact that nuclear accident evacuation planning is not subject to the NRA's safety screenings and is instead left up to each local government. The central government should be responsible for overseeing resident evacuation plans in an integrated manner.

## Plutonium back to US aboard British ships

### 2 British ships arrive in Japan to carry plutonium to U.S.

<http://mainichi.jp/english/articles/20160321/p2g/00m/0dm/060000c>

TOKYO (AP) -- Two British ships arrived in eastern Japan on Monday to transport a shipment of plutonium -- enough to make dozens of atomic bombs -- to the U.S. for storage under a bilateral agreement.

The ships arrived at the coastal village of Tokai, northeast of Tokyo, home to the country's main nuclear research facility, the Japan Atomic and Energy Agency, according to the Kyodo News agency and citizens' groups. It will take several hours to load the plutonium-filled casks onto the ships, both fitted with naval guns and other protection.

The Pacific Egret and Pacific Heron, both operated by Pacific Nuclear Transport Ltd., will take the 331 kilograms (730 pounds) of plutonium to the Savannah River Site, a U.S. government facility in South Carolina, under a pledge made by Japan in 2014. The plutonium, mostly from Britain, and some from the U.S. and France, had been used for research purposes.

The Pacific Egret docked first and appeared to be loading the plutonium, with the second ship standing by off-shore, according to media reports and Japanese and international anti-nuclear groups.

Japanese officials refused to confirm details, citing security reasons.

Japan's stockpile and its fuel-reprocessing ambitions to use plutonium as fuel for power generation have been a source of international security concerns.

Japan has accumulated a massive stockpile of plutonium -- 11 metric tons in Japan and another 36 tons that have been reprocessed in Britain and France and are waiting to be returned to Japan -- enough to make nearly 6,000 atomic bombs.

The latest shipment comes just ahead of a nuclear security summit in Washington later this month, and is seen as a step to showcase both countries' nuclear nonproliferation efforts.

Washington has increasingly voiced concerns about the nuclear spent-fuel-reprocessing plans by Japan and China to produce plutonium for energy generation, a technology South Korea also wants to acquire, saying they pose security and proliferation risks.

The U.S. environmental group Savannah River Site Watch said it recognized the need to secure plutonium, but asked why plutonium of foreign origins had to be brought onto American soil for storage.

In a statement Monday, group director Tom Clemens also urged Washington to "reassess its position at the summit and push hard for Japan to cease reprocessing and plutonium stockpiling due to the proliferation threat those programs pose."

**Japan began building a major reprocessing plant with French state-owned company Areva in the early 1990s. The trouble-plagued project has been delayed ever since, and in November its opening was postponed until 2018 to allow for more safety upgrades and inspections.**

**Experts say launching the Rokkasho reprocessing plant would not ease the situation, because Japan has little hope of achieving a spent fuel recycling program.**

Japan's plutonium-burning fast breeder reactor Monju, suspended for more than 20 years, is now on the verge of being closed due to poor safety records and technical problems, while optional plans to burn uranium-plutonium mixtures of MOX fuel in conventional reactors have been delayed since the Fukushima crisis. Only two of Japan's 43 workable reactors are currently online.

## TEPCO starts burning contaminated waste

### Incineration of radioactive waste begins at Fukushima nuclear plant

<http://mainichi.jp/english/articles/20160321/p2a/00m/0na/004000c>

Tokyo Electric Power Co. (TEPCO) has begun incinerating radioactively contaminated clothing and other waste on the grounds of the disaster-hit Fukushima No. 1 Nuclear Power Plant in an effort to reduce the volume of waste.

A three-story incineration facility has been built on the north side of the plant grounds. Every day around 7,000 people work at the Fukushima plant, creating a massive amount of waste in the form of used

radiation suits, gloves and boots. Pre-disaster incineration equipment was destroyed by the March 2011 Great East Japan Earthquake and tsunami, which led to the construction of the new facility.

As of the end of last year some 70,000 metric tons of this kind of waste was being held in storage containers. TEPCO estimates that by the year 2028, 358,000 tons of such waste will have been produced, but claims it can reduce the volume of the waste to as little as about one-fiftieth of its original size by incinerating it.

Radioactive materials contained in the smoke from the incinerator will be removed by filters on the exhaust pipes. The resulting ash will be sealed in specialized barrels, and TEPCO says there will be little danger from radioactive exposure.

However, in addition to the aforementioned waste there were, as of July last year, around 83,000 tons of lumber from trees cut down to make way for tanks storing contaminated water and 155,000 tons of other waste such as power plant debris from the hydrogen explosions that occurred there. These additional kinds of waste are expected to grow to 695,000 tons by 2028, and will not be processed at the incineration facility.

While TEPCO plans to construct facilities to burn this lumber and to break down debris in the future, these are not expected to all be operational until around fiscal 2020.

March 22, 2016

## So pure it could easily be turned into bombs

### Japan ships plutonium to the US

[http://www3.nhk.or.jp/nhkworld/en/news/20160322\\_30/](http://www3.nhk.or.jp/nhkworld/en/news/20160322_30/)

A ship transporting plutonium from Japan to the United States has started its journey. The transfer is **part of counter-terrorism measures aimed at preventing the material from falling into the wrong hands.**

The vessel left a port in Ibaraki Prefecture, eastern Japan, at about 3 PM on Tuesday.

It will deliver 331 kilograms of highly pure plutonium to the US, where it will be processed. The amount is said to be enough to make 40 atomic bombs.

The Japanese government has not disclosed the means of transport or routes, citing security concerns. But sources said an armed ship flying British flags arrived at a port in the prefecture on Monday, and started loading the shipment on Tuesday morning.

The transfer is part of the counterterrorism measures planned by Japanese and US leaders at a 2014 nuclear security summit in the Netherlands.

Japan originally purchased the plutonium from some Western countries in the 1970s. It was used at a nuclear research facility in Ibaraki Prefecture. Experts say **the purity of the plutonium is so high that it could easily be used in nuclear weapons.** The material will be processed at a facility in the US to prevent such use.

Other than the shipment, Japan has 47 tons of plutonium, both in and outside the country. It was created by reprocessing spent fuel from nuclear power plants.

Japan had plans to use the stockpile in a fast-breeder reactor that burns plutonium. But the reactor is still under development and is not likely to go into use in the near future.

## Japan and its plutonium

### Global worries about plutonium in Japan

[http://www3.nhk.or.jp/nhkworld/en/news/20160322\\_32/](http://www3.nhk.or.jp/nhkworld/en/news/20160322_32/)

Materials that can be used to make nuclear weapons, such as plutonium and highly-enriched uranium, are controlled by international regulations.

That's to prevent them from being used for military purposes by countries other than the 5 nations that are allowed to possess such weapons under the Nuclear Non-Proliferation Treaty.

The 2001 attacks in the United States raised concerns about nuclear materials falling into the hands of terrorists. The international community has been taking steps to tighten nuclear security.

As part of counterterrorism measures, the US proposed that nuclear materials produced by power generation around the world should be collected.

Japan agreed to transfer plutonium to the US at the 2014 nuclear security summit in the Netherlands. The US praised the decision, saying this would increase the level of Japan's nuclear security, which is said to be weak.

Japan currently has 47 tons of plutonium produced by reprocessing spent fuel. The amount is said to be enough to produce nearly 6,000 atomic bombs.

It also accounts for about 17 percent of the 271 tons of worldwide stocks of civilian-use plutonium from reprocessed fuel. Japan's amount is the 4th largest, after Britain, France and Russia.

The international community is critical of Japan, saying the country had promised not to possess more plutonium than necessary.

Japan's stock is expected to rise further, as a fast-breeder reactor that burns plutonium is still under development, and is unlikely to go into use in the near future.

An additional 8 tons a year would be produced after the reprocessing plant now under construction in Rokkasho Village in the northern prefecture of Aomori goes into full operation.

March 23, 2016

## Screening suspended at Niigata plant

### Screening of Kashiwazaki-kariwa plant to be halted

[http://www3.nhk.or.jp/nhkworld/en/news/20160323\\_25/](http://www3.nhk.or.jp/nhkworld/en/news/20160323_25/)

Japan's nuclear regulator says it will suspend screening for restarts of 2 reactors at a nuclear power plant in central Japan.

The reactors are the Number 6 and 7 units of the plant at Kashiwazaki-kariwa in Niigata Prefecture.

The Nuclear Regulation Authority said on Wednesday that **Tokyo Electric Power Company must supply more data for a new method of assessing quake resistance of facilities and buildings.**

The screening has focused on measures to prevent serious accidents, as the regulator judged that the 2 reactors have a new design and pose fewer safety risks.

Niigata Governor Hirohiko Izumida says he wants the regulator to conduct thorough safety checks. He also suggests that finding the truth of the 2011 Fukushima nuclear accident is essential for ensuring the safety of nuclear plants.

**The 2 reactors are boiling-water types, like those of the damaged Fukushima Daiichi plant.**

The screening was in the final stage, with more progress than that for any similar reactors. The regulator says assessing the 2 reactors' quake resistance may take 6 more months. It adds that while the screening is suspended, it will resume that for other reactors of the same type.

Reactors must meet tougher government requirements introduced after the Fukushima accident before going back online.

### Safety checks for Tepco's Kashiwazaki-Kariwa nuclear plant to be prolonged

<http://www.japantimes.co.jp/news/2016/03/23/national/safety-checks-for-tepcos-kashiwazaki-kariwa-nuclear-plant-to-be-prolonged/#.VvKR53qDmov>

JJI

Safety screenings for the No. 6 and No. 7 reactors at Tokyo Electric Power Co.'s Kashiwazaki-Kariwa nuclear power plant are set to be prolonged further, it was learned Wednesday.

It is nearly two years and six months since Tepco applied for safety checks for the reactors in Niigata Prefecture. Under new regulations put in place after the Fukushima nuclear disaster of 2011, a reactor must pass screenings by the Nuclear Regulation Authority before going back online.

The NRA's secretariat reported at a regular NRA meeting on Wednesday that Tepco is not yet ready to undergo an examination of the company's new method for assessing the degree of quake-resistance at the Kashiwazaki-Kariwa reactors.

Preparations for the examination, including completing documents, can take as long as six months, sources familiar with the matter said.

The reactors at the Kashiwazaki-Kariwa plant are boiling water reactors, the same type as those at Tepco's disaster-stricken Fukushima No. 1 nuclear plant.

The secretariat also said documents are largely ready for screening items other than those relating to quake-resistance and that these could serve as models for other boiling water reactors.

**The NRA unveiled a plan to resume safety checks for the No. 2 reactor at Chugoku Electric Power Co.'s Shimane nuclear plant in Shimane Prefecture and the No. 2 reactor at Tohoku Electric Power Co.'s Onagawa plant in Miyagi Prefecture. Both are boiling water reactors.**

March 24, 2016

## Not again!

### **TEPCO says 5.3 tons of tainted water leaked at nuclear plant**

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201603240048>

An estimated 5.3 tons of water contaminated with radiation leaked from a pipe in a building housing cesium removal equipment at the stricken Fukushima No. 1 nuclear power plant, the facility's operator said.

The leaked water contained 383,000 becquerels of radioactive cesium per liter and 480,000 becquerels of beta ray-emitting radioactive substances per liter.

Tokyo Electric Power Co. said March 23 the water has not flowed outside the high temperature incinerator building. TEPCO said it was in the process of pumping up the water for storage.

The utility said workers doing remodeling work earlier in the day cut off a pipe inside the incinerator building. When workers subsequently operated radioactive material removal equipment in another building, contaminated water leaked from the cut section of the pipe to the floor of the incinerator building.

TEPCO said it is trying to determine the cause of the incident, adding that workers had confirmed that they closed a valve before cutting off the pipe to prevent water leakage.

## NRA's new simulator

### **NRA shows how it will train staff to respond to a nuclear crisis**

<http://ajw.asahi.com/article/0311disaster/fukushima/AJ201603240067>

By HIROMI KUMAI/ Staff Writer

The nation's nuclear watchdog showed off its new training facility that simulates the central control room of a nuclear power plant so key staff can respond better to an emergency.

The site, inside a building in Tokyo's Minato Ward, was completed in February at a cost of 1.58 billion yen (\$14.01 million). The Nuclear Regulation Authority showed it off to reporters on March 23. Monitors modeled after instruments and other equipment in the central control room line the entire wall of the training facility. It is also fitted with six sets of terminals that can display changes in conditions of the reactor core and a containment vessel in the event of a nuclear accident.

The central control room, as its name implies, regulates and monitors all operations inside a nuclear power plant.

Three people, including individuals who have headed a nuclear operations team at plants around the country, will serve as instructors.

From April, the start of the new fiscal year, the NRA's staff members in charge of examining, inspecting and responding to nuclear emergencies will learn how to form the correct judgement in times of crisis at a nuclear plant.

"Although there has been few chances to touch (the real instruments), we can now experience what it is like," said an official at the facility.

"We want to enhance our staff members' sense of actually responding to a nuclear accident and equip them with the proper expertise as soon as possible."

## **Nuclear power simulator to help NRA prepare for possible disasters**

<http://mainichi.jp/english/articles/20160324/p2a/00m/0na/004000c>

Employees from the Nuclear Regulation Authority Secretariat are seen in Tokyo's Minato Ward on March 23, 2016, training in a nuclear power plant central control room simulator. (Mainichi)

The Nuclear Regulation Authority (NRA) unveiled to members of the press on March 23 its nuclear power simulator, which has been newly built within its Human Resource Development Center in Tokyo's Toranomon district to provide training for potential situations of nuclear disaster.

Replicating the functions of a central control room, the simulator is equipped with a touch panel featuring 69 different types of control boards and instruments. It can recreate the conditions occurring when a major disaster takes place at both boiling-water and pressurized-water types of nuclear reactors. Plans are additionally in place to add functions for latest model reactors.

The simulator -- which was completed at the end of February, and cost a total of 1.6 billion yen to construct -- is poised to serve as a useful tool during study sessions organized on behalf of NRA Secretariat employees.

While such employees will not operate nuclear reactor equipment during times of actual disaster, NRA Human Resource Development Center Vice Director Juichiro Ito notes that the simulator "will be effective in terms of conferring the ability to provide guidance during times of emergency."

March 25, 2016



## Molten fuels to stay a long time in Fukushima

### Fukushima Residents Concerned About Future

<http://www3.nhk.or.jp/nhkworld/en/news/editors/4/20160325/>

There are lingering questions over the future of the area around the Fukushima Daiichi nuclear plant, and where to store highly radioactive waste from the facility.

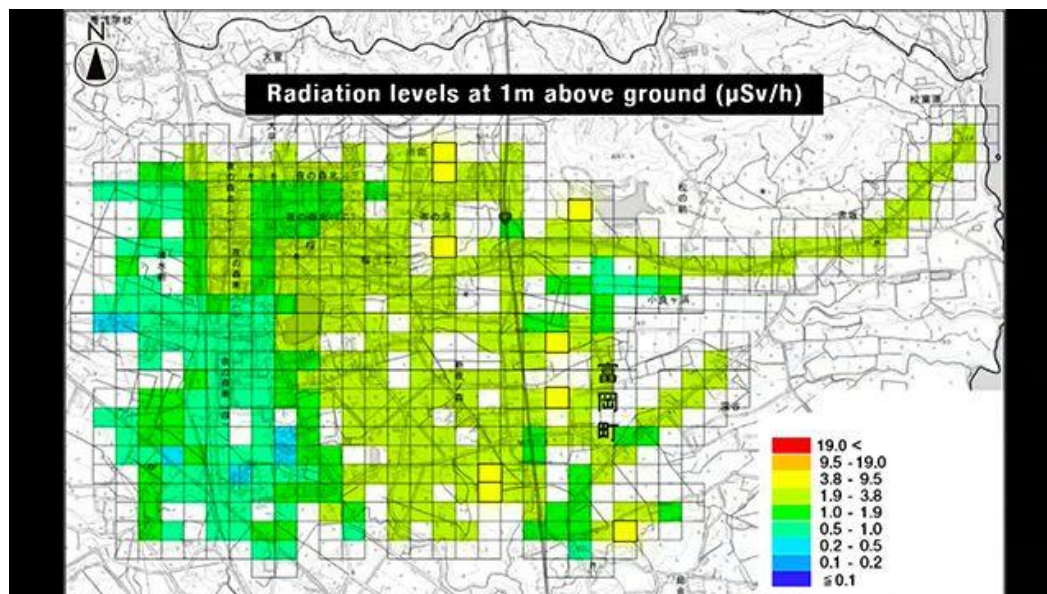
**The Japanese government and the plant's operator plan to start removing molten fuels from the plant's damaged reactors in 2021. But there's been no decision yet on where to store it, and local people are concerned.**

In an interview with NHK, the chairman of the Nuclear Regulation Authority said it will take time to decide on where to store damaged nuclear fuels. But he said the site of the Fukushima Daiichi plant is a likely possibility.

**"I think there's no other way but to store them in the current site for a long time, under stable conditions,"** Shunichi Tanaka said. "We need to convince people in order to proceed."

Tanaka also stressed they will help improve the living environment near the plant before evacuation orders are lifted.

Part of that is assessing the radiation. Last December and February, the regulators conducted radiation surveys in Tomioka, not far from the nuclear plant. Access to the area is still prohibited for most people. It was the first detailed survey of its kind. Officials measured radiation levels every 2 meters.



Their findings are represented on this map. The bright-yellow spots are areas with high levels, but elsewhere they found the levels were below the government's standard.

Tanaka said they will conduct a larger scale survey within a year to provide data for more locals.

"With decontamination work, I think we create the right conditions for the residents to return," Tanaka said.

Some residents say they need to know more about the future risks before returning.

Reiko Hachisuka evacuated from her home in the town of Okuma after the accident. She recently took part in a meeting hosted by the nuclear regulators.

"We need more explanation to be convinced that we will never be ordered to evacuate again," she said at the event.

Tanaka said he is aware of the people's concerns.

"It will take time for the people to return even after the evacuation orders are lifted. We will make the utmost efforts to support them," he said.

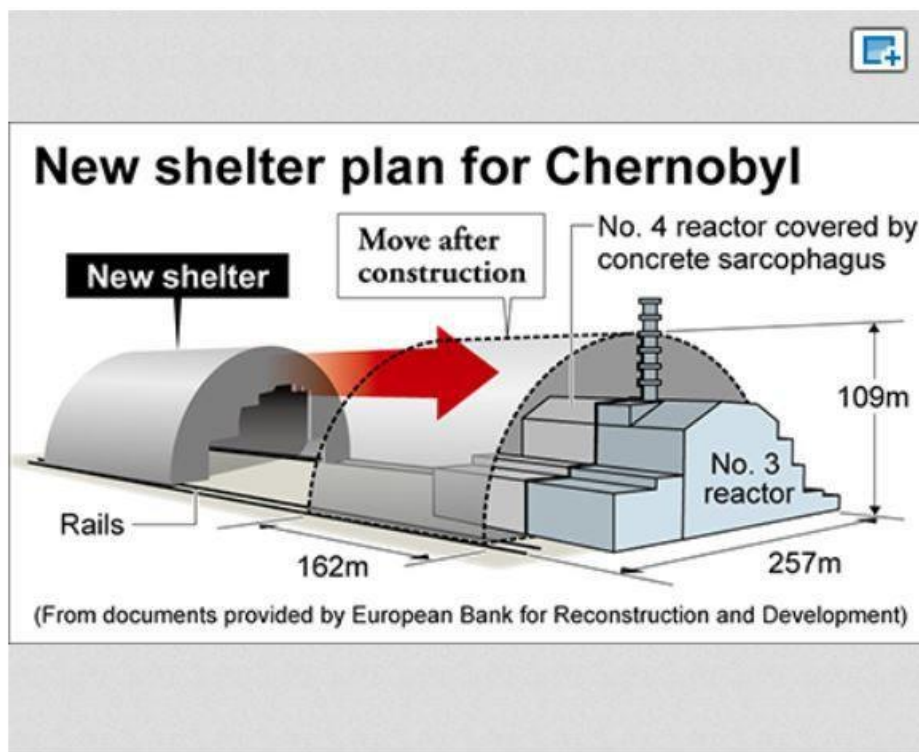
Officials face the challenge of convincing former residents, even as they speed up preparations to lift most of the evacuation orders by March of next year.

They say they will carefully explain the situation and try to address residents' concerns.

## Chernobyl: 30 years and counting



The semicylindrical shelter to the left will eventually cover the No. 4 reactor that is now encased in a concrete sarcophagus. (Yasuhiro Sugimoto)



## It's now 30 years and counting for Chernobyl clean-up effort

[http://ajw.asahi.com/article/behind\\_news/social\\_affairs/AJ201603250049](http://ajw.asahi.com/article/behind_news/social_affairs/AJ201603250049)

By YU KOTSUBO/ Staff Writer

CHERNOBYL, Ukraine--The massive dome now being constructed at the stricken nuclear plant here shows the long time it takes to decommission reactors damaged in catastrophic accidents--30 years and still ongoing in this case.

The media was allowed into the plant's site March 23 under a program administered by the European Bank for Reconstruction and Development, which is funding the dome project.

The new shelter being constructed is needed because of the wear and tear on the concrete sarcophagus that now covers the No. 4 reactor, which exploded during the accident on April 26, 1986.

The new semicylindrical shelter will be moved, perhaps as early as the end of 2016, on rails to cover the sarcophagus to stop the further leak of radioactive materials.

Construction of the new shelter began in 2012. The vast steel structure will be 109 meters high, 257 meters wide and 162 meters long when finished. The total construction cost is estimated at 1.5 billion euros (200 billion yen, or \$1.8 billion).

After the explosion at the No. 4 reactor almost 30 years ago, fires broke out and for 10 days radioactive material spewed out of the site. The radioactive level was six times higher than what was emitted from the Fukushima No. 1 nuclear power plant after the accident there five years ago in the wake of the Great East Japan Earthquake and tsunami.

The radiation level around the Chernobyl site is still so high that the area remains designated a no-entry zone.

The new shelter is designed to withstand earthquakes and tornadoes, and the plan is to have it enclose the stricken reactor for the next century.

However, no decision has been made on specific details for decommissioning the reactors, including how to dismantle the concrete sarcophagus. Concerns have also been raised about how to fund maintenance and administration of the site.

March 26, 2016

## **Nuclear Security summit in Washington D.C.**

### **Nuclear summit to take up anti-terrorism measures**

[http://www3.nhk.or.jp/nhkworld/en/news/20160326\\_13/](http://www3.nhk.or.jp/nhkworld/en/news/20160326_13/)

White House officials say world leaders will discuss measures to fight terrorism at a special meeting of the Nuclear Security Summit in Washington next week.

Leaders from more than 50 countries, including US President Barack Obama and Japanese Prime Minister Shinzo Abe, are scheduled to attend the 2-day summit that opens on Thursday. The agenda will include ways to prevent terrorists from obtaining nuclear materials.

The White House officials say the special meeting is being planned following the terrorist attacks in Belgium.

They say the leaders will exchange views on the threat of the Islamic State militant group and other organizations targeting urban areas to enhance their preparedness against terrorism.

On the sidelines of the summit, President Obama, Prime Minister Abe and South Korean President Park Geun-hye are scheduled to hold a 3-way summit.

Obama will also meet with Chinese President Xi Jinping.

They are expected to discuss recent provocative actions by North Korea, including a nuclear test and ballistic missile launches.

March 30, 2016

## **Nukes remain highly vulnerable**

### **Nuclear Materials Remain Vulnerable to Theft, Despite U.S.-Led Effort**

[http://www.nytimes.com/2016/03/30/science/nuclear-fuels-are-vulnerable-despite-a-push.html?emc=edit\\_th\\_20160330&nl=todaysheadlines&nid=32427321](http://www.nytimes.com/2016/03/30/science/nuclear-fuels-are-vulnerable-despite-a-push.html?emc=edit_th_20160330&nl=todaysheadlines&nid=32427321)

By DAVID E. SANGER and WILLIAM J. BROADMARCH 29, 2016



Trucks transported highly enriched uranium in Kiev, Ukraine, in March 2012, part of an American-sponsored effort to remove from the country a stockpile of fuel large enough for eight or more nuclear bombs. Credit Gleb Garanich/Reuters

WASHINGTON — As President Obama gathers world leaders in Washington this week for his last Nuclear Security Summit, tons of materials that terrorists could use to make small nuclear devices or dirty bombs remain deeply vulnerable to theft. Still, Mr. Obama's six-year effort to rid the world of loose nuclear material has succeeded in pulling bomb-grade fuel out of countries from Ukraine to Chile, and has firmly put nuclear security on the global agenda.

But despite the progress, several countries are balking at safeguards promoted by the United States or are building new stockpiles.

President Vladimir V. Putin of Russia, where some of the largest stockpiles of civilian nuclear material remain, has decided to boycott the summit meeting, which begins Thursday night. Mr. Putin has made it clear he will not engage in nuclear cleanup efforts dominated by the United States.

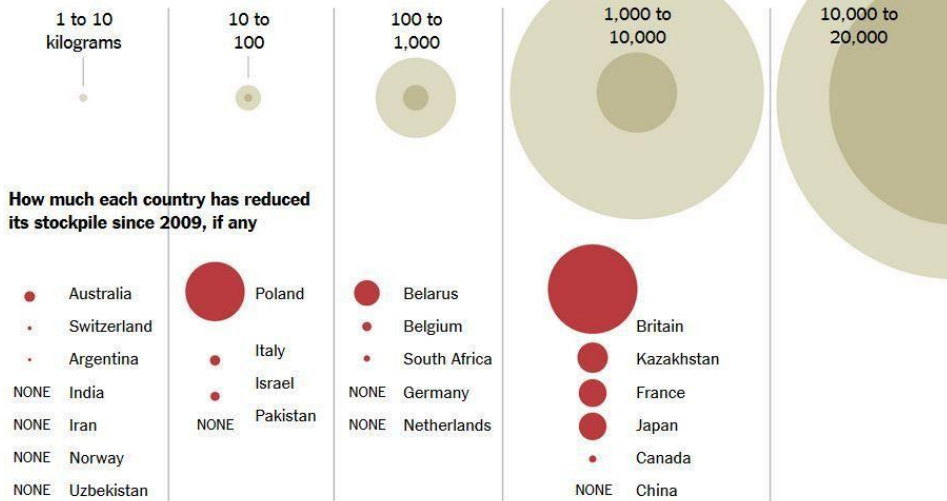
In addition, Pakistan's embrace of a new generation of small, tactical nuclear weapons, which the Obama administration considers highly vulnerable to theft or misuse, has changed the way the administration talks about Pakistani nuclear security. While Mr. Obama declared early in his presidency that the United States believed Pakistan's nuclear assets were secure, administration officials will no longer repeat that line. Instead, when the subject comes up, they note the modest progress Pakistan has made in training its guards and investing in sensors to detect break-ins. They refuse to discuss secret talks to persuade the Pakistanis not to deploy their new weapons.

### **Highly Enriched Uranium in Civilian Hands**

Here is a tally of the estimated civilian **stockpiles** and **reductions** of weapons-usable highly enriched uranium (HEU) since 2009. Civilian programs account for only 4 percent of global HEU; 96 percent of it goes to government or military uses.

**Estimated size of each country's civilian stockpile**

Precise amounts are secret; here are broad ranges for each, as of January 2015.



**Countries that have cut their entire civilian HEU stockpiles since 2009,** ranked from largest to smallest amounts

At least 2,965 kilograms of civilian HEU have been removed during the Obama administration (the total of all

\*Russia has never publicly declared its civilian HEU inventories. In recent years, Russia has diluted 5,000 kilograms of civilian HEU under Clinton-era programs. The United States and Russia have also diluted tens of thousands of kilograms of military HEU since 2009. The United States retains a reserve of 20,000 kilograms of HEU for civilian use.

Source: Nuclear Threat Initiative  
By Bill Marsh/The New York Times

Pakistan, China, India and Japan are all planning new factories to obtain plutonium that will add to the world's stockpiles of bomb fuel.

And Belgium, where a nuclear facility was sabotaged in 2014 and where nuclear plant workers with inside access went off to fight for the Islamic State militant group, has emerged as a central worry. The country is so divided and disorganized that many fear it is vulnerable to an attack far more sophisticated than the bombings in the Brussels airport and subway system last week.

For the first time, the Nuclear Security Summit will include a special session on responding to urban terrorist attacks — and a simulation of how to handle the threat of imminent nuclear terrorism.

“The key question for this summit,” said Matthew Bunn, a nuclear expert at Harvard and a former White House science adviser, “is whether they’ll agree on approaches to keep the improvements coming.”



President Obama's efforts, more than 500 pounds of nuclear fuel were removed from Ukraine in 2012, two years before the country descended into chaos. Credit Gleb Garanich/Reuters

The nuclear initiative has been a signature issue for Mr. Obama: It is among the goals he campaigned on in 2008 and part of the reason he was awarded the Nobel Peace Prize barely a year into his presidency. Benjamin J. Rhodes, a deputy national security adviser, told reporters on Tuesday that the administration's overall efforts had made it "harder than ever before for terrorists and bad actors to acquire nuclear material."

But the administration's budget for aiding global nuclear cleanups has been cut by half; some officials argue that less funding is needed with fewer nations willing to give up nuclear materials. A report Mr. Bunn helped write noted, "The administration is now projecting lower spending year after year for years to come, postponing or canceling a wide range of nuclear security activities that had been included in previous plans."

In a recent report, the Nuclear Threat Initiative, a private advocacy group in Washington that tracks nuclear weapons and materials, warned that many radioactive sources were "poorly secured and vulnerable to theft." The report called the probability of a terrorist's detonating a dirty bomb "much higher than that of an improvised nuclear device."

Ingredients for so-called dirty bombs, which use conventional explosives to spew radioactive material, are still scattered around the globe at thousands of hospitals and other sites that use the highly radioactive substances for industrial imaging and medical treatments. Less than half of the countries that attended the last nuclear summit in 2014 pledged to secure such materials, and they in turn represent less than 15 percent of the 168 nations belonging to the International Atomic Energy Agency.

And while the administration succeeded in getting more than a dozen countries to give up their civilian stockpiles of highly enriched uranium, a main fuel of atomic bombs, the Nuclear Threat Initiative said in another report that some 25 nations still had such materials — enough for thousands of nuclear weapons. The report called highly enriched uranium "one of the most dangerous materials on the planet," warning that an amount small enough to fit in a five-pound sugar bag could be used to build a nuclear device "with the potential to kill hundreds of thousands of people."

Still, that does not mean Mr. Obama's efforts have failed altogether. He is expected to announce a major achievement soon: the removal of roughly 40 bombs' worth of highly enriched uranium and separated plutonium from Japan. Some of the uranium was fabricated in pieces the size of squares of chocolate that could be easily slipped into a pocket, a terrorist's dream.

And Ukraine was the site of a success that, in retrospect, looks even bigger than it did four years ago. On a bitterly cold day in Kiev, the Ukrainian capital, in March 2012, two years before Ukraine descended into crisis, a team of Americans and Ukrainians packed the last shipment of highly enriched uranium into railway cars, ridding the country of more than 500 pounds of nuclear fuel. It would have been enough to build eight or more nuclear bombs, depending on the skill and destructive ambitions of the bomb maker.

"We had vodka," recalled Andrew J. Bieniawski, then a United States Energy Department official central to the elimination. "It was amazing."

Yet there are signs that what began as a global effort to prevent terrorists from obtaining the world's deadliest weapons is fracturing.

In fact, there is a case to be made that even as vulnerable stockpiles have shrunk, the risk of nuclear terrorism has not.



There is evidence that groups like the Islamic State are more interested than ever in nuclear plants, materials and personnel — especially in Belgium, where the attacks last week killed more than 30 people. The Belgian police discovered last year that Islamic State operatives had taken hours of surveillance video at the home of a senior official at a large nuclear site in Mol, Belgium. The plant in Mol, a northern resort area, holds large stocks of highly enriched uranium.

Laura Holgate, Mr. Obama's top adviser on nuclear terrorism, noted on Tuesday that the United States had worked with Belgium to "reduce the amount of nuclear material" at one key site. Asked about the Islamic State's interest in obtaining nuclear fuel from Belgium, she said, "We don't have any information that a broader plot exists."

Ms. Holgate told reporters that this week's meeting would address the question: "How do you sustain the momentum to the summit after the summit ends?"

Every week, we'll bring you stories that capture the wonders of the human body, nature and the cosmos. The results of previous summit meetings have ranged from treaty ratifications to the establishment of more than a dozen training centers around the globe where guards, scientists, managers and regulators sharpen their skills at preventing atomic terrorism.

Near Beijing, one of the largest training centers opened this month. "It's in our national interest" to help foreigners secure their atomic materials, said Nick Winowich, an engineer at Sandia National Laboratories, one of the American nuclear labs that helped in the center's development.

The biggest wins have been the removal of all highly enriched uranium from 12 countries, including Austria, Chile, Hungary, Libya, Mexico, Turkey and Vietnam. The material was mostly reactor fuel. But officials said terrorists could have turned it into at least 130 nuclear weapons.

Critics of the summit process point to vague communiqués that seem to have done little to drive hard decisions. A sense of summit fatigue now seems to prevail, the critics add, noting that Russia's withdrawal evades some of the biggest security problems.

The Obama administration has also presided over a steady drop in American spending on international nuclear security. Budgets fell from over \$800 million in 2012 to just over \$500 million in 2016. For 2017, the White House has proposed less than \$400 million — half the spending of the high point.

The administration has defended the cuts, saying they reflect the completion of some programs and upgrades and the suspension of cooperative work with Russia after its invasion of the Crimean Peninsula.

"The summit process has achieved some very important objectives," said Kenneth N. Luongo, president of the Partnership for Global Security, a private group that advocates new nuclear safeguards. "But it needed to aim higher. The world is not becoming any easier to deal with. There's still a responsibility to think big."

March 31, 2016

## IAEA, Japan & nuclear security

### **Abe: Japan will continue cooperation with IAEA**

[http://www3.nhk.or.jp/nhkworld/en/news/20160331\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20160331_12/)

Japan's Prime Minister Shinzo Abe has said his government will continue to cooperate with the International Atomic Energy Agency to support the agency's effort to strengthen nuclear security.

Abe made the remark in a meeting with Director-General of the IAEA, Yukiya Amano, in Washington on Wednesday.

Abe is in the US capital to attend the Nuclear Security Summit that brings together leaders of more than 50 countries. The agenda at the summit will include measures to counter the threat of nuclear weapons getting into the hands of terrorists.

In the meeting with Abe, Amano said his agency is now working on strengthening nuclear security such as strict management of nuclear-related materials, and verifying and monitoring Iran's nuclear program based on the agreement with the country. He also said it is dealing with North Korea's nuclear development.

Amano asked for continued cooperation from the Japanese government.

Abe promised his government's support for the IAEA's activities, saying the agency is playing an important role in stepping up nuclear security.

April 1, 2016

## Prefectural Govt. finds radioactive sediment in rivers

### **Radioactive sediment found in Fukushima rivers**

[http://www3.nhk.or.jp/nhkworld/en/news/20160401\\_01/](http://www3.nhk.or.jp/nhkworld/en/news/20160401_01/)

Researchers in Japan have detected **relatively high levels of radioactive substances in sediment in multiple rivers running through Fukushima Prefecture.**

The **prefectural government** in January surveyed the density of radioactive materials in soil and other sediment that has accumulated on the bottoms and banks of 72 rivers in the prefecture. The study came in response to the 2011 nuclear accident at the Fukushima Daiichi power plant.

The researchers found up to 54,500 becquerels per kilogram of radioactive substances in the Maeda River

in Futaba Town, where the plant is situated, and 39,600 becquerels in the Hiru River in Fukushima City. They also detected more than 10,000 becquerels at 5 other locations in 4 municipalities.

The prefectural government plans to study restricting access to rivers with high concentrations of radioactive materials. It also plans to ask the central government to remove contaminated soil and other sediment.

Officials of the Environment Ministry say the guidelines do not require decontamination outside living areas. But they add they will consider what to do with highly radioactive sediment after assessing the situation.

## Dealing with stockpiles of plutonium

### Ongoing Nuclear Security Summit sheds light on plutonium problems

<http://mainichi.jp/english/articles/20160401/p2a/00m/0na/023000c>

AIKEN, South Carolina -- Close attention is now focused on the difficulty of dealing with the stockpiles of plutonium accumulating around the world as the Nuclear Security Summit opened in Washington on March 31.

- **【Related】** South Carolina governor says plutonium shipment from Japan should be rerouted
- **【Related】** Ship likely carrying plutonium departs for U.S.

U.S. President Barack Obama, who has won the Nobel Peace Prize for pursuing a world without nuclear weapons, is hosting the last Nuclear Security Summit before the end of his second term.

During the conference, the Japanese and U.S. governments are expected to emphasize that the two countries are stepping up efforts to strengthen nuclear security by returning plutonium for research purposes and highly enriched uranium that Washington has provided to Japan as pledged.

However, plutonium has nowhere to go even in the United States. A growing number of residents of South Carolina, which accepts plutonium from Japan and other countries, are voicing opposition to disposal in the state.

Rick Osbon, mayor of Aiken, South Carolina, voices opposition to using the Department of Energy's Savannah River Site in the city as a final disposal site for nuclear materials, though he does not object to storing such substances there over a long period. Plutonium and other nuclear materials from Ibaraki Prefecture are expected to be brought to the site as early as May.

The Savannah River Site used to produce plutonium and other materials for nuclear weapons. However, its role has changed since the end of the Cold War. The site stores plutonium made redundant by U.S. and Russian arms reductions. Moreover, the facility accepts nuclear materials from overseas to reduce the risk of nuclear proliferation, such as theft by terrorists.

Aiken and Augusta, Georgia host atomic power stations and other nuclear-related facilities. Four nuclear reactors under construction in the country are in these two states.

Despite South Carolina's close connections to nuclear energy, Gov. Nikki Haley urged the energy secretary to suspend transport of nuclear substances to the state or change their destination. This is because of

fears that plutonium and nuclear waste brought to the state could be stored permanently as even the U.S. cannot find a final disposal site easily.

A 56-year-old Aiken resident said locals' attitude to hosting the Savannah River Site has changed. He says locals had believed that they were playing a part in the U.S. nuclear strategy and contributing to the defense of their country. Noting that they are now contributing more to the nuclear waste business than to nuclear non-proliferation, he expressed concerns that the city could end up being a final disposal site.

The Savannah River Site houses 13 metric tons of plutonium and other materials extracted from nuclear warheads. These will be joined by the 331 kilograms of plutonium being brought from Japan.

The U.S. Department of Energy has pledged to shift six tons out of the 13 of plutonium stored at the Savannah River Site to an experimental final disposal facility in New Mexico. However, the test facility has been shut down since a 2014 fire and radiation leak.

Alarmed by the governor's "revolt," the energy department announced that it will reopen the experimental facility by the end of this year. However, it remains unclear where the remaining seven tons will be accepted.

Some observers have suggested that the governor's "revolt" is a protest against the Obama administration's decision to suspend works on a uranium-plutonium mixed-oxide fuel processing facility under construction at the Savannah River Site. In other words, they believe that Gov. Haley's actions are a political gambit launched because local political and business communities expect an economic boost from the facility. However, local residents are increasingly wary of the move.

The 31-year-old deputy leader of a local residents' panel formed to reflect citizens' opinions on the facility's management expressed concerns that radioactive waste is brought into the facility without any clear prospects of final disposal.

A 62-year-old member of the panel also said it would be unacceptable to local residents for radioactive substances to be stored permanently in the city.

Local media played up the news of the radioactive substance shipment from Japan.

Noting that the United States has abandoned reprocessing spent nuclear fuel to extract plutonium, the 62-year-old panel member urged Japan not to increase its stockpile of plutonium any further.

Unlike plutonium for research purposes, Japan has adopted a policy of disposing of nuclear waste generated at nuclear plants on its own. However, Japan faces an even more difficult road to select a final disposal site than the United States.

## Converting excess HEU

### **UK, US and EU Sign A Deal To Convert HEU Into Medical Isotopes**

<http://www.nucnet.org/all-the-news/2016/04/01/uk-us-and-eu-sign-a-deal-to-convert-heu-into-medical-isotopes>

The UK, US, and EU have agreed on a deal to turn UK's excess stockpile of highly enriched uranium (HEU) into medical isotopes to be used in cancer treatment, a statement by the Prime Minister's Office said yesterday.

Under the agreement, concluded in the framework of the 2016 Nuclear Security Summit in Washington, the US will receive a transfer of 700 kilograms of excess HEU from the UK and will consequently send a

“different type” of HEU to France, member of the European Atomic Energy Community (Euratom), where it will be converted into medical isotopes.

The Prime Minister’s Office said the isotopes could be exported to the UK and other European countries to help cancer treatment and diagnosis.

The excess HEU, which is to be sent to the US, is currently stored at the Dounreay nuclear site on the north coast of Scotland, a statement said.

April 2, 2016

## Promises

### **Abe pledges to help improve nuclear plant safety**

[http://www3.nhk.or.jp/nhkworld/en/news/20160402\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20160402_12/)

Prime Minister Shinzo Abe says Japan will contribute to improving the safety of nuclear plants around the world by sharing the lessons learned from the 2011 nuclear accident in Fukushima.

Abe spoke during a session of the Nuclear Security Summit in Washington on Friday.

Referring to the accident at the Fukushima Daiichi plant 5 years ago, he said Japan is again on the path to taking its lead in the peaceful use of nuclear power, with a determination to prevent the recurrence of another such accident.

He said Japan's mission is to share with the world the lessons learned from the accident and spread its knowledge of the safety of nuclear plants and measures to prevent accidents.

He said Japan plans to make contributions through providing personnel training and drawing up safety standards.

Abe also spoke about the need to secure complete transparency in maintaining the peaceful use of nuclear power as nuclear plants are being built worldwide.

He expressed hope that countries will deepen discussions at the International Atomic Energy Agency and other venues for concrete action.

He said nuclear nonproliferation cannot be achieved without the cooperation of all the countries that use nuclear power.

Abe said Japan will work to minimize the amount of nuclear material such as highly enriched uranium and plutonium. The material could be used to develop nuclear weapons.

At the ensuing working lunch, participants discussed efforts for tightening nuclear security and other topics.

Abe expressed determination to take all possible measures to prevent nuclear and other terrorist attacks,

saying enhancing anti-terror measures is an urgent task.

Japan will host the Group of 7 summit at Ise-Shima in May and the Olympics and Paralympics in Tokyo in 2020.

## Japanese plutonium to end up underground at WIPP

### Plutonium from Japan to be disposed of underground in New Mexico

<http://www.japantimes.co.jp/news/2016/04/02/national/politics-diplomacy/plutonium-japan-disposed-underground-new-mexico/#.Vv7FpHpdeot>

Kyodo

U.S.-bound plutonium that has recently been shipped out of Japan will be disposed of at a nuclear waste repository in New Mexico after being processed for “inertion” at the Savannah River Site atomic facility in South Carolina, according to an official of the National Nuclear Security Administration.

“The plutonium will be diluted into a less sensitive form at the SRS and then transported to the Waste Isolation Pilot Plant (WIPP) for permanent disposal deep underground,” said Ross Matzkin-Bridger in charge of the operation at the NNSA, a nuclear wing of the Department of Energy.

“The dilution process involves mixing the plutonium with inert materials that reduce the concentration of plutonium and make it practically impossible to ever purify again,” he told Kyodo News in a recent phone interview.

The official made the remarks ahead of the latest Nuclear Security Summit, sponsored by President Barack Obama, which began Thursday in Washington.

The fourth such meeting of world leaders is focused on how to secure weapons-usable nuclear materials all over the globe. The summit started after Obama’s 2009 speech in Prague, in which he called for “a world without nuclear weapons” and for which he was awarded a Nobel Peace Prize later that year.

At the previous summit in the Netherlands in March 2014, Prime Minister Shinzo Abe agreed to return plutonium and highly enriched uranium upon request from the Obama administration, which is seeking to strengthen control of nuclear materials.

The removal of 331 kilograms of plutonium and hundreds of kilograms of HEU from the Fast Critical Assembly, a research facility located in Tokaimura, Ibaragi Prefecture, was completed before the Nuclear Security Summit kicked off.

Japan received the plutonium and HEU fuels from the United States, Britain and France from the late 1960s to early 1970s for research purposes in the name of “Atoms for Peace.”

The nuclear fuel delivery, however, has generated controversy in South Carolina since it was reported that it was en route to the U.S. government-run SRS facility in the state.

South Carolina is “at risk of becoming a permanent dumping ground for nuclear materials,” Gov. Nikki Haley said in a recent letter to Energy Secretary Ernest Moniz, calling for the freight to be stopped or rerouted.

The final disposal at the WIPP, as described by Matzkin-Bridger, may defuse these local concerns in South Carolina.

The WIPP is a repository — about 660 meters underground — for permanently storing nuclear waste created by the U.S. government’s nuclear weapons program.

“The Department of Energy has signed a Record of Decision to implement our preferred option to prepare 6 metric tons of surplus plutonium from the SRS for permanent disposal at the WIPP near Carlsbad, New Mexico,” Matzkin-Bridger explained. “This includes all foreign plutonium that we bring to the United States under our nonproliferation programs.”

The HEU from Japan’s FCA will be “down-blended” to low enriched uranium at the Y-12 National Security Complex in Oak Ridge, Tennessee, according to the official. In the future, LEU will be used for research purpose at research reactors both in the U.S. and Japan, possibly including the FCA.

“This project was accomplished on an accelerated timeline well ahead of schedule, thanks to the hard work and strong cooperation from both sides,” said a U.S.-Japan joint statement released Friday on the sidelines of the Nuclear Security Summit.

“It furthers our mutual goal of minimizing stocks of HEU and separated plutonium,” the document added, emphasizing the importance of the operation in strengthening nuclear security.

In the statement, the Japanese government made a new pledge to remove and transfer HEU fuels from the Kyoto University Critical Assembly (KUCA), another Japanese research institute, to the United States for down-blending and “permanent threat reduction.”

“If the KUCA’s HEU reactor is successfully converted to a LEU unit, it will have a significant meaning for other reactors in the U.S. and European nations, which are pursuing to convert reactors for LEU,” Hironobu Unesaki, a professor at Kyoto University, said. “The KUCA could provide academic outputs for future LEU conversion process worldwide.”

Officials and specialists in both nations have praised the bilateral cooperation, which aims to reduce the threat of nuclear terrorism through securing sensitive materials.

However, the materials recently transferred from Japan are only the tip of the iceberg. Currently, Japanese utilities possess over 47 metric tons of separated plutonium, which is equivalent to about 6,000 nuclear bombs.

At the last Nuclear Security Summit two years ago, Abe restated the nation’s international promise not to possess any plutonium that it has no use for. But the country’s stockpile of the nuclear material has since slightly increased.

A recent court injunction to suspend the operation of two plutonium-consuming reactors in Fukui Prefecture has made a solution for the plutonium problem more elusive.

April 4, 2016

## What about nuke security (after Obama)?

### Enhancing nuclear security

<http://www.japantimes.co.jp/opinion/2016/04/04/editorials/enhancing-nuclear-security/#.VwN8HHpdeot>

Concerned about the prospect of terrorists getting their hands on nuclear materials, U.S. President Barack Obama in 2010 convened the first Nuclear Security Summit (NSS). In his speech in Prague in 2009, Obama explained that nuclear terrorism was the most immediate and dangerous threat to global security; **the NSS was part of a wider effort to secure the world’s stockpile of vulnerable nuclear materials.**

The NSS has been held every two years since the first conclave. Last week, Obama hosted his second, one that not only took stock of the progress that has been made over the past six years, but also continued its work. **It is unclear if the NSS process will survive the Obama presidency:** It should. Reports that members of the Islamic State group were observing Belgium nuclear power plants should set off warning bells about the immediacy of this threat. A leader-level summit will keep this issue near the top of international security agendas and help ensure that these efforts garner support and resources.

Typically, leader-level meetings are talk shops, where rhetoric is abundant and action is short. Since the NSS process was launched, however, participants have made over 260 commitments to secure their nuclear materials; about three-quarters of those promises have been implemented. Radioactive materials have been removed, security has been strengthened, “centers of excellence” that teach and spread best practices have been established, and treaties have been signed and implemented. As a result, it is reckoned that highly enriched uranium (HEU) and plutonium from more than 50 facilities in 30 countries — enough material for 130 nuclear weapons — have been secured, and the number of facilities with nuclear materials has declined substantially. All nuclear materials have been removed from their territory of 14 countries and Taiwan.

International cooperation is increasing. Not only is there sharing of information about security practices, but governments have agreed to incorporate international best standards, invite international peer review, and commit to constant review, revision and upgrading of their nuclear security systems. New binding legal commitments are emerging, such as the Amended Convention on the Physical Protection of Nuclear Material, which will soon go into force with over 80 ratifications since 2009. In other words, these commitments will endure beyond the formal NSS process.

The NSS has had a special significance for Japan. At the 2014 summit, the Japanese government agreed to remove 500 kg of highly enriched uranium and separated plutonium from its facility in Tokai, Ibaraki Prefecture, the largest project by a country to remove nuclear material from its territory. That assignment was completed ahead of schedule. This year, Prime Minister Shinzo Abe agreed to removal all highly enriched uranium from Kyoto University’s Critical Assembly; the facility will be converted to one that uses lower-grade uranium, and the highly enriched uranium will again be moved to the United States. In a bilateral meeting, Abe and Obama underscored the need to prevent terrorists from obtaining nuclear materials, and the two countries will be sharing information and intelligence to better defend Japanese nuclear facilities and protect the transportation of nuclear materials.

Significantly, those two men also met with South Korean President Park Guen-hye on the sidelines of the summit to confirm their commitment to trilateral cooperation to combat the North Korean nuclear threat. They agreed that solidarity among their three countries is critical for dealing with and preventing further provocations by Pyongyang and promised concrete cooperation in the security and defense areas.

The work is not done, however, and continuing attention at the highest levels of government is needed to stay on top of this threat. The reality and danger notwithstanding, governments must be prodded to devote resources to this issue. Even the U.S. has cut its budget to help other countries clean up their nuclear facilities by 50 percent, from over \$800 million in 2012 to less than \$400 million in its proposed 2017 budget. Washington justifies the decline by noting that work has been completed, but that rationalization clashes with the administration’s claim that the threat remains high.

The independent Nuclear Threat Initiative has warned that many radioactive sources remain “poorly secured and vulnerable to theft.” It worries that a “dirty bomb” of radioactive materials is more likely than terrorists building a nuclear device, especially since less than half the countries that attended the 2014 NSS pledged to secure such materials.



Finally, there was no missing Russia's absence at last week's meeting. Moscow boycotted the gathering, complaining that there was inadequate consultation and cooperation in its planning. Russian President Vladimir Putin no doubt bristles at the notion that the nuclear security process is seen as led by Obama and the U.S., especially since his country has some of the world's largest stockpiles of civilian nuclear material and its ability to secure that material has been questioned as its economy crumbles, its nuclear infrastructure is underfunded and organized crime spreads its tentacles. That may be unpleasant to hear, but it's a reason to double down on the NSS process, not keep a distance — a logic that all countries should embrace.

## Could there be a terrorist Fukushima?

### Could There Be a Terrorist Fukushima?

[http://www.nytimes.com/2016/04/05/opinion/could-there-be-a-terrorist-fukushima.html?action=click&pgtype=Homepage&clickSource=story-heading&module=opinion-c-col-left-region&region=opinion-c-col-left-region&WT.nav=opinion-c-col-left-region&\\_r=0](http://www.nytimes.com/2016/04/05/opinion/could-there-be-a-terrorist-fukushima.html?action=click&pgtype=Homepage&clickSource=story-heading&module=opinion-c-col-left-region&region=opinion-c-col-left-region&WT.nav=opinion-c-col-left-region&_r=0)

By **GRAHAM ALLISON** and **WILLIAM H. TOBEY**

The attacks in Brussels last month were a stark reminder of the terrorists' resolve, and of our continued vulnerabilities, including in an area of paramount concern: nuclear security.

The attackers struck an airport and the subway, but some Belgian investigators believe they seemed to have fallen back on those targets because they felt the authorities closing in on them, and that their original plan may have been to strike a nuclear plant. A few months ago, during a raid in the apartment of a suspect linked to the November attacks in Paris, investigators found surveillance footage of a senior Belgian nuclear official. Belgian police are said to have connected two of the Brussels terrorists to that footage.

Security at Belgium's nuclear sites is notoriously poor. In August 2014, someone — as yet unidentified — drained 65,000 liters of lubricant from the turbine used to produce electricity at the country's Doel 4 nuclear power plant. No penetration was detected, leading investigators to suspect an inside job.

In 2012, two workers at the same plant reportedly left Belgium to fight in Syria, eventually joining the Islamic State. One of them is believed to have died in Syria; the other was convicted of terrorism-related crimes after returning to Belgium.

Yet still too little is being done to secure nuclear plants. That goes not only for Belgium: Nuclear facilities throughout the world remain vulnerable.

During the Nuclear Security Summit in Washington last week, more than 50 leaders announced that significant amounts of highly enriched uranium had been moved from various countries to secure storage

sites and that a key nuclear-security treaty would be strengthened. But the improved version of that treaty is inadequate: It doesn't even call for arming the guards who look after bomb-grade nuclear material.

Discussions about nuclear terrorism also tend to focus on the risk of terrorists stealing weapons-grade material or making a dirty bomb. But they often overlook the danger of terrorists attacking a nuclear plant in order to set off a Chernobyl- or Fukushima-like disaster.

That risk is real, however, and has been known for a while. The master planner of the 9/11 attacks had considered crashing a jumbo jet into a nuclear facility near New York City. A Qaeda training manual lists nuclear plants as among the best targets for spreading fear in the United States.

Striking a nuclear plant or the cooling ponds in which nuclear waste is stored wouldn't set off a mushroom cloud or kill hundreds of thousands of people. But it would spew large amounts of radiation, spark a mass panic and render vast swaths of land uninhabitable. And it could cause thousands of early deaths from cancer.

More than one in three Americans lives within 50 miles of the 99 nuclear reactors operating in the United States today. There are more than 300 other nuclear reactors producing electricity in 30 other countries.

Nuclear plants have built-in safety mechanisms, typically multiple systems that are unlikely to fail simultaneously: If one of them malfunctions, there's always a backup, the theory goes. But redundancy is effective protection only against accidents, not against terrorists who set out to cause simultaneous system failures. For example, by targeting power and water supplies at the same time, attackers could cause a reactor to melt down or a cooling pond to ignite.

After the catastrophe at Fukushima, safety measures were bolstered at nuclear plants worldwide: More emergency equipment was put on standby, and measures for venting explosive hydrogen gas were improved. But conspicuous gaps remain in security, even in countries like Japan, India, Pakistan, Russia and the United States, which have major nuclear facilities and also have suffered serious acts of terrorism in the past. President Vladimir V. Putin didn't even attend last week's summit.

The first measure must be to combat complacency. Incredibly, it took the November attacks in Paris for Belgium to finally arm guards at its nuclear power plants. Even more incredibly, it took the Brussels attack last month for Belgian authorities to review the personnel records of employees at nuclear sites — and determine that about a dozen workers should have had their credentials revoked on security grounds.

At a minimum, armed guards should be required at all sites that hold weapons-grade material or enough low-enriched fuel to cause a major release of radioactivity. And all employees at nuclear plants should be thoroughly vetted before they are employed.

The United States can leverage its leadership in the international commerce of nuclear material and technology to improve security at nuclear plants in other countries. United States law already requires that nuclear material originating in that country be adequately protected when it is exported and while it is abroad.

Washington could also require a credible assessment of local terrorist threats, protective measures like arming guards at host facilities, regular exercises simulating armed attacks to test the plants' security systems, and independent oversight.

Current United States laws and regulations prohibit American intelligence and policy officials from sharing classified assessments of terrorists' intentions and capabilities with many governments. Even Japan, one of the world's largest producers of nuclear power and a close United States ally, cannot access this information. That must change.

And the Global Initiative to Combat Nuclear Terrorism, a voluntary network of 86 states and five international organizations, can help build capacity in this area by encouraging its members to share intelligence and best security practices

Terrorists have their eyes on nuclear plants. So must we.

Graham Allison is director of the Belfer Center for Science and International Affairs at Harvard Kennedy School and the author of "Nuclear Terrorism: The Ultimate Preventable Catastrophe." William H. Tobey is a senior fellow at the center and co-author of the report "Preventing Nuclear Terrorism: Continuous Improvement or Dangerous Decline?"

April 5, 2016

## **IKATA No.3: Checking**

### **NRA checks on Ikata No. 3 reactor**

<http://www.japantimes.co.jp/news/2016/04/05/national/nra-begins-checks-ikata-no-3-reactor/#.Vwn7jXpdeot>

JJI

IKATA, EHIME PREF. – The Nuclear Regulation Authority (NRA) on Tuesday started inspections on the No. 3 reactor of Shikoku Electric Power Co.'s Ikata nuclear power plant ahead of a planned restart in summer. If the checks go smoothly, Shikoku Electric plans to load nuclear fuel into the reactor in late June ahead of its reboot in late July.

Under new nuclear safety standards, introduced after the March 2011 nuclear catastrophe at Tokyo Electric Power Co.'s Fukushima No. 1 plant, the Ikata No. 3 reactor is the fifth to go through the NRA's inspections before being allowed to restart.

The four others are the No. 1 and No. 2 reactors at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture, and the No. 3 and No. 4 reactors at Kansai Electric Power Co.'s Takahama plant in Fukui Prefecture.

According to Shikoku Electric, there are 50 items on the checklist for the Ikata No. 3 reactor, including confirming whether safety instruments work properly.

The inspections, including final checks, will last about 4½ months and include examining how the utility would respond to possible accidents.

Shikoku Electric has estimated commercial operations would begin mid-August.

The NRA judged last July that the Ikata No. 3 reactor met the new safety standards.

The governor of Ehime Prefecture and the mayor of the town of Ikata approved its restart last October.

## Braving constant radiation

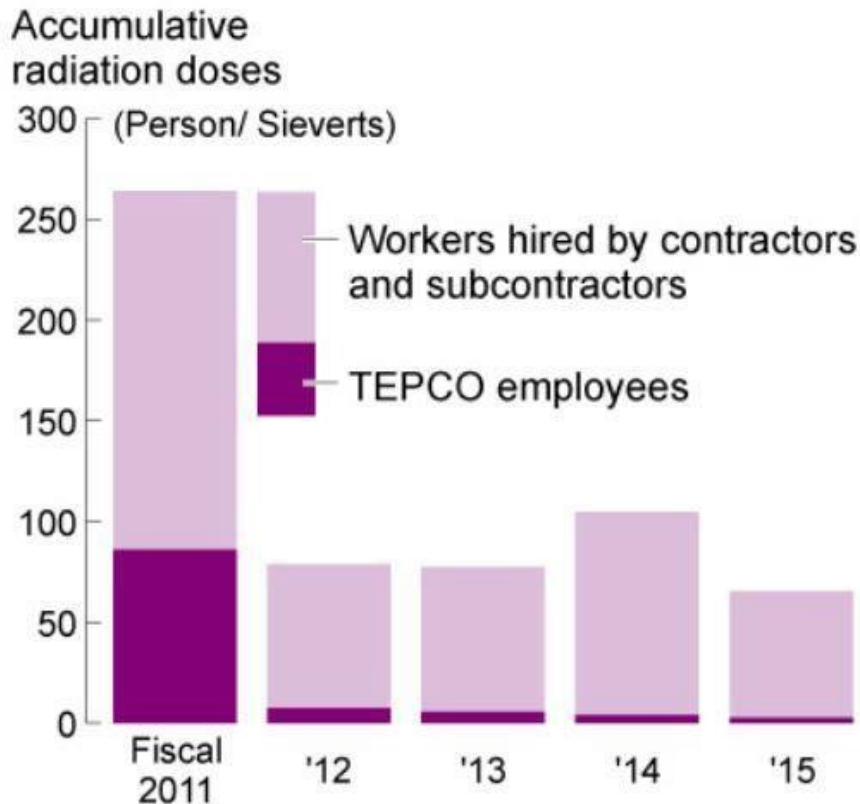
### **Braving danger and radiation for chance to earn 11,000 yen a day**

<http://www.asahi.com/ajw/articles/AJ201604050034.html>

By SAWAAKI HIKITA/ Staff Writer

## Radiation exposure of Fukushima plant workers

Note: Accumulative radiation doses (Person/ Sieverts) are the figures of multiplying the average of exposure per person and the number of workers. The figure for fiscal 2015 is the total through January. From data published by TEPCO.



nbun

*Editor's note: An army of workers, 6,000 or so, battles daily on the front line of the stricken Fukushima No. 1 nuclear power plant to get the site ready for the decades-long process of decommissioning the reactors.*

*An overwhelming majority of the men are hired by subcontractors and endure low pay, fragile job security and hazardous working conditions. Radiation exposure is a constant risk.*

*This three-part series is intended to shed light on conditions at the plant and how the people working there feel about their jobs.*

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It is winter and still dark when the man awakes at 3:30 a.m. to start his working day. He begins by putting on five layers of clothing under his protective gear, and dons two pairs of gloves and socks, the insides of which are stuffed with disposable hand warmers.

But even then, the 36-year-old native of Iwaki, Fukushima Prefecture, is cold.

Thirty minutes later, a cutting breeze blows from the ocean as the man climbs into a car ordered by his employer to take him to the J-Village facility, where the workers board buses to transport them to the crippled Fukushima No. 1 nuclear power plant 20 kilometers away. The man's job is to lay pipes containing contaminated water at the complex. He works for a fourth-tier subcontractor with Tokyo Electric Power Co., operator of the plant.

Five years after the triple meltdown, the plant premises are much tidier than in the immediate aftermath of the disaster. Today, the ground is covered with steel sheets.

However, the steel frames of the reactor buildings still stand exposed because the concrete walls were blown out in hydrogen explosions triggered by the overheating of reactor cores.

Inevitably, jobs near the reactor buildings pose radiation risks.

"The closer you get to the reactor buildings, the higher the radiation readings," the man said. He is required to carry a dosimeter whenever he is on-site.

Each time the man's dose climbs by 0.16 millisievert, an alarm sounds. If the alarm goes off three times in a single shift, he must stop what he is doing, no matter what work remains to be done.

With a full-face mask and protective gear, working in summer months can be more grueling--and even life-threatening.

He packs ice cubes under his clothes to keep cool, but they melt within 30 minutes.

One summer day, he saw a middle-aged man lying on the floor of a lounge where the workers congregate during their break.

The man had collapsed after the end of his shift. Although the individual was airlifted to a hospital by helicopter, he apparently died of heatstroke.

When the magnitude-9.0 Great East Japan Earthquake struck, the Iwaki man was working inside the No. 1 reactor building. The power went out and in the darkness he heard a loud crashing noise, as if a piece of equipment had suddenly ground to a halt.

He fled the building as fast as he could.

Fissures dotted the concrete surface of the ground and shards of glass were everywhere.

The man took refuge in a structure in the compound known as the "company building."

A roll call was taken to check that everybody was safe, and then he and his colleagues were dismissed in the evening.

The Iwaki man did not recall seeing the effects of the tsunami on his way home, which he reached at 8 p.m. By that time, he was running a fever and itched all over his body, probably the result of a stressful and nerve-racking day.

A hydrogen explosion rocked the No. 1 reactor building the following day, March 12.

Several days later, the man and his family evacuated to Nagoya, where he has relatives.

But around May, the president of the company he had worked for called and asked him to consider returning to the plant.

After giving the matter some thought, the Iwaki man accepted. His daughter had just turned 1 year old. He had a family to raise. Leaving his family behind, the man returned to Fukushima for a job that pays 11,000 yen (\$97) a day.

## **ANOTHER MAN'S STORY**

A 44-year-old man from Nagano Prefecture landed a short-term position at the plant in 2012 after scouring job ads online.

"I wanted to help contain the spread of radioactive contamination," said the man, who previously worked in a local car dealership.

Shortly after replying to the ad, he was contacted by a subcontractor.

“We have a job to measure workers' radiation levels,” the man was told. “It does not entail exposure to high levels of radiation.”

Relieved, the man headed to Iwaki and signed a one-year contract with a company that called itself a fourth-tier subcontractor.

But when he attended a briefing held by a first-tier subcontractor several days later, he learned that the initial job description was far different from what he had just been told.

“As you know, you will be working in an area where radiation levels are high. That's because the mixers for contaminated water are there,” the official said. “You will be able to stay in the area for five to 10 minutes, no longer.”

The official added that the men would not be involved in replacing the mixers themselves as that is done by veteran workers.

What he and the others were required to do was lay rubber mats on the floor to lower those workers' radiation exposure to enable them to stay longer.

He was also told that workers have to carry breathing apparatus on their backs.

The Nagano man, upset by what he had just learned about the job, protested to the president of the fourth-tier subcontractor afterward.

“It would be impossible for me to continue with this job as long as for a year if I had such a high level of radiation dose,” he said. “This is not what I signed up for.”

The president tried to appease him.

“Even if you had a reading of 1 millisievert a day, it would halve in a week,” the president said. “If you quit at this stage, the company's reputation would be jeopardized.”

As it happened, the assignment involving high radiation risks was canceled at the last minute.

Instead, the workers were required to clear the glass shards in the compound.

During a break on the first day of his job, in June 2012, he struck up a conversation with a regular employee of a first-tier subcontractor.

“Would you allow your son to work in a job that gives out several millisieverts of exposure a day?” he asked the middle-aged man.

The employee replied: “It will not be a problem legally, but I would not (send my son to do that kind of work).”

On his way back to his lodgings, the president of the fourth-tier subcontractor called him. He was told to stop by at the office of a third-tier subcontractor.

When he showed up, he was met by someone he didn't know.

“What you said at the work site gave us problems,” the stranger said. “You do not need to come to work anymore.”

After arguing with the official, the man returned to Nagano Prefecture three days later.

Later, he noticed his bank account had been credited to the tune of 24,000 yen, reflecting what was left over from several days of wages after accommodation costs had been deducted.

The man said he still has no idea at what point the original assignment to measure radiation doses was switched to one that was, without question, dangerous.

April 6, 2016

## Court rejects residents appeal to shut down Sendai plant

### Court rejects appeal to halt operations of Sendai reactors

<http://www.asahi.com/ajw/articles/AJ201604060045.html>

MIYAZAKI--A high court here rejected an appeal by Kyushu residents seeking to shut down the only two nuclear reactors operating in Japan, ruling that it is impossible to secure absolute safety with nuclear energy.

Presiding Judge Tomoichiro Nishikawa of the Miyazaki branch of the Fukuoka High Court said April 6 that current science and technology standards cannot reach a level of safety in which no radioactive materials are emitted regardless of the severity of the accident at a nuclear plant.

“A judgment has to be made based on the standard of what level of danger a society would be willing to live with,” Nishikawa said.

The court did not set any danger level, but it did rule that there was no convincing reason to issue a temporary injunction against the operations of the No. 1 and No. 2 reactors of the Sendai plant run by Kyushu Electric Power Co. in Satsuma-Sendai, Kagoshima Prefecture, in southern Japan.

The plaintiffs argued that the Nuclear Regulation Authority’s new safety standards, established after the disaster unfolded at the Fukushima No. 1 nuclear plant in 2011, underestimated possible damage to the plant caused by a powerful earthquake.

Nishikawa dismissed the argument, saying the standards “were at an extremely high level of rationality because it was needed to secure safety.”

Nishikawa, however, did describe as “irrational” the NRA’s assessment of volcanic eruption risk near the Sendai nuclear plant. That assessment was preconditioned on predicting the timing and scale of volcanic activity that would cause extensive damage to a wide area.

But the judge added that there was no basis for believing that such an eruption might occur while the plant was in operation. He concluded that “a political decision” would have to be made about whether to consider the risks related to such eruptions.

The plaintiffs, from the three Kyushu prefectures of Kagoshima, Kumamoto and Miyazaki, are considering appealing the latest ruling to the Supreme Court.

Kyushu Electric Power issued a statement on April 6 that said the ruling acknowledged the company’s past arguments that safety of the plant had been secured.

Setting a standard for an acceptable danger level could untangle the differing court decisions on the operations of nuclear reactors.

In March, for example, the Otsu District Court raised doubts about the NRA’s safety standards and ordered an injunction against two reactors at the Takahama nuclear plant in Fukui Prefecture in central Japan.

The lawsuit for an injunction against the Sendai plant was filed with the Kagoshima District Court in May 2014.

The district court rejected the plaintiffs’ request in April 2015. A few months later, in August, the No. 1 reactor at the Sendai plant became the first in Japan to resume operations under the new safety standards. The No. 2 reactor was restarted in October.

A major point of contention in the lawsuit was Kyushu Electric Power’s estimate of the largest possible quake that could hit the Sendai plant.



The plaintiffs argued that the utility's figure, based on an average of past quakes, was defective because it underestimated the potential of possible future quakes. The residents also said their rights would be violated if a major accident occurred at the Sendai plant.

Kyushu Electric Power countered that its estimate was based on the new safety standards that reflected the latest knowledge about earthquakes.

The company said there was no specific danger of a major accident at the plant because the anti-quake measures implemented were sufficient.

The plaintiffs had also cited problems with the evacuation plans for the Sendai plant that could endanger their human rights.

But Nishikawa pointed to the approval given by the Nuclear Emergency Preparedness Commission to the evacuation plan, which was described as specific and rational because it laid out measures according to distance from the nuclear plant.

(This article was written by Yu Kamata and Morio Choh.)

## Incident at Takahama No.4 had "large impact on society"

### Japan's nuclear regulator stresses gravity of reactor incident to utility Kansai Electric

<http://www.japantimes.co.jp/news/2016/04/06/national/japans-nuclear-regulator-stresses-gravity-of-reactor-incident-to-utility-kansai-electric/#.VwUMjHpdeot>

Kyodo

The head of the nuclear regulatory body Wednesday urged Kansai Electric Power Co. to understand the seriousness of a recent incident at one of its reactors, as the case had **"a large impact on society" and diminished public trust in the safety of nuclear power operations.**

The Nuclear Regulation Authority approved Kansai Electric's report on the cause of the incident and preventive steps to be taken during a regular meeting, but Shunichi Tanaka, chairman of the body, said the utility should reflect on the incident seriously.

The No. 4 unit at the company's Takahama nuclear plant, on the Sea of Japan coast about 380 kilometers west of Tokyo, has been kept offline since it shut down automatically Feb. 29 after problems with a generator and a transformer triggered alarms.

The emergency shutdown occurred just three days after the reactor's restart following the NRA's approval of resumption of operations. The regulator gave the go-ahead for restart last year based on tougher safety regulations adopted after the 2011 Fukushima nuclear disaster.

In the report, the power company said alarms were triggered after a monitoring device detected an electrical current exceeding a preset permissible level. The company said the level had been set lower than usual.

Kansai Electric, which chiefly serves western Japan, still cannot reboot the No. 4 reactor as well as the No. 3 unit at the same plant in Fukui Prefecture unless a court order banning the utility from running the two units is overturned.

The Otsu District Court ruled last month that the two units be suspended, citing safety concerns. It was the first ruling of its kind affecting operating reactors. The utility has filed an objection to the court decision. The Nos. 3 and 4 reactors at the Takahama plant came back online on Jan. 29 and Feb. 26, respectively, following the restart of two reactors at Kyushu Electric Power Co.'s Sendai plant last year. A day after the court order, Kansai Electric halted the No. 3 reactor. Japan started bringing reactors back online last year after the nuclear crisis led to a nationwide shutdown of nuclear plants. The government seeks to derive 20 to 22 percent of the country's electricity from nuclear power by 2030.

April 7, 2016

## Questions remain about courts' decisions

### **Editorial: Questions remain over high court decision on Sendai nuke plant**

[http://mainichi.jp/english/articles/20160407/p2a/00m/0na/006000c\\*](http://mainichi.jp/english/articles/20160407/p2a/00m/0na/006000c*)

The Miyazaki branch of the Fukuoka High Court has dismissed an appeal by residents near the Sendai Nuclear Power Plant in Kagoshima Prefecture against a lower court decision that rejected their demand that operations at the power station be provisionally suspended.

- **[Related]** High court rejects residents' call to halt reactors in southwest Japan

The appeal court upheld a decision handed down by the Kagoshima District Court decision in April 2015 on the grounds that there is no irrationality in the new regulatory standards that the Nuclear Regulation Authority (NRA) set following the March 2011 outbreak of the Fukushima nuclear crisis, endorsing the restart of the power plant operated by Kyushu Electric Power Co.

However, questions remain over the appeal court's evaluation of evacuation plans for local residents in case of a serious nuclear accident at the plant as well as countermeasures against volcanic eruptions. In the latest decision, the Miyazaki branch of the Fukuoka High Court stated that the safety that must be ensured at nuclear plants should be judged based on social norms, noting that it is impossible to completely eliminate risks of accidents at such power stations. The court then evaluated the quake-resistance of the plant, measures to protect the power station from possible volcanic eruptions and local governments' evacuation plans for residents -- which were key points of contention -- and concluded that the plant poses no specific risks of causing serious damage to nearby residents.

However, the myth of the infallible safety of atomic power stations has collapsed with the crisis at the tsunami-ravaged Fukushima No. 1 Nuclear Power Plant. Needless to say, the operators of nuclear plants must draw up and implement countermeasures on the assumption that serious accidents could occur. Therefore, evacuation plans for local residents in case of an accident are crucial. It is the responsibility of local governments that host or are situated near atomic power plants to work out evacuation plans for local residents. However, such plans are not subject to safety evaluations by the NRA under its new

regulatory standards. Evacuation plans should be covered by NRA screening in order to ensure their efficacy.

However, the appeal court ruled that even if evacuation plans are to lack efficacy, it would not mean that operations at nuclear plants pose an immediate threat to the lives and health of local residents. The court stated that it is a matter of legislative policy, and therefore not irrational, that evacuation plans are not subject to the new regulatory standards.

However, serious questions should be raised over whether it is appropriate under social norms to give the green light for reactivation of nuclear plants even though evacuation plans are inadequate.

Last month, the Otsu District Court issued a provisional injunction ordering Kansai Electric Power Co. to suspend operations at the No. 3 and 4 reactors at its Takahama Nuclear Power Plant in Fukui Prefecture. In its decision, the court said, "It is the national government's duty in the principle of faith and trust to work out regulatory standards that take into consideration evacuation plans." This is a more sensible idea. The high court criticized the NRA for evaluating the impact of volcanoes on nearby nuclear plants on the premise that the timing and scale of volcanic eruptions is predictable.

At the same time, however, the court concluded that it is common sense that risks of massive volcanic eruptions that local residents point out can be ignored, noting that the possibility of such disasters is not taken into account in construction and other regulations.

However, many members of the public are apparently doubtful of treating nuclear plants, which could seriously affect wide areas if an accident were to occur, in the same way as ordinary structures. Social consensus has not been formed on risks of accidents at nuclear power stations as even courts are divided over evaluations of such dangers.

The government and electric power companies that operate atomic power plants should take public concerns about nuclear accidents seriously and hold in-depth discussions on the issue.

## **Court decisions divided over risk evaluations of nuclear reactors**

<http://mainichi.jp/english/articles/20160407/p2a/00m/0na/009000c>

Japanese courts have been divided in their decisions over residents' petitions for provisional injunctions ordering the suspension of nuclear reactors filed across the country, and the fate of reactor reactivation is likely to remain in the hands of judicial rulings.

- **【Related】** Local residents decry court's ruling to not halt restart of Sendai nuclear plant
- **【Related】** News Navigator: Is Sendai Nuclear Power Plant safe under new standards?

On April 6, the Miyazaki branch of the Fukuoka High Court approved the operation of the No. 1 and 2 reactors at the Sendai Nuclear Power Plant in Kagoshima Prefecture, dismissing residents' petition for a provisional injunction ordering the suspension of the reactors.

Unlike the Otsu District Court's injunction in March ordering the No. 3 and 4 reactors at the Takahama nuclear plant in Fukui Prefecture be halted, the Fukuoka High Court branch acknowledged that social norms do not call for a "zero risk" over the possibility of nuclear accidents.

After the Fukushima No. 1 nuclear power plant meltdowns in March 2011, there were nine court decisions over injunction requests for nuclear reactors. Of them, three decisions ordered the reactors be halted -- the aforementioned Otsu District Court decision, the May 2014 Fukui District Court decision over the Oi nuclear plant in Fukui Prefecture, and the same court's April 2015 decision over the Takahama plant.

In response to the April 6 decision by the Fukuoka High Court's Miyazaki branch, petitioners are set to consider whether to appeal it to seek the Supreme Court's decision. There are other pending petitions and lawsuits over nuclear reactors across the country, including the one over the No. 3 reactor at the Ikata nuclear plant in Ehime Prefecture, which operator Shikoku Electric Power Co. is seeking to restart this coming summer.

Court decisions over nuclear reactors are split over how far accident risks carried by nuclear reactors are tolerated by social norms. The Fukuoka High Court branch's decision pointed out that unpredictable risks would remain even if the scientific and technical knowledge reflected in the new regulatory standards adopted by the Nuclear Regulation Authority (NRA) is updated, and concluded that "while risks remain, it cannot be said there is a concrete danger" -- in defiance of the Otsu District Court's decision that called for a zero nuclear accident risk.

Courts were also divided in their opinions over resident evacuation plans. The Fukuoka High Court's Miyazaki branch ruled in favor of Kyushu Electric Power Co., the operator of the Sendai plant, on the grounds that the central government has approved the utility's nuclear evacuation plans, saying, "Even if the plans lack in rationality and effectiveness, they are not recognized to immediately infringe on residents' personal rights."

With regard to the NRA's volcano risk evaluation guide premised on detecting signs of major eruptions, the high court branch raised questions by saying, "We must say eruption predictions are difficult and unreasonable." The high court branch, however, went on to state, "The danger of catastrophic eruptions can be ignored" -- again defying a zero risk theory.

At a regular press conference on April 6, NRA Chairman Shunichi Tanaka refuted the high court branch's decision, saying, "It is the NRA's view that elaborate observations should be made for early predictions of eruptions and prompt responses should be made," ruling out the possibility of reviewing its volcano risk evaluation guide.

Shigeyuki Suto, professor of the Faculty of Law at Waseda University, criticized the decision by the Fukuoka High Court's Miyazaki branch, saying, "The decision lacks in an attitude that questions from the public point of view whether the new regulatory standards drawn up by a group of experts are reasonable or not. The decision that the nuclear reactors (at the Sendai plant) are not subject to immediate suspension even if resident evacuation plans are insufficient was also a sheer formality."

April 8, 2016

## High level of radiation near wastewater pool

### Radioactivity at buried tank up in Daiichi plant

[http://www3.nhk.or.jp/nhkworld/en/news/20160408\\_03/](http://www3.nhk.or.jp/nhkworld/en/news/20160408_03/)

The operator of the crippled Fukushima Daiichi nuclear plant says the level of radioactivity **near an underground wastewater storage pool** at the plant is more than 100 times earlier readings.

Tokyo Electric Power Company says the pools were **built 3 years ago to store highly radioactive wastewater produced within the crippled plant**. But all of them soon went out of use due to repeated leaks of contaminated water.

The utility pumped most of the water out of them, but has been checking radioactivity levels of groundwater near the pools.

**On Wednesday, equipment detected 8,100 becquerels of beta-ray-emitting radioactive substances per liter of water. On Thursday, it went up to 9,300 becquerels.**

A week ago, the level was only 87 becquerels.

TEPCO says it doesn't know why the sharp rise took place. It says **some highly radioactive water remains in the pool, but it is isolated with waterproof measures.**

TEPCO says it will continue to analyze groundwater samples around the pool, and also compare them with data on the contaminated water left in part of the tank.

## New nuke security agreement to take effect in May

### Key Nuclear Security Agreement To Enter Into Force Next Month, Says IAEA

<http://www.nucnet.org/all-the-news/2016/04/08/key-nuclear-security-agreement-to-enter-into-force-next-month>

A nuclear security agreement that will take effect on 8 May 2016 will reduce the risk of a terrorist attack on a nuclear power plant and make it harder to smuggle nuclear material, the International Atomic Energy Agency said today.

The IAEA said the entry into force of the Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) was secured today with the deposit of the instrument of ratification by Nicaragua, which brought the number of adherences to 102, the threshold required for the agreement to come into effect in 30 days.

The IAEA said the Amendment, adopted more than a decade ago, will make it legally binding on countries to protect nuclear facilities.

It will also extend the CPPNM's application to nuclear material in domestic use, storage and transport. The CPPNM, the only legally binding international undertaking in the area of physical protection of nuclear material, entered into force in 1987.

Details online: <http://bit.ly/1Vd6SbA>

April 10, 2016

## Terrorism and nuke ssues for G-7 in Hiroshima

### **Terrorism, nuclear issues on agenda at G-7 foreign ministers' meeting in Hiroshima**

<http://www.japantimes.co.jp/news/2016/04/10/national/politics-diplomacy/terrorism-nuclear-issues-agenda-g-7-foreign-ministers-meeting-hiroshima/#.VwqoiXpdeov>

by Ayako Mie

Staff Writer

HIROSHIMA – The Group of Seven (G-7) foreign ministers' meeting kicked off Sunday in the city of Hiroshima to pave the way for their leaders' late May summit which will be held in Mie Prefecture. At the end of the two-day meeting, foreign ministers from Japan, the United States, Canada, France, Germany, Italy and the European Union are expected to adopt a communique, as well as the Hiroshima Declaration, which will aim for a nuclear weapons-free world, and a statement regarding maritime security.

The meeting and the statements will set the stage for the G-7 summit scheduled for May 26 and 27 in Ise-Shima, Mie Prefecture. A total of 11 related meetings will be held in Japan through September, including a gathering of G-7 finance ministers and central bank governors in Sendai immediately before the summit. On the first day of their meeting, the ministers discussed global concerns such as terrorism and refugee issues. Counterterrorism is the most imminent threat to Europe, which has been a frequent target of attacks, notably by the Islamic State extremist group.

Last November, IS launched a series of shooting and bomb attacks in Paris, in which 130 people were killed. The group also claimed responsibility for two other attacks launched in the Belgian capital, Brussels, last month. In those attacks, 32 people died.

Brussels came under fire after miscommunication and other errors failed to prevent the country's deadliest-ever terrorist attack. Belgian authorities admitted that they missed an alert from Turkish authorities about Ibrahim El Bakraoui, one of the Brussels suicide bombers, who was arrested on suspicion of terrorism activities last year in Turkey.

The Belgian prosecutor's office said El Bakraoui's brother, Khalid, who along with Ibrahim also detonated a suicide belt at the airport, had been on the run since December in connection with the Paris attacks. These acknowledgements underscore that the European Union and the global community need a better coordination to fight against terrorism.

The G-7 foreign ministers denounced indiscriminate killing by terrorists and agreed to lead global cooperation to fight violent and extremist attacks.

Japan's foreign minister, Fumio Kishida, also said that G-7 nations should complement each other by utilizing their competitive edge in fighting terrorism and dealing with the refugee crisis, another big concern for European Union nations.

Although Germany has found itself one of the biggest recipients of refugees, German Foreign Minister Frank-Walter Steinmeier was absent from the first day's meetings because his flight was delayed in China. The ministers also talked about issues in the Middle East, such as Syria, Iraq, Afghanistan, Iran and Libya. For Kishida, a third-generation Lower House lawmaker from Hiroshima, one of the main events of the meeting will take place Monday when he hosts the dignitaries during a visit to the Hiroshima Peace Memorial Museum.

This is the first time G-7 foreign ministers and nuclear powers, such as the United States, France, and Germany, will visit the museum. They will also lay floral tributes at the cenotaph located inside Hiroshima Peace Memorial Park.

Kishida has repeatedly said he hopes to bring global leaders to Hiroshima to experience the reality of the atomic bomb. To this end, he hopes to bridge differences between the world's nuclear and nonnuclear powers by adopting the Hiroshima Declaration on Monday.

But any declaration is unlikely to mention "the inhuman aspect of atomic bomb," something Japan has emphasized for a long time.

Last year, when Japan proposed a U.N. resolution including such a phrase, the U.S., Britain and France abstained from casting their votes.

In an interview with the Chugoku Shimbun, a local Hiroshima daily, U.S. Secretary of State John Kerry said the U.S. supports a world without nuclear weapons.

Yet he said the U.S. will pursue the goal by taking what he referred to as realistic and pragmatic measures. Kerry added that it is critical to find methods to make progress on nuclear disarmament to reduce the risk to America, its allies and the entire human race.

Meanwhile, as this is the first time the G-7 related meetings have been held in Asia for eight years, and Japan is the only G-7 member from the region, Kishida hopes to take the initiative in talking about territorial issues in the South China Sea, where Beijing has carried out massive land reclamation projects and deployed radar and surface-to-air missiles.

Without naming China, the statement on maritime security, which is likely to be adopted Monday, is expected to say countries should abide by international court rulings in dealing with territorial disputes. In the coming month, the Permanent Court of Arbitration in The Hague is expected to issue a ruling over the territorial dispute between the Philippines and China.

Beijing has expressed concern about Japan, which it sees as siding with other Southeast Asian nations that are at odds with Beijing regarding the territorial dispute in the South China Sea.

After talking with Steinmeier on Saturday, Chinese Foreign Minister Wang Yi said bringing up the South China Sea issue at the Hiroshima conference will offer no solutions but only to affect the stability of regional security.

April 12, 2016

## **Tritium: To dump or not to dump?**

## Japan weighs release of tritium from Fukushima plant into sea

<http://www.asahi.com/ajw/articles/AJ201604120059.html>

THE ASSOCIATED PRESS

To dump or not to dump a little-discussed substance is the question brewing in Japan as it grapples with the aftermath of the nuclear catastrophe in Fukushima five years ago. The substance is tritium.

The radioactive material is nearly impossible to remove from the huge quantities of water used to cool melted-down reactors at the Fukushima No. 1 nuclear power plant, which was wrecked by the massive tsunami in northeastern Japan in March 2011.

The water is still accumulating since 300 tons are needed every day to keep the reactors chilled. Some is leaking into the ocean.

Huge tanks lined up around the plant, at last count 1,000 of them, each hold hundreds of tons of water that have been cleansed of radioactive cesium and strontium but not of tritium.

Ridding water of tritium has been carried out in laboratories. But it's an effort that would be extremely costly at the scale required for the Fukushima plant, which sits on the Pacific coast. Many scientists argue it isn't worth it and say the risks of dumping the tritium-laced water into the sea are minimal.

Their calls to simply release the water into the Pacific Ocean are alarming many in Japan and elsewhere.

Rosa Yang, a nuclear expert at the Electric Power Research Institute, based in Palo Alto, California, who advises Japan on decommissioning reactors, believes the public angst is uncalled for. She says a Japanese government official should simply get up in public and drink water from one of the tanks to convince people it's safe.

But the line between safe and unsafe radiation is murky, and children are more susceptible to radiation-linked illness. Tritium goes directly into soft tissues and organs of the human body, potentially increasing the risks of cancer and other sicknesses.

"Any exposure to tritium radiation could pose some health risk. This risk increases with prolonged exposure, and health risks include increased occurrence of cancer," said Robert Daguillard, a spokesman for the U.S. Environmental Protection Agency.

The agency is trying to minimize the tritium from U.S. nuclear facilities that escapes into drinking water. Right after the March 2011 disaster, many in Japan panicked, some even moving overseas although they lived hundreds of kilometers away from the Fukushima no-go zone. By now, concern has settled to the extent that some worry the lessons from the disaster are being forgotten.

Tritium may be the least of Japan's worries. Much hazardous work remains to keep the plant stabilized, and new technology is needed for decommissioning the plant's reactors and containing massive radioactive contamination.

The ranks of Japan's anti-nuclear activists have been growing since the March 2011 accident, and many oppose releasing water with tritium into the sea. They argue that even if tritium's radiation is weaker than strontium or cesium, it should be removed, and that good methods should be devised to do that.

Japan's fisheries organization has repeatedly expressed concerns over the issue. News of a release of the water could devastate local fisheries just as communities in northeastern Japan struggle to recover from the 2011 disasters.

An isotope of hydrogen, or radioactive hydrogen, tritium exists in water form, and so like water can evaporate, although it is not known how much tritium escaped into the atmosphere from Fukushima as gas from explosions.

The amount of tritium in the contaminated water stored at Fukushima No. 1 is estimated at 3.4 peta becquerels, or 34 with a mind-boggling 14 zeros after it.



But theoretically collected in one place, it would amount to just 57 milliliters, or about the amount of liquid in a couple of espresso cups--a minuscule quantity in the overall masses of water.

To illustrate that point, Shunichi Tanaka, chairman of the Nuclear Regulation Authority, showed reporters a small bottle half-filled with blue water that was the equivalent of 57 milliliters.

Public distrust is running so high after the Fukushima accident that Tokyo Electric Power Co., or TEPCO, the utility that operates the Fukushima plant and oversees its decommissioning, has mostly kept quiet about the tritium, pending a political decision on releasing the water.

Privately, they say it will have to be released, but they can't say that outright.

What will be released from Fukushima will be well below the global standard allowed for tritium in the water, say Tanaka and others favoring its release, which is likely to come gradually later this year, not all at once.

Proponents of releasing the tritium water argue that tritium already is in the natural environment, coming from the sun and from water containing tritium that is routinely released at nuclear plants around the world.

"Tritium is so weak in its radioactivity it won't penetrate plastic wrapping," said Tanaka.

April 14, 2016

## Strong quake shakes Kumamoto (Kyushu)

### Strongest earthquake since 2011 strikes Kumamoto area

[http://www.japantimes.co.jp/news/2016/04/14/national/magnitude-6-4-earthquake-strikes-kumamoto-kyushu/#.Vw\\_CT3pdeot](http://www.japantimes.co.jp/news/2016/04/14/national/magnitude-6-4-earthquake-strikes-kumamoto-kyushu/#.Vw_CT3pdeot)

Kyodo

A powerful earthquake with a preliminary magnitude of 6.4 struck Kumamoto Prefecture and surrounding areas in Kyushu Thursday evening, the Meteorological Agency said. No tsunami warning was issued.

The quake, which registered the highest 7 on the Japanese earthquake intensity scale, jolted Kumamoto at around 9:26 p.m.

In the town of Mashiki in Kumamoto Prefecture, local authorities said more than 20 homes have collapsed and several people are trapped under debris, including a woman who had lost consciousness. Several fires has also broken out in the town.

More than 100 people were being treated for injuries at three hospitals in Kumamoto City, hospital officials said. And one person was reported injured in each of the neighboring prefectures of Saga and Miyazaki, police there said.

Places around Kumamoto also recorded strong jolts ranging between 3 and lower 5 on the Japanese scale. A number of similarly shallow aftershocks followed, including one of a preliminary magnitude 6.4 — and upper 6 on the Japanese seismic scale — that hit the area shortly after midnight. Another measuring magnitude 5.7 occurred shortly after 10 p.m.

NHK footage showed cameras set up on top of buildings swaying hard as the first temblor hit the region. The weather agency said the earthquake is believed to have struck at a depth of 10 km.

JR Kyushu suspended all operations on the Kyushu Shinkansen Line following the quake. On the Sanyo Shinkansen Line connecting the Honshu mainland and Kyushu, power was lost between Hakata and Kokura stations but operations later resumed at around 9:40 p.m.

Following the quake, Kyushu Electric Power Co. said it found no abnormalities in its Sendai nuclear plant in Kagoshima Prefecture. The operator said it is further looking into any possible damage.

Shikoku Electric Power Co. said its Ikata nuclear plant, which is currently idled, sustained no damage from the Kumamoto quake.

Kumamoto police said reports of **damaged roads** were coming in to police and fire stations in the city of Kumamoto.

In Tokyo, Prime Minister Shinzo Abe immediately set up an emergency headquarters and instructed relevant authorities to gather information.

At a hastily arranged news conference, Chief Cabinet Secretary Yoshihide Suga said the government was doing its utmost to get a full picture of the situation, adding that its top priority was the rescue operations. According to the weather agency, the Kumamoto quake is the first intensity-7 quake since the Great East Japan Earthquake that wreaked havoc in the Tohoku region in March 2011.

April 15, 2016

## Strong aftershocks expected

### Scientists warn of strong aftershocks

[http://www3.nhk.or.jp/nhkworld/en/news/20160415\\_04/](http://www3.nhk.or.jp/nhkworld/en/news/20160415_04/)

Scientists at Japan's Meteorological Agency warn of relatively strong aftershocks that are expected to occur during the next several days.

Gen Aoki of the agency said at a news conference on Thursday night that people in stricken areas should be prepared for the possible collapse of buildings and landslides. He added the aftershocks could have intensities of up to 6-minus on the Japanese scale.

He also said the agency believes Thursday's quake occurred near a fault that caused major earthquakes several times in the past.

As for Mount Aso, a volcano near the epicenter, agency officials say instruments haven't detected any change in its activity after the earthquake.

## Nothing to do with Mt. Aso?

## **Expert doubts volcano related to M6.5 earthquake, but calls for vigilance**

<http://mainichi.jp/english/articles/20160415/p2a/00m/0na/008000c>

There is likely no connection between the magnitude-6.5 earthquake that struck Kumamoto on April 14 and the nearby Mount Aso volcano, a geologist has told the Mainichi Shimbun, though he did call for continued careful observation of the volcano.

Mount Aso in Kumamoto Prefecture is near the two faults that caused the earthquake, as are the Sakurajima volcano in Kagoshima Prefecture and Mount Unzen in Nagasaki Prefecture. All are active. Associate professor of geology Ryusuke Imura of Kagoshima University says, "Mount Aso has become volcanically active a number of times, but an earthquake like this has not occurred (at the same time), and it is also difficult to imagine that (the earthquake) will cause Mount Aso to erupt."

However, he added, "We should observe Mount Aso yet more carefully so we don't miss even a small change occurring there."

April 16, 2016

## **Preparedness key to survival after mega disasters**

### **EDITORIAL: Mega-disasters possible as this latest massive quake shows**

<http://www.asahi.com/ajw/articles/AJ201604160037.html>

The severe earthquake that rocked the southern prefecture of Kumamoto on April 14 caused major damage and scared a lot of people.

Numerous homes collapsed due to the violent shaking. In cities and towns, pedestrians were transfixed as they tried to get to grips with this latest natural disaster.

The quake reminded some people of the Great East Japan Earthquake that struck five years ago, while others were concerned about the safety of Kyushu Electric Power Co.'s Sendai nuclear power plant in neighboring Kagoshima Prefecture. The plant's No. 1 and No. 2 reactors are the only ones currently in operation in Japan.

The magnitude-6.5 earthquake in Kyushu had a maximum intensity of 7 on the Japanese seismic scale in Mashiki, a town of 35,000 or so souls near the epicenter.

In Kumamoto itself, tiles cascaded from the roof of the main tower of 400-year-old Kumamoto Castle and several ancient stone walls there crumpled. A 100-meter section of the 242-meter "Nagabei" (long wall), a designated important cultural property, collapsed.

It was the first earthquake of such intensity to strike since the 2011 temblor in northeastern Japan that generated devastating tsunami and the Fukushima nuclear calamity. Many Japanese, with the exception of residents affected by the big earthquake five years ago, seem to be becoming less conscious of the risk of a major seismic event occurring.

We need to remain keenly aware that nowhere in the Japanese archipelago is spared the danger of earthquakes. Any earthquake, even one in a remote area, should be taken as a warning not to take safety for granted.

We urge everybody to pay serious attention to this latest event and carefully prepare for major quakes in the future, while helping where they can in providing disaster relief to affected areas and supporting recovery efforts.

### **RESCUE OPERATIONS 1ST PRIORITY**

The death toll from the Kumamoto earthquake as of late April 15 stood at nine. Most of the victims are believed to have been trapped under collapsed buildings.

Self-Defense Forces personnel and members of Emergency Fire Response teams rushed to the quake-hit areas to begin rescue operations. First and foremost, all-out efforts must be made to search for and rescue survivors while considering the risk of a secondary disaster.

One notable fact is that the quake has been followed by unusually frequent and strong aftershocks. The Japan Meteorological Agency warned that aftershocks measuring up to lower 6 on the Japanese seismic scale could occur in the next week or so.

Quakes of this intensity can cause weak wooden buildings to collapse and trigger massive landslides. For the time being, local residents should avoid acting alone and stay away from damaged buildings or steep slopes.

More than 40,000 people took temporary shelter following the quake and many are still staying in community centers, schools and other makeshift facilities. Some survivors laid cardboard sheets on the ground to sit on.

It is still chilly in the morning and at night. Rain could add to the misery of survivors. Proper attention should be paid to the health of those in the affected areas.

### **VIOLENT QUAKES AND ACTIVE FAULTS**

This is the fourth time Japan has been hit by a quake registering 7 on the seismic scale since the meteorological agency assigned that number to the maximum intensity of quakes in 1949.

The previous three are the Great Hanshin Earthquake, which flattened Kobe in January 1995 and had a magnitude of 7.3, the magnitude-6.8 Niigata Prefecture Chuetsu Earthquake in October 2004 and the Great East Japan Earthquake in March 2011, which had a magnitude of 9.0.

An earthquake's energy doubles when its magnitude increases by 0.2 and becomes 1,000 times more powerful when the figure rises by 2.

Among the four severest quakes since 1949, only the 2011 temblor was a so-called ocean-trench earthquake, one caused by the shift of tectonic plates. The 2011 quake released enormous energy, some 360 times larger than the force of the Hanshin quake.

The other three were linked to active faults, or fractures within the Earth's crust.

This type of earthquake releases less energy than ocean-trench quakes, with only limited areas shaken violently. Because the focus of such quakes is relatively close to the surface, however, areas right above the area hit tend to suffer severe damage.

The focus of the April 14 quake is close to the Futagawa fault belt and the Hinagu fault belt, which have been designated by the government's Earthquake Research Committee as "major fault belts."

The committee had predicted that a movement of part of these fault systems could cause an earthquake with a magnitude of between 6.8 and 7.5. If the entire system moves, the panel warned, a gigantic quake with a magnitude of between 7.5 and 8.2 could occur.

The committee had also said the probability of a major quake linked to these fault belts occurring within 30 years is relatively high.

The Kumamoto earthquake was smaller in scale than predicted. But the fact is that it produced shaking of a maximum intensity level on the seismic scale and caused loss of life even though the amount of energy it released was about one-16th of the force of the Hanshin quake.

The Japanese archipelago is crisscrossed with active faults. Some seismologists have argued that the Great East Japan Earthquake has ushered in a new era of increased and intensified seismic activity in Japan. Other experts say there are many active faults still to be discovered.

Even residents of areas without known active faults, let alone people living near recognized faults, should be adequately prepared for major quakes.

### **PREPARATION KEY TO SURVIVAL**

Kyushu has been regarded as less conscious of the risk of big quakes than it should be.

Six months after the March 2011 earthquake, the education board of Mashiki invited a seismologist to deliver a lecture for the town's residents. The board tried to make local residents aware of the possibility of an earthquake with a magnitude of up to 8 occurring directly below their town and understand that enhancing the quake resistance of their homes is the most effective way to prepare for such events. But only 70 percent of the houses in the town have been made quake-resistant, a lower ratio than the average for the entire prefecture.

Last year, the Tokyo metropolitan government distributed a booklet on dealing with a disaster to all 6.7 million or so households in the capital.

The booklet contains a broad range of information useful for efforts to become better prepared for disasters, such as a safety checklist for homes and advice for responding to quakes, like "Don't rush down to the first floor if you are in an old building." The booklet also offers tips for post-disaster life, such as a list of goods that should be reserved for emergencies including plastic wrap, which proved very useful in past disasters, and an illustration of how to make diapers with plastic grocery bags.

The booklet has been well received because of its useful and specific content.

The difficulty of rescue and relief operations following a powerful quake, say one measuring 7 on the seismic scale, for instance, is far greater if wider areas are affected.

The fact we all should keep in mind is this: **The effectiveness of responses to quakes, especially big ones, depends, to a great extent, on how well local residents and households are prepared in ordinary times.**

April 17, 2016

## **Fear of temblors in Shikoku**

### **Simultaneous Kyushu quakes feared to trigger temblors in Shikoku**

<http://mainichi.jp/english/articles/20160417/p2a/00m/0na/013000c>

A wide swathe of farmland is seen after being ripped open by the Kumamoto earthquakes, on April 16, 2016, in Minamiaso, Kumamoto Prefecture. (Mainichi)

A series of earthquakes that have occurred in three regions of Kyushu are feared to trigger temblors in Shikoku and other regions, say experts.

- **【Kumamoto Earthquake Special】**
- **【Related】** M7.3 Kumamoto quake on same scale as 1995 Great Hanshin Earthquake: expert
- **【Related】** Damage spreads dramatically with 2nd quake in wee hours of April 16

A magnitude-6.5 earthquake on the night of April 14, which measured 7 on the 7-point Japanese intensity scale in Mashiki, Kumamoto Prefecture, turned out to be a prelude to a larger temblor. In the early hours of April 16, an M-7.3 earthquake, whose energy was about 16 times that of the previous one, occurred, causing further damage.

The quakes that began in the Kumamoto district of Kumamoto Prefecture are believed to have affected faults in other areas, triggering temblors in the prefectural village of Minamiaso as well as in neighboring Oita Prefecture.

"When a large-scale earthquake strikes, it sometimes triggers temblors in other areas. As the seismic activity is intensifying in both the Kumamoto and Oita regions, they are apparently stimulating each other," says Atsumasa Okada, professor emeritus of tectonic geomorphology at Kyoto University.

The Beppu-Shimabara rift zone, which consists of multiple active faults, lies in central Kyushu where the earthquakes are currently occurring. As such, areas from Beppu Bay to the Yatsushiro Sea have drawn attention from seismologists as quake-prone areas.

The M-6.5 first quake that struck at 9:26 p.m. on April 14 occurred at the northern tip of the Hinagu fault zone, where it crosses the Futagawa fault zone.

"The northern tip of the fault zone was hard to break, and prevented activity in the Futagawa fault zone. I think the northern tip broke and became unable to stop the activity of the Futagawa fault zone, allowing it to break," says Hiroshi Sato, professor of structural geology at the University of Tokyo Earthquake Research Institute, as he explains the possible cause of the main quake that struck at 1:25 a.m. on April 16. Gen Aoki, director of the Japan Meteorological Agency Earthquake and Tsunami Observations Division, has pointed to the possibility that the main quake has triggered seismic activity in surrounding areas. Okada says, "There is a possibility that earthquakes will occur through mutual reactions between seismic activities in different regions, and attention should be paid to this activity."

Earthquakes are spreading northeast, and the Median Tectonic Line fault zone -- the largest-class fault zone in Japan which stretches from Shikoku to the Kinki regions -- is an extension of this line. Noting that the seismic activity in Kyushu could stimulate the Median Tectonic Line, some experts underscore the need to exercise caution.

The government's Headquarters for Earthquake Research Promotion recognizes an about 360-kilometer-long zone extending from Nara to Ehime prefectures as the Median Tectonic Line, and is analyzing the possibility that the zone will trigger earthquakes.

However, as many researchers regard active faults that stretch all the way into Kyushu as part of the Median Tectonic Line, the seismic activity in Kyushu could have further repercussions. The Ikata Nuclear Power Plant in Ehime Prefecture is situated south of this zone.

Yoshinobu Tsuji, a special visiting researcher at the Building Research Institute, points out that the latest quakes occurred when part of the Median Tectonic Line moved.

Historical records show that large-scale earthquakes repeatedly occurred around the Median Tectonic Line over a short period in 1596. The 1586 Tensho earthquake that caused serious damage to extensive areas in the Kinki and Chubu regions is an example of a temblor that had repercussions on surrounding areas. Following the March 11, 2011 Great East Japan Earthquake, an earthquake struck Nagano Prefecture the next day and an area around Mount Fuji in Shizuoka Prefecture on March 15.

"The latest earthquake could trigger relatively large earthquakes in the Bungo Channel that separates Kyushu and Shikoku. People in these areas, including Shikoku, should exercise caution," says Tsuji.

## **Frequency of Kyushu quakes highest on record for Japan inland, coastal temblors**

<http://mainichi.jp/english/articles/20160417/p2a/00m/0na/017000c>

Rescue workers use a machine tool to search for missing people in Minamiaso, Kumamoto Prefecture, on April 17, 2016. (Mainichi)

The frequency of the earthquakes that have hit Kumamoto Prefecture and surrounding areas is the highest ever observed in Japan for inland or coastal temblors, the Japan Meteorological Agency (JMA) said on April 17.

- **【Kumamoto Earthquake Special】**

Moreover, the JMA said the seismic activity is spreading not only northeast toward Oita Prefecture, but also southwest.

"The seismic activity remains intense. Be careful of strong vibrations as well as rain," which could trigger landslides and mudslides, said Gen Aoki, director of the JMA's Earthquake and Tsunami Observation Division.

According to the agency, the number of earthquakes of at least magnitude-3.5 in Kumamoto and surrounding areas since the first M-6.5 temblor struck on the night of April 14 had hit 162 by 8:30 a.m. on April 17. The figure exceeded that for temblors following the M-6.8 Chuetsu earthquake in central Niigata Prefecture in 2004, which had held the previous high. The agency began observing the frequency of earthquakes measuring at least M-3.5 in 1995.

The number of quakes has increased since the M-7.3 main quake in the early hours of April 16, JMA officials said.

April 18, 2016

## **All's well, not to worry**

### **Nuclear regulator: Sendai reactors need not halt**

[http://www3.nhk.or.jp/nhkworld/en/news/20160418\\_23/](http://www3.nhk.or.jp/nhkworld/en/news/20160418_23/)

Japan's nuclear regulator says there's no need to suspend operations at the country's only operating nuclear plant on the quake-hit southwestern island of Kyushu.

Nuclear Regulation Authority officials met on Monday to examine the impact of the frequent earthquakes since Thursday on nuclear power plants in the region.

The quakes have been centering in Kumamoto and surrounding areas. Officials discussed the impact on 2 online reactors at the Sendai nuclear plant, some 100 kilometers south of Kumamoto.

They said **the maximum force logged from tremors at the plant was 8.6 gal, far lower than the 160-gal that would automatically shut down the reactors.** Gal is a unit of acceleration.

They said the plant's anti-quake measures assume much more powerful earthquakes and there is no problem with continuing operations.

**They also discussed the impact on 3 offline nuclear power stations in the southwestern and other regions where tremors were felt. They found no irregularities in any of them.**

The experts agreed to keep a close watch on future seismic activities and their impacts as the meteorological agency warns of more possible quakes.

**They also instructed the Authority's secretariat to provide more detailed and up-to-date information on nuclear plant operation in the event of earthquakes.**

The agency was criticized for being slow to update such information on its website when the first of the quakes occurred in the Kyushu region on Thursday.

## 2 meters shift along 50km fault

### **Magnitude 7.3 quake moves fault by 2 meters**

[http://www3.nhk.or.jp/nhkworld/en/news/20160418\\_04/](http://www3.nhk.or.jp/nhkworld/en/news/20160418_04/)

A seismology expert says horizontal shifts by up to nearly 2 meters along a 50-kilometer fault caused Saturday's magnitude-7.3 quake in southwestern Japan.

Associate Professor Yuji Yagi of the University of Tsukuba assessed the movements of the fault, using data observed at various locations around the globe.

The professor says **the horizontal shifts by up to 1.8 meters occurred along the fault about 50 kilometers long and about 20 kilometers wide.**

The government's Earthquake Research Committee released its estimation that **Saturday's quake likely occurred as the result of movement of some part of a major active fault called the Futagawa Fault.**

Yagi says the fault he assessed coincides with the Futagawa Fault. But he says his assessment shows the fault could extend a further 10 kilometers northeastward than the government panel's estimation.

He says the quake caused damage in a northeast direction toward Minami-Aso Village where it registered an intensity of up to six-plus on the Japanese seismic scale of 0 to 7. Yagi says it was likely to have been the most severely-hit in the region.

Yagi says seismic waves can overlap each other in the direction of horizontal shifts, and increase the jolt of quakes. He says this mechanism could have contributed to the major damage in the village.



## No need to stop

### Nuclear regulator sees no need to halt reactors despite quake concerns

<http://mainichi.jp/english/articles/20160418/p2g/00m/0dm/076000c>

TOKYO (Kyodo) -- The chairman of the Nuclear Regulation Authority said Monday the safety watchdog has no plan to halt operating nuclear reactors in southwestern Japan despite concerns about a recent wave of earthquakes hitting the neighboring region, as there have been no signs of safety problems at the facility.

- **【Kumamoto Earthquake Special】**

"We will not make such a judgment (to halt the reactors) unless there is a scientifically convincing basis," Shunichi Tanaka said about the Sendai nuclear complex in Kagoshima Prefecture, at a press conference after a special meeting of the NRA earlier in the day.

The NRA held the meeting after a string of earthquakes on the southwestern Japan island of Kyushu killed more than 40 people and injured over 1,000 people since the first major quake with a magnitude of 6.5 hit Kumamoto Prefecture in central Kyushu on Thursday night.

The nuclear watchdog confirmed at the meeting there are no abnormalities at four nuclear power plants located relatively near the quake-stricken area, including the two reactors at the Sendai facility operated by Kyushu Electric Power Co., the only two commercial power reactors currently operating in Japan. The other three nuclear facilities are the Genkai plant in Saga Prefecture, the Ikata complex in Ehime Prefecture and the Shimane facility in Shimane Prefecture, run by Kyushu Electric, Shikoku Electric Power Co. and Chugoku Electric Power Co., respectively. They are all offline with their spent fuel rods stored in pools.

The levels of earthquake acceleration recorded at the four plants were all below those that trigger automatic shutdowns, with the biggest acceleration of 20.3 gals registered at the Genkai nuclear power station in northwestern Kyushu, according to the NRA.

One gal equals a change in the rate of motion of 1 centimeter per second squared. The Fukushima Daiichi nuclear power plant was hit by a jolt of 675 gals when an earthquake and tsunami triggered meltdowns at the complex in 2011.

Tanaka added that the regulator will continue to closely monitor the situation as earthquakes continue to rock the Kyushu area.

The NRA approved the restart of Sendai's two reactors in 2014 after safety measures were implemented that assume a magnitude-8.1 quake could occur on the fault zone which moved to cause a magnitude-7.3 quake early Saturday.

**The nuclear watchdog said that the potential impact of jolts caused by that fault zone on the safety of the Sendai plant is limited as the complex is located about 90 kilometers from the fault zone.**

The government also has no intention of stopping the two Sendai reactors, with Chief Cabinet Secretary Yoshihide Suga saying that there is no reason to halt them.

Shikoku Electric aims to restart in late July a reactor at the Ikata complex in Ehime on Shikoku Island, and about 170 km east of Kumamoto. The Shimane plant on Honshu, Japan's most heavily populated island, is located about 360 km northeast of Kumamoto.

April 20, 2016

## Dumping tritium into sea most "feasible" option?

### Dumping tritium from Fukushima into sea is best option: ministry

<http://www.asahi.com/ajw/articles/AJ201604200041.html>

The industry ministry concluded that releasing diluted radioactive tritium into the sea is the most feasible option in dealing with contaminated water accumulating at the Fukushima No. 1 nuclear power plant. The ministry's working group said at a meeting on April 19 that separating tritium from the contaminated water is proving extremely difficult, and that four other options studied about disposal were either too time-consuming or expensive.

Releasing the water into the sea would cost 3.4 billion yen (\$31 million) and take seven years and four months to complete, according to the group.

Tokyo Electric Power Co., the operator of the embattled nuclear plant, will decide on a disposal method based on the group's findings. The utility has said it will not release treated water that still contains radioactive substances into the sea without gaining the understanding of local fishermen.

TEPCO has been struggling to ease the buildup of polluted water at the nuclear plant. Every day, tons of groundwater become contaminated with radioactive substances after entering damaged reactor buildings. About 800,000 tons of water containing tritium are stored at the nuclear complex. This water was mostly used to cool melted nuclear fuel in the affected reactors.

TEPCO has been using a device called ALPS (advanced liquid processing system) to eliminate 62 kinds of radioactive substances, including cesium, from the water. But it cannot remove tritium.

The Ministry of Economy, Trade and Industry solicited ideas from the public on how to separate tritium from the polluted water. Six companies and one university submitted proposals.

However, experts in and out of Japan who evaluated the proposed methods concluded that none of the plans could be put into practical use in the near future.

The ministry's working group narrowed its analysis to the five options that involved disposing of water containing tritium.

One suggestion was to inject the polluted water into deep layers of the Earth. Another proposal was to electrolyze the tritium-contaminated water and release it into the atmosphere.

The highest estimated cost in the proposals was 388.4 billion yen, with the longest period for completion reaching 13 years, according to the group's study.

Ministry officials concluded that releasing water containing tritium into the sea after diluting it would be most reasonable in terms of both cost and time.

## Takahama Nos 1 & 2 meet new NRA regulations

### 2 older reactors meet new requirements

[http://www3.nhk.or.jp/nhkworld/en/news/20160420\\_13/](http://www3.nhk.or.jp/nhkworld/en/news/20160420_13/)

Two nuclear reactors at the Takahama plant on the Sea of Japan coast have become the first reactors aiming to operate beyond 40 years to pass Japan's nuclear authority's new regulations introduced after the 2011 accident at the Fukushima Daiichi nuclear plant.

Under a system also introduced after the 2011 accident, the lifespan of reactors across Japan has been limited to 40 years in principle.

Reactors aged 40 years old or more need to meet the assessment regulations of the Nuclear Regulation Authority and other conditions as part of the process for gaining permission to extend operations.

On Wednesday, the authority officially decided to pass a screening document saying the Number 1 and 2 reactors at the Takahama plant in Fukui Prefecture have met the regulations. The reactors are currently offline.

Earlier in February, the nuclear regulator judged that fire prevention measures on electric cables -- a problem unique to older reactors -- and other revised measures met the regulations. They effectively approved the draft screening document at that time.

Wednesday's approval session came after a 30-day period of soliciting public opinions on the document, which is a necessary process in the assessment. It was reported at the session that some of the opinions said the draft underestimated the size of possible quakes and also criticized the fact that actual tests on improved electric cables had been put off.

The session unanimously approved the draft with some revisions, without changing its conclusion.

Attention is now focused on whether the reactors can clear remaining conditions and gain approval for the extension by the time limit of July 7th.

The remaining conditions include checks on deterioration at the facility and an assessment of detailed plans on quake resistance.

The operator, Kansai Electric Power Company, says putting the reactors back online will take more than 3 years, due to the need for more safety work.

April 21, 2016

## **Takahama restart: Safety concerns growing**

### **Fears grow as Takahama reactors near restart**

Staff Writer

Kansai Electric Power Co.'s Takahama No. 1 and 2 reactors are over 40 years old, but the utility has applied for a 20-year extension. On Wednesday, the Nuclear Regulation Authority officially gave the reactors the green light, signaling they meet the fundamental safety standards needed for reactivation.

Although additional tests and inspections are needed before the reactors can resume operation, the potential first-ever restart of two units that are more than four decades old has neighboring communities worried.

The Sea of Japan coastal city of Maizuru, Kyoto Prefecture, parts of which lie 5 km from Takahama, would be on the front lines of any disaster response in the event of an accident, and Mayor Ryozo Tatami expressed specific concerns Wednesday.

“At present, has the safety of the plant been confirmed? We need scientific and technological explanations. The No. 1 and 2 reactors were envisioned and constructed to operate for 40 years,” Tatami said. “We also need documentation from when the plant was originally built that proves it’s possible to operate the reactor for 60 years, especially since the core cannot be replaced.”

Caution by Tatami in particular over restarting Takahama Nos. 1 and 2 could impact the stance of other Kansai leaders.

A small part of northern Shiga Prefecture lies within 30 km of Takahama, and Gov. Taizo Mikazuki expressed concern this week about running old reactors that could leak radiation into Lake Biwa, as well as the problem of storing additional nuclear waste generated by the reactors.

While gaining approval for restarts from heavily pro-nuclear Takahama and Fukui Prefecture is expected to be relatively easy, Kepco is certain to face calls from other Kansai-area prefectures to provide detailed explanations of why it needs to restart two aging reactors before permission for their restart is given.

It is also likely to face questions about whether the utility and NRA are cutting corners in order to make the July 7 deadline for formal permission to restart. If that deadline is missed, the reactors are supposed to be scrapped.

## Quakes & nuke safety

### Kyushu Earthquake Swarm Raises Concerns Over Nuclear Plant Safety

<http://spectrum.ieee.org/energywise/energy/nuclear/kyushu-earthquake-swarm-raises-concerns-over-nuclear-plant-safety>

By John Boyd

The populous island of Kyushu in southwest Japan has been shaken by hundreds of earthquakes and aftershocks over the past eight days, and there is no immediate end in sight to Mother Nature’s upheavals. The tremors have impacted manufacturing for some companies in the auto and electronics industries, while concerns are growing over the safety of Japan’s two active nuclear reactors (the only two presently online), **which are located about 120 km south of where the main shaking is occurring.**



Image: NRA, Japan

The first major quake, 6.5 in magnitude, struck on April 14. A second more disastrous tremblor measuring 7.3 hit the area at 1:25 am on Thursday, April 16, injuring thousands of people, and killing dozens. Water, electricity and gas services have been disrupted. Buildings, roads, and bridges have been destroyed, complicating search, rescue and aid efforts for emergency workers and the Japan Self-Defense Force. The quakes are occurring inland, so there are no tsunami warnings.

As the quakes continue, fears are growing over the safety of two nuclear reactors in the Sendai Nuclear Plant operated by Kyushu Electric Power Co. (Kyuden). According to the Japan Times, citizens' fears are rising, while **mayors from more than 100 cities have called on the central government "to re-evaluate the way earthquake safety standards for nuclear power plants are calculated."**

Following the Fukushima Daiichi Nuclear Plant accident in March 2011, all 50 or so nuclear plants in Japan were shut down. The two Sendai reactors were authorized by Japan's Nuclear Regulation Authority (NRA) to start up again this year after fulfilling strict new safety requirements, but now they face the possibility of another shutdown if the quakes continue and citizens fears increase further.

To try and head off such an outcome, Kyuden was quick to prominently display messages in Japanese and English on its website stating that "Sendai Nuclear Power Station is safely in operation. ... No abnormalities have been confirmed there."

It has also published details on seismic intensity and maximum acceleration of ground motion measured in gals [PDF] the plant experienced during the April 16 temblor—the values coming far below the figures for automatic shutdown.<sup>4</sup>

The NRA agrees with the operator's stance, saying in a news release [PDF] issued April 18, "To date, no issues regarding the safety of the following facility [including Sendai Nuclear Power Station] were found

resulting from the earthquakes, and their operation status have not changed from before the earthquakes.”

But the NRA has been criticized for not providing sufficient information on the impact of the earthquakes. In a press conference on April 18 reported by the jiji wire service, NRA chairman Shunichi Tanaka admitted they could do a better job. “We will decide whether to stop the operations of nuclear power plants based on scientific and technological standards,” Tanaka told the press. “Under the current circumstances, we do not see any safety problems.”

Auto and electronics manufacturers’ facilities in the region also absorbed major damage and the impacts are being felt up and down the supply chain.

Toyota reports that it is suspending production of vehicles at most of its assembly plants due to parts shortages from Kyushu suppliers hit by the earthquakes, while Honda has halted work in its Kumamoto Factory, which manufactures motorbikes and general-purpose engines.

Because of damage to buildings and manufacturing lines, Sony has stopped operations at its Semiconductor Manufacturing Kumamoto Technology Center, which produces image sensors for digital cameras and micro-display devices. Two other Sony semiconductor plants in the region also suffered temporary disruptions in production.

It’s an open secret that Sony supplies Apple with CMOS image sensors for its iPhones. When press reports suggested such sensor shipments might be affected, Sony quickly issued a press release stating, “Although some of the manufacturing equipment at Nagasaki Technology Center, which is Sony’s main facility for smartphone image sensor production, and (at) Oita Technology Center ... had been temporarily halted, the affected equipment has been sequentially restarted from April 17, and production resumed.”

## **NRA itself defies basic 40-year rule**

### **Nuclear watchdog's green light for aging reactors waters down 40-year rule**

<http://mainichi.jp/english/articles/20160421/p2a/00m/0na/008000c>

The Nuclear Regulation Authority (NRA) has given approval to operating two aging reactors at the Takahama Nuclear Power Plant in Fukui Prefecture beyond 40 years, defying the basic rule of limiting the service life of reactors to four decades.

The No. 1 and 2 reactors at the nuclear plant operated by Kansai Electric Power Co. passed the NRA's safety screenings on April 20, making them the first reactors aged over 40 years that have cleared the new regulatory standards introduced after the 2011 Fukushima nuclear disaster.

Both reactors went online back in the 1970s -- the No. 1 reactor in November 1974 and the No. 2 reactor in November 1975. The 40-year rule, which is mentioned in the revised nuclear reactor regulation law that came into force in 2013, was introduced with the understanding that the operational life of reactors 40 years of age could be extended by up to 20 years just once if the NRA granted permission, but only in exceptional cases.

Kansai Electric Power Co. needed to obtain approval by July 7 for its construction plan elaborating on designs. It also needed approval for extending the operational life of the aging reactors. The NRA, however, agreed to postpone some screening work until after that deadline.

Screenings on the quake resistance of primary cooling systems, including steam generators, are expected to take several years. The NRA's decision to push back those screenings has paved the way for the aging reactors to operate beyond their designated 40-year life.

The NRA says that even if valid data is not obtained during screenings after that deadline, the reactors will be allowed to operate beyond 40 years if the facilities are reinforced and re-examined.

After the NRA issued an initial approval in February for extending the operational life of the Takahama reactors beyond 40 years, it received such public comments as, "Anything could be allowed if screenings can come later." However, the NRA argues that there will be no legal problems with its green light to extend operation of the Takahama reactors.

Meanwhile, Kansai Electric Power Co. has replaced 60 percent of a total of 1,300 kilometers of cables at the No. 1 and 2 reactors with flameproof cables. For the parts where it is difficult to replace cables, the utility has presented measures to prevent the spread of fire, such as wrapping cables with fireproof material. The NRA has approved this alternative solution.

There are four other aging reactors in the country, where the same types of cables as those at the Takahama plant are in place. **These old cables were said to be posing "the biggest obstacle in extending the service life of reactors,"** according to a senior power company official. However, the NRA's latest decision may likely set a precedent for watering down the 40-year rule, which was introduced by the former administration led by the Democratic Party of Japan.

April 27, 2016

## Shika reactor: The fault could move in the future

### Experts report fault at Shika reactor could slip

[http://www3.nhk.or.jp/nhkworld/en/news/20160427\\_21/](http://www3.nhk.or.jp/nhkworld/en/news/20160427_21/)

A panel of scientists has presented to Japan's Nuclear Regulation Authority an assessment that says a fault under a reactor in central Japan could slip sometime in the future.

The conclusion could lead to the scrapping of the reactor although the issue will undergo further scrutiny by the authority's commissioners.

The panel's report, presented on Wednesday, deals with the No.1 reactor at the Shika nuclear plant in Ishikawa Prefecture on the Japan Sea coast.

The report upholds a draft assessment conducted in July last year. The report says it is reasonable to believe the fault below the reactor shifted during or after a geological period called the Late Pleistocene, between 120,000 and 130,000 years ago.

And it concludes that it is undeniable the fault could move in the future.

The plant's operator, Hokuriku Electric Power, has been insisting that the fault is not active and is aiming at restarting the reactor, which is currently offline.

Construction of reactor buildings and other key facilities is not allowed above active faults.

But the panel's report adds that its conclusion was derived from limited data, such as sketches of strata made at the time the plant was built.

It notes that surveys of strata on the southeastern side of the reactor, which is on the extension of the fault beneath the reactor, detected no sign of movement over the past 130,000 years.

It says additional data and further analysis would be necessary to make a more accurate assessment.

The operator plans to apply for screening to resume operations of the No.1 reactor. At that time, the regulators will discuss additional data to be presented by the operator.

The report also notes that other faults running beneath cooling pipes leading to the No.1 and 2 reactors could distort the ground in the future. The operator may be required to relocate or reinforce facilities to address this possibility.

## Radioactivity seriously damaging to wildlife

### **At Chernobyl and Fukushima, radioactivity has seriously harmed wildlife**

[http://www.theecologist.org/blogs\\_and\\_comments/commentators/2987625/at\\_chernobyl\\_and\\_fukushima\\_radioactivity\\_has\\_seriously\\_harmed\\_wildlife.html](http://www.theecologist.org/blogs_and_comments/commentators/2987625/at_chernobyl_and_fukushima_radioactivity_has_seriously_harmed_wildlife.html)

The largest nuclear disaster in history occurred 30 years ago at the Chernobyl Nuclear Power Plant in what was then the Soviet Union. The meltdown, explosions and nuclear fire that burned for 10 days injected enormous quantities of radioactivity into the atmosphere and contaminated vast areas of Europe and Eurasia. The International Atomic Energy Agency estimates that Chernobyl released 400 times more radioactivity into the atmosphere than the bomb dropped on Hiroshima in 1945.

Radioactive cesium from Chernobyl can still be detected in some food products today. And in parts of central, eastern and northern Europe many animals, plants and mushrooms still contain so much radioactivity that they are unsafe for human consumption.

The first atomic bomb exploded at Alamogordo, New Mexico more than 70 years ago. Since then, more than 2,000 atomic bombs have been tested, injecting radioactive materials into the atmosphere. And over 200 small and large accidents have occurred at nuclear facilities. But experts and advocacy groups are still fiercely debating the health and environmental consequences of radioactivity.

However, in the past decade population biologists have made considerable progress in documenting how radioactivity affects plants, animals and microbes. My colleagues and I have analyzed these impacts at Chernobyl, Fukushima and naturally radioactive regions of the planet.

Our studies provide new fundamental insights about consequences of chronic, multigenerational exposure to low-dose ionizing radiation. Most importantly, we have found that individual organisms are injured by radiation in a variety of ways. The cumulative effects of these injuries result in lower population sizes and reduced biodiversity in high-radiation areas.



## **Broad impacts at Chernobyl**

Radiation exposure has caused genetic damage and increased mutation rates in many organisms in the Chernobyl region. So far, we have found little convincing evidence that many organisms there are evolving to become more resistant to radiation.

Organisms' evolutionary history may play a large role in determining how vulnerable they are to radiation. In our studies, species that have historically shown high mutation rates, such as the barn swallow (*Hirundo rustica*), the icterine warbler (*Hippolais icterina*) and the Eurasian blackcap (*Sylvia atricapilla*), are among the most likely to show population declines in Chernobyl. Our hypothesis is that species differ in their ability to repair DNA, and this affects both DNA substitution rates and susceptibility to radiation from Chernobyl.

Much like human survivors of the Hiroshima and Nagasaki atomic bombs, birds and mammals at Chernobyl have cataracts in their eyes and smaller brains. These are direct consequences of exposure to ionizing radiation in air, water and food. Like some cancer patients undergoing radiation therapy, many of the birds have malformed sperm. In the most radioactive areas, up to 40 percent of male birds are completely sterile, with no sperm or just a few dead sperm in their reproductive tracts during the breeding season.

Tumors, presumably cancerous, are obvious on some birds in high-radiation areas. So are developmental abnormalities in some plants and insects.

Given overwhelming evidence of genetic damage and injury to individuals, it is not surprising that populations of many organisms in highly contaminated areas have shrunk. In Chernobyl, all major groups of animals that we surveyed were less abundant in more radioactive areas. This includes birds, butterflies, dragonflies, bees, grasshoppers, spiders and large and small mammals.

Not every species shows the same pattern of decline. Many species, including wolves, show no effects of radiation on their population density. A few species of birds appear to be more abundant in more radioactive areas. In both cases, higher numbers may reflect the fact that there are fewer competitors or predators for these species in highly radioactive areas.

Moreover, vast areas of the Chernobyl Exclusion Zone are not presently heavily contaminated, and appear to provide a refuge for many species. One report published in 2015 described game animals such as wild boar and elk as thriving in the Chernobyl ecosystem. But nearly all documented consequences of radiation in Chernobyl and Fukushima have found that individual organisms exposed to radiation suffer serious harm.

There may be exceptions. For example, substances called antioxidants can defend against the damage to DNA, proteins and lipids caused by ionizing radiation. The levels of antioxidants that individuals have available in their bodies may play an important role in reducing the damage caused by radiation. There is evidence that some birds may have adapted to radiation by changing the way they use antioxidants in their bodies.

## **Parallels at Fukushima**

Recently we have tested the validity of our Chernobyl studies by repeating them in Fukushima, Japan. The 2011 power loss and core meltdown at three nuclear reactors there released about one-tenth as much radioactive material as the Chernobyl disaster.

Overall, we have found similar patterns of declines in abundance and diversity of birds, although some species are more sensitive to radiation than others. We have also found declines in some insects, such as butterflies, which may reflect the accumulation of harmful mutations over multiple generations.

Our most recent studies at Fukushima have benefited from more sophisticated analyses of radiation doses received by animals. In our most recent paper, we teamed up with radioecologists to reconstruct the doses received by about 7,000 birds. The parallels we have found between Chernobyl and Fukushima provide strong evidence that radiation is the underlying cause of the effects we have observed in both locations.

Some members of the radiation regulatory community have been slow to acknowledge how nuclear accidents have harmed wildlife. For example, the U.N.-sponsored Chernobyl Forum instigated the notion that the accident has had a positive impact on living organisms in the exclusion zone because of the lack of human activities. A more recent report of the United Nations Scientific Committee on the Effects of Atomic Radiation predicts minimal consequences for the biota animal and plant life of the Fukushima region. Unfortunately these official assessments were largely based on predictions from theoretical models, not on direct empirical observations of the plants and animals living in these regions. Based on our research, and that of others, it is now known that animals living under the full range of stresses in nature are far more sensitive to the effects of radiation than previously believed. Although field studies sometimes lack the controlled settings needed for precise scientific experimentation, they make up for this with a more realistic description of natural processes.

Our emphasis on documenting radiation effects under “natural” conditions using wild organisms has provided many discoveries that will help us to prepare for the next nuclear accident or act of nuclear terrorism. This information is absolutely needed if we are to protect the environment not just for man, but also for the living organisms and ecosystem services that sustain all life on this planet.

There are currently more than 400 nuclear reactors in operation around the world, with 65 new ones under construction and another 165 on order or planned. All operating nuclear power plants are generating large quantities of nuclear waste that will need to be stored for thousands of years to come. Given this, and the probability of future accidents or nuclear terrorism, it is important that scientists learn as much as possible about the effects of these contaminants in the environment, both for remediation of the effects of future incidents and for evidenced-based risk assessment and energy policy development.

April 28, 2016

## Lifting evacuation order for (part of) Kawauchi

### Evacuation order for Fukushima village to be lifted in June

<http://mainichi.jp/english/articles/20160428/p2a/00m/0na/020000c>

The government is planning to lift an evacuation order for part of the Fukushima Prefecture village of Kawauchi on June 14, more than five years after the Fukushima No. 1 Nuclear Power Plant disaster, it has been learned.

- **【Related】** Court orders TEPCO to pay 31 million yen over deaths of Fukushima patients

The government's nuclear emergency response headquarters disclosed the plan on April 28. The central government and the Kawauchi Municipal Government will hold a joint briefing session for local residents on May 8 to gather opinions and discuss the matter in order to formally decide the date when the evacuation order will be removed. Once the order is lifted, the entire village of Kawauchi will be free of any nuclear evacuation zones.

The Ogi and Kainosaka districts in the eastern part of the village will be subject to the move. The area -- which is home to 52 residents in 19 households -- has been designated as a "zone preparing for the lifting of evacuation orders," where the annual accumulated radiation doses are 20 millisieverts or less. The evacuation orders that were in place for areas other than the Ogi and Kainosaka districts were lifted in October 2014.

During a meeting of the Kawauchi Municipal Assembly, Osamu Goto -- the deputy head of the central government's nuclear emergency response headquarters -- sought understanding from the village with regard to lifting the evacuation order for the remaining districts, citing reasons including the conclusion of decontamination work in those areas. Kawauchi Mayor Yuko Endo is set to accept the request.

Meanwhile, only two local residents from one household have thus far signed up for a program allowing residents to temporarily stay over in evacuation areas to prepare for permanent return. **The Kawauchi Municipal Government expects, therefore, that only a few households will return even after the evacuation order has been lifted in the districts.**

The central government issued evacuation orders for 11 municipalities around the plant following the March 2011 meltdowns at the Fukushima No. 1 nuclear plant. Among these, the orders were lifted in the Miyakoji district of the city of Tamura in April 2014, followed by those in part of the village of Kawauchi and the town of Naraha.

**Evacuation orders for the city of Minamisoma and the village of Katsurao are also expected to be lifted shortly, with the exception of areas designated as "difficult-to-return zones" due to high radiation levels.**

## Quake-prone country must remain on guard

### Editorial: Quake-prone Japan must remain on guard against nuclear accident

<http://mainichi.jp/english/articles/20160428/p2a/00m/0na/019000c>

In earthquake-prone Japan, a major temblor could strike anywhere, at any time. Moreover, such a quake is impossible to predict -- a fact that was thrust upon us by the recent Kumamoto Earthquake.

- **【Kumamoto Earthquake Special】**
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**【Related】** Regulator says fault below central Japan reactor may be active

Following two deadly earthquakes measuring a maximum 7 on the Japanese intensity scale with a widening focal region, many people no doubt felt concerned about the safety of the Sendai Nuclear Power Plant in Kagoshima Prefecture operated by Kyushu Electric Power Co. Concern has been also raised over

Shikoku Electric Power Co.'s Ikata Nuclear Power Plant, across the ocean from Oita Prefecture. Of course, these are not the only places at risk of quakes. Yet the government is moving ahead with plans to restore nuclear power in Japan. Can Japan coexist with nuclear power plants? The recent earthquakes provide a chance for us to consider this matter.

The magnitude-6.5 quake that hit Kumamoto Prefecture on the evening of April 14, which was focused in the Hinagu fault zone, registered a maximum 7 on the Japanese intensity scale. Another magnitude-7.3 quake focused in the Futagawa fault zone to the north, which occurred in the predawn hours of April 16, also registered a 7 on the intensity scale. After these quakes, seismic activity spread to the Aso district and to the northeast, and strong shaking has been felt over a wide area, from Kumamoto Prefecture to Oita Prefecture.

When will this seismic activity subside? Could it get worse? Will it affect the Mount Aso volcano? The limitations of seismology and volcanology prevent us from answering these questions with certainty. The Nuclear Regulation Authority (NRA) decided at a special meeting on April 18 not to halt operation of the Sendai Nuclear Power Plant. The effects of shaking on nuclear power plants are measured in gal, a unit of acceleration defined as one centimeter per second squared. The maximum acceleration measured at the plant during the recent quakes was 8.6 gal. In a safety assessment, the plant was deemed able to withstand up to 620 gal. At the time of screening, officials judged that even if a magnitude 8.1 quake were to occur in the Futagawa and Hinagu fault zones, ground acceleration would not exceed 150 gal.

Considering these figures alone, there seems to be no problem with safety. But the projected scenario is only applicable for earthquakes whose scales fall within what has been envisioned.

Responding to the latest quakes, the Japan Meteorological Agency and experts repeatedly expressed their views that that was no precedent of a magnitude-6.5 level inland quake being followed by an even bigger quake, and that they could think of no other cases wherein seismic activity had occurred in three separate locations at the same time. The government's Earthquake Research Committee also expressed the view that the Futagawa fault was longer than originally thought.

There are 2,000 known active faults in Japan. The latest quakes occurred along active faults that were previously known to scientists, but there have been past cases wherein quakes exceeding magnitude 7 have occurred along unknown active faults, including the 2000 Tottori earthquake and the 2008 Iwate-Miyagi inland earthquake.

Hokuriku Electric Power Co.'s Shika nuclear plant is said to have active faults lying beneath it, and decisions regarding this plant -- as well as others in similar situations -- must be made from the viewpoint of safety. This does not apply only to inland quakes, moreover. The massive earthquake that occurred five years ago on a plate boundary in the Pacific Ocean off Japan's Tohoku region greatly exceeded experts' predictions. We cannot imagine, therefore, that all earthquakes will remain within the scales envisioned by nuclear power companies and the NRA.

Furthermore, just because a nuclear power plant has passed the regulatory authority's screening does not necessarily mean it is safe -- and other threats exist in addition to earthquakes. The NRA itself acknowledges this, and such dangers must be considered as realistic possibilities. In this sense, preparation for an accident is indispensable -- but we cannot say that presently existing measures are adequate.

The latest earthquakes caused a bridge to collapse, triggered mudslides, and sank roads -- thereby cutting off transportation routes in various areas. A bullet train also derailed. If a nuclear accident occurs at the same time as such a natural disaster, will plans to evacuate residents proceed as planned? Concerns remain. Such damage would likely also hamper efforts to bring a nuclear accident under control, while continuing aftershocks would additionally hinder the accident response.

Kyushu Electric has withdrawn plans to build a seismically-isolated emergency response center at the Sendai nuclear plant. We would like power company officials to consider whether they have let their guard down over the threat of earthquakes.

April 26 marked 30 years since the Chernobyl nuclear disaster in the former Soviet Union. At the time, Japan judged that the accident had occurred due to unique circumstances there, and that a similar accident would not occur in Japan. Consequently, countermeasures were neglected to be implemented here. When the Fukushima nuclear disaster occurred 25 years later, insufficiencies in Japan's safety countermeasures were blatant.

Five years have now passed since the outbreak of the disaster at the Fukushima No. 1 Nuclear Power Plant, and the government has indicated that it will proceed to reactivate nuclear reactors. It has also in effect accepted the reactivation of aging reactors -- originally envisaged as an extremely rare exception to a new rule setting the life of nuclear reactors at 40 years, after which they were to be decommissioned. We fear that there is a re-emergence of a safety myth stating that an accident like the one in Fukushima will never happen again. We cannot approve of a gradual slip back to nuclear power.

Thirty years after the Chernobyl nuclear catastrophe, the disaster is still a long way from being brought under control. The concrete sarcophagus that was built at the time of the accident to contain radioactive materials has deteriorated significantly, and construction of a new shelter is proceeding. In Fukushima, meanwhile, nearly 100,000 people remain evacuated from their hometowns. There is no clear outlook for decommissioning of the reactors, which is expected to take 40 to 50 years. And people suffer from anxiety about the effects of radiation.

Though the chance of a disaster may be small, nuclear accidents are different from other types of calamities in that they can rob people of a future. Meanwhile, risks such as terrorist acts targeting nuclear power plants have come into the global spotlight.

As a country prone to earthquakes and one that has suffered a severe nuclear disaster, Japan must not forget to remain on guard.

April 29, 2016

## **Kepeco says Sendai plant is safe**

### **Kyushu Electric assures public that nuclear plant is safe**

<http://www.asahi.com/ajw/articles/AJ201604290059.html>

Kyushu Electric Power Co. brushed aside safety concerns expressed in thousands of phone calls and e-mails, saying its Sendai nuclear plant in Kagoshima Prefecture faces no danger from the quakes rattling the southern main island.

The Nuclear Regulation Authority also supports the utility's stance that there is no need to shut down the nuclear plant, even as a safety precaution during the seismic activity.

"Nuclear power is energy defined as necessary in the nation's basic energy plan," Kyushu Electric President Michiaki Uryu said at a news conference in Fukuoka on April 28. "We are operating (the Sendai plant) after confirming its safety and concluding that there is no problem with continuing to operate it." The news conference was held to announce the utility's earnings for fiscal 2015, which included its first net profit in five years.

Two reactors at the Sendai plant in Satsuma-Sendai—the only ones running in the nation—cleared tougher nuclear safety regulations set after the 2011 Fukushima disaster.

Kagoshima Prefecture lies immediately south of Kumamoto Prefecture, where most of the earthquake activity has occurred since April 14.

The reactors at the Sendai plant must be shut down when ground acceleration in a horizontal direction of 160 gal is registered on the basement floor of the reactor auxiliary building.

When the largest quake in the series, a magnitude-7.3 temblor that struck Kumamoto Prefecture on April 16, ground acceleration of up to 8.6 gal was recorded at the Sendai plant. No irregularities have been detected at the nuclear plant, according to Kyushu Electric.

Although the figure is well below the level that requires an emergency shutdown, concerned citizens maintain that the utility should suspend operations as an extra precaution for an event unforeseen by authorities.

Over a week from April 15, the day after a magnitude-6.5 earthquake struck Kumamoto Prefecture, Fukuoka-based Kyushu Electric was flooded with about 5,000 e-mails and phone calls seeking a halt to operations at the Sendai plant.

Kyushu Electric officials acknowledge that without the Sendai nuclear plant, the company would still have enough electricity to supply Kyushu this summer, even if it proves to be one of the hottest in recent years. But the utility is eager to keep the Sendai plant online because running a nuclear power plant is cheaper than buying the fuel needed to operate a thermal power plant.

Kyushu Electric had relied on nuclear energy for 40 percent of its electricity supply before the Fukushima disaster, one of the highest ratios among the regional power companies.

Kyushu Electric's bottom line was hit hard after all reactors in Japan were shut down as a precaution following the meltdowns at the Fukushima plant.

But since the restart of the Sendai plant, which a Kyushu Electric senior official called a "powerful card," the company has been saving 10 billion yen (\$92.6 million) to 13 billion yen a month in operating expenses.

Uryu is already pushing plans for the company's Genkai nuclear plant in Saga Prefecture.

"We are striving to achieve a restart of the Genkai plant as early as possible," he told the news conference. The NRA stands firm on its decision that the Sendai plant is safe amid the series of the quakes and that it does not need to order a suspension of operations.

"There are no compelling scientific grounds," NRA Chairman Shunichi Tanaka said after an emergency meeting about the plant's operations on April 18. "We are not going to shut down the plant just because of calls from the public or politicians. What has been going on is within our expectations."

According to Kyushu Electric, the Sendai plant is designed to withstand a maximum ground acceleration of 620 gal. This figure was determined after experts studied various scenarios based on geological features at the plant and surrounding areas.

The company also studied the possible impact from a magnitude-8.1 earthquake that strikes in connection with the Futagawa and Hinagu fault lines. Seismologists say those two fault lines slipped in Kumamoto Prefecture, triggering the ongoing seismic activity.

For an earthquake of that size, Kyushu Electric projected a maximum ground acceleration of about 160 gal.

Even if the Sendai plant loses its ability to cool the reactors after powerful earthquakes, the operator is believed to be prepared to prevent a severe accident involving the release of radioactive substances by cooling the reactors using fire engines, power supply vehicles and other sources under the new regulations.

**But those erring on the side of caution note that the magnitude-9.0 Great East Japan Earthquake on March 11, 2011, spawned a tsunami that Tokyo Electric Power Co., operator of the Fukushima No. 1 plant, was clearly unprepared for.**

**And two earthquakes 28 hours apart in the recent series of temblors both measured a maximum intensity of 7 on the Japanese seismic scale in Kumamoto Prefecture, an event unprecedented in Japan.**

In the heavily damaged town of Mashiki in Kumamoto Prefecture, power supply vehicles, which were operating in recovery efforts after the April 14 earthquake, were toppled in the more powerful earthquake two days later. **Roads were severed, and a railway network was paralyzed over a wide area.**

Residents sought refuge outdoors and in their cars, fearing the strong aftershocks could collapse buildings used as evacuation centers.

**Critics questioned whether workers trying to prevent a possible quake-induced crisis at the Sendai plant would be able to continue with their efforts if another powerful earthquake struck the plant. They also voiced concerns about government evacuation guidelines in the event of a nuclear accident, namely instructions to residents living within a 5-30 kilometer radius of a damaged plant to remain indoors.**

NRA chief Tanaka said such a situation was unlikely to occur at the Sendai plant.

"There is no active geological fault beneath the Sendai plant," he said at a news conference on April 27.

"The plant is also designed to be quake-proof, so people do not need to worry about those things."

(This article was compiled from reports by Shuhei Shibata, Masanobu Higashiyama and

May 2, 2016

## Remaining indoors after nuclear disaster not realistic

### Questions raised over nuclear evacuation plans urging residents to remain indoors

<http://mainichi.jp/english/articles/20160502/p2a/00m/0na/021000c>

Residents living in areas hosting Japan's nuclear power plants are voicing concerns about nuclear accident evacuation plans following two recent deadly earthquakes in Kumamoto Prefecture registering a maximum 7 on the Japanese intensity scale.

- **【Kumamoto Earthquake Special】**

The government's evacuation plans are based on the premise of some residents near nuclear plants initially remaining indoors, and having them flee to other prefectures if necessary. But questions have been raised over how effective current plans would be in the event of disasters like those that hit Tokyo Electric Power Co.'s Fukushima No. 1 Nuclear Power Plant in March 2011.

"If there were a nuclear accident, remaining indoors would be impossible. The Kumamoto Earthquake has made me even more anxious," said Ikue Yamaguchi, a 34-year-old public servant raising two children in the Kagoshima Prefecture city of Ichikikushikino. Her home is just around 15 kilometers away from the No. 1 and 2 reactors at the Sendai Nuclear Power Plant in Satsumasendai in the prefecture. The reactors are the only ones currently operating in Japan.

Before the Fukushima nuclear disaster, areas within 8 to 10 kilometer radii of nuclear power plants were designated as being subject to evacuation plans, but after the outbreak of the disaster, the areas were expanded to a 30 kilometer radius. As a result, 135 municipalities in 21 prefectures are now subject to such plans, compared with 45 municipalities in 15 prefectures before the disaster. Altogether, some 4.8 million people, or about 4 percent of the population, are subject to such evacuation plans.

Under government evacuation plans, those living within 5 kilometers of a nuclear power plant are supposed to be evacuated immediately if there are signs of a nuclear accident, while those living 5 to 30 kilometers away are to remain indoors, and then evacuate further away if there are signs that radiation levels are increasing. The Nuclear Regulation Authority says that radiation exposure can be sufficiently reduced in areas between 5 and 30 kilometers from a nuclear power plant by remaining indoors. It adds that if people in those areas go out of their way to evacuate, they could face a heightened risk of radiation exposure and health damage.

But in the case of an earthquake like the temblors that recently struck Kumamoto Prefecture, which left many homes in danger of collapsing, it would be difficult to remain indoors. And not all shelters offer stable protection, either. As of the end of March last year, 85.7 percent of public facilities in Kagoshima Prefecture supposed to be used as shelters during disasters had been reinforced against earthquakes -- a figure lower than the national average of 88.3 percent. Ehime Prefecture, which hosts Shikoku Electric Power Co.'s Ikata Nuclear Power Plant that is expected to be reactivated in late July, has the nation's third worst rate, at 79.1 percent.

If an accident were to occur at the Sendai Nuclear Power Plant in Kagoshima Prefecture, then according to estimates, it could take up to around 29 hours to evacuate some 210,000 people living within a 30 kilometer radius of the plant who would be subject to evacuation. This, however, is based on the premise of people living in areas within 5 to 30 kilometers of the plant initially remaining indoors -- if everyone were to start evacuating at once, then it is predicted that transportation networks would become congested, and evacuation would take even longer.

"Even if we were to evacuate indoors, then we would have to go outside (to receive supplies, etc.) and wouldn't be able to avoid exposure to radiation," Yamaguchi says. "I would want to evacuate immediately, but evacuation routes would probably be crowded."

Shunro Iwata, an official at the nuclear safety control division of the Kagoshima Prefectural Government, commented, "When evacuating indoors, people are not forbidden from going outside, so they can go out if the need arises. There would be no immediate effect on health (for radiation levels below the standard reading). We are not in a position to revise plans, and there is no change to the fact that this is the most reasonable approach at present."

Naoya Sekiya, a specially appointed associate professor at the University of Tokyo who is familiar with evacuation plans during disasters, said it is not realistic to base evacuation plans on the premise of people remaining indoors.

"Evacuation plans should be made with the presumption of a major earthquake cutting off roads and railways. If evacuation orders are issued to people within a five-kilometer radius of a nuclear plant, then obviously people in surrounding areas will start evacuating, too, resulting in further confusion. An evacuation plan based on the premise of people remaining indoors is not realistic," he said.



May 9, 2016

## Ex-fishermen (Bikini atoll) sue Govt.

### Ex-fishers sailing near Bikini Atoll file suit

[http://www3.nhk.or.jp/nhkworld/en/news/20160509\\_23/](http://www3.nhk.or.jp/nhkworld/en/news/20160509_23/)

Former Japanese fishermen and their family members have filed a lawsuit against the government of Japan.

The men were on fishing boats near the site of a US hydrogen bomb test more than 60 years ago and say they may have been exposed to radiation.

The United States conducted the test on Bikini Atoll in 1954. 23 crewmembers from Fukuryu Maru No.5 were found to have been exposed to fallout from the test. One of them died 6 months later.

Supporters of the plaintiffs in the lawsuit say about 1,000 Japanese fishing boats were operating in nearby waters at the time.

**45 plaintiffs filed the suit on Monday at the Kochi district court.**

They are demanding the Japanese government pay about 18,000 dollars in compensation for each former crewmember. They say the government failed to monitor their radiation levels even after it learned about the case of the Fukuryu Maru No.5.

83-year-old Yutaka Kuwano is one of the plaintiffs. He was 21 years old at the time of the test, and was fishing for tuna near the atoll.

He was diagnosed with stomach cancer 12 years ago after developing symptoms such as nose bleeds and an abnormally high number of white blood cells.

The health ministry released records on the incident two years ago. They show crews on several boats other than Fukuryu Maru No.5 had higher than usual levels of radiation.

May 13, 2016

## Minamisoma City: Evacuation order lifted in July

### Evacuation orders for Minamisoma City to be lifted

[http://www3.nhk.or.jp/nhkworld/en/news/20160513\\_11/](http://www3.nhk.or.jp/nhkworld/en/news/20160513_11/)

NHK has learned that the Japanese government plans to lift evacuation orders for Minamisoma City, near the Fukushima Daiichi nuclear plant, in July.

Sources say the government is set to convey its decision to the city assembly on Friday.

The city's southern and western regions are still subject to evacuation orders, affecting about 11,700 people. The figure is the largest among municipalities around the plant where evacuation orders have been or will be lifted.

**The government says decontamination work is complete in residential areas and that the regions' environment is ready for residents to return.**

The government hopes to lift the orders before a traditional summer festival in the Soma district in late July that features samurai on horseback.

The government plans to set a firm date after hearing the opinions of residents at an explanatory meeting that begins on Sunday.

In the wake of the 2011 nuclear accident, evacuation orders were issued at one time for 11 municipalities in the prefecture.

**The order for Naraha Town, which had been totally evacuated, was lifted last September. The orders for Katsurao Town and Kawauchi Village will be lifted next month.**

May 15, 2016

## **New danger discovered after Kumamoto**

### **Danger from new type of seismic activity**

[http://www3.nhk.or.jp/nhkworld/en/news/20160515\\_08/](http://www3.nhk.or.jp/nhkworld/en/news/20160515_08/)

Researchers have discovered a specific type of seismic movement occurred in the Magnitude 7.3 earthquake that hit Kumamoto in April.

They say long-period ground motion was as strong as ever observed during an inland earthquake caused by faults slipping. The scientists say the movement was strong enough to topple a high-rise building.

Professor Yoshiaki Hisada of Kogakuin University ran a simulation with the premise a 29-story building in Tokyo was hit by this type of action.

The 150-meter high building appears to heave when it is shaken by the long-period ground motion as powerful as that observed in Kumamoto.

The simulation he conducted on the skyscraper showed the uppermost floor could sway as much as 3.5 meters. The building would remain tilted even after the tremors subside.

Hisada says the long-period ground motion was 3 times as powerful as planned for by construction firms erecting high-rise buildings. This means many structures may not withstand such violent tremors.

Experts say government officials need to step up earthquake safety measures for urban areas near active faults.

## Expert Govt. agency badly needed to manage disasters

### LDP proposes agency to handle disasters

[http://www3.nhk.or.jp/nhkworld/en/news/20160515\\_09/](http://www3.nhk.or.jp/nhkworld/en/news/20160515_09/)

Japan's main governing Liberal Democratic Party says there is a need to secure personnel with expertise in disaster management, with a view to setting up a government agency.

An LDP working team has been studying the government's initial actions 5 years ago when a massive earthquake and tsunami hit northeastern Japan.

In its report, the team evaluates the government's quick response to the disaster based on lessons learned from the 1995 quake that devastated Kobe and nearby areas.

But it says **the government was not able to collect necessary information from Tokyo Electric Power Company at the time of the nuclear accident in Fukushima.**

**The report says that this caused a delay in supporting people who had to evacuate the area.**

**The report also urges the government to establish a backup system for Tokyo's function as the nation's capital in case the city is hit by a giant quake.**

The report refers to the recent powerful earthquakes in the southwestern city of Kumamoto. It says that in some cases aid distribution was not effective due to the lack of information about evacuees and shelters.

It calls for **better cooperation between the central government, municipalities and the private sector.**

The LDP plans to submit the report to the government soon.

May 19, 2016

## File-sharing not so bad

### Nuclear Material Control Center data leak report says sensitive info unlikely affected

<http://mainichi.jp/english/articles/20160519/p2a/00m/0na/010000c>

The Nuclear Material Control Center released the results of its internal inquiry on May 18 regarding an incident whereby data was leaked from file-sharing software that had been installed onto an employee's personal computer.

- **【Related】** Data leaked from Japan nuclear inspection body via Chinese software

The center, a public interest incorporated foundation that is responsible for conducting nuclear-related inspections on nuclear power and other facilities, revealed that the center's server was separately accessed illegally last year in February -- and was subsequently utilized as a type of springboard from which to conduct cyber-attacks on outside computers.

According to the center's report, the illegal access occurred as a result of defects in the server's security -- and has already been corrected following a warning from an external agency.

However, the center did not report this matter to the secretariat of the Nuclear Regulation Authority until April this year -- thereby flouting its own internal regulations by not reporting the problem when it was first discovered.

Regardless, because the file-sharing software was used only on one single employee computer, the center has said that the possibility that sensitive information was leaked is low.

## Sign Friends of the Earth Japan's petition

The graphic is a petition for Friends of the Earth Japan. It features a background image of a Fukushima nuclear site with a radiation warning symbol. The text is as follows:

Contaminated soil (8,000 becquerel/kg), produced by the Fukushima nuclear disaster

to be used for public works?!

**Protect environment for Children and Future**

8,000 becquerel/kg 80 times higher than the existing standard (100 bq/kg), this will force radiation exposure on the entire population!!

Petitioning Minister of Environment Tamayo Marukawa

Contaminated soil, produced by the nuclear disaster, to be used for public works !?

FoE Japan

***Urgent Petition: “No” to the Policy “To Use Contaminated Soil (Less than 8,000 becquerel/kg) for Public Works”—***

***Don’t Contaminate the Environment, Don’t Force Radiation Exposure on the Entire Population***

On March 30, the Ministry of Environment (MOE) of Japan decided to allow the use of contaminated soil (lower than 8,000 becquerel/kg) for public works nationwide with “proper containment measures.” The committee argues that the additional effective dose for residents will be less than 10 $\mu$ Sv/year, but the Nuclear Reactor Regulation Act that specifies 100 becquerel/kg or less as the threshold for reusing concrete and metals from nuclear power plants. MOE’s latest policy increases the threshold eightyfold. Moreover, the Working Group on Safety Evaluation of the Effects of Radiation within the investigative committee met behind closed doors, and its meeting minutes have not been published. In fact, the goal of the committee is to increase an amount of radioactive waste for reuse in order to decrease an amount for final disposal. The committee seems to consider it inevitable to expose the entire Japanese population to radiation to implement the infeasible policy of “decontamination and repatriation” for Fukushima residents.

MOE boasts that “the reconstruction of Fukushima and the Tohoku region not only constitutes a crucial project for the renewal of Japan but also will become an unprecedented source of knowledge and experience to be shared with international society.” But “proper containment measures” is unrealistic. Even strictly managed disposal sites contaminate their surroundings and groundwater; how can public works, which are not as strictly as managed, prevent contaminated soil from spreading radioactivity? Indeed, rainfall, erosion, and disasters can damage public works to trigger a significant release of radioactivity in the environment. Construction work will also expose laborers to radioactivity. If a huge earthquake occurs, roads will be damaged, exposing radioactive waste to the air. This is indeed a “national project” to force radiation exposure on the entire Japanese population, including children. We cannot, and will not, allow it.

**Petition Items**

1. Retract the policy to use decontaminated soil, which contains radioactive waste, for public works.
2. Rethink the goal of the policy to “decontaminate and repatriate.”
3. Enlist wider participation from people inside and outside Fukushima Prefecture in deciding on issues related to decontamination and disposal of decontaminated soil.
4. Disclose all information regarding the Working Group on Safety Evaluation of the Effects of Radiation, including the names of members, meeting minutes, and reference materials.

**Deadline: June 30, 2016**

Send your signature to: Friends of the Earth Japan

Address: 1-21-9 Komone, Itabashi, Tokyo 173-0037 JAPAN Tel: +81-3-6909-5983 Fax: +81-3-6909-5986

Contact::

Friend of the Earth Japan

1-21-9 Komone, Itabashi, Tokyo

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<http://www.foejapan.org/en/>

(translated by Hiro Saito)

May 20, 2016

## Growing hope (rice)



(Mainichi)

### Photo Journal: Growing hope

<http://mainichi.jp/english/articles/20160520/p2a/00m/0na/005000c>

Farmer Mitsuo Sato, 71, center, and others prepare to plant rice in their paddies in the Kamishigeoka district of Naraha, Fukushima Prefecture, on May 20, 2016. A nuclear crisis evacuation order covering the area was lifted in September last year. Sato and other farmers began to regularly visit their land -- which is within 15 kilometers of the stricken Fukushima No. 1 nuclear plant -- the year after the reactor meltdowns to grow rice on an experimental basis. They managed to restart growing rice for commercial purposes this year after radioactive substances exceeding the government-set upper limit had not been detected in the test crops for four years. (Mainichi)

## Planting rice in Nahara Town for the first time since 3/11

## Rice farming resumes in a Fukushima town

[http://www3.nhk.or.jp/nhkworld/en/news/20160520\\_20/](http://www3.nhk.or.jp/nhkworld/en/news/20160520_20/)

Farmers in a town near the crippled Fukushima Daiichi nuclear power plant have resumed rice farming for the first time since the nuclear accident in 2011.

**A group of 10 farmers planted rice seedlings in a four-hectare paddy in Naraha Town on Friday.**

The paddy contains fertilizers that limit the rice's absorption of radioactive substances.

The town was one of the communities ordered by the central government to evacuate after the accident.

When the order was lifted last September, test farming was done to confirm the safety of growing rice. Restrictions on rice shipments were lifted in March.

**The farmers plan to harvest the rice in October. It will be shipped after being tested for radioactive substances.**

This year the town plans to farm about 20 hectares of rice paddies, only about one-thirtieth of the area used before the accident.

**The town is suffering a manpower shortage, as less than 10 percent of the residents have returned.**

The group's leader, Mitsuo Sato, said the farmers have taken one step forward, and that he hopes more people will follow.

May 23, 2016

## An ongoing disaster

### The Fukushima nuclear disaster is ongoing

<http://www.jci.org/articles/view/88434#B2>

*by Andrew R. Marks, Op-Ed, Journal of Clinical Investigation, May 23, 2016*

#### Abstract

The 5th anniversary of the Fukushima disaster and the 30th anniversary of the Chernobyl disaster, the two most catastrophic nuclear accidents in history, both occurred recently. Images of Chernobyl are replete with the international sign of radioactive contamination (a circle with three broad spokes radiating outward in a yellow sign). In contrast, ongoing decontamination efforts at Fukushima lack international warnings about radioactivity. Decontamination workers at Fukushima appear to be poorly protected against radiation. It is almost as if the effort is to make the Fukushima problem disappear. A more useful response would be to openly acknowledge the monumental problems inherent in managing a

nuclear plant disaster. Lessons from Chernobyl are the best predictors of what the Fukushima region of Japan is coping with in terms of health and environmental problems following a nuclear catastrophe. Five years after a tsunami caused the Fukushima nuclear accident in Japan, cleanup of radioactive contamination is ongoing and a formerly vibrant farming region lays largely fallow. A recent visit to northeast Japan revealed wholly unexpected aspects of the impact of the meltdown of three nuclear reactors. The area devastated by the nuclear accident is easily accessed by a two-hour train ride from Tokyo to the city of Fukushima. It is then possible to rent a car and drive to within 18 km of the reactors, which are still in meltdown.

On the train, digital banners in Japanese and English encourage passengers to visit the beautiful cherry trees in the Fukushima district. In the rental car agency, glossy pamphlets exclaim the beauty of the region and feature the brilliant pink blossoms. On a recent April afternoon, the cherry blossoms were indeed spectacular. The roads deep into the region affected by the radioactive plume that engulfed the area in March of 2011 are clearly marked and readily accessible in a car rented at the Fukushima rail station. My Japanese-speaking colleague translated the rental agency's map as indicating an "area not to return to," which we carefully avoided.

Following route 114 traveling east toward the coast, progressively larger piles of large black plastic bags filled with dirt appeared on the roadside. At first, there were piles of several hundred such bags, each approximately five feet wide by five feet in height, methodically stacked one upon the other. Of note, similar bags appear to be used elsewhere in Japan to hold debris at construction and yard cleaning sites. Each bag was numbered with a white marker.

Approaching the eastern coast of Japan, the piles of bags on the roadside were more frequent and larger and larger and larger. As route 114 progresses toward the exclusion zone indicated on the car rental agency's map, the piles of plastic bags filled with dirt reach unimaginable dimensions. Numbered in the many thousands, they eventually fill entire valleys that recede off into the horizon. In some instances, the piles of black plastic bags are covered with blue tarps with pipes inserted into their tops, presumably to provide ventilation.

Roadside radiation monitoring stations are placed near now abandoned homes, many of which are still decorated with plantings of flowers and the blossoming cherry trees that are found in the yards of most homes in this region. The readings on the radiation monitors ranged from 0.2115 to 1.115 microsieverts per hour, a measure of the relative risks imparted to biological tissues by ionizing radiation. One microsievert per hour is equivalent to four airport security screenings per hour and is almost twice the annual limit for occupational whole-body radiation dose limits established by the nuclear regulatory commission. One sievert total exposure causes a 5.5% risk of cancer (1).

To understand the health risks associated with ongoing radiation contamination and cleanup in the Fukushima region, the best comparator is Chernobyl. Two of the most important public health issues related to both the Chernobyl and the Fukushima disasters are thyroid cancers and posttraumatic stress disorder (PTSD). Assessing the effects of these nuclear accidents on the risk of thyroid cancer is confounded by the fact that the mere collection of data required to make the diagnosis (e.g., thyroid scans and ultrasounds) necessitates extranormal surveillance. Thus, true control populations are not available. Nevertheless, there have been reports of increased rates of thyroid cancer following the Chernobyl nuclear accident (2), and extrapolation from that incident to Fukushima is reasonable but as-yet unproven. The incidence of PTSD is understandably quite high following nuclear accidents (3). **There are no controlled experimental data available to assess the ongoing risks of chronic low-level radiation now present throughout the Fukushima region.** Thus, it is imperative that epidemiological data are collected as thoroughly as possible to provide insight concerning the risks of long-term low-level environmental



radiation. Similarly, it is imperative that data are collected concerning the spread of radioactivity from the nuclear plant disaster via water (e.g., streams running through the region should be sampled regularly) and via animals (in particular birds should be banded and monitored to determine how they may be vectors for spreading radioactivity in seeds and other forms throughout Japan).

Just outside the town of Iitate, brilliant pink flags, which are the same color used for the advertisements designed to attract tourists to view the cherry blossoms in the region, flap in the breeze, announcing (only in Japanese) “radioactivity removal.” **At one particularly large site near the town of Iitate, a constant stream of large trucks with entirely open containers was streaming into an excavation site located at a large mountain of brown dirt. Huge shovels were digging dirt and placing it onto conveyer belts pouring the dirt into the open trucks, which were leaving the site heading south. The men and women handling this contaminated dirt were wearing outfits similar to construction workers observed in other regions of Japan, including helmets, masks, gloves, and overalls (Figure 1). Over an approximately 5-hour period of driving through the region, the only police observed were at the turn around marking the edge of the restricted zone. No military presence was observed. On several occasions, workers were seen handling the plastic bags of radioactively contaminated dirt without gloves.**

[ See also [http://ccnr.org/Decontamination\\_Fuk\\_2014.pdf](http://ccnr.org/Decontamination_Fuk_2014.pdf) ]

During the entire afternoon of driving through the region not a single sign warning of the potential dangers of radioactive contamination was observed in any language other than Japanese. There was no security at most of the contaminated sites, and thousands of plastic bags of contaminated dirt were piled high in areas without any supervision or even a fence to prevent access from the public roadway. Birds flew all through the area, presumably transporting radioactive seeds and leaving contaminated droppings throughout Japan.

It is estimated that over 100,000 individuals have been displaced from their homes due to the reactor meltdown (4). Some have been relocated to far away cities, including Tokyo. During my visit, a group of five elderly women arrived on the same train as we did and were escorted onto a waiting bus to be driven to see the cherry blossoms decorating the village they used to live in. Other displaced former residents of now unlivable villages are perhaps less fortunate and have been relocated to one of the numerous “temporary” dwellings dotting the region indicated by convenient roadside signs. Many of these were immediately adjacent to radioactivity detectors indicating levels of at least 1 microsievert per hour.

Ironically, during my visit to Fukushima on April 14, 2016, an earthquake rocked the Kumamoto region of Japan, ultimately causing at least 42 deaths and displacing thousands. This region contains the only working nuclear reactor remaining in Japan. Too far away to be felt in Fukushima, it was nevertheless a harsh reminder of the continued risk for further damage to the reactors already in meltdown.

The continued high level of radioactivity removal efforts in the Fukushima region (entire hill sides have been denuded of surface soil) indicate that the Japanese government knows the health threat caused by the contamination remains. The lack of security, the failure to provide any of the internationally accepted protective warnings against radioactivity contamination (e.g., the universal three-armed black and yellow sign warning of radioactivity), and the absence of any warning signs for non-Japanese-speaking individuals, despite the active advertising campaign to attract tourists to view the cherry blossoms on this beautiful region of Japan, is disturbing. The possibility that individuals could access enormous amounts of radioactively contaminated dirt and transport it to a sensitive area in Japan or elsewhere is frightening.

About the author:

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**Reference information:** *J Clin Invest.* doi:10.1172/JCI88434.

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May 30, 2016

## NRA proposes surprise inspections

### NRA planning snap nuclear plant inspections

[http://www3.nhk.or.jp/nhkworld/en/news/20160530\\_35/](http://www3.nhk.or.jp/nhkworld/en/news/20160530_35/)

Japan's nuclear regulator is proposing surprise inspections of nuclear power plants. This comes in response to a recent suggestion by the International Atomic Energy Agency that Japan should make its nuclear plant inspections more effective.

On Monday, the Nuclear Regulation Authority, or NRA, held the first meeting of a team to review its inspection system. They discussed a draft reform plan prepared by the NRA Secretariat.

Japanese law stipulates when inspections are to be held and what is to be checked. This includes 4 rounds of safety inspections per year to confirm maintenance management, and regular inspections of facilities once each 13 months in principle.

**The reform plan says power companies should plan and conduct checkups themselves, and then NRA inspectors should be allowed to check, without prior notice, all safety measures taken by the companies.**

The NRA Secretariat says it is considering improving its training of inspectors, as the proposed plan would rely more on their capabilities.

The reviewing team hopes to come up with a final plan in a few months after consulting the Federation of Electric Power Companies and others.

The NRA says it wants to introduce a new system in 2020.

June 2, 2016

## Fukushima rice back to normal?

### Fukushima rice sales begin in the Middle East

[http://www3.nhk.or.jp/nhkworld/en/news/20160602\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20160602_12/)

Farmers from Fukushima Prefecture have started to sell rice in Doha, the capital of Qatar. This is the first time they have exported their grain to the Middle East.

Sales of rice were affected by the 2011 nuclear accident in the prefecture.

A local town government in the prefecture and the Japan External Trade Organization held an event in Doha on Wednesday to mark the beginning of sales.

Customers in a super market sampled the rice which was grown in Inawashiro Town.

An official from a local agricultural organization of the region said he hopes to expand their market in other countries in the Middle East.

**Food companies and producers from Fukushima have been trying to convince overseas customers that rice grown in the prefecture is safe.**

In February, they promoted their products at one of the world's largest food trade shows in Dubai. They say their efforts have led to **sales in the Middle East.**

They have also succeeded to export their grain to **Singapore and Malaysia.**

June 7, 2016

## litate: Evacuation advisory lifted next March

## **Evacuation advisory to be lifted for most of Iitate, Fukushima, next March 31**

<http://www.japantimes.co.jp/news/2016/06/07/national/state-lift-evacuation-advisory-fukushima-village-itate-next-march-31/#.V1bQ6eRdeot>

JJI

FUKUSHIMA – The central government has informed the municipal assembly of Iitate, Fukushima Prefecture, that it plans to lift the evacuation advisory for most of the village next March 31.

Preparation work for the displaced residents to return to their homes is scheduled to start July 1, as requested by the municipal government in April.

The advisory will be left in place for the Nagadoro district because radiation levels there remain too high to allow people to return.

The government issued the evacuation advisory for the entire village after it was hit by fallout from the March 2011 meltdowns at the Fukushima No. 1 nuclear plant roughly 40 km away.

In June last year, decontamination work was completed in the village's residential areas, reducing the average radiation level in the air to 0.8 microsievert per hour.

## **Radioactive soil for new roads!**

### **Radioactive soil to be used in base layer for new roads**

<http://www.japantimes.co.jp/news/2016/06/07/national/radioactive-soil-to-be-used-in-base-layer-for-new-roads/#.V1bQIORdeos>

JJI

The Environment Ministry on Tuesday drew up a basic plan to use soil contaminated with radioactive substances from the Fukushima No. 1 nuclear plant to build roads.

Under the basic plan, tainted soil with relatively low radioactive cesium concentrations of up to 5,000 to 8,000 becquerels per kilogram will be used to form the base layer of roads.

This level will then be covered with uncontaminated soil, asphalt and other material with at a thickness of at least 50 to 100 cm.

By covering radioactive soil with untainted material, the health risk for residents living in nearby areas will be minimized as their annual radiation dose will be kept to 0.01 millisievert or less, according to the ministry.

The ministry plans to launch a verification project in Minamisoma, Fukushima Prefecture, as early as this summer to test the use of contaminated soil as the base material for road construction.

Tainted soil in the prefecture, generated from decontamination work following the March 2011 accident at the Tokyo Electric Power Company Holdings Inc. nuclear power station, will be kept in an interim storage facility near the nuclear plant for final disposal at a site outside the prefecture within 30 years.

The interim facility, located in an area that straddles the towns of Okuma and Futaba, is believed to store up to 22 million cubic meters of contaminated soil. The latest plan will help the ministry facilitate the reuse of contaminated soil within and outside the prefecture to reduce the amount to be transferred to the final disposal site.

## Japanese plutonium arrives at Savannah River Site

### **Ships with plutonium from Japan arrive in U.S.**

Staff Writer

OSAKA – Two ships loaded with plutonium and highly enriched uranium from the Japan Atomic Energy Agency's Fast Critical Assembly reactor arrived Tuesday **at the U.S. Department of Energy's Savannah River Site near Aiken, South Carolina.**

The British-flagged Pacific Egret and Pacific Heron were carrying 331 kg of weapon-usable plutonium. About 236 kg, used for nuclear-reactor testing in Japan, originated in the United Kingdom, while around 93 kg is of U.S. origin and 3 kg is of French origin, according to Savannah River Site Watch, a nongovernmental organization tracking the shipment.

The two ships, which are usually used to transport spent nuclear fuel between Japan and Europe for reprocessing, departed the village of Tokai, Ibaraki Prefecture, in March and were originally expected to reach their destination last month.

Their impending arrival had been the subject of heated debate in South Carolina, with that state's governor, Nikki Haley, in March demanding in a letter to Energy Secretary Ernest Moniz that the shipment be turned back or sent elsewhere.

In April, the U.S. National Nuclear Security Administration announced that the plutonium, already en route from Japan, will be disposed of at a nuclear waste repository in New Mexico after being processed at the Savannah River Site facility.

Savannah River Site Watch Director Tom Clements said in a statement Tuesday that the arrival of the ships appeared to have been delayed for security reasons.

"The removal of the material from Japan represents a significant accomplishment in our broader global nuclear security efforts to secure highly enriched uranium and plutonium worldwide," Lt. Gen. Frank G. Klotz, Under Secretary for Nuclear Security and a National Nuclear Security Administration official, said in a statement after the ships had arrived.

"Japan has been one of the United States' staunchest allies in the global effort to minimize and, when possible, eliminate the use of sensitive nuclear materials at research facilities."

The plutonium material will first be prepared for disposition at the Savannah River Site and will be sent for eventual disposal to a facility near Carlsbad, New Mexico.

The highly enriched uranium from Japan will be sent to separate storage facilities in Oak Ridge, Tennessee, and will be turned into low enriched uranium.

The nuclear material has been returned to the U.S. under a deal struck between Prime Minister Shinzo Abe and U.S. President Barack Obama in 2014, and reaffirmed at the 2016 Nuclear Security Summit.

At the beginning of 2015, Japan's total stockpile of plutonium generated by its nuclear power plants was estimated at about 47.8 tons, of which about 10.8 tons was in Japan.

The rest was stored in France and the United Kingdom, where it had been sent for reprocessing.

Disposing of plutonium and highly enriched uranium remains one of Japan's greatest challenges as the government and power companies seek to restart idled nuclear power plants.

Currently, only two reactors, Kyushu Electric Power Co.'s Sendai No. 1 and 2 reactors, are generating electricity. The remaining 43 commercial-use reactors are offline in the wake of the Fukushima crisis.

Estimates show that even if more restarts take place, the spent fuel pools at most reactors will be filled to capacity within about a dozen years.

However, for some, this could be in as little as six years.

**Questions also remain over what should happen to the spent nuclear fuel currently sitting in the U.K. and France if it is not returned to Japan.**

June 8, 2016

## **Public outcry over radioactive soil project**

### **Radioactive soil to be used to build roads set to spark uproar**

<http://www.asahi.com/ajw/articles/AJ201606080056.html>

By YU KOTSUBO/ Staff Writer

A public outcry is expected when radioactive earth from the 2011 Fukushima nuclear disaster is recycled and used to construct roads and in other building projects.

“Fierce resistance would likely arise if the contaminated earth were used in prefectures other than Fukushima Prefecture,” said an official at an Environment Ministry study meeting on June 7.

But Shinji Inoue, senior vice environment minister, said the ministry will proceed with recycling despite expected opposition.

“We are set to promote the reuse (of contaminated earth) by endeavoring to gain public understanding across the country, including Fukushima Prefecture,” he said after the meeting.

Polluted earth will be covered by either clean earth, concrete, asphalt or other material to minimize radiation exposure to construction workers and residents living near the facilities built using radioactive soil.

Twenty-two million cubic meters, the equivalent of 18 Tokyo Dome stadiums, is the amount of contaminated soil expected to be produced in total from the cleanup work in areas around the crippled Fukushima No. 1 nuclear power plant and elsewhere in the prefecture. It is unclear how much of the polluted soil will be used in building projects.

Ministry officials decided at the meeting that the soil to be recycled will be restricted to that in which radioactivity measures 8,000 becquerels or less per kilogram.

The recycling is aimed to cut the amount of radioactive soil to be shipped to other prefectures for final disposal.

If the soil has more than 8,000 becquerels of radioactivity per kilogram, the central government is obliged under law to safely dispose of it.

The ministry envisages the use of contaminated earth for raising the ground level in the construction of roads, seawalls, railways and other public works projects.

It can also be used to cover waste at disposal sites.

The 22 million cubic meters of soil is to be kept at the interim storage site to be built near the crippled nuclear plant in Fukushima Prefecture. After being kept there for about 30 years, it is scheduled under law to be dumped outside the prefecture.

## **New cases of cancer in children (3)**

To refresh memories :

The recent report from the International Physicians for the Prevention of Nuclear War (IPPNW) and Physicians for Social Responsibility (PSR)

**5 Years living with Fukushima: Summary of the health effects of the nuclear catastrophe**

<http://www.fukushima-is-still-news.com/2016/03/new-report-on-cancers.html>

[https://ippnw.de/commonFiles/pdfs/Atomenergie/Tschernobyl/Report\\_TF\\_3005\\_en\\_17\\_screen.pdf](https://ippnw.de/commonFiles/pdfs/Atomenergie/Tschernobyl/Report_TF_3005_en_17_screen.pdf)

## Vivre 5 ans avec Fukushima

Résumé des effets sanitaires  
de la catastrophe nucléaire



IPPNW  
International Physicians  
for the Prevention  
of Nuclear War

PSR  
PEDIATRIC SURVIVAL  
RESEARCH

ippnw/psr  
report



Version française

**the English version of the report** : <http://www.psr.org/assets/pdfs/fukushima-report.pdf>

in French:

- on the site "Vivre après Fukushima"



<http://www.vivre-apres-fukushima.fr/le-rapport-des-medecins-de-lipnwpsr-sur-fukushima-5-ans-disponible-en-francais/>

- on the site of IPPNW Europe :

<http://www.ippnw.eu/fr/accueil.html>

June 12, 2016

## Evacuation order lifted but only 10 % to return

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Lights appears at only a few houses in Katsurao, Fukushima Prefecture, on June 11, the eve of the government's lifting of the evacuation order following the 2011 nuclear accident. Waste from decontamination operations is covered with sheets in the foreground. (Yosuke Fukudome)

## Evacuation lifted for Fukushima village; only 10% preparing return

THE ASAHI SHIMBUN

The government on June 12 lifted the evacuation order for Katsurao, a village northwest of the crippled Fukushima No. 1 nuclear power plant, but most of the residents appear reluctant to return home. The lifting of the order covers more than 90 percent of the households in Katsurao. The entire village was ordered to evacuate after the crisis at the Fukushima plant started to unfold on March 11, 2011. **Katsurao is the fourth municipality in Fukushima Prefecture that had the evacuation order lifted,** following the Miyakoji district in Tamura, the eastern area of Kawauchi village and Naraha.

Government officials said cleanup and other efforts have **reduced radiation levels in Katsurao to a point that poses little problem**. The lifting of the evacuation order means that 1,347 people from 418 households, out of 1,466 people from 451 households in Katsurao, can return to their homes to live in the village.

But only 126 people from 53 households, or 10 percent of those eligible to return, have signed up for a program for extended stays in the village to prepare for their return, according to Katsurao officials.

The officials said they believe that many evacuees would rather go back and forth between temporary housing and their homes in Katsurao for the time being, given the situation in the village.

Medical institutions and shops have yet to resume operations in Katsurao. And **nearly half of the rice paddies there are being used for the temporary storage of radioactive waste produced in the cleanup operation**.

**Local officials say they have no idea when the waste can be moved out of the village for permanent storage.**

Among the Katsurao residents eligible to return are those with homes in the government-designated “residence restricted zone,” where the annual radiation dose was projected at more than 20 millisieverts and up to 50 millisieverts as of March 2012.

This was the first time evacuees from such a zone have been permitted to return home.

Only the “difficult-to-return zone” carries a higher annual radiation dose.

The government plans to lift evacuation orders for other parts of the prefecture by the end of March 2017, except for the “difficult-to-return zone,” where the annual radiation dose was estimated at 50 millisieverts or higher as of March 2012.

The additional lifting of the evacuation orders would allow 46,000 of 70,000 displaced residents to return to their homes to live.

(This article was written by Makoto Takada and Yuri Oiwa.)

## **Another evacuation order lifted in Fukushima**

[http://www3.nhk.or.jp/nhkworld/en/news/20160612\\_04/](http://www3.nhk.or.jp/nhkworld/en/news/20160612_04/)

The Japanese government has lifted its evacuation order for most parts of a village near the crippled nuclear plant in Fukushima. Katsurao Village became the 4th such municipality after the 2011 nuclear disaster.

Officials lifted the restriction on Saturday midnight except some areas where the radiation level remains high. All of over 1,400 residents there were forced to evacuate. Now most of them are allowed to return home.

According to a survey the village conducted last year, nearly half of the respondents said all or at least parts of their family want to return home when the order is lifted.

Local authorities say they will work to ease concerns over radiation and provide medical services. They will also ask shops to reopen there to sell foods and everyday essentials.

The evacuation order remains in 9 municipalities in Fukushima. This is forcing more than 90,000 people to continue living away from home.

## Evacuation order lifted (2)



Radioactive waste contained in thousands of black plastic bags are placed in rice paddies in the village of Katsurao, Fukushima Prefecture, where an evacuation advisory was lifted for most of the village Sunday. | KYODO

### **Advisory lifted for most of evacuated village of Katsurao close to crippled Fukushima nuclear power plant**

<http://www.japantimes.co.jp/news/2016/06/12/national/advisory-lifted-for-most-of-evacuated-village-of-katsurao-close-to-crippled-fukushima-nuclear-power-plant/#.V115tuRddLN>

JJI

FUKUSHIMA – The government Sunday lifted its evacuation advisory for most of Katsurao, a village near the crippled Fukushima No. 1 nuclear power plant in Fukushima Prefecture.

This is the first time that an evacuation advisory has been lifted for an area tainted with relatively high levels of radiation with annual doses projected at between more than 20 millisieverts and less than 50 millisieverts.

The government's move allows 1,347 people in 418 households to return home for the first time since the March 2011 disaster at the plant, operated by Tokyo Electric Power Company Holdings Inc.

But only a few people are expected to return home for the time being due to inconveniences in everyday life in the village. Municipal bus services remain suspended while shops have yet to resume operations.

The village government plans to offer free taxi services for elderly people so that they can go to hospitals and commercial facilities outside the village. Earlier this month, the village's chamber of commerce and industry started services to deliver fresh foods and daily necessities to homes. The evacuation advisory remains in place for 119 people in 33 households from the remaining Katsurao area where annual radiation doses are estimated at over 50 millisieverts.

## Current screening procedures "very dangerous"

### Former nuclear regulatory body official calls for review of safety screening method

<http://www.japantimes.co.jp/news/2016/06/12/national/former-nuclear-regulatory-body-official-calls-for-review-of-safety-screening-method/#.V116mORddLP>

JJI

Japan needs to review its current method for screening nuclear plant safety, **seismologist and former senior regulator Kunihiko Shimazaki** said in a recent interview.

The current method risks underestimating the magnitude of possible earthquakes that may hit nuclear plants, Shimazaki, former acting chairman of the Nuclear Regulation Authority, said.

"A review is needed" for the method to calculate the design basis quakes that is currently adopted in the NRA's screening procedures, he said.

Shimazaki said that he has confirmed the need for such a review after examining data on powerful quakes that hit Kumamoto Prefecture and other areas in Kyushu in April.

"The NRA has to be aware that the current screening procedures have shortcomings," he said, adding it is "very dangerous to keep using the method."

Before leaving the NRA in September 2014, Shimazaki was in charge of assessing quake and tsunami impacts in its nuclear safety screening.

**The current method risks underestimating design basis quakes when it is applied to vertical faults found mainly in western Japan**, according to him.

The design basis quakes for Kansai Electric Power Co.'s Takahama and Oi nuclear plants, both in Fukui Prefecture, and Kyushu Electric Power Co.'s Genkai nuclear plant in Saga Prefecture, should be recalculated based on a different method, he said.

**The NRA should draw up a revised method by taking into account new data, including on strong tremors such as the Kumamoto quakes**, Shimazaki said.

The Nos. 3 and 4 reactors at the Takahama plant have passed the NRA's safety screening. The NRA is expected to approve Kansai Electric's request for extending operational periods at the plant's Nos. 1 and 2 reactors beyond 40 years, a basic lifetime for nuclear reactors in Japan.

June 13, 2016

## Well water for Katsurao

### Well water introduced in a Fukushima village

[http://www3.nhk.or.jp/nhkworld/en/news/20160613\\_16/](http://www3.nhk.or.jp/nhkworld/en/news/20160613_16/)

NHK has learned that a village near the crippled nuclear power plant in Fukushima is providing well water to more than 40 percent of its households. Water from wells is thought to be less affected by fallout from the nuclear accident at the plant.

An evacuation order for most parts of Katsurao Village was lifted on Sunday, except for some areas where radiation levels remain high.

All of the more than 1,400 residents there had been forced to evacuate. Now most of them are being allowed to return home.

The village has gradually switched the source of tap water for about 200 households, more than 40 percent of the total, from a mountain stream to deep groundwater.

Village officials say they are using water from wells more than 10 meters deep. They say the measure was taken in consideration of residents' concerns about their drinking water.

The officials say they will continue to provide a good living environment for those who wish to return to the village.

June 14, 2016

## Another evacuation order lifted

### Evacuation order lifted for Fukushima village

[http://www3.nhk.or.jp/nhkworld/en/news/20160614\\_02/](http://www3.nhk.or.jp/nhkworld/en/news/20160614_02/)

An order to evacuate parts of a village in Fukushima Prefecture following a nuclear accident over 5 years ago has been lifted.

Officials ended the mandatory evacuation of the **eastern districts of the village of Kawauchi** on Tuesday, 2 days after lifting a similar order for the nearby village of Katsurao.

51 villagers are now able to return to their homes **in the districts of Ogi and Kainosaka, which are less than 20 kilometers from the crippled Fukushima Daiichi nuclear plant.**

The nuclear accident in March, 2011, forced villagers, especially those living in the east, to flee.

In October 2014, the evacuation order was lifted for some areas of the village, but remained in place for the 2 eastern districts.

Only a handful of people are expected to return to the districts. Decontamination work has not been conducted in the woods surrounding the locations, and it would be difficult for people living in the area to go shopping or see a doctor.

**Despite steady progress in the lifting of evacuation orders in Fukushima Prefecture, challenges remain in the move to return evacuees and rebuild the region amid lingering worries about radiation.**

June 15, 2016

## Safety at school

### Radioactive soil turns up at Fukushima high school

<http://www.asahi.com/ajw/articles/AJ201606150009.html>

By MASAKAZU HONDA/ Staff Writer

FUKUSHIMA--Highly radioactive soil that should by law be removed by the central government has been left **dumped in the corner of a schoolyard here because the construction of a local storage site for waste has been stalled.**

Students at the school were not given an official warning that the radioactive soil was potentially hazardous to their health.

When a teacher scooped up soil samples at the site and had their radiation levels measured by two nonprofit monitoring entities--one in Fukushima and another in Tokyo--the results showed 27,000-33,000 becquerels of radioactive cesium per kilogram.

The law stipulates that the central government is responsible for disposing of waste measuring more than 8,000 becquerels per kilogram.

But as a central government project to build an interim storage site for highly radioactive waste near the nuclear power plant has been stalled, the school appears to have no alternative to indefinitely keeping it in the schoolyard.

Principal Seiichi Takano at Fukushima North High School said the school does not plan to take extra safety measures with regard to the storage of the polluted dirt, saying the waste is not believed to be outright dangerous.

**“The prefectural board of education has not set any criteria for us to conclude at what levels of radiation are hazardous to people,”** he said.

The fallout is a result of the nuclear disaster at the Fukushima No. 1 power plant, which unfolded following the Great East Japan Earthquake and ensuing tsunami on March 11, 2011.

Before the cleanup operation at the school in the city's Iizaka district on May 24-25, the teacher who took the samples called on school officials to take precautionary measures and issue an alert for students. "Since it is highly radioactive, we should remind students and staff of the potential danger while taking a step to prevent the spread of polluted dust during cleanup," said the teacher.

Highly radioactive dirt, which was mixed with tree branches and plants amounted to 20 cubic meters, according to cleanup workers. It was packed in bags and dumped in an area near the parking lot for bicycles used by students.

School officials say they plan to bury the bags by digging deep holes on the school premises to temporarily store them, but they have no idea when they will finally be removed.

**The polluted dirt in the latest cleanup first came to the attention of school officials in March when a preliminary survey detected 1.6 microsieverts per hour of radiation at a point 1 meter from the surface of the ground near the bicycle parking lot.** The survey is routine before any cleanup gets under way in earnest.

A cleanup operation is conducted with the aim of lowering radiation exposure to below 0.23 microsieverts per hour, a long-term goal the central government has set to limit residents' annual additional exposure to a maximum of 1 millisievert.

In the previous decontamination operation, the school's playground was cleaned in August 2011 before classes were resumed for that academic year after a break after the nuclear accident.

**A large amount of contaminated soil--far more radioactive than in the current incident--is still buried in the schoolyard for temporary storage.**

Cleanup resumed only this spring for the rest of the school premises and its neighborhood in line with a general cleanup plan in Fukushima.

An official with the prefectural board of education said it is not considering additional safety measures concerning the storage of polluted soil kept at the school.

"We are going to ensure safety by taking an approach similar to the existing one before the polluted soil is transported to the interim storage facility," said a board official.

June 17, 2016

## Quake scale underestimated

### Quake scale may be underestimated in calculations for nuclear plants: Ex-NRA official

<http://mainichi.jp/english/articles/20160617/p2a/00m/0na/010000c>

Nuclear Regulation Authority (NRA) former deputy chairman Kunihiro Shimazaki asked the nuclear power watchdog on June 16 to recalculate the maximum possible earthquake estimate -- known as the standard ground motion -- for some nuclear plants in western Japan using a different formula, since the current calculation may include underestimated figures.

- **【Related】** Nuclear regulator sees no need to halt reactors despite quake concerns
- **【Related】** Court decisions divided over risk evaluations of nuclear reactors

**The NRA will hold a meeting on June 20 and discuss handling the matter to recalculate figures for Kansai Electric Power Co.'s Oi Nuclear Power Plant in Fukui Prefecture that is now under safety screening.**

After retiring from the NRA position in 2014, Shimazaki, professor emeritus at the University of Tokyo, examined one of the calculation formulas used to work out the standard ground motion for the Oi nuclear plant. The formula is known as the Irikura-Miyake recipe. As a result, Shimazaki claims that he has confirmed that in cases where an active fault at the estimated hypocenter is straight up-and-down or close to vertical, the scale of the calculated motion becomes smaller compared to the figures calculated with other formulas. The figures worked out with the Irikura-Miyake recipe for the recent Kumamoto Earthquake did not match data recorded in the actual tremor.

Shimazaki has submitted a statement to an ongoing appeal trial at the Nagoya High Court Kanazawa branch over the suspension of the No. 3 and No. 4 reactors at the Oi plant pointing out the problem with the calculation formula.

Shimazaki told NRA members, including Chairman Shunichi Tanaka, at the June 16 meeting that different formulas should be used and other measures should be considered such as re-evaluating the earthquake resistance of the plant if necessary.

According to the NRA, in addition to the Oi plant where the fault at the estimated hypocenter is either vertical or close to vertical, the Irikura-Miyake recipe is being used to calculate the standard ground motion at Kansai Electric's Takahama nuclear plant in Fukui Prefecture that has passed the NRA screening and Kyushu Electric Power Co.'s Genkai nuclear power station in Saga Prefecture that is now under safety screening.

After the meeting with NRA officials, Shimazaki told reporters that first and foremost figures for the Oi plant should be recalculated. While he suggested that recalculation should be considered for the Genkai plant, there will be little effect on the Takahama plant as it is located away from an active fault.

Kojiro Irikura, professor emeritus at Kyoto University who developed the formula in question, said the method has been scientifically proven to be effective in estimating the scale of an earthquake. He admits, however, when used to predict ground motion the formula may provide smaller figures for the scale of a tremor in cases where the angle of an active fault is close to vertical. He added, "The formula should be used with caution to avoid an underestimate."

## Court maintains ban on restart

### Kepeco loses challenge to Takahama nuclear injunction

<http://www.japantimes.co.jp/news/2016/06/17/national/crime-legal/kepeco-fails-suspend-injunction-takahama-nuclear-plant/#.V2fzQ6LiiSq>

OTSU, SHIGA PREF. – The Otsu District Court on Friday rejected a bid by Kansai Electric Power Co. to lift an injunction against restarting reactors at a nearby plant, dealing yet another setback to attempts by the utility and the central government to return swiftly to nuclear power.

The move means the No. 3 and No. 4 reactors at the Takahama nuclear plant, in Fukui Prefecture, will remain idled.

In a statement, Kepeco condemned the court's action.



In his decision, Judge Yoshihiko Yamamoto said Kepco failed to provide sufficient evidence to back up its claims that the two reactors were safe.

“The very first article of the law that established the Nuclear Regulation Authority says a fundamental point of Japan’s nuclear power administration is clearly establishing the understanding that the maximum effort must be made at all times to prevent an accident involving the use of nuclear power,” said Yamamoto. “But unless the operator shows that there is nothing lacking in regards to safety, it’s presumed some safety points are lacking.”

The decision was welcomed by citizens’ groups fighting the restart of the two reactors, but it was also expected. Yamamoto was the same judge who had granted their initial request back in March that shut down the reactors, also citing a lack of convincing evidence on the part of Kepco that the plants were safe. The reactors were originally restarted at the beginning of the year.

“It was a just decision, very direct. We hope it will provide a spark to other legal efforts in other parts of Japan to stop nuclear power plants from being restarted,” Yoshinori Tsuji said after the ruling. Tsuji was one of the plaintiffs who filed for an injunction in March.

Legal wrangling over the two reactors continues. Kepco has filed a separate legal challenge to the Otsu court’s decision, and said Friday it hoped that when that ruling came, possibly in July or August, it will lead to restarts.

Shiga residents seeking to keep the reactors offline have said Friday’s decision did not mean their court battles were over.

“If the Otsu court rules against Kepco, it could end up in the Osaka High Court, possibly next year,” said Hidenori Sugihara, another one of the plaintiffs who sought the injunction.

The Otsu court case has demonstrated the difficulty of restarting nuclear power plants in a timely manner. Under laws drawn up by the NRA that went into effect in 2012, localities within a 30 kilometer radius of a nuclear power plant are supposed to establish evacuation plans in the event of an emergency.

But the expanded radius has greatly increased the number of local governments and residents who are concerned about a rush by the utilities to restart as many plants as possible.

In the Kansai region, where parts of Kyoto and Shiga prefectures lie within 30 kilometers of Fukui Prefecture’s plants, lawsuits by residents like the one in Otsu have the potential to slow down, if not halt, Kepco’s plans for restarts.

The original injunction was brought by Shiga residents who fear an accident at the plant would have a damaging impact on Lake Biwa, the nation’s largest freshwater lake and the source of water for about 14 million residents in cities such as Kyoto and Osaka.

## **Japan court rejects appeal, keeps ban on restarting 2 nuclear reactors**

<http://mainichi.jp/english/articles/20160617/p2g/00m/0dm/039000c>

OTSU, Japan (Kyodo) -- A Japanese court kept its ban on operation of two nuclear reactors at the Takahama power plant in Fukui Prefecture on Friday by rejecting the plant operator's request to suspend an injunction it had issued over the reactivated reactors.

The Otsu District Court's decision concerns the injunction issued in March over the Nos. 3 and 4 units at the Kansai Electric Power Co. plant that marked a major setback for the government's push to ramp up nuclear power generation. Local residents had filed for the injunction on safety concerns.

In Friday's decision, the court said it "cannot conclude that (the reactors) are safe, merely because they have met new regulatory standards on nuclear power plants." New, more stringent safety rules were introduced in 2013 in the wake of the meltdowns at the Fukushima Daiichi nuclear power plant in 2011. "Kansai Electric should at least explain how the regulations on operation and designs of nuclear power plants were toughened and how it responded to them," the decision said.

The decision, issued under the same presiding judge, Yoshihiko Yamamoto, as the injunction in March, marks the final word on one process regarding the injunction because Kansai Electric cannot take further action on it.

The two reactors will remain offline as long as the injunction is not invalidated through a separate track examining an objection filed by Kansai Electric when the court issued the injunction. This track is also being presided over by the same judge.

The March 9 injunction was the first of its kind affecting operating reactors. One of the reactors was taken offline one day after the order. The other reactor was already offline.

The court said then there are "problematic points" in planned responses for major accidents and "questions" on tsunami countermeasures and evacuation planning, in light of the 2011 Fukushima disaster.

The Osaka-based utility subsequently sought to suspend the injunction, saying its safety measures are thoroughly proven and the court's decision was scientifically and technologically groundless. It also said the suspension of the reactors has cost the company 300 million yen (\$2.88 million) in losses daily.

**The Takahama plant had cleared the post-Fukushima safety regulations in February last year, allowing Kansai Electric to reactivate the Nos. 3 and 4 reactors on Jan. 29 and Feb. 26, respectively. But their operations were beset with problems, with the No. 4 unit shutting down automatically due to a trouble just three days after it was rebooted.**

The residents of Shiga Prefecture living within 70 kilometers of the four-reactor plant had filed the injunction as they worried about their safety in the event of a nuclear accident or disaster.

**The plaintiffs argued that safety measures are insufficient and feared residents' exposure to radiation in case of a severe accident.**

A part of Shiga falls within a 30-kilometer radius of the plant, which is set by the central government as an evacuation preparedness zone.

## All is well...(1)

### Salmon hatchery reopened in Fukushima

[http://www3.nhk.or.jp/nhkworld/en/news/20160617\\_29/](http://www3.nhk.or.jp/nhkworld/en/news/20160617_29/)

People in Naraha Town, Fukushima Prefecture, have celebrated the reopening of a local salmon hatchery that was destroyed in the March 2011 earthquake and tsunami.

About 80 fishermen and town officials attended a ceremony to mark the event near the Kido River on Friday.

The river was well known for salmon fishing, but its yield declined drastically after the disaster.

Naraha Mayor Yukiei Matsumoto said he will do all he can so that people who used to visit the river will come back and reinvigorate the town.

The hatchery was partially restored last year, but its temporary equipment could store only one-fourth the amount of salmon fry kept there before the disaster.

Officials say the equipment was fully restored in May and can now store about 10 million fry -- almost the same as before the disaster.

June 18, 2016

## All is well... (2)

### **French ambassador holds dinner with Fukushima food**

[http://www3.nhk.or.jp/nhkworld/en/news/20160618\\_04/](http://www3.nhk.or.jp/nhkworld/en/news/20160618_04/)

The French ambassador to Japan has held a dinner using foodstuffs from the northeastern prefecture of Fukushima.

The prefecture is struggling to dispel unfounded rumors and concerns about the safety of local produce following the 2011 nuclear accident in the prefecture.

Ambassador Thierry Dana invited more than 20 people to the dinner on Friday at his official residence in Tokyo. Prefectural Governor Masao Uchibori and others from Fukushima were among the guests.

The invitees enjoyed dishes cooked with ingredients produced in Fukushima, including meat and vegetables.

Ambassador Dana said he heard the prefecture is still in trouble due to radiation-related rumors even after the safety of its food products has been confirmed.

He said he wants to support Fukushima by promoting local produce. He added that foodstuffs from the prefecture go well with French dishes.

Governor Uchibori said combining local produce with French dishes is a new form of support and will help eliminate harmful rumors. He added that he wants to continue promoting the safety of the food at home and abroad.

June 19, 2016

## All is well... (3)

### **Fukushima rice set to make first EU foray with debut in Britain**

<http://www.japantimes.co.jp/news/2016/06/19/national/fukushima-rice-set-to-make-first-eu-foray-with-debut-in-britain/#.V2afhKJdeot>

Fukushima Minpo

Fukushima-harvested rice will hit the stores in Britain in July, which might make it the first member of the EU to import the grain, following a sustained effort by a group of Fukushima natives in London fighting rumors about the safety of the crop.

It is also the third nation, after Singapore and Malaysia, to import Fukushima rice since the March 2011 earthquake and tsunami caused three reactor meltdowns at the Fukushima No. 1 nuclear plant. Starting next month, 1.9 tons of Fukushima rice called Ten no Tsubu will be sold in London. A Fukushima branch of National Federation of Agricultural Cooperative Associations, a Japanese farmers group better known as Zen-Noh, will export the rice via a British trading company.

“With the U.K. as a foothold, we hope to expand the sale of prefecture-produced rice to other EU member countries,” said Nobuo Ohashi, who heads the Fukushima branch of Zen-Noh.

According to Japan’s Agriculture, Forestry and Fisheries Ministry, the EU has been phasing out its ban on Fukushima food products since the nuclear disaster started. But for Fukushima rice, the EU still obliges importers to submit a radiation test certified by the Japanese government or sample tests by the member nation importing it.

“It’s bright news for Fukushima, which has been struggling with the import restrictions,” said an official at the prefectural office in charge of promoting its products. “We will make further efforts so the restrictions will be lifted entirely.”

There were many hurdles to overcome.

Amid fears that Fukushima products were tainted with radioactive fallout, Yoshiro Mitsuyama, who heads the Fukushima group in London, consulted an official at Zen-Noh’s branch in Germany on how to sell Fukushima products a few years ago.

With the help of Zen-Noh, Mitsuyama’s group started selling Fukushima-made rice, peach and apple juice at the annual Japan Matsuri held at London’s Trafalgar Square three years ago.

The products were popular with London residents. When Visit Japan Ambassador Martin Barrow came to Fukushima last April, he bought some local produce.

“I want to help sell Fukushima fruits like cherries, apples and pears in London as well, not just rice,” said Mitsuyama.

This section, appearing every third Monday, features topics and issues covered by the Fukushima Minpo, the largest newspaper in Fukushima Prefecture. The original article was published on May 25.

June 20, 2016

## Extending the 40-year limit

### Regulator allows extended use of old reactors

[http://www3.nhk.or.jp/nhkworld/en/news/20160620\\_17/](http://www3.nhk.or.jp/nhkworld/en/news/20160620_17/)

Japan's nuclear regulator has for the first time given the green light to extending the use of two old nuclear reactors that have been in operation for 40 years.

Regulations introduced after the 2011 Fukushima Daiichi accident do not allow in principle the use of reactors beyond 40 years unless safety measures meet new criteria.

Officials at the Nuclear Regulation Authority met on Monday to discuss extending the operation of the Numbers 1 and 2 reactors at the Takahama plant in Fukui Prefecture on the Sea of Japan.

They assessed the deterioration rate of the facilities.

They unanimously accepted an extension of up to 20 years on the condition that operator Kansai Electric Power Company carry out reinforcement work on aging pipes that fail to meet earthquake safety standards.

In April, the regulator judged that fire prevention measures for electric cables -- a problem unique to older reactors -- and other revisions had met the new regulations.

In June, the regulator approved a plan describing the earthquake resistance of the facilities.

The operator has now gained all the approvals it needs for the extension by the July 7th deadline. Kansai Electric Power says it will need more than 3 years to complete the planned reinforcement work and restart the reactors.

### NRA gives two-decade extension to 40-year-old Takahama reactors; residents' reactions mixed

<http://www.japantimes.co.jp/news/2016/06/20/national/nra-looks-ok-2019-restart-aging-kepco-reactors-fukui-coast/#.V2jhg6Jdeot>

The Nuclear Regulation Authority on Monday approved an additional 20 years of operation for two aging reactors on the Sea of Japan coast that will become the first such units to be rebooted under new rules introduced after the Fukushima disaster.

The atomic regulator green-lighted Kansai Electric Power Co.'s plan to restart its No. 1 and No. 2 reactors — both more than 40 years old — at the Takahama nuclear power plant in Fukui Prefecture. But the reboot is unlikely to happen soon, with the company eyeing an October 2019 timetable for completing the final screening measures.

The rules, which were tightened after the 2011 triple meltdown at Tokyo Electric Power Co.'s Fukushima No. 1 plant, in principle set the maximum operational life span for nuclear reactors at 40 years. However, the regulations also stipulated that operations can be extended by an additional 20 years if the NRA approves.

Meanwhile, Takahama's two other reactors — No. 3 and No. 4 — remain idle after the Otsu District Court rejected a bid Friday by Kepco to lift an injunction preventing their restart.

The utility has condemned the court's move.

Kepco had been closely monitoring the condition of the two aging reactors in a stricter manner than regular checkups since December 2014 as it sought to obtain approval for extending their life spans. After confirming there were no abnormalities, the utility applied for an NRA screening in April last year. The utility had been required to complete three procedures by July 7 to obtain permission for restarting units No. 1 and No. 2. While they had already passed a test for compatibility with the new rules and received approval for a construction plan detailing equipment design, the only remaining test had been of the reactors' anti-degradation measures.

In that screening, regulators asked that the utility address the potential for long electrical cables to catch fire and how it would cover the containment vessels with concrete in the event of a serious accident. NRA chief Shunichi Tanaka said he hopes the power company will conduct inspections more often than required to ensure the facilities are safe.

The utility will spend ¥200 billion (\$1.9 billion) to improve the reactors' safety over the next 3½ years. They are expected to be restarted sometime after fall 2019.

Reactors 1 and 2 will thus reach the end of service in November 2034 and 2035, respectively.

Residents had mixed reaction to the decision.

The town of Takahama "has lived with the nuclear power plant for a long time. I hope the (reactors') resumption will help revitalize the local economy," a woman in her 20s said, though admitting she is worried about their safety.

While Takahama Mayor Yutaka Nose welcomed the decision, he said he will ask the regulator and plant operator for detailed explanations of the safety steps to respond to residents' concerns.

Kansai Electric said in a press release that it believes permission for reactors to run beyond the 40-year limit heralds the restart of more of Japan's aging reactors.

The government is pushing to bring dozens of reactors back online after the Fukushima disaster prompted a nationwide shutdown, as it looks to atomic power to provide 20 to 22 percent of its electricity by 2030.

The government will need a dozen aging reactors running beyond the four-decade limit to meet its goal, experts say, given the difficulty of building new reactors now that Japan's long-held nuclear safety myth has been shattered by the triple meltdown in Fukushima.

The No. 1 reactor began operating in November 1974, while the No. 2 reactor did so in November the following year. Both reactors have been suspended since regular checkups in 2011

## Revising quake norms

### Assumed quake level for Ohi plant to be reviewed

[http://www3.nhk.or.jp/nhkworld/en/news/20160620\\_27/](http://www3.nhk.or.jp/nhkworld/en/news/20160620_27/)

Japan's nuclear watchdog will recalculate the projected maximum ground motion based on which an idled power plant in central Japan is to be reinforced. Two reactors at the Ohi nuclear plant in Fukui Prefecture are being screened to determine whether it is safe to restart them.

The Nuclear Regulation Authority's decision was prompted by Kunihiko Shimazaki, who retired from the authority in 2014. Shimazaki last week told the head of the authority, Shunichi Tanaka, that the maximum jolt calculated using the current formula may be too small for some reactors, and requested a recalculation for the Ohi plant.

The authority had already agreed with the operator 2 years ago that the reactors must be able to withstand seismic motion of up to 856 gals.

But after discussing Shimazaki's request, the authority members decided to recalculate using a different formula. They say they will consider whether to change the assumption after recalculation.

Tanaka says the authority's assumptions on quakes have been fairly conservative, but it may have to revise the quake-resistance design for the Ohi plant if the recalculation indicates otherwise.

June 21, 2016

## Setting a precedent, again

### **NRA's Takahama reactor approval a blow to 40-year lifespan rule**

<http://mainichi.jp/english/articles/20160621/p2a/00m/0na/019000c>

Two aging nuclear reactors will be allowed to operate beyond the 40-year rule -- adopted after the outbreak of the Fukushima nuclear disaster to limit the number of years a nuclear reactor can remain in operation -- the Nuclear Regulation Authority (NRA) announced June 20, setting a precedent that may turn the rule into a dead letter.

- **【Related】** Kansai Electric gets Takahama reactor life extension, but enormous costs remain
- **【Related】** Japan nuclear regulator OKs additional 20-yr run for aging reactors
- **【Fukushima & Nuclear Power】**

The NRA extended the 40-year operational life of the No. 1 and 2 reactors at Kansai Electric Power Co.'s Takahama Nuclear Power Plant by 20 years, with NRA chairman Shunichi Tanaka telling a June 20 news conference that "it is not the case that nuclear reactors were built to have a 40-year lifespan." This is an about-face from the NRA's first days in 2012, when Tanaka stated that "extending the operation (of nuclear reactors) is considerably difficult."

When the 40-year rule was introduced, the then Democratic Party of Japan administration said that any extension would be "an extreme exception." To gain approval for an extension, a reactor operator would

have to obtain NRA approval for a work plan to bring the aging reactors in question up to new safety standards, and then obtain three more separate approvals. The Takahama No. 1 and 2 units in particular faced possible decommissioning if Kansai Electric hadn't submitted an operational life extension application by the July 7 deadline.

From the moment the application hit the NRA's desk, the agency effectively set out on a mission to save the Takahama reactors. To quicken the pace of the necessary inspections, the NRA concentrated its personnel at the two units. Furthermore, the NRA put off the usual inspections of the reactors' primary cooling systems -- a process that can take years -- helping Kansai Electric avoid the decommissioning deadline.

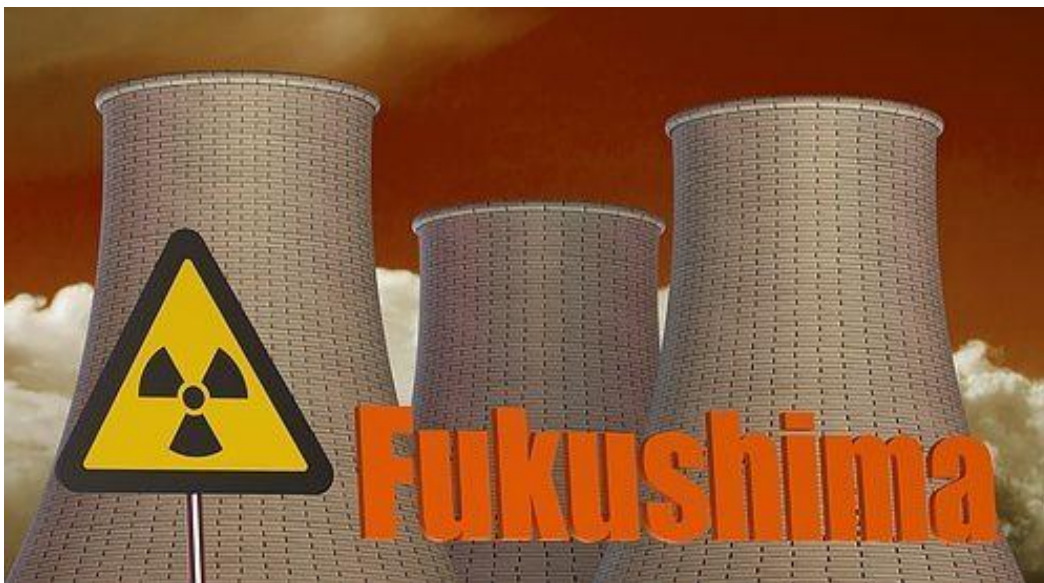
Even if the inspections hadn't gone well after the cooling system check was delayed, approval of the operational life extension wouldn't be cancelled. Within the NRA, there were voices warning that the agency would "lose the public's trust if we have to redo inspections."

The Takahama No. 1 and 2 units have a grand total of about 1,300 kilometers of cables in them, and the NRA even helped Kansai Electric get past the need to make them totally fire-proof. Replacing the cables would have been expensive and time-consuming, and so the NRA approved the utility's method of wrapping the old cables in fireproof material where they were difficult to change out. There are four other reactors in Japan with old cables similar to the ones at Takahama, and the NRA has just given their operators a "Takahama method" to obtain official approval.

There was a risk that Kansai Electric would have filed suit against the NRA if the agency had insisted on holding to the government's 40-year operational life rule and ordered the Takahama No. 1 and 2 reactors decommissioned. For Kansai Electric's part, the Takahama approval creates a model for receiving an extended life for another of its elderly reactors, at the Mihama Nuclear Power Plant. It also creates an environment where other companies will be able to gain easy approval for their own older units.

## Cynicism and contempt





There's an old saying "disasters bring out the best in people," but Fukushima 3/11 of March 11, 2011 has put an exclamation point on cynicism rather than heartfelt concern.

Similar to America's experience of outright lies by its government about the Iraqi Massacre, the blowback of cynicism and contempt bring forth a strain of populism, rejecting establishment, attracting lowly dishonorable politics, as America goes-up an abomination!

Fukushima's a horror story of hidden agendas, lies, scare tactics, and harsh secrecy laws, yet it's held up as a icon of safe nuclear power by clever mastery of pro-nuke Oceania Newspeak, which, in the novel 1984 penalized "rebellious thoughts" as illegal, similar to Japan's 2013 secrecy law wherein the "act of leaking itself" is bad enough for prosecution, regardless of what, how, or why, off to jail for 10 years. These decadent precepts are hard to accept with a straight face.

However, the day is fast approaching when the pro-nukie crowd, which claims Fukushima 3/11 caused few, if any, major radiation casualties, will be forced to "munch on their own words." As time passes, it becomes ever more obvious that pro-nuke arguments, supporting big fat cumbersome nuclear power plants, metaphorically, hang by fingertips on an electric fence.

As an aside, it is rumored, thru the grapevine in Japan, that hospitals have been instructed to categorize, and officially report, patients' radiation symptoms as "stress-related cases." Hmm!

As for pro-nuclear news:

"In spite of this whole theatrical drama the result was...nobody killed or injured, and no indication of long term negative radiation effects on people. So the lesson of Fukushima is that nuclear power is much safer than people thought," Kelvin Kemm, *The Lesson of Fukushima – Nuclear Energy is Safe*, Cfact, Feb. 16, 2015.

Another example:

"No one has been killed or sickened by the radiation — a point confirmed last month by the International Atomic Energy Agency. Even among Fukushima workers, the number of additional cancer cases in coming years is expected to be so low as to be undetectable, a blip impossible to discern against the statistical background noise," George Johnson, *When Radiation Isn't the Real Risk*, New York Times, Sept. 21, 2015

And, one more:

“There were no cases of radiation sickness among plant workers, because their radiation doses were too low to produce sickness,” Georgetown Radiation Expert, Author Reflects on 5th Anniversary of Fukushima Meltdown, Georgetown University Medical Center, Newswise, Feb. 23, 2016.

Bunk! To the contrary, not only have several independent sources in Japan reported cover ups of Fukushima worker deaths, bodies incinerated with ashes hidden in Buddhist temples, and instances of hair falling out, nose bleeding, and assorted serious ailments unique to radiation poisoning, now several deaths of U.S. sailors may be closely linked to this disaster that a pro-nuclear crowd claims demonstrates how “safe” nuclear power really is.

Thus, begging the question: Are the pro-nukes liars and/or are they being lied to, or what’s up? Who knows, and who really cares which, but their published articles, grandstanding nuclear power, are prominent throughout mainstream big time, and small time, magazines and newspapers and hyperspace, Oceania redux.

Whereas, in vivid contrast to this pro-nuke claptrap, one of Japan’s most eminent former prime ministers Junichiro Koizumi (2001-06) declares support for the U.S. sailor’s TEPCO lawsuit, more on this later. Additionally, PM Koizumi has repeatedly urged PM Abe to halt efforts to restart Japan’s nuclear reactors. He is the second former Japanese prime minister, including PM Naoto Kan (2010-11), to plea for a halt to nuclear power. They claim nuclear power is not safe!

Luckily for the nuclear power industry, Abe is the prime minister.

Yet, there’s a festering problem, prevalence of radiation-poisoned deaths:

“The ashes of half a dozen unidentified laborers ended up at a Buddhist temple in this town just north of the crippled Fukushima nuclear plant. Some of the dead men had no papers, others left no emergency contacts. Their names could not be confirmed and no family members had been tracked down to claim their remains. They were simply labeled “decontamination troops” — unknown soldiers in Japan’s massive cleanup campaign to make Fukushima livable again five years after radiation poisoned the fertile countryside,” Mari Yamaguchi, *Fukushima ‘Decontamination Troops’ Often Exploited, Shunned*, AP & ABC News, Minamisona, Japan, March 10, 2016.

And, here’s another:

“It’s a real shame that the authorities hide the truth from the whole world, from the UN. We need to admit that actually many people are dying. We are not allowed to say that, but TEPCO employees also are dying. But they keep mum about it,” Katsutaka Idogawa, former mayor of Futaba (Fukushima Prefecture), *Fukushima Disaster: Tokyo Hides Truth as Children Die, Become Ill from Radiation – Ex-Mayor*, RT, April 21, 2014.

And, one more:

Mako Oshidori, director of Free Press Corporation/Japan, investigated several unreported worker deaths, and interviewed a former nurse who quit TEPCO: “I would like to talk about my interview of a nurse who used to work at the Fukushima Daiichi Nuclear Power Plant (NPP) after the accident... He quit his job with TEPCO in 2013, and that’s when I interviewed him... As of now, there are multiple NPP workers that have died, but only the ones who died on the job are reported publicly. Some of them have died suddenly while off work, for instance, during the weekend or in their sleep, but none of their deaths are reported.”

“Not only that, they are not included in the worker death count. For example, there are some workers who quit the job after a lot of radiation exposure... and end up dying a month later, but none of these deaths are either reported, or included in the death toll. This is the reality of the NPP workers,” (*The Hidden Truth about Fukushima by Mako Oshidori*, delivered at the international conference Effects of Nuclear Disasters on Natural Environment and Human Health held in Germany, 2014 co-organized by International Physicians for Prevention of Nuclear War).

Still and all, PM Abe insists upon fireside chats with pro-nuke campers whilst reopening nuclear power plants even though Japan survived just fine for five years without. He appears to have ants in his pants, pushing hard to restart the ole nuke plants A-SAP.

Meanwhile, in another universe, former PM Koizumi supports the lawsuit of U.S. sailors aboard the USS Ronald Reagan that participated in Operation Tomodachi, providing humanitarian relief after the March 11<sup>th</sup> Fukushima meltdowns. Allegedly, they were assured that radiation levels were okay!

“There is no excuse for Tokyo Electric Power Co. not to give the 400 U.S. sailors and marines who are now suing the company the proper facts. Things are looking especially good for the plaintiffs now that former Prime Minister Junichiro Koizumi is backing the lawsuit over the Fukushima radiation,” *Support for U.S. Sailor’s Tepco Suit*, The Japan Times, June 17, 2016.

“Undoubtedly, Koizumi was convinced to help the sailors because they now suffer from radiation poisoning. He said: ‘Those who gave their all to assist Japan are now suffering from serious illness. I can’t overlook them,’” Ibid.

According to lawyers representing the sailors, Charles Bonner & Cabral Bonner & Paul Garner, Esq., Sausalito, CA, seven sailors have already died, including some from leukemia.

With passage of time, the number of plaintiffs and numbers of deaths grows as the latency effect of radiation sets in. Thus, over time, the latency effect works against the pro-nuclear squawk talk that “all’s clear.”

Initially, the lawsuit represented less than 200 sailors but over time, the latency effect brings forward 400 sailors claiming radiation-poison complications, including leukemia, ulcers, gall bladder removal, brain cancer, brain tumors, testicular cancer, uterine bleeding, thyroid illness, stomach ailments, and premature deaths. These are youngsters.

The lawsuit process has been exacting for the young sailors: “Lindsey Cooper, for example. The woman who started the whole thing was torn apart on a CNN program by atomic energy experts and was later mocked on conservative radio shows,” Alexander Osang, *Uncertain Radiological Threat: US Navy Sailors Search for Justice After Fukushima Mission*, Spiegel Online International, Feb. 5, 2015.

As it happens, it’s not disasters that turn people’s stomachs as much as cover-ups and lying, bringing forth cynicism, contempt, and ultimately populist blowback as people get fed up with establishment politics. It is very likely that, similar to American populist blowback, Japan will meet the same fate.

On second thought:

“There is one thing that really surprised me here in Europe. It’s the fact that people here think Japan is a very democratic and free country.” (Mako Oshidori, director/Free Press Corporation/Japan, speech in Germany)

Join the debate on Facebook

**Robert Hunziker** lives in Los Angeles and can be reached at [roberthunziker@icloud.com](mailto:roberthunziker@icloud.com)

June 24, 2016

## Not safe to restart

### Protesters hold rally at Ikata plant

[http://www3.nhk.or.jp/nhkworld/en/news/20160624\\_21/](http://www3.nhk.or.jp/nhkworld/en/news/20160624_21/)

People opposing the restart of a reactor at Shikoku Electric Power Company's Ikata nuclear plant in Ehime Prefecture have held a rally in front of the complex.

Around 10 people, including members of an Ehime-based civic group, gathered near the plant's main entrance on Friday and chanted slogans against the restart.

They read out a statement protesting the insertion of nuclear fuel into the No.3 unit.

The statement said the system for transmitting electricity to the plant cannot withstand a powerful earthquake and the plant's safety cannot be guaranteed. A stable power supply is needed to maintain the cooling of the reactor.

One of the protesters said that in view of the powerful temblors that struck Kumamoto, the operator should not rush the process of inserting fuel into the reactor.

June 27, 2016

## Did you say safety?

### Reuse of radioactive soil approved despite 170-year safety criteria estimate

<http://mainichi.jp/english/articles/20160627/p2a/00m/0na/010000c>

An Environment Ministry decision to allow reuse of contaminated soil emanating from the Fukushima nuclear disaster under road pavements came despite an estimate that it will take 170 years before the soil's radiation levels reach safety criteria, it has been learned.

According to the revelation, an Environment Ministry panel approved the recycling of tainted soil generated from Fukushima decontamination work **despite an estimate presented during a closed meeting of a working group that it will require 170 years for radioactivity concentrations in the contaminated soil to drop to legal safety standards**, shelving a decision over whether such soil should be put under long-term management.

The ministry is planning to allow reuse of the tainted soil in mounds beneath road pavements, asserting that radiation will be shielded by concrete covering such mounds. However, **an estimate presented at the closed meeting of the working group on the radiation impact safety assessment states that such mounds would be durable for just 70 years, suggesting that the soil would need to be managed for another 100 years after its road use ends.**

"There's no way they can manage the soil for a total of 170 years without isolating it," said an angry expert.

The working group is a subgroup of an Environment Ministry panel called "the strategic panel for technical development of volume reduction and reuse of removed soil in temporary storage," and the two groups share some of their members. According to the working group's in-house documents obtained by the Mainichi Shimbun, the closed meetings were held six times between January and May, with the

attendance of over 20 people including eight group members and officials from the Environment Ministry and the Japan Atomic Energy Agency (JAEA).

Under the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, the safety standards for recycling metals and other materials generated from the decommissioning of nuclear reactors are set at up to 100 becquerels of radioactive cesium per kilogram. Meanwhile, the special measures law concerning decontamination of radioactive materials, which was enacted after the 2011 Fukushima No. 1 Nuclear Power Plant crisis, classifies materials whose radiation levels top 8,000 becquerels per kilogram as designated waste, and stipulates that waste whose radiation levels are 8,000 becquerels or lower can be put to ordinary disposal.

According to working group chairman and Hokkaido University professor Tsutomu Sato, the group served as a forum to "prepare itself for theoretical argument" over setting the upper radiation dose limit for reusing contaminated soil at 8,000 becquerels.

The Environment Ministry set forth the **plan to reuse contaminated soil in public works such as in mounds beneath road pavements and in coastal levees** on the grounds that the "radiation levels can be contained to levels on par with clearance levels" by covering tainted soil with concrete and other materials. During the second meeting of the working group on Jan. 27, a member pointed out, "The problem is what to do with tainted soil after use (in roads and other structures). If such soil is allowed to be dug over freely, it would be difficult to convince the upper limit of radiation levels (for soil reuse)."

A JAEA official presented the aforementioned estimate, saying, "For example, it will take 170 years for radiation levels to reduce to 100 becquerels if tainted soil of 5,000 becquerels is put to reuse. Because the durable life of soil mounds is set at 70 years, a total of 170 years will be required to manage that soil -- both when the soil is being used in mounds and after that."

Discussions on the soil management period never went any further, and the strategic panel overseeing the working group on June 7 approved recycling such contaminated soil on condition that the maximum radiation levels of such soil be 8,000 becquerels and that the levels should be no more than 6,000 becquerels if the soil is covered with concrete and no more than 5,000 becquerels if the soil is planted with trees.

The Environment Ministry is set to begin a demonstration experiment possibly later this year, in which radiation levels will be measured in mounds using soil with different radioactivity concentrations at temporary storage sites in Fukushima Prefecture.

Working group chairman Sato, who also serves as a member of the strategic panel, admitted the existence of the 170-year estimate, but said, "We have discussed the matter but haven't decided anything. We just presented our initial idea for reuse (of tainted soil) this time, and we will examine the feasibility of the plan later."

Hiroshi Ono, who headed the Environment Ministry's decontamination and interim storage planning team, said, "We have yet to decide what to do (with the tainted soil) in the end (after reuse), but the Environment Ministry will take responsibility for that."

Another working group set up under the strategic panel, whose members primarily comprise those from the Japan Society of Civil Engineers, has presented a view, stating, "**It will be in no way easy to secure the traceability (of recycled tainted soil).**"

## Court reject citizens' demand on MOX fuel

## High court denies injunction against MOX fuel use at nuclear plant

<http://mainichi.jp/english/articles/20160627/p2g/00m/0dm/074000c>

FUKUOKA (Kyodo) -- The Fukuoka High Court upheld Monday a lower court decision rejecting a citizens group's demand that fuel containing plutonium is not to be used for power generation at an idled reactor in southwestern Japan due to safety concerns.

**Kyushu Electric Power Co. is seeking state approval to restart the No. 3 reactor of the Genkai plant in Saga Prefecture and use plutonium-uranium mixed oxide fuel, commonly known as MOX fuel,** created through spent fuel reprocessing.

MOX fuel is created using plutonium and uranium extracted from spent nuclear fuel. It is a key component of the nuclear fuel cycle pursued by the nuclear power industry and the government.

The Genkai No. 3 reactor, designed to run on both MOX fuel and uranium fuel, became the first in Japan in 2009 to use MOX. It went offline in 2010 for a regular checkup and remained idle as the operator sought to clear stricter safety requirements set following the 2011 Fukushima nuclear disaster.

The earlier ruling in March last year by the Saga District Court was the first over the legality of MOX use at a reactor. The court said then there had been no evidence to prove using MOX raises the possibility of a serious accident.

The plaintiffs comprising southwestern Japan residents argued **a gap could develop between the MOX fuel and its tube container, and that the gap would cause a cooling failure, leading to a grave accident such as a meltdown.**

July 1, 2016

## Re-use of contaminated soil allowed by Environment Ministry

### Ministry green-lights reuse of radioactive soil for public works projects

<http://mainichi.jp/english/articles/20160701/p2a/00m/0na/006000c>

The Ministry of the Environment formally decided on June 30 to allow limited use of radioactively contaminated soil in public works projects, but sidestepped estimates from a closed-door meeting that the soil may have to be monitored for up to 170 years.

- **【Related】** Reuse of radioactive soil approved despite 170-year safety criteria estimate

The ministry decided that soil could be reused for embankments as long as the radioactivity of cesium it contained did not exceed 8,000 becquerels per kilogram. Under the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, contaminated soil can be used freely if the level of radioactivity is 100 becquerels per kilogram or less.

It earlier emerged that the ministry calculated in a closed-door meeting that some soil would have to be monitored for 170 years -- well beyond the life of embankments. However, in its basic policy the ministry simply stated, "Safety and administration methods will be examined during verification processes in the future."

It is expected that up to around 22 million cubic meters of waste contaminated with radioactive material from the Fukushima nuclear disaster will end up piled up at an interim storage facility straddling the border between the Fukushima Prefecture towns of Okuma and Futaba. The central government plans to dispose of the waste for good outside the prefecture by March 2045, but hopes to reuse as much of it as possible to reduce the amount.

Under the ministry's basic policy, reuse of the soil will be limited to public works where the body in charge of administering it is clearly established, and the radiation dose at a distance of 1 meter is no more than 0.01 millisieverts per year. When using contaminated soil with a level of radioactivity of 8,000 becquerels per kilogram, it would be placed under at least 50 centimeters of cover soil, which would then be covered with sand and asphalt.

During the closed-door meeting, it was calculated that it would take 170 years for the radioactivity of tainted soil to naturally decrease from 5,000 to 100 becquerels per kilogram -- much longer than the durability of soil mounds, at 70 years.

July 4, 2016

**Back to "near normal"...**



A man fishes in the town of Hirono, Fukushima Prefecture, in November 2015. The town is located near the Fukushima No. 1 nuclear power plant. | KYODO

## **Pacific Ocean radiation back near normal after Fukushima: study**

<http://www.japantimes.co.jp/news/2016/07/04/national/science-health/pacific-ocean-radiation-back-near-normal-after-fukushima-study/#.V3ohdKJdeos>

AFP-JIJI

SYDNEY – Radiation levels across the Pacific Ocean are rapidly returning to normal five years after the crisis at the Fukushima No. 1 nuclear plant spewed gases and liquids into the sea, according to a study released Monday.

In the days following the start of the crisis on March 11, 2011, seawater meant to cool the nuclear reactors carried radioactive elements back into the Pacific, with currents dispersing it widely.

Five years on, a review by the Scientific Committee on Oceanic Research, which brings together ocean experts from across the world, said radioactive material had been carried as far as the United States. But after analyzing data from 20 studies of radioactivity associated with the plant, it found radiation levels in the Pacific were rapidly returning to normal after being tens of millions of times higher than usual following the disaster.

“As an example, in 2011 about half of fish samples in coastal waters off Fukushima contained unsafe levels of radioactive material,” said Pere Masque, who co-authored the review published by the Annual Review of Marine Science. “However, by 2015 that number had dropped to less than 1 percent above the limit.” But the study also found that the seafloor and harbor near Fukushima No. 1 were still highly contaminated in the wake of the world’s worst nuclear accident since Chernobyl in 1986.

“Monitoring of radioactivity levels and sea life in that area must continue,” said Masque, a professor of environmental radio-chemistry at the Edith Cowan University in Western Australia.

The research examined radioactive cesium levels measured off the Japanese coast across the Pacific to North America.

Cesium is a by-product of nuclear power and is highly soluble in water, making it ideal for measuring the release of radioactive material into the ocean, the study said.

Although no one is recorded as having died as a direct result of the nuclear accident, tens of thousands of people were uprooted, with many still unable to return home because of persistent contamination.

Cleaning up Fukushima and making the area habitable again is a crucial plank of government policy, with the Abe administration keen to prove nuclear power is a viable form of energy production.

## **Pacific Ocean Radiation Rapidly Returning To Normal After Fukushima, Says Report**

<http://www.nucnet.org/all-the-news/2016/07/04/pacific-ocean-radiation-rapidly-returning-to-normal-after-fukushima-says-report>

Radiation levels across the Pacific Ocean are rapidly returning to normal five years after the Fukushima-Daiichi accident in Japan led to extensive releases of radioactive gases, volatiles, and liquids, particularly to the coastal ocean, a report by the Scientific Committee on Oceanic Research says.

The committee, which brings together ocean experts from across the world, said radioactive material had been carried as far as the US.



But after analysing data from 20 studies of radioactivity associated with Fukushima-Daiichi, it found radiation levels in the Pacific were rapidly returning to normal after being “tens of millions” of times higher than usual following the accident.

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The study also found that the seafloor and harbour near Fukushima-Daiichi were still highly contaminated.

“Monitoring of radioactivity levels and sea life in that area must continue, said Prof. Masque, a professor of environmental radiochemistry at the Edith Cowan University in Western Australia.

The research examined radioactive caesium levels measured off Japan's coast across the Pacific to North America.

The report is online: <http://bit.ly/29gDvWh>

<http://www.annualreviews.org/doi/pdf/10.1146/annurev-marine-010816-060733>

July 5, 2016

## Risk of illegal dumping

July 5, 2016 (Mainichi Japan)

 Japanese version



Piles of black bags containing radioactive soil are seen at a temporary storage site in Minamisoma, Fukushima Prefecture, on June 11, 2016. The Environment Ministry is set to conduct a demonstration experiment there possibly later this year, in which radiation doses will be measured on mounds using soil generated from decontamination work. (Mainichi)

## Reuse of radioactive soil feared to trigger illegal dumping

<http://mainichi.jp/english/articles/20160705/p2a/00m/0na/012000c>

An Environment Ministry decision to allow reuse of radioactively contaminated soil emanating from the Fukushima nuclear disaster in public works projects has prompted experts to warn against possible dumping of such soil under **fake recycling**.

- **【Related】** Ministry green-lights reuse of radioactive soil for public works projects
- **【Related】** Reuse of radioactive soil approved despite 170-year safety criteria estimate
- **【Related】** Photo Journal: Radioactive soil storage

The ministry formally decided on June 30 to allow limited use of soil generated from decontamination work after the Fukushima No. 1 nuclear power plant disaster in mounds under road pavements and other public works projects, as long as the soil contains no more than 8,000 becquerels per kilogram of radioactive cesium. The decision was made despite questions raised during a closed meeting of the ministry over incompatibility with the decontamination criteria for farmland soil.

The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors sets the safety criteria for recycling metals and other materials generated from the decommissioning of nuclear reactors at no more than 100 becquerels per kilogram, and requires materials whose radiation levels exceed that level to be buried underground as "radioactive waste." The figure of 100 becquerels is derived from the International Commission on Radiological Protection's standards that annual radiation exposure of up to 0.01 millisieverts poses negligible health risks.

However, **the Fukushima disaster has disseminated radioactive materials outside the crippled nuclear plant across far wider areas than expected**. Under the special measures law on decontamination of radioactive materials, which was fully put into force in January 2012, waste whose radiation levels top 8,000 becquerels per kilogram is called "designated waste" and must be treated by the government, while waste with radiation levels of 8,000 becquerels or lower can be treated in the same way as regular waste. The figure of 8,000 becquerels comes from the upper limit of annual radiation exposure doses for ordinary citizens under the reactor regulation law, which is set at 1 millisievert. Regarding the double safety standards of 100 becquerels and 8,000 becquerels, the Environment Ministry had earlier explained that the former is for "reuse" and the latter for "waste disposal."

However, **the recent Environment Ministry decision to allow the reuse of contaminated soil in public works projects runs counter to its earlier explanation**. The ministry is trying to reconcile that difference by insisting that the radiation levels of tainted soil could be kept under 100 becquerels if mounds using such soil were covered with concrete and other materials to shield radiation. During a closed meeting of the ministry that discussed the matter, some attendants raised questions over **inconsistencies with the decontamination criteria for farmland soil**.

In April 2011, in the aftermath of the Fukushima meltdowns, the Ministry of Agriculture, Forestry and Fisheries restricted rice planting in paddies whose radiation levels topped 5,000 becquerels per kilogram of soil. While the restriction was effective for just one year, the same criteria has been in place for ensuing decontamination, where surface soil of more than 5,000 becquerels is removed and surface soil under that level is replaced with deeper layers.

It is inconsistent to strip away soil of more than 5,000 becquerels while recycling soil with the same level of radiation. However, attendants of the closed meeting never discussed the matter in detail, nor did the issue come up for discussion at an open meeting.

The radioactivity concentration of contaminated soil is higher than that of earthquake debris, whose treatment caused friction across the country on the heels of the Fukushima crisis. Therefore, officials attending an open meeting of the ministry discussed the introduction of incentives for users of tainted soil, with one saying, "Unless there are motives for using such soil, regular soil would be used instead." Kazuki Kumamoto, professor at Meiji Gakuin University specializing in environmental policy, criticized the ministry's move, saying, "There is a high risk for inverse onerous contracts, in which dealers take on contaminated soil in exchange for financial benefits." There have been a series of incidents involving such contracts, in which waste was pressed upon dealers under the guise of "recycled materials," such as backfill material called ferrosilt and slag generated from iron refining.

"If contaminated soil was handed over under inverse onerous contracts, there is a risk that such soil could be illegally dumped later. Reuse of tainted soil would lead to dispersing contamination," Kumamoto said.

July 8, 2016

## Downpour in Kyushu

### JMA advises caution as heavy rains pound Kyushu area

<http://mainichi.jp/english/articles/20160708/p2a/00m/0na/015000c>

The Japan Meteorological Agency (JMA) advised residents to be careful of mudslides and flooding as heavy rains pounded **Kagoshima Prefecture** on July 8.

In southern Kyushu, 80-millimeter-per-hour rain is predicted in Kagoshima and Miyazaki prefectures until around noon on July 9. Over the 24-hour period between noon on July 8 and noon on July 9, rainfall is expected to reach some 300 millimeters in areas of Kagoshima Prefecture, and parts of Miyazaki Prefecture are expected to see about 250 millimeters.

According to the JMA's Fukuoka Regional Headquarters, for the one hour until 9:57 a.m. on July 8, 89.5 millimeters of precipitation were observed in the town of Kimotsuki, Kagoshima Prefecture.

Northern Kyushu and Yamaguchi Prefecture, meanwhile, could see heavy rains accompanied by lightning. In Kumamoto and Oita prefectures, which were damaged by the Kumamoto Earthquake in April, rain of around 70 millimeters per hour is expected in some areas, adding up to around 250 millimeters over the 24-hour period ending at noon on July 9.

The heavy rains are the result of moist air moving north into a low-pressure zone in the East China Sea.

## Evaluation of safety requirements still ongoing

### 3 years after new nuclear rules, work continues to evaluate safety of plants

<http://mainichi.jp/english/articles/20160708/p2a/00m/0na/013000c>

Three years after new nuclear plant safety rules were adopted in the wake of the Fukushima nuclear disaster, work continues to evaluate whether plants meet the new requirements and can be restarted, while the requirements themselves face criticism as insufficient.

July 8 marks three years since the new, stricter rules came into force. The rules include stronger precautions against tsunami and earthquakes, and require electric utilities to prepare against large-scale disasters, which had previously been left to their own discretion.

So far applications for 26 reactors at 16 plants have been made to the Nuclear Regulation Authority (NRA) for the safety evaluations necessary for restart. Seven reactors at three plants have passed their safety evaluations, although only two reactors at Kyushu Electric Power Co.'s Sendai nuclear power plant in Kagoshima Prefecture have actually been reactivated so far.

Meanwhile, six reactors have been tabbed for decommissioning due to a law limiting reactor operations to 40 years that went into effect at the same time as the new regulations. Before the Fukushima disaster, there were 54 nuclear reactors in service in the country. However, there are now 42 reactors considered eligible for operation after 12 were slated for decommissioning -- the six aging reactors plus six more at the disaster-stricken Fukushima No. 1 nuclear plant.

Among the seven reactors at three plants that have passed safety evaluations under the new regulations, the No. 3 and 4 reactors at Kansai Electric Power Co.'s Takahama nuclear power plant in Fukui Prefecture that restarted in February this year had their operation suspended by a temporary injunction from the Otsu District Court in March. The No. 1 and 2 reactors are not planned to be restarted until October 2019 or later, so the only reactor with reactivation anticipated soon is the No. 3 reactor at Shikoku Electric Power Co.'s Ikata nuclear power plant in Ehime Prefecture.

Shunichi Tanaka, head of the NRA, calls the new nuclear regulations "the strictest in the world." At a July 6 press conference he said, "We are taking more than enough measures to make sure another disaster like the Fukushima one doesn't happen."

The possibility of terrorist attacks on nuclear plants remains an issue. In its March injunction the Otsu District Court cast doubt on preparations against large-scale terrorist attacks stipulated under the safety regulations, saying that they go "beyond the range of what safety regulations can cover." The new regulations require the installation of equipment to allow remote cooling of nuclear reactors in case of terrorist attacks, but there is a grace period, including for the already restarted Sendai plant reactors. Kunihiro Shimazaki, a former NRA deputy chairman, spoke in June this year about the predicted earthquake levels at nuclear plant sites, saying that under the current calculation method earthquakes could be underestimated in some locations. He called on the NRA to redo the calculations with a new method, which could change the expected earthquake severity in some areas and affect what earthquake preparation measures are deemed necessary.

Additionally, the safety regulations do not require power utilities to create evacuation plans for residents nearby to nuclear reactors, raising another issue to be solved that is not covered by the reactivation requirements.

The International Atomic Energy Agency (IAEA) has, meanwhile, expressed doubts over the way safety checks are conducted after a plant's reactors have passed the safety evaluation and been reactivated. In an April IAEA report, the agency called for an improvement to the current situation of the NRA only checking on reactors once every quarter.

Muneo Morokuzu, former specially appointed professor of the University of Tokyo's Graduate School of Public Policy and an expert in nuclear regulations, says, "We have the fact that until now there were safety checks of little substance being done. First we have to improve the level of the safety check officers."

July 12, 2016

## And now an "alarming" governor

### **New governor's Sendai plant shutdown pledge alarms utility**

<http://www.asahi.com/ajw/articles/AJ201607120060.html>

*Kyushu Electric Power Co.'s Sendai nuclear power plant in Satsuma-Sendai in Kagoshima Prefecture (Asahi Shimbun file photo)*

Concern is growing among Kyushu Electric Power Co. and the central government over the new Kagoshima governor's pledge to request a reassessment of the Sendai nuclear plant's safety in light of the recent Kumamoto quakes.

Satoshi Mitazono, a former political reporter with TV Asahi Corp., was elected on his campaign pledge to build a "society without nuclear energy" in the July 10 gubernatorial race, defeating incumbent Yuichiro Ito.

Mitazono, 58, wants to suspend operations at the plant for a review of its emergency evacuation plan and to re-examine its safety features.

A top Kyushu Electric executive expressed bewilderment over Mitazono's proposal.

"A governor has no legal authority to order a halt," the official said. "On what legal basis can the plant be shut down?"

But Mitazono's calls reflect local residents' mounting concerns over the Sendai plant in Satsuma-Sendai, Kagoshima Prefecture, after a series of strong tremors rocked neighboring Kumamoto Prefecture starting in mid-April.

The company allows prefectural officials to inspect the nuclear plant site, and request for it to take corrective measures based on their findings under an agreement with the prefectural and Satsuma-Sendai city governments over safety issues.

Kyushu Electric, based in Fukuoka, would likely be forced to respond in one way or another when the governor asks for the suspension of the plant, regardless of legal authority.

With two reactors in operation, Sendai is the only nuclear power station back online in the nation after it cleared the new safety regulations implemented after the 2011 Fukushima nuclear disaster.

After Mitazono emerged as the winner on July 10, Kyushu Electric's closing stock price dropped more than 7 percent, compared to July 8, reflecting the company's potentially gloomy prospects.

The two reactors at the Sendai plant are scheduled to be shut down in October or later for a regular check. An official with the Ministry of Economy, Trade and Industry, which oversees the nuclear industry, said it would take a prolonged period before the plant could be restarted if a review of the evacuation plan or other demands were made.

A senior Kyushu Electric official concurred that it would not be easy to go back online on a regular time schedule if such demands were made.

“It would be difficult to reactivate the reactors amid the opposition of the local government hosting the plant,” the official said.

(This article was written by Shuhei Shibata and Toshio Kawada.)

## Evacuation order for Minamisoma lifted

### Evacuation order lifted for 10,000 residents of Minamisoma

<http://www.japantimes.co.jp/news/2016/07/12/national/evacuation-orders-lifted-fukushima-city-minamisoma-10000-can-go-home/#.V4TR2qJdeot>

Kyodo

FUKUSHIMA – The government on Tuesday lifted the evacuation order for all but a tiny slice of Minamisoma, Fukushima Prefecture, allowing more than 10,000 people to return to homes that have been off-limits since the 2011 nuclear crisis.

The city is now habitable except for one area containing one house, but many residents appear unready to return, having begun new lives elsewhere.

To encourage evacuees to return, the central government and the city reopened hospital facilities, built makeshift commercial facilities and prepared other infrastructure.

The newly opened areas have 3,487 households.

Radiation cleanup activities have finished in residential areas but will continue for roads and farmland until next March.

The government is in the process of gradually lifting evacuation orders in areas within 20 km of the wrecked Fukushima No. 1 nuclear facility and in certain areas beyond the zone amid ongoing radiation cleanup efforts.

Eight municipalities in Fukushima Prefecture have areas defined as evacuation zones, which are divided into three categories based on their radiation levels. The most seriously contaminated areas are called zones “where it is expected that the residents have difficulties in returning for a long time.”

The government hopes to lift the remaining evacuation orders affecting areas other than the difficult-to-return zones by next March, officials said.

### Evacuation order lifted for Fukushima village

[http://www3.nhk.or.jp/nhkworld/en/news/20160712\\_06/](http://www3.nhk.or.jp/nhkworld/en/news/20160712_06/)

An evacuation order has been lifted for most parts of a city in Fukushima Prefecture following the 2011 nuclear disaster.

Minamisoma City became the 5th and largest-ever municipality to have its evacuation order lifted since the disaster.

The evacuation order for the city's districts of Odaka and Haramachi was lifted on Tuesday.

One household is still barred from returning because its area has a relatively high level of radiation.

About 10,800 residents are now allowed to return to their homes.

The city must deal with a declining and aging population. Young people moved out of the city following the nuclear accident.

The local government is trying to mitigate public concern about radiation, improve the medical welfare system and transportation network, and attract commercial facilities.

More than 5 years on, evacuation orders are still in place in several other municipalities in the prefecture. About 90,000 people are still taking shelter in Fukushima and elsewhere.

### **Nuclear disaster evacuation order covering 10,000 Minamisoma residents lifted**

<http://mainichi.jp/english/articles/20160712/p2a/00m/0na/018000c>

MINAMISOMA, Fukushima -- Some 10,000 Minamisoma residents of this city were officially permitted to return home after Fukushima nuclear disaster evacuation orders covering parts of the city were lifted on July 12.

Eleven municipalities near the Fukushima No. 1 nuclear plant were evacuated after the March 2011 meltdowns, but this is the first order to be lifted covering so many people. However, as five years and four months have passed since the disaster and concerns about radiation persist, many evacuees have already put down roots elsewhere, and only a portion of residents are expected to return.

The order covered 3,487 households totaling 10,807 people in the city's southern Odaka and Haramachi wards. Only one household of two people in a high-radiation area was not cleared to return. However, as of July 10 only 2,006 people from 691 households had registered to stay in the area in preparation for moving back. Many problems face the city, such as how to sustain communities where most child-bearing-age residents have not returned and elderly residents predominate.

July 12 also marked the resumption of train services on the JR Joban Line on the 9.4 kilometer stretch between Odaka and Haranomachi stations. Many passengers this day were gazing out the train windows at the rural landscape, while residents could be seen by the tracks holding a banner reading "Welcome back" and waving.

At a ceremony at Odaka Station for the lifting of the evacuation order, Mayor Katsunobu Sakurai said, "This is not the end of our reconstruction, it is the beginning."

Sachiko Shoji, 60, who evacuated from the Fukushima Prefecture town of Namie to temporary housing in Minamisoma's Haramachi Ward, said after riding on the Joban Line, "This train line is memorable for me as the one I used to go from Namie to Haramachi to attend barber school. As I saw the nostalgic scenery, I thought that I, too, have to keep trying to move forward."

The parts of the Joban Line still closed to service -- between Soma Station in Soma, Fukushima Prefecture, and Hamayoshida Station in Watari, Miyagi Prefecture, and between Tatsuta Station in Naraha, Fukushima Prefecture, and Odaka Station -- are to be reopened this year and by March 2020, respectively.

## **Contaminated rainwater leak**

## Fukushima plant workers recover tainted rainwater

[http://www3.nhk.or.jp/nhkworld/en/news/20160712\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20160712_12/)

The operator of the Fukushima Daiichi nuclear power plant says contaminated rainwater leaked into a ditch but workers were able to recover all of it. Tokyo Electric Power Company blamed the accident on human error.

TEPCO says the leak occurred on Monday while workers were using a vacuum truck to remove rainwater from a storage tank. Company officials say **a hose came loose and about 80 liters flowed out, and some of it went into an underground ditch.**

**They say the rainwater contained 1,200 becquerels per liter of strontium and other beta ray-emitting radioactive substances. The figure is 40 times the government limit for releasing strontium tainted water into the ocean.**

TEPCO says workers blocked the ditch with sandbags and recovered all the water, so **none of it is expected to flow into the ocean.** It says a radiation monitor installed in a drainage channel downstream has picked up no abnormalities.

The utility says right after the March 2011 nuclear accident the tanks were used to store wastewater tainted with relatively high levels of radiation. It says they're no longer used, and there are no barriers around them to prevent water from leaking into the ditch.

TEPCO says workers will decontaminate the ditch, and investigate what caused the hose to come off.

July 13, 2016

## Checking on nuclear workers

### NRA seeks background checks on nuclear workers to prevent terror attacks

<http://mainichi.jp/english/articles/20160713/p2a/00m/0na/013000c>

The Nuclear Regulation Authority (NRA) has unveiled a draft of regulations calling for the introduction of background checks on nuclear power plant workers to prevent terrorists from sneaking into such facilities under the guise of workers.

Under the rules, the NRA would require nuclear plant operators to check workers' records of overseas travel, their history of drug use and their criminal records, among other matters through certificates and interviews if needed.

The NRA is aiming to enforce the regulations in late August after hearing public opinion on the rules from July 14 to Aug. 12. If introduced, they will be the first such rules in Japan.

Currently, workers can enter the premises of atomic power stations if their identities are confirmed through their driver's licenses or other identification cards.



The new regulations would apply to nuclear plant workers who regularly enter central control rooms and other protected areas, which require constant monitoring. Nuclear plant operators would be required to check such workers' records of overseas trips as well as whether they have used drugs, have criminal records and are linked to crime syndicates or organizations feared to launch terrorist attacks, based on their voluntary notifications. If necessary, nuclear plant operators would require employees to submit relevant certificates, interview workers and conduct aptitude tests on them.

Most major countries that have nuclear power plants have a system of background checks on workers, but Japan has not introduced such a system to protect personal information on nuclear plant workers.

In January 2011, just two months before the Fukushima meltdowns, the International Atomic Energy Agency recommended Japan introduce a system to conduct background checks on nuclear plant workers.

## **NRA says no need to review quake hazard for Oi**

### **Nuclear authority says Oi plant's quake hazard not underestimated**

<http://mainichi.jp/english/articles/20160713/p2g/00m/0dm/068000c>

TOKYO (Kyodo) -- Japan's Nuclear Regulation Authority decided Wednesday there is no need to review an estimate of the biggest potential earthquake around the Oi nuclear power plant on the Sea of Japan coast after a recalculation prompted by a former member warned it may be understated.

Seismologist Kunihiko Shimazaki, who was one of the five commissioners of the authority, warned last month that the NRA may have underestimated quake hazards at some nuclear plants by using a faulty formula in calculating the seismic ground motions which nuclear reactors are required to withstand.

After the authority recalculated the seismic motions using another formula, it found the maximum scale of the earthquake around the Kansai Electric Power Co. plant in Fukui Prefecture was still smaller than the figures already approved in the safety screening.

"It was good that we calculated it afresh," said Akira Ishiwatari, who succeeded Shimazaki at the authority, noting the results fell within the standards as the original estimate was calculated to be on the safe side.

Shimazaki has said he studied the initial calculating formula after he left the commissioner's post in September 2014 and confirmed it would underestimate the scale of earthquakes when applied to faults almost perpendicular to the land surface.

Japan has imposed tougher nuclear safety standards since the meltdowns at the Fukushima Daiichi nuclear power plant triggered by the huge earthquake and tsunami that hit northeastern Japan in March 2011.

July 15, 2016

## **NRA's conclusion not acceptable**

## Ex-NRA bigwig demands recalculation of Oi nuclear plant quake estimate

<http://mainichi.jp/english/articles/20160715/p2a/00m/0na/001000c>

A former deputy chairman of the Nuclear Regulation Authority (NRA) sent the organization a letter of protest on July 14 demanding that an earthquake estimate for Kansai Electric Power Co. (KEPCO)'s Oi Nuclear Power Plant be recalculated, on the grounds that **the official NRA estimate is well below that of KEPCO.**

The former deputy chairman, Kunihiko Shimazaki, is a professor emeritus of seismology at the University of Tokyo. He had criticized the NRA's estimate of the largest possible earthquake at the Oi plant in Fukui Prefecture as possibly being too low, and the NRA recalculated the estimate in a different manner but still deemed the projected earthquake as not posing a problem to the plant's safety. In his letter of protest he wrote that he "could not accept the conclusion" of the NRA, and he called for another recalculation. He said he would hold a press conference on July 15 about the issue.

The NRA's recalculated estimate was 644 gals, "gal" being a unit of acceleration. The estimate was below a KEPCO estimate of 856 gals. Shimazaki, in response to the figures, argues that the NRA's calculation method is different from KEPCO's and so produced a smaller number, and notes that the utility finalizes its estimate with additional calculation under stricter conditions, but the NRA has not done so. **Shimazaki says that if the calculation was carried out in the same way as KEPCO has performed its estimate, the figure would come out to roughly up to 1,550 gals.**

On July 13, a representative for the NRA's secretariat acknowledged in a Mainichi Shimbun interview that the NRA's calculation method differed from KEPCO's, saying, "It's only natural that there is a difference (in the calculation results)." The representative avoided giving a clear answer about whether it was right for the NRA to green light the plant by comparing results calculated in different methods.

Shinji Kinjo, the head of the agency's public relations department, said, "If there is a request (for a recalculation), we will consider it sincerely."

July 19, 2016

## TEPCO urged to cut risk of radioactive water leak

[http://www3.nhk.or.jp/nhkworld/en/news/20160719\\_33/](http://www3.nhk.or.jp/nhkworld/en/news/20160719_33/)

Japan's nuclear regulator has urged the operator of the crippled Fukushima Daiichi nuclear power plant to reduce the risk of leaking of highly radioactive water from the facility into the sea, in case of another tsunami.

About 60,000 tons of such water is believed to have pooled in reactor buildings at the plant. The operator, Tokyo Electric Power Company, or TEPCO, is injecting water into the buildings to cool melted nuclear fuel, and groundwater is flowing into their basements.

The Nuclear Regulation Authority instructed TEPCO at a meeting on Tuesday to urgently study measures to lower the amount and radiation levels of the water.

The authority proposed 2 measures to TEPCO. One is building more tanks to store the water, even though the plant has about one thousand tanks. The other is treating the water using a system designed to filter out radioactive material, and circulating the water in a cooling system.

NRA member Toyoshi Fuketa said the utility cannot keep the water in the buildings forever. He said TEPCO should handle the water problem either along with that of other radioactive water or first of all.

Following the NRA's instruction, TEPCO is to report the results of its study at a meeting next month or later.

July 20, 2016

## TEPCO cannot keep radioactive water in buildings forever

### **NRA pushes for early processing of radioactive water at Fukushima plant**

<http://mainichi.jp/english/articles/20160720/p2a/00m/0na/007000c>

The Nuclear Regulation Authority (NRA) on July 19 instructed Tokyo Electric Power Co. (TEPCO) to begin considering early processing of radioactive water at the disaster-struck Fukushima No. 1 Nuclear Power Plant in order to prevent it leaking and affecting the environment.

The water is contaminated with a high concentration of radioactive substances, and the NRA committee that gave the instruction worries that in the event of another large-scale tsunami, the water could escape and cause massive environmental damage.

A total of around 60,000 metric tons of contaminated water is held in the reactor and turbine buildings for the No. 1 through 4 reactors at the plant. TEPCO is processing the water to remove the radioactive contents other than tritium, and it is storing the processed water elsewhere in tanks. However, new tanks are not being constructed quickly enough to allow large-scale processing of the water, and with new underground water flowing in, the amount of contaminated water in the structures has not decreased.



The Fukushima No. 1 nuclear power plant packed with a large number of tanks holding contaminated water in March 2016 (Asahi Shimbun file photo)

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## TEPCO told to solve problem of harmful water at Fukushima plant

<http://www.asahi.com/ajw/articles/AJ201607200060.html>

The nation's nuclear watchdog exhorted Tokyo Electric Power Co. to do something about the accumulation of tens of thousands of tons of highly radioactive water at the stricken Fukushima No. 1 nuclear plant, calling the situation intolerable.

"We cannot allow the danger of highly polluted water at the plant to continue any longer," Toyoshi Fuketa, a commissioner of the Nuclear Regulation Authority, said at a July 19 meeting to discuss work on the plant's decommissioning.

Fuketa urged TEPCO to consider pumping the highly radioactive water or diluting it, citing the risk of spill if another tsunami hits.

About 60,000 tons of water containing extremely high levels of radiation have accumulated in the basements of the No. 1 through No. 4 reactor and turbine buildings.

Water leaking to the basement floors of the facilities after being used to cool melted nuclear fuel at the plant has mixed with underground water flowing there.

The concentration of radioactive cesium is estimated at between hundreds of thousands becquerels and tens of millions of becquerels per liter.

Fuketa said the utility should weigh either pumping or taking measures to reduce radiation levels of polluted water.

NRA's directive is intended to prevent the leakage of contaminated water into the nearby sea or outside the buildings in the event of a tsunami unleashed by another powerful earthquake.

TEPCO is expected to present the results of its study of steps it could take as early as August.

The company has been trying to reduce the volume of contaminated water by building a frozen underground wall around the reactor and turbine buildings. The frozen soil wall was expected to prevent groundwater from flowing into the plant.

TEPCO started the freezing of the soil in late March, but not all of the wall is in an ice state, with the result that a huge volume of groundwater is still flowing to the nuclear complex.

## TEPCO admits icewall cannot block off groundwater

### In first, Tepco admits ice wall can't stop Fukushima No. 1 groundwater

<http://www.japantimes.co.jp/news/2016/07/20/national/first-tepco-admits-ice-wall-cant-stop-fukushima-no-1-groundwater/#.V5B6LaJdeot>

by Tomoko Otake

Staff Writer

The much-hyped ice wall at the crippled Fukushima No. 1 nuclear power plant has failed to stop groundwater from flowing in and mixing with highly radioactive water inside the wrecked reactor buildings, operator Tokyo Electric Power Co. Holdings Inc. has admitted.

Tepco officials also said at a meeting of the Nuclear Regulation Authority in Tokyo that it is not the utility's ultimate goal to shut out groundwater with the ice wall, which has been built around the four damaged reactor buildings at the plant.

Tuesday's announcement was apparently the first time the utility publicly said it is technically incapable of blocking off groundwater with the frozen wall.

Five years after the March 2011 quake and tsunami triggered the nuclear crisis, Tepco continues to be plagued by radiation-tainted groundwater, mostly rainwater that is mixing with contaminated water in the basement of the damaged reactor buildings.

In response, Tepco has completed most of the 1.5-km-long sunken wall of frozen soil around the stricken reactors to keep groundwater out. It has also built "subdrain" wells around the buildings to pump up the tainted groundwater for treatment and ultimate discharge into the Pacific.

While the completed sections of the ice wall began operating in March, it has not made a visible impact in reducing the amount of groundwater inflows. According to Tepco, the amount of groundwater pumped up from subdrains averaged 321 tons per day in June, just 31 tons less than the daily average in May.

Asked whether Tepco plans to eventually block rainwater from seeping through the ice wall, a Tepco official said it is not technically feasible "to keep out the groundwater 100 percent," according to a video of the meeting released Tuesday by the NRA.

"We are aiming to control the amount of water going into the reactor buildings, with the ice wall and subdrains," said Tomohiko Isogai, an official in charge of dismantling the plant.

Kiyoshi Takasaka, a nuclear expert at the Fukushima Prefectural Government, said it was the first time he had heard such a comment from Tepco, pressing the firm on whether it marked a "change of policy."

A Tepco official denied this, saying that while it wants to "close off the wall as much as possible," its ultimate goal has been to "curtail" groundwater inflow, not halt it.

Also at the meeting, NRA acting head Toyoshi Fuketa demanded that Tepco move quickly to reduce the amount of highly radioactive water inside the reactor buildings, saying such water presents the risk of escaping in the event of another monster tsunami. Some 60,000 tons of highly tainted water remain in the leaking basements of reactor buildings 1, 2, 3 and 4.

“We want the amount of (radioactive water) inside the buildings to be reduced as much as possible,” he said.

July 21, 2016

## **Radiation along Fukushima rivers up to 200 times higher than Pacific Ocean seabed - Greenpeace**

<http://www.greenpeace.org/japan/ja/news/press/2016/pr201607211/>

Tokyo, 21 July 2016 – Radioactive contamination in the seabed off the Fukushima coast is hundreds of times above pre-2011 levels, while contamination in local rivers is up to 200 times higher than ocean sediment, according to results from Greenpeace Japan survey work released today.

“The extremely high levels of radioactivity we found along the river systems highlights the enormity and longevity of both the environmental contamination and the public health risks resulting from the Fukushima disaster,” said Ai Kashiwagi, Energy Campaigner at Greenpeace Japan.

“These river samples were taken in areas where the Abe government is stating it is safe for people to live. But the results show there is no return to normal after this nuclear catastrophe,” said Kashiwagi. Riverbank sediment samples taken along the Niida River in Minami Soma, measured as high as 29,800 Bq/kg for radiocaesium (Cs-134 and 137). The Niida samples were taken where there are no restrictions on people living, as were other river samples. At the estuary of the Abukuma River in Miyagi prefecture, which lies more than 90km north of the Fukushima Daiichi plant, levels measured in sediment samples were as high as 6,500 Bq/kg.

The lifting of evacuation orders in March 2017 for areas that remain highly contaminated is a looming human rights crisis and cannot be permitted to stand. The vast expanses of contaminated forests and freshwater systems will remain a perennial source of radioactivity for the foreseeable future, as these ecosystems cannot simply be decontaminated.

Caesium-137 has a half life of 30 years, and will continue to pose a risks to the the environment and human health for hundreds of years. Cs-137 contamination in seabed samples near the Fukushima plant was measured at up to 120 Bq/kg – compared to levels pre-2011 of 0.3 Bq/kg. Further, the levels of contamination found 60km south of the Fukushima Daiichi nuclear plant were comparable with those found within 4km of the plant. Numerous marine science investigations, have concluded that these higher levels are one explanation for some marine species still showing higher cesium levels than the background levels in seawater.

“The radiation levels in the sediment off the coast of Fukushima are low compared to land contamination, which is what we expected and consistent with other research,” said Kendra Ulrich, Senior Global Energy Campaigner at Greenpeace Japan. “The sheer size of the Pacific Ocean combined with powerful complex currents means the largest single release of radioactivity into the marine environment has led to the widespread dispersal of contamination.”

Most of the radioactivity in Fukushima Daiichi reactor units 1-3 core fuel in March 2011 remains at the site.

"The scientific community must receive all necessary support to continue their research into the impacts of this disaster," said Ulrich.

"In addition to the ongoing contamination from forests and rivers, the vast amount of radioactivity onsite at the destroyed nuclear plant remains one of the greatest nuclear threats to Fukushima coastal communities and the Pacific Ocean. The hundreds of thousands of tonnes of highly contaminated water, the apparent failure of the ice wall to reduce groundwater contamination, and the unprecedented challenge of three molten reactor cores all add up to a nuclear crisis that is far from over," said Ulrich. A radiation survey team onboard the research vessel Asakaze, supported by the Greenpeace flagship Rainbow Warrior, conducted underwater survey work along the Fukushima coastline from 21 February to 11 March this year, as well collecting samples in river systems. The samples were measured at an independent laboratory in Tokyo.

**Notes to editors:**

Link to the report, Atomic Depths, can be found here

Photo and video clip reel can be accessed here

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## NRA was "hasty" in calculating data

### NRA to scrap recalculated quake ground motion data for Oi nuclear plant

<http://mainichi.jp/english/articles/20160721/p2a/00m/0na/013000c>

The chairman of Japan's nuclear watchdog admitted in a news conference on July 20 that its secretariat's renewed method of calculating standard ground motion from earthquakes at Kansai Electric Power Co.'s Oi Nuclear Power Plant in Fukui Prefecture was insufficient.

- **【Related】** Ex-NRA bigwig demands recalculation of Oi nuclear plant quake estimate
- **【Related】** Nuclear authority says Oi plant's quake hazard not underestimated
- **【Related】** Quake scale may be underestimated in calculations for nuclear plants: Ex-NRA official

"It was hasty. We are reflecting on this," Shunichi Tanaka, chairman of the Nuclear Regulatory Authority (NRA), said. He said the secretariat's recalculated data would be taken back to the drawing board, but expressed the view that the NRA had no intention of reviewing Kansai Electric's own calculations.

Ground motion is measured in gals -- a unit of acceleration -- with 1 gal defined as 1 centimeter per second squared.

Kunihiko Shimazaki, former deputy chairman of the NRA, had earlier pointed out that the Irikura-Miyake method initially used to calculate standard ground motion at the Oi Nuclear Power Plant produced an estimate that was too low. On July 13, the NRA secretariat released new calculations based on the separate Takemura method, which predicted that shaking at the nuclear plant could reach 644 gals. However, this was smaller than the 856 gals calculated by Kansai Electric, resulting in criticism of the calculation method. Shimazaki estimated that under the Takemura method, ground motion acceleration could reach up to 1,500 gals.

In the news conference on July 20, Tanaka said that calculations based on the Irikura-Miyake method would continue, but that the secretariat's renewed calculations based on the Takemura method could not be trusted and therefore would not be adopted.

During the same news conference, however, a representative of the secretariat expressed a divergent view, saying that the results from the two different calculation methods could be compared in relative terms.

On July 13, based on the results of its recalculation, the NRA secretariat dismissed Shimazaki's views. However, after Shimazaki met with secretariat officials on July 19, it made a turnaround and acknowledged its insufficiencies, stating, "The recalculation was stretched." Tanaka said he was aware of problems with the renewed calculation on July 14, the day after the announcement.

July 22, 2016

## **Beware! Pokemons in nuclear plants**

### **Nuclear plants urged caution on 'Pokemon Go'**

[http://www3.nhk.or.jp/nhkworld/en/news/20160722\\_28/](http://www3.nhk.or.jp/nhkworld/en/news/20160722_28/)

Japan's nuclear regulator has called on plant operators to exercise caution following the release of "Pokemon Go" in the country.

The Nuclear Regulation Authority is calling for heightened security to prevent people from entering the premises of nuclear plants while playing the smartphone game.

Three teens in the United States entered the parking area of a nuclear plant, trying to catch a Pokemon character while playing the game.

"There is no return to normal after this nuclear catastrophe"

### **Japan Atomic again flubs maintenance checks at Monju reactor**

<http://www.japantimes.co.jp/news/2016/07/22/national/japan-atomic-again-flubs-maintenance-checks-at-monju-reactor/#.V5MrjaJdeot>



Jiji

The Japan Atomic Energy Agency again failed to conduct checks on a device at its experimental Monju fast-breeder reactor and overlooked a warning signal from a maintenance management system for about three months, it was learned Friday.

The state-affiliated agency, which recently came under fire for failing to inspect thousands of devices at Monju, is investigating the cause of the latest mishap and devising measures to prevent a recurrence.

According to sources familiar with the matter, the device in question controls the temperature of sodium coolant for the prototype reactor, which is situated in Tsuruga, Fukui Prefecture.

The JAEA was slated to complete the inspection by the end of March, after moving up the previous deadline, which was set at the end of May.

Around the end of February, the maintenance management system installed at Monju started to display a warning signal. But it was not until May 27 that agency officials noticed it, the sources said.

JAEA reported the problems to the Nuclear Regulation Authority and completed the inspection of the temperature-controlling device on May 31, the sources said.

A massive sodium leak and coverup bid in December 1995 caused Monju's operations to be suspended. It was eventually brought back online in May 2010, but halted again by a different problem in August the same year.

In November 2012, it was found that JAEA failed to carry out maintenance checks on more than 10,000 devices at Monju. After that, the NRA effectively banned the JAEA from operating the reactor.

In November last year, the NRA recommended to science and technology minister Hiroshi Hase that JAEA be replaced as Monju's operator. The ministry is studying the matter.

July 23, 2016

## Monju: Another lapse in safety checks

### More slipshod safety work revealed at Monju reactor

<http://www.asahi.com/ajw/articles/AJ201607230021.html>

*The prototype fast-breeder reactor Monju in Tsuruga, Fukui Prefecture (Asahi Shimbun file photo)*

Yet another lapse in safety checks has come to light at the Monju prototype fast-breeder reactor at a time when the government is looking for a new entity to operate the problem-plagued facility.

The Nuclear Regulation Authority, the nation's nuclear watchdog, has already recommended to the science ministry that a new operator be appointed after repeatedly pointing out that the Japan Atomic Energy Agency (JAEA) is incapable of following proper maintenance procedures.

In the latest wrinkle, it emerged that a newly assigned worker failed to check a key piece of equipment at the Monju reactor in Fukui Prefecture for two months or so, sources said July 22.

The individual ignored a warning sign which showed that the device in question had not been looked at.

According to the NRA, the JAEA by the end of March was supposed to have checked the equipment to control the temperature of sodium used to cool the reactor. But when the JAEA investigated May 27, it found that nothing had been done.

Screens in the control room at the JAEA had shown since late February that the equipment had gone unchecked.

However, as other pieces of equipment had been scrutinized, the worker in charge may have thought that colleagues had done so but neglected to input the information into the control system, the sources said. The JAEA is trying to determine whether the person's predecessor conveyed the job procedures adequately.

In 2012, it emerged that maintenance work at Monju had been insufficient at more than 10,000 portions. After that scandal, the NRA repeatedly pointed out in its inspections that the JAEA was not observing maintenance rules.

In November 2015, the NRA concluded that the JAEA does not have ability to operate Monju safely and advised the science ministry to either look for a new operator or take drastic measures to reduce the risk of a disaster.

The science ministry is now considering handing over Monju's operations to a new entity.

This new instance of slipshod work could reflect badly on the JAEA.

"A much stricter view will be taken with regard to Monju," said a high-ranking science ministry official.

"Why is the JAEA unaware that the actions of just one person can have a huge influence on the entire organization?"

July 24, 2016

## Protection shelters not so safe

### **4 radiation protection shelters near Ikata nuke plant located in landslide risk areas**

<http://mainichi.jp/english/articles/20160724/p2a/00m/0na/004000c>

Four of seven facilities within 30 kilometers of Shikoku Electric Power Co.'s Ikata Nuclear Power Plant that are designed to protect people against radiation in the event of a serious nuclear accident stand in landslide risk areas, it has emerged.

One of the four facilities, moreover, is located in an area requiring special precautions against landslides, facing a higher risk of damage.

Work is underway to resume operation of the No. 3 reactor at the nuclear plant, which lies on the narrow Sadamisaki Peninsula, but if a nuclear disaster triggered by an earthquake or some other event were to occur in tandem with landslides in the area, it could render the facilities useless as indoor shelters.

The development of such facilities advanced in the wake of the meltdowns at Tokyo Electric Power Co.'s Fukushima No. 1 Nuclear Power Plant as a means to provide temporary shelter from radiation to people unable to flee immediately, such as those requiring medical assistance. The facilities are placed within a 30-kilometer radius of nuclear power plants, and if certain conditions are met, the government subsidizes the entire maintenance cost.

In the Ehime Prefecture town of Ikata, the town and prefectural governments and a social welfare corporation developed seven facilities to be used as shelters by renovating existing facilities and building new ones at a combined cost of about 738 million yen. All of them are made of reinforced concrete, and they are equipped with filters and other devices to block radioactive materials.

Of these seven facilities, three medical clinics in the Kucho, Seto and Kushi areas, and "Seto Aiju," a welfare facility for the aged run by the social welfare corporation Aijukai, are located in landslide caution areas.

The Kushi area also happens to be a special caution zone for landslides.

The Kucho and Seto Aiju facilities are at risk of being struck by mudslides, the Kushi facility is on a slope and could collapse, and the Seto medical clinic is said to face both dangers. According to the prefectural government, three other facilities currently not in landslide caution areas -- "Tsuwabukiso," a facility for the elderly; Ehime Prefectural Misaki High School; and Ikata Central Public Hall -- could be zoned into caution areas following future surveys.

Development of the four facilities was decided after the designation of the caution zones. They were picked by the Ikata town government and the prefectural government approved the selections.

"We considered the risk of mudslides, but medical clinics have doctors and beds, and we thought they were desirable as evacuation destinations," a town representative said. A Seto Aiju official, meanwhile, commented, "We didn't know about the caution zone."

A representative of the prefectural government's nuclear safety division said the town's options were limited. "There were no other appropriate places, so we thought it couldn't be helped," the representative said.

The Cabinet Office, which is proceeding with the development of shelters to protect people against radiation from nuclear disasters, has envisaged multiple perils, such as a nuclear disaster and a major earthquake occurring at the same time, and has imposed conditions for the provision of government subsidies. Current quake resistance standards must be met, for example, and they must have a low chance of being flooded in the event of a tsunami. However, it has not implemented restrictions based on the threat of mudslides, on the grounds that if landslide caution zones were omitted there would be nowhere left to build the facilities.

July 27, 2016

## **Ohi nuclear plant's quake calculation to stand**

[http://www3.nhk.or.jp/nhkworld/en/news/20160727\\_21/](http://www3.nhk.or.jp/nhkworld/en/news/20160727_21/)

Japan's nuclear watchdog says it will not change the assumed maximum quake level for a nuclear power plant in central Japan in its screening for a restart.

Two reactors at the Ohi nuclear power plant in Fukui Prefecture, on the Sea of Japan coast, are being screened by the Nuclear Regulation Authority to see if they meet requirements introduced after the Fukushima Daiichi nuclear accident in March, 2011.

The authority said on Wednesday that the current quake calculation for the 2 reactors is safe enough. It said the lengths of relevant fault lines are estimated as being longer than the projected lengths.

The decision came in response to a request from a former authority member for the size of assumed maximum jolts to be recalculated.

The former member told the authority last month that the maximum jolt calculated using the current formula may be too small for some reactors.

The authority conducted a recalculation using a different formula. But the result showed a smaller quake level.

The authority concluded on Wednesday that the recalculation method is not trustworthy and the figure obtained cannot be used for a comparison with the initial one.

Some experts are calling for a more detailed calculation method, or are questioning whether the current method is appropriate.

NRA Chairman Shunichi Tanaka has indicated that the authority will not review its calculation method unless experts present new opinions on the issue.

July 28, 2016

## **No need to review quake estimates, says NRA**

### **NRA sees no need to review maximum quake estimate at Oi nuke plant**

<http://mainichi.jp/english/articles/20160728/p2a/00m/0na/006000c>

The Nuclear Regulation Authority (NRA) on July 27 concluded that there is no need to review the maximum possible earthquake estimate -- known as the standard ground motion -- for Kansai Electric Power Co.'s Oi Nuclear Power Plant in Fukui Prefecture.

The NRA reached the conclusion at a regular meeting after former acting NRA chairman Kunihiko Shimazaki pointed out that Kansai Electric had "underestimated" the calculated standard ground motion for its Oi plant. The NRA said that the result of Kansai Electric's calculation was reasonable. The NRA then dismissed Shimazaki's argument by saying that calculation methods other than the current one used for the Oi plant "have not reached a degree of scientific and technological maturity."

Shimazaki had earlier suggested that the so-called "Irikura-Miyake method" used by Kansai Electric was the cause of the underestimated standard ground motion. The NRA's secretariat checked the validity of other methods such as the "Takemura method," but it concluded that ways of taking into account the "uncertainties" involved in predicting standard ground motions have not been established. Five NRA commissioners approved the secretariat's verification results.

A string of issues over the calculations of standard ground motions raised questions about the NRA's expertise.

After recalculating the estimated standard ground motion for the Oi plant using the "Irikura-Miyake method" -- the same method used by Kansai Electric -- the NRA secretariat found that the recalculated estimate was 356 gals, "gal" being a unit of acceleration. Its recalculation based on the "Takemura" method showed 644 gals. These two figures fell below Kansai Electric's estimate of 856 gals. Therefore, the NRA secretariat determined that Kansai Electric's figure was not "underestimated." The NRA approved the secretariat's findings on July 13.

On July 19, the NRA secretariat effectively withdrew its findings, saying that "They were unreasonable calculations." Thus, it came to light that the NRA had confirmed the secretariat's findings without verifying the validity of the calculations. It also came to light that the NRA had not grasped the detailed process of Kansai Electric's calculation as the secretariat's calculation result conflicted with that of Kansai Electric. The NRA approved Kansai Electric's calculation of the standard ground motion in the autumn of 2014, but questions were subsequently raised about the way in which the screening was conducted.

Among the five NRA commissioners is a geologist, but there is no expert on ground motion. At a news conference on July 27, NRA Chairman Shunichi Tanaka acknowledged that his group was lacking expertise, saying, "That's what we need to reflect on." But when he met Shimazaki on July 19, Tanaka bluntly said, "There is no room for listening to outside experts nor am I in a position to do so." As the biggest lesson learned from the Fukushima nuclear crisis ought to be that the most up-to-date expertise should be reflected in safety measures, the NRA is urged to listen to arguments and suggestions from outside experts.

July 29, 2016

## Sendai shutdown: Mitazono ready for fight

### New Kagoshima governor ready for Sendai plant shutdown fight

<http://www.asahi.com/ajw/articles/AJ201607290046.html>

KAGOSHIMA--Satoshi Mitazono repeated his assertion that operations at Sendai nuclear power plant in the prefecture should be suspended at his first news conference as Kagoshima governor on July 28.

He said that he will make the request to Kyushu Electric Power Co., the operator of the plant, "between late August and early September."

"As long as residents in the prefecture are feeling anxious due to the Kumamoto earthquakes, I strongly urge Kyushu Electric to temporarily halt the operations of the reactors and conduct another inspection," Mitazono, a former TV journalist, said.

The new governor raised his voice as he made the remarks in response to a question about the suspension of the No. 1 and No. 2 reactors at the Sendai plant in Satsuma-Sendai, the only units in Japan currently in service.

Mitazono was elected as Kagoshima's governor on July 10. The suspension of the Sendai plant's operation for additional safety checks was one of his campaign pledges.

Although a governor has no legal authority to order a halt, Mitazono said, "Whether or not a governor has that authority and making a request to a utility are a separate issue."

Regarding the method for how he will make the request and its contents, Mitazono said, "I will sum up the ideas while exchanging opinions with various people."

Mitazono also referred to the possible decommissioning of the two reactors at the Sendai plants, which have been in operation for more than 30 years.

He plans to establish an expert panel to discuss nuclear plant-related issues in the near future including the decommissioning of the aging reactors.

The governor also expressed his view that "the construction of a new reactor would be difficult," in reference to the proposed No. 3 unit that Kyushu Electric is planning to add at the plant.

During the news conference, he also said that he plans to increase the number of radiation monitoring posts around the Sendai plant from 73 to about 100.

The devices measure radiation levels near the plant and serve as a barometer for issuing an evacuation order to residents at the time of a nuclear accident.

"I want to install many high-performance ones," Mitazono said.

August 3, 2016

## Kaminoseki?

### License renewed for new nuclear plant project in western Japan

<http://mainichi.jp/english/articles/20160803/p2g/00m/0dm/058000c>

YAMAGUCHI, Japan (Kyodo) -- The Yamaguchi prefectural government on Wednesday renewed a license for Chugoku Electric Power Co. to reclaim land for a new nuclear power plant in the western Japan prefecture, surprising and angering local residents opposed to the project.

Whether to extend the expired license for landfill work in the coastal town of Kaminoseki to build the Kaminoseki Nuclear Power Station had been a pending issue after the 2011 Fukushima nuclear crisis led to the suspension of the work. But the local government decided to grant permission, saying that the plant is positioned "within the country's energy policy."

The utility is unlikely to quickly restart the work due to local opposition, however. The local government's license renewal is also conditional: It said landfill work should not start until prospects of building plant facilities become clear.

But the latest development could open up substantial discussions on whether new reactors should be built in Japan, which the central government has largely avoided so far in consideration of antinuclear sentiment that has prevailed after the Fukushima nuclear power plant disaster.

Meanwhile, the government has already been pushing for the resumption of existing reactors that have met post-Fukushima safety requirements. On Wednesday, the No. 3 reactor at Kansai Electric Power Co.'s Mihama plant in Fukui Prefecture became the latest unit to have effectively cleared the state safety assessment.

Chugoku Electric was initially granted the landfill license in October 2008 for the two-reactor Kaminoseki nuclear complex on an island in the Seto Inland Sea.

The company began landfill work a year later, but progress was slow amid local protests and was suspended after the Fukushima crisis was triggered by a huge earthquake and tsunami that hit northeastern Japan in March 2011.

Just before the license was set to expire in October 2012, the utility applied for a three-year extension to the prefectural government. "We have not changed our idea that we need the Kaminoseki plant. We want to keep the license," a utility official said at the time.

Then Yamaguchi Gov. Shigetaro Yamamoto said the local government will "examine the issue appropriately" but did not make a decision, citing "special circumstances after the nuclear accident."

But on Wednesday, the prefectural government reversed course and permitted the extension of the license, though saying that landfill work should not begin until the utility has clear prospects of building plant facilities.

Chugoku Electric Vice President Akira Sakotani said the same day that there is currently no specific date set for building the facilities.

"We will seriously take to heart the request (by the prefectural government) and carefully consider (our response)," he said.

The license will be effective until July 6, 2019.

The decision of the prefectural government drew mixed responses from local residents.

"I can't believe the permission was given," said Toshiyasu Shimizu, 61, who heads a group of residents on an island several kilometers from the construction site.

But Naonori Koizumi, a 58-year-old member of a group supporting the construction project, said, "I don't think work will immediately resume, but the town is depopulating and graying. I hope nuclear power will make this town richer."

## Mihama No.3 OK for another 20 years

### Aging Mihama reactor meets extension requirements

[http://www3.nhk.or.jp/nhkworld/en/news/20160803\\_26/](http://www3.nhk.or.jp/nhkworld/en/news/20160803_26/)

Japan's nuclear regulator says another aging reactor in Fukui Prefecture has basically met its requirements for extending its operation.

Kansai Electric Power Company applied last year to allow the Mihama No.3 reactor to continue operating for another 20 years. The reactor is 40 years old this December, the age limit set by the government.

The Nuclear Regulation Authority on Wednesday unanimously agreed on a draft certification of the utility's safety measures. It said they meet the new requirements set after the 2011 Fukushima Daiichi nuclear accident.

The regulator will seek public input for one month, starting Thursday, before formally endorsing the documents of certification.

**The reactor facilities must then be checked in detail for quake resistance design and degree of aging. The deadline for final permission is the end of November.**

The regulator earlier this year approved an extension of up to 20 years for 2 aging reactors at the utility's Takahama nuclear plant in Fukui Prefecture.

Officials with the utility say actual restart of the reactors will take about 3 years, due to additional engineering needed to ensure safety.

## Gov't evacuation guidelines worry local governments



Workers clean up a bus that transported evacuees in a nuclear disaster evacuation drill in Shizuoka in February. (Asahi Shimbun file photo)

## Nuclear disaster evacuation plans worry many local authorities

<http://www.asahi.com/ajw/articles/AJ201608030068.html>

By ATSUSHI SHINGEN/ Staff Writer

Nearly half of local governments polled are concerned about the recommendation that residents living within 5 to 30 kilometers of a nuclear power plant should “evacuate” by staying indoors if a serious accident occurs, an Asahi Shimbun survey found.

The survey also showed that a quarter of local governments want a review of the central government’s evacuation guidelines, which were set in October 2012 following the Fukushima nuclear disaster the previous year.

It was taken to find how local governments hosting a nuclear facility or located in the vicinity of a nuclear plant view the guidelines in light of the recent series of earthquakes in Kumamoto Prefecture.



In the quakes that began in mid-April, a large number of homes, as well as roads and other structures, were damaged. Continuing aftershocks added to difficulties in victims' abilities to evacuate quickly. The nuclear disaster evacuation guidelines were compiled on the assumption of a serious accident occurring at a nuclear complex, but do not take into account the destruction of evacuation routes, bridges and other buildings in the surrounding area, caused by a powerful earthquake, for example. Shiga Prefecture, which called for a review of the guidelines in May, said: "Indoor evacuation would be unrealistic if a nuclear accident were coupled with an earthquake. Evacuation to the area beyond 30 km should be considered."

Under the current setup, people living within a 5-km radius are ordered to evacuate immediately. Those within a radius of 5 to 30 km are advised in principle to stay indoors initially and evacuate in stages, depending on the amount of radiation released into their neighborhoods.

"Indoor evacuation" for such a zone is aimed at allowing the smooth evacuation of people in the 5-km zone first to avoid an expected gridlock.

But many local governments are wary of the central government's recommendations, citing the possibility of a complex disaster involving more than just a nuclear accident, according to the survey.

The survey, conducted in mid-June and mid-July, covered 21 prefectural governments and 135 municipalities that fall within the 5-30 km radius. All the local governments responded but one, the Fukui prefectural government.

Of the total of 155, The Asahi Shimbun analyzed the responses of 151, as the remaining four municipalities replied that they will evacuate immediately. Most of these municipalities' jurisdictions are also situated within the 5 km radius.

The survey showed that 71 local governments, including Niigata and Ibaraki prefectures, expressed concerns about the guidelines, while 22 replied that they are not.

Asked to choose one or more reasons for their anxiety, 56 cited the response to a situation where a large number of structures are destroyed.

As for the need to review the guidelines, 37 respondents, including Nagasaki and Shizuoka prefectures, agreed while 13 did not. Sixty-four said they don't know.

According to the survey, 12 local governments replied that they are well prepared with regard to the infrastructure that enables smooth evacuation, whereas 69 cited problems with that issue.

How to evacuate in a nuclear accident that could be triggered by a devastating earthquake or another disaster that destroys homes and infrastructure has emerged as a pressing issue since the Kumamoto temblors.

Kagoshima's new governor, Satoshi Mitazono, was elected in July on his campaign pledge to review the existing evacuation plan in connection with a hypothetical accident at the Sendai nuclear power plant. The nuclear power station in Satsuma-Sendai in the prefecture is the only plant online in the nation and is situated relatively close to an active fault that is believed to have slipped in the Kumamoto quakes.

Despite growing concerns voiced by local governments, the Nuclear Regulation Authority's secretariat, which compiled the guidelines, said in an interview with The Asahi Shimbun that it will not consider a review.

"Indoor evacuation will not be for a prolonged period," said an official. "Gyms and other public facilities would be available for residents even if their homes were destroyed."

The official also said local governments can improve their evacuation plans based on their understanding of local conditions.

## According to the JAIF

### Radioactive Concentrations In Fukushima Fish 'Below Reference Levels For First Time Since Accident'

<http://www.nucnet.org/all-the-news/2016/08/03/radioactive-concentrations-in-fukushima-fish-below-reference-levels-for-first-time-since-accident>

Radioactive caesium concentrations in marine products caught offshore in Fukushima Prefecture were less than the reference value of 100 becquerel /kg during the fiscal year ending March 2016 – the first time since the March 2011 Fukushima-Daiichi accident that the reference value was not exceeded in any item, local authorities have said. **According to the Japan Atomic Industrial Forum (Jaif)** the reference value was provisionally set at 500bq/kg for common food items in March 2011 and reduced to the 100bq/kg in April 2012. Radioactive caesium concentrations in all 8,438 products tested were less than this level, Jaif said. The value for common foods issued by the Codex Alimentarius Commission (CAC), a source for international food standards, is 1,000bq/kg, Jaif said. Authorities said caesium levels at Fukushima were below the limit of detection in 7,702 products, accounting for 91.27% of the total. This was the first time more than 90% of the products have been below the detection level, Jaif said. The sea area subject to the prefecture's examinations is a 20-km area from the Fukushima-Daiichi nuclear station. The area inside the port is not included in the examinations. Jaif said that as of 25 July 2016, shipments of 21 kinds of fish are still suspended by the national government.

## Reuse of radioactive soil intended to cut costs

### Reuse of radioactive soil could cut costs by 1.5 trillion yen: ministry estimate

<http://mainichi.jp/english/articles/20160803/p2a/00m/0na/014000c>

Behind the Environment Ministry's controversial decision to allow reuse of highly radioactive soil emanating from the Fukushima nuclear disaster in public works projects was an estimate that the reuse could cut the costs of reducing radiation levels of such soil by over 1.5 trillion yen, it has been learned. The estimate in question was presented during a closed-door meeting of the ministry in January and stated that reuse of radioactive soil generated from Fukushima decontamination work could cut the cost for purifying such soil from 2.9127 trillion yen in case the levels of radioactive cesium are reduced to 100 becquerels per kilogram to 1.345 trillion yen in case the cesium levels are cut down to 8,000 becquerels per kilogram. The estimate calls the latter option "reasonable from economic and social points of view." The Environment Ministry decided in June to allow reuse of soil with radioactive cesium of no more than 8,000 becquerels per kilogram in mounds under road pavements and other public works projects. The decision sparked criticism that it runs counter to the safety standards of 100 becquerels or less for recycling metals generated from the decommissioning of nuclear reactors under the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors. The ministry has insisted that the

radiation levels of tainted soil used in road mounds can be held down from 8,000 becquerels to around 100 becquerels by covering those mounds with concrete among other measures.

A ministry working group on safety evaluation of radiation effects held **closed-door meetings** over the issue on six occasions between January and May this year. In June, the Mainichi Shimbun reported that an estimate presented to one of those meetings stated, "For example, it will take 170 years for radiation levels to reduce to 100 becquerels if tainted soil of 5,000 becquerels is put to reuse," sparking controversy. In response, **the ministry on Aug. 1 released the minutes of the closed-door meetings and other documents on its website.**

At the second meeting of the working group on Jan. 27, the copies of a document titled "About reasonable radioactivity concentrations of recycled materials" were handed out to attendants. The document, which was drawn up by the Japan Atomic Energy Agency, includes an estimate that the cost for reducing the radiation levels of tainted soil to 100 becquerels for recycling would reach 2.9127 trillion yen, with a volume reduction rate of 40 percent, adding that 40 percent of contaminated soil could not be put to reuse. Meanwhile, the estimate says it would cost 2.1185 trillion yen to drop the radiation levels of tainted soil to 3,000 becquerels, with a volume reduction rate of 0.5 percent, while it would cost 1.345 trillion yen to decrease the radiation levels of soil to 8,000 becquerels, with a volume reduction rate of 0.2 percent. The latter option could make 99.8 percent of tainted soil available for reuse, the estimate says.

**"Considering economic and social factors, it is appropriate to set the radioactivity concentration of recycled materials at several thousand becquerels,"** the document stated. A note of caution in the document states, "Apart from this, it is necessary to project the cost for final disposal (of tainted soil)." A ministry official in charge of the issue told the Mainichi Shimbun, "The document was produced in response to a request by a member of the working group. As the document states, it is difficult to (set the standards for reusing tainted soil) at 100 becquerels from a realistic point of view."

August 4, 2016

## Mihama: What happened to 40-year rule?

### **40-year rule for Japan's nuclear reactors sidelined as Mihama unit passes screening**

<http://mainichi.jp/english/articles/20160804/p2a/00m/0na/012000c>

The aging No. 3 reactor at Mihama Nuclear Power Plant in Fukui Prefecture, which Kansai Electric Power Co. is attempting to keep running beyond a designated 40-year lifespan for Japan's reactors, has cleared government screening under new safety standards.

- **【Related】** NRA's Takahama reactor approval a blow to 40-year lifespan rule
- **【Related】** 4 utilities to form alliance over nuclear crisis management, safety measures
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The idled reactor, which started operating in December 1976, needs two additional sets of approval by the end of November before it can be restarted, but it has cleared the first hurdle in a process that could see the reactor kept in operation up until 2036.

It is the third time a reactor has effectively been given a pass for operating beyond the 40-year limit, indicating that the 40-year rule is being hollowed out.

In the wake of the meltdowns at the Fukushima No. 1 Nuclear Power Plant following the March 2011 Great East Japan Earthquake and tsunami, a change to Japanese law set the life of Japan's nuclear reactors at 40 years in principle. Under legislation, it is possible to extend the life of each reactor once for an additional 20 years, but such a move is designated as an "exception."

It had been thought that extending the life of the Mihama reactor would be difficult due to its old design and the deadline for screening, but Kansai Electric set apart 165 billion yen for safety measures and overcame these difficulties.

The power company raised the estimate for standard ground motion at the No. 3 reactor -- a measure of the maximum level of shaking that it would be subjected to during an earthquake -- to 993 gals, 1.3 times higher than the original figure. A gal is a unit of acceleration, with 1 gal defined as 1 centimeter per second squared. The company also announced major design changes, including the conversion of a storage rack for spent nuclear fuel at the reactor, whose design was old and was deemed unable to endure the maximum level of shaking, into a movable system, and the renewal of structures supporting nuclear fuel within the reactor.

There are no movable racks at other nuclear power plants in Japan, but the Nuclear Regulation Authority (NRA) judged that the design was suitable. Work to confirm whether new structures within the reactor would be able to withstand shaking was delayed until after the screening deadline.

Extended operation of the Mihama No. 3 reactor will be permitted by the end of November, and the power company hopes to restart the reactor as early as the spring of 2020. Shunichi Tanaka, chairman of the NRA, has stated, "If power companies are prepared to make any level of investment, then 40 years is not an issue."

His comment indicates that the extension of the operating life of reactors as an "exception" would be permitted if the utility spent money on safety measures.

## **NRA mulls surprise inspections**

### **Nuclear regulator may do surprise inspections**

[http://www3.nhk.or.jp/nhkworld/en/news/20160804\\_28/](http://www3.nhk.or.jp/nhkworld/en/news/20160804_28/)

Japan's nuclear regulator is working on a plan to introduce surprise inspections at nuclear power stations **so that safety checks are more effective and flexible.**

A project team of the Nuclear Regulation Authority, or NRA, presented a draft for the reform plan at its meeting on Thursday.

The effort is a response to a January recommendation from the International Atomic Energy Agency about Japan's plant inspection system.

The NRA currently conducts inspections according to a schedule and check lists set by law.

The proposed change would allow the NRA greater flexibility. Its inspectors would be able to check a wider range of safety issues at plants.

They would be also able to conduct inspections without telling an operator when and what they would inspect.

The change would also allow inspectors to focus on high risk items based on what they noticed at each plant as well as their analysis of particular difficulties each plant faces.

The NRA is also considering reviewing current regular inspections, which are conducted every 13 months at each reactor, taking them offline. The current law does not provide the NRA with criteria to judge whether the plant passed or failed the check. The team is studying whether to give the NRA this power.

The NRA says the project team will work out its proposal by the end of this month. It is hoping to introduce a new inspection system in 2020.

August 5, 2016

## **Ehime evacuation plans worrying**

### **Far-reaching quakes put Ehime's atomic evacuation plans in doubt**

<http://www.japantimes.co.jp/news/2016/08/05/national/far-reaching-quakes-put-ehimes-atomic-evac-plans-doubt/#.V6RrPaJdeos>

by Eric Johnston  
Staff Writer



MATSUYAMA, EHIME PREF. – When two earthquakes of magnitude 6.5 and 7.3 struck Kumamoto Prefecture in April, the shock was felt not only in Kumamoto but also about 170 km away, in the small town of Ikata, Ehime Prefecture, home to a nuclear power plant.

For years, residents had been told that the Median Tectonic Line, which runs from Kyushu to Honshu and passes just 5 km away from the Ikata plant, was not active and that there was nothing to worry about. After the April quakes, no abnormal atomic activity was reported, but residents are now worried a large quake in the area, followed by tsunami, could not only damage the plant but also make evacuation from the peninsula Ikata lies on impossible.

The restart of Ikata reactor 3, slated for Aug. 12, has put those concerns in sharp focus and raised questions about just how realistic evacuation will be in the event of a natural disaster — especially an earthquake that sends a tsunami churning toward the nearly 124,000 residents living within 30 km of the plant.

“The official evacuation plans assume emergency vehicles will have a certain degree of access to the low-lying roads on the peninsula, which are often only a few meters above sea level. But what happens if the roads are flooded by tsunami or damaged beyond use due to landslides? There are about 5,000 people on the peninsula living on the western side of the Ikata plant who might be cut off from escaping by land to the designated evacuation areas lying east of the plant,” said Tsukasa Wada, an Matsuyama-based antinuclear activist who is fighting to keep the Ikata plant closed.

In granting permission last year to restart Ikata’s No. 3 unit, Ehime Gov. Tokihiro Nakamura dismissed such concerns, saying the rock formations around the plant are strong. But the prefecture has designated 194 areas in the town of Ikata as highly susceptible to landslides.

To get to the Ikata plant from Matsuyama by car or bus also involves passing through a series of tunnels. Tunnel construction experts have testified in past lawsuits involving the plant that many of the tunnels are weak, suggesting that an earthquake could cause cave-ins, rendering them unusable.

The central government and the prefecture are aware that land evacuations alone could prove impossible. So the official plans also include evacuations by air and, most controversially, by sea. The plans assume there is time to evacuate by sea before radiation from the plant spreads, and that ships can dock at nearby ports even if the peninsula's main access road has been destroyed by a quake, tsunami, or both.

The April quakes in Kumamoto led to fears in neighboring Kagoshima Prefecture about running the two reactors at Kyushu Electric Power Co.'s Sendai plant. That helped fuel the election last month of Gov. Satoshi Mitazono, who is against nuclear power and has said he'll try to shut down the two Sendai reactors.

But in late July, Ehime Gov. Nakamura insisted that, despite the results in Kagoshima and growing concerns in Ehime, where an opinion poll by the daily Ehime Shimbun in July found 54 percent of respondents opposed to the restart, he had no intention of canceling or postponing it to revisit the issues of the plant's safety or the evacuation plans.

"The conditions are different in each of the different areas where nuclear power plants are located, as is the age of the reactors in each area and their structure. You can't compare them. In particular, for the process leading up to restarts, the approach and system is different for each area, with different plans for evacuation," Nakamura told reporters at a regular press briefing.

But even a Shikoku Electric Power Co. survey in late May and early June of nearly 28,000 households lying within 20 km of the Ikata plant showed that, compared with a similar survey last year, more people were skeptical of safety assurances and fewer were convinced of the need for nuclear power. Shikoku Electric admits that the Kumamoto earthquakes probably influenced this year's results.

August 8, 2016

## Mihama: Safety in doubt

### **EDITORIAL: Extending life of Mihama nuclear reactor raises doubts on safety**

<http://www.asahi.com/ajw/articles/AJ201608080025.html>

The life of another aging nuclear reactor in Japan is about to be extended.

The Nuclear Regulation Authority (NRA) has endorsed the draft inspection report for the No. 3 reactor at Kansai Electric Power Co.'s Mihama nuclear plant in Fukui Prefecture. The reactor will have been in service for 40 years at the end of November.

Two more NRA approvals will pave the way for an extension of the reactor's commercial operations by up to 20 years.

The law stipulates that nuclear reactors that have been operating for four decades or longer should be shut down in principle to prevent unpredictable accidents. Extended operations of reactors beyond the legal 40-year life span are supposed to be exceptions.

In June this year, however, the NRA gave the green light to extend operations of the Nos. 1 and 2 reactors at Kansai Electric Power's Takahama nuclear plant, also in Fukui Prefecture. The two reactors have been operating for more than 40 years.

Just two months later, the NRA appears ready to renew the license of the No. 3 reactor at the Mihama plant.

The disaster at the Fukushima No. 1 nuclear plant in 2011 underscored the need to wean society from its dependence on nuclear power as soon as possible. When areas affected by the triple meltdown are still struggling to recover, we should not ignore the vital lesson so casually.

The No. 3 reactor at the Mihama plant also has some unique problems that reinforce the case against extending its service.

First of all, the reactor is located close to a fault. This has led the NRA to raise the assumed standard intensity of shaking caused by an earthquake by 30 percent from the original estimate made by the utility. The NRA's inspection process is also questionable. After the assumed quake intensity was raised, Kansai Electric Power told the watchdog that it needs time to take additional safety measures.

In response to the utility's request, the NRA postponed the final confirmation of the quake resistance of important facilities at the plant.

The NRA also adopted this approach for the Nos. 1 and 2 reactors at the Takahama plant. But putting off this vital part of reactor safety inspections, which should be done before making any license decision, is highly questionable.

Kansai Electric Power has decided to decommission the Nos. 1 and 2 reactors at its Mihama plant. The Osaka-based company has opted to apply for a license renewal for only the No. 3 reactor, partly out of consideration for the local communities that have long been living with nuclear power.

In addition, the No. 3 reactor's output is relatively large, which has convinced the utility that extending its operations will pay off even if that requires taking costly additional safety measures.

But the company's calculation may not add up. The expected cost of safety measures to enhance quake resistance has increased by nearly 40 billion yen (\$390 million) from the original estimate. And the work required will be two years longer than originally expected and last until March 2020, according to the company.

That means the maximum period of extended operations will be 16 years.

The cost and work needed could increase further, making it necessary for the utility to spend even more money for a shorter extension of the reactor's operations.

A recent series of court rulings have questioned the safety of nuclear reactors and suspended their operations.

If the No. 3 reactor at the Mihama plant receives approval to restart, local residents opposed to the plan will undoubtedly seek a court injunction or court ruling against the move.

Does the utility believe the reactor will generate expected profits even if it cannot be operated according to plans?

The No. 3 reactor was also hit by a fatal accident in 2004. High-temperature steam leaked from the reactor, killing or injuring 11 workers.

We must remember the principle at the root of the 40-year legal life span of nuclear reactors: Policy efforts should focus on minimizing the various risks involved in nuclear power generation. Plans to extend the life of the Mihama reactor should be reconsidered.

## Lifespan of ageing reactors should not be extended

### Editorial: Japan should phase out aging nuclear reactors

<http://mainichi.jp/english/articles/20160808/p2a/00m/0na/009000c>



Moves by the Nuclear Regulation Authority (NRA) to give the green light to the extension of operations at aging nuclear reactors have raised serious questions about the safety of atomic power plants. The extension of the lifespan of nuclear reactors, which had been regarded as an exception, now happens regularly.

The recent moves represent a departure from the new safety regulations on atomic power stations, which were enforced by drastically reviewing older regulations by learning lessons from the crisis at the tsunami-hit Fukushima No. 1 Nuclear Power Plant.

The NRA approved a draft screening document that effectively recognizes the No. 3 reactor at the Mihama Nuclear Power Plant in Fukui Prefecture -- which its operator Kansai Electric Power Co. (KEPCO) intends to continue running even after its 40-year lifespan -- meets new safety standards. If the reactor passes additional screening tests by the end of November 2016, KEPCO can continue operating the reactor until 2036 at the latest.

**This is the third aging nuclear reactor for which the NRA has approved the extension of operations** following the No. 1 and 2 reactors at KEPCO's Takahama plant for which the authority gave the green light in June.

Following the outbreak of the Fukushima nuclear crisis in March 2011, legislation was amended to limit the lifespan of nuclear reactors to 40 years, in principle, with the aim of reducing the risks of accidents involving aging reactors. By the time of the outbreak of the nuclear disaster, about 35 to 40 years had passed since Fukushima No. 1 plant's No. 1, 2 and 3 reactors, where meltdowns occurred, began operations.

The then administration led by the Democratic Party of Japan (DPJ) explained that the 40-year lifespan was set based on the time it is estimated to take before the reactor pressure vessel has deteriorated after being exposed to neutrons.

Apart from the DPJ, which was subsequently reorganized into the Democratic Party earlier this year, the then opposition Liberal Democratic Party (LDP) and Komeito voted for a bill to revise the relevant legislation. A clause allowing for the lifespan to be extended only once by up to 20 years as an exception upon the NRA's approval was incorporated into the law.

Since Japan is an earthquake-prone country and has numerous volcanos, it is highly risky to continue relying on nuclear plants. Therefore, many members of the public apparently deemed that the 40-year rule was reasonable.

To enhance the safety of nuclear plants and phase out nuclear power, the government and electric power companies that operate atomic power stations should stick to the 40-year rule.

Experts have pointed out that there are limits to enhancing the safety of aging nuclear reactors, noting that it is technically difficult to change the basic design of the facilities and their arrangement although their parts can be replaced with new ones. The need to hand over maintenance techniques from generation to generation also poses a serious challenge.

If the risks involving such aging reactors are taken seriously, screenings of applications for the extension of operations at aging nuclear plants should be far stricter than those for the younger nuclear plants.

However, the NRA appears to have helped KEPCO pass the screening for the extension of the lifespans of the utility's Takahama and Mihama plants.

July 2016 was the deadline for permitting the extension of the lifespan of the Takahama plant, and late November is the deadline for the Mihama power station shortly before the 40th year will have passed since the start of its operation.

Since the screening periods for the Takahama and Mihama nuclear plants were limited, the NRA prioritized inspections on these plants over other power stations, concentrating its personnel on the screening of these power stations.

Moreover, the NRA postponed experiments of exposing key devices at these power stations to vibrations to test their quake resistance until after the permission of the extension of their lifespan is granted in order to prevent time from running out for the screening.

The NRA says that it would not revoke its permission even if the experiments were to find that the plants were not sufficiently quake resistant, and instead reconfirm their safety after their operator takes additional safety measures. Some members of the NRA criticized the move saying that redoing the safety confirmation would damage the public's understanding of the NRA.

It has been pointed out that cables that are easy to burn are used in aging nuclear plants. The new regulatory standards require nuclear plant operators to make all cables fire retardant. However, it takes a long time and costs much money to replace all cables at atomic power stations with flame-retardant cables. The NRA requires KEPCO to cover cables that are difficult to be replaced with flame-retardant ones with fire-proof sheets. However, questions remain as to whether the measure will ensure the same level of safety as the use of flame-retardant cables.

NRA Chairman Shunichi Tanaka had said when he assumed his post that it's "extremely difficult to extend" the operation of aging reactors beyond the 40-year limit. However, he has since changed his view to the effect that "**technical challenges can be overcome if necessary money is spent.**" **He appears as if he were speaking on behalf of power companies.**

It has been decided to decommission six aging reactors following the outbreak of the Fukushima nuclear disaster in March 2011, in addition to those operated by Tokyo Electric Power Co., the operator of the crippled Fukushima plant. However, all these nuclear reactors are small-scale ones, each with an output of approximately 300,000 to 500,000 kilowatts.

In contrast, Mihama's No. 3 and Takahama's No. 1 and 2 reactors have an output capacity of about 800,000 kilowatts, larger than those that are set to be decommissioned. KEPCO estimates that it will spend over 200 billion yen for the Takahama reactors and 165 billion yen for the Mihama reactor as funds to implement safety measures. Despite such huge costs, KEPCO is determined to extend the lifespans of these plants because the plants will be effective in increasing the company's profitability since fuel costs for nuclear plants are far lower than those for thermal power stations. If Takahama's No. 1 and 2 reactors are put online, it is estimated to push up the company's profits by about 9 billion yen a month.

Fifteen reactors across the country, including Mihama's No. 3 reactor, are to surpass their 40-year lifespan over the next decade. Utilities are likely to apply for permission to extend the lifespan of many of these reactors if they deem that the extension will be profitable for the companies even if safety measures cost the operators massive amounts of money. The extension of the lifespans of the Mihama and Takahama plants will serve as role models for such efforts.

As such, decisions on whether to decommission aging reactors will be effectively left to the discretion of power companies based on economic principles, reducing the exceptional clause in the law to a mere facade.

**The provision for the 40-year lifespan was incorporated in the legislation to prioritize the safety of nuclear plants over power companies' profits.**

Furthermore, the government of Prime Minister Shinzo Abe has established a goal of setting the ratio of nuclear power to Japan's entire power supply at 20 to 22 percent in fiscal 2030. If the 40-year rule were to be thoroughly observed, the ratio would be around 15 percent even if all the existing reactors and those

under construction were to be fully in operation. This will encourage power companies to extend the lifespans of their nuclear plants

Such a policy cannot respond to the wishes of numerous members of the general public to build a society that will not rely on atomic power at an early date. As a country that has experienced a severe nuclear accident, Japan should phase out nuclear power rather than extending the lifespan of aging reactors.

August 12, 2016

## Should Hong Kong lift ban on Fukushima food?

### Japan urges Hong Kong to lift ban on food from areas near Fukushima plant

<http://www.japantimes.co.jp/news/2016/08/12/business/japan-urges-h-k-lift-ban-food-areas-near-fukushima-plant/#.V7AkH6Jdeos>

Kyodo

HONG KONG – Agricultural minister Yuji Yamamoto said in Hong Kong on Thursday that he has requested the territory to lift a food ban that restricts imports from five Japanese prefectures most affected by a radiation-leak scare following the Great East Japan Earthquake in 2011.

Imports of Japanese food, including milk, vegetables and fruits, from Fukushima, Ibaraki, Tochigi, Gunma and Chiba prefectures have been banned since March 2011 following the magnitude-9 earthquake and subsequent tsunami that led to the nuclear plant meltdowns over worries about contamination by radioactive substances.

However, meat, poultry, eggs and aquatic products can be imported with radiation certificates stating their safety.

“I made a request to (Chief Secretary for Administration Carrie Lam during a meeting Wednesday), if the regulation on the import of food from Japan could be relaxed and be eliminated,” Yamamoto told media at the opening of the annual Food Expo, where a record number of more than 250 Japanese companies are in Hong Kong promoting their products, including those from the prefectures of Fukushima and Kumamoto, which was hit by a series of earthquakes in April.

“(On Friday) I should have a meeting with Secretary for Food and Health Ko Wing-man. I expect that they will respond after very careful consideration and deliberation,” he said, adding that he wishes there could be a scientific-based analysis of products from Fukushima to eliminate the reputational damage.

Ko said monitoring will remain for the safety of Hong Kong people.

“We have been relying on a risk- and evidence-based method to decide on the prohibition of fresh food imports from five Japanese prefectures,” Ko told reporters after touring the food fair. “We have continued to examine the progress made in Japan’s handling of the Fukushima nuclear incident,” including the measures they have put in place and test results on the food, he said.

“We will look at all the information and make decisions on a scientific basis. In the upcoming meeting (with Yamamoto), we will explain to them Hong Kong’s position, which, most importantly, is that we will manage food safety based on the well-being of Hong Kong people,” he said.

The value of Japan’s agricultural, forestry and fishery exports last year reached a record-high ¥745 billion (\$7.34 billion). Hong Kong remained the top destination for the 11th consecutive year, with a value of ¥179 billion, marking a 33 percent increase from 2014, according to ministry data.

The sale of dried sea cucumber, considered a healthy seafood delicacy, to Hong Kong registered a slight decline, while sales of instant noodles increased by 50 percent, which Yamamoto said was a “major surprise.”

Eliza Au, 40, owner of a startup private kitchen, said after sampling products from Kumamoto Prefecture she is confident in the quality of Japanese food.

“The fruit, the Wagyu beef, all went under strict safety inspections, and the seasoning, the mix and match are all so appealing,” Au said.

The food fair, which showcases some 1,400 exhibitors from 26 countries and regions, will run through Monday.

## **Shikoku MOX plant restarts amid outcry over fresh quake fears**

<http://www.japantimes.co.jp/news/2016/08/12/national/shikoku-electric-poised-fire-ehime-plant-mox-reactor-amid-protests/#.V6226aJdeos>

by Eric Johnston

Staff Writer

MATSUYAMA, EHIME PREF. – Shikoku Electric Power Co. restarted the Ikata No. 3 reactor Friday at its plant on the narrow Sadamisaki Peninsula in Ehime Prefecture as citizens groups sought injunctions in three different prefectures to turn it back off amid various safety concerns, including the viability of evacuations.

The reactor is the fifth to be switched back on since all of the nation’s atomic reactors were closed due to the March 2011 triple core meltdown at the Fukushima No. 1 power plant following a mega-quake and tsunami.

However, a March decision by the Otsu District Court to place a temporary injunction on two Kansai Electric Power Co. reactors in Takahama, Fukui Prefecture, left only two reactors at Kyushu Electric Power Co.’s Sendai plant in Kagoshima Prefecture in operation. They were restarted a year ago.

The Ikata No. 3 unit is also the only reactor burning the mixed uranium-plutonium oxide (MOX) fuel. Shikoku Electric reported no problems with the restart Friday morning, saying it was expected to reach criticality by Saturday morning and begin generating and transmitting electricity by Monday. After a series of final checks, the utility plans to start selling reactor-generated electricity early next month. But the reactor’s restart has not gone unchallenged. The Otsu District Court decision, which shut down Kepco’s Takahama No. 3 and 4 reactors less than two months after they were restarted, has energized residents who opposed the Ikata restart. In light of the quakes in Kyushu earlier this year, many now fear a natural disaster could also damage the reactor, and that official evacuation plans for the slender peninsula could prove unrealistic.

Petitions seeking a temporary injunction on the Ikata reactor have been filed in the district courts of Matsuyama in Ehime, as well as Hiroshima and Oita, by people living relatively close to the plant. Matsuyama is about 60 km from Ikata and Hiroshima is within 100 km. Oita’s Saganoseki Peninsula is about 45 km away.

A temporary injunction from any one of the three courts would almost certainly mean Ikata No. 3 would have to shut down immediately. For this reason, anti-nuclear lawyers involved with the petitions remain hopeful the courts will do what politicians have not.

“The Otsu court decision to shut down the Takahama reactors sent a shock wave through the government and the utilities. Political measures including demonstrations are needed. But I’ve come to believe the best way to stop the restart of nuclear power plants is through legal means, such as filing lawsuits and requests for temporary injunctions,” Hiroyuki Kawai, a lawyer involved with the Matsuyama, Hiroshima and Oita petitions, said at a news conference in Matsuyama late last month.

The Otsu decision angered Kepco and senior corporate leaders in the Kansai region who fear it will spark a nationwide movement against nuclear power plants. Some are now pushing the government to establish a separate court presided over by judges with specialized knowledge, or to establish separate legal measures to review petitions by citizens’ groups targeting restarts in the hope of obtaining more favorable rulings.

“From the viewpoint of a stable energy supply, it’s necessary to reduce the legal risks as much as possible,” Kansai Economic Federation chairman and former Kepco Chairman Shosuke Mori said at his regular news conference last month.

Other pro-nuclear Kansai economic leaders support Mori’s call for legal changes.

“Why should the nation’s energy policy be impaired by a judge at a district court? I hope the law is quickly changed so this doesn’t happen,” said Kansai Economic Federation Vice Chairman and Hankyu Railways Chairman Kazuo Sumi after the initial Oita ruling in March.

In their request for a temporary injunction on the Ikata unit, citizens’ groups cite the fact that it lies about 5 km from the Median Tectonic Line, which runs from Kyushu to Honshu. They also say that evacuation plans in the event of a natural disaster that damages the plant could prove impossible if the roads along the narrow, landslide-prone peninsula hosting it collapse or are washed away by a tsunami.

Even officials who support the restart have stressed the need for better communication with the prefectural and central governments in the event of an accident that forces an evacuation.

“There are heightened concerns compared with the past, and we’ll strengthen the information collection system,” Ikata Vice Mayor Matabei Moriguchi said Friday after the restart.

## **Nuclear Watch: Doubts about Evacuation Plan**

<http://www3.nhk.or.jp/nhkworld/en/news/videos/20160812155321510/>

5000 people live there

They would have to be evacuated by boat

8 km from an active fault interfering with evacuation measures

68 shelters in Ikata town are vulnerable to mudslides/landslides

August 13, 2016

## **Ikata reactor restarted despite lingering fears**

## EDITORIAL: Another nuclear plant restarted amid lingering safety concerns

<http://www.asahi.com/ajw/articles/AJ201608130031.html>



Ikata nuclear power plant, foreground, is located at the root of the Sadamisaki Peninsula. (The Asahi Shimbun)



The No. 3 reactor at Shikoku Electric Power Co.'s Ikata nuclear plant in Ehime Prefecture was restarted Aug. 12, becoming the fifth reactor to be brought online under the stricter safety standards introduced in the aftermath of the 2011 Fukushima nuclear disaster.

The move followed the restart of the No. 1 and No. 2 reactors at Kyushu Electric Power Co.'s Sendai nuclear plant in Kagoshima Prefecture and the No. 3 and No. 4 reactors at Kansai Electric Power Co.'s

Takahama plant in Fukui Prefecture. However, the two reactors at the Takahama plant have remained offline since March after the Otsu District Court ordered the operator to shut them down.

The No. 3 unit at the Ikata plant is now the only operating reactor in Japan that burns mixed oxide, or MOX, fuel, composed of plutonium blended with uranium.

But this reactor shares many of the serious safety problems that have been pointed out for the reactors at the Sendai and Takahama plants. It is impossible for us to support the decision to resume operations of the Ikata plant reactor without resolving these problems.

What is particularly worrisome about the Ikata plant is the anticipated difficulty in securing the smooth evacuation of local residents in the event of a serious accident.

The facility is located at the root of the Sadamisaki Peninsula, a 40-kilometer-long spear of land that juts westward into the sea with a maximum width of 6 km or so.

This narrow strip of land west of the plant is home to about 5,000 people.

The only land route for the emergency evacuation of local residents is a national highway that passes near the nuclear plant into inland areas.

Under the evacuation plan crafted jointly by the local governments in the region and the central government, local residents are supposed to be evacuated mainly by ship from ports in the peninsula if the highway becomes impassable because of an accident at the plant.

But many of the communities in the peninsula are located on slopes in coastal areas. They could be cut off from the rest of the peninsula if a landslide occurs.

There are seven radiation protection facilities within the town of Ikata, but four of them are located in designated landslide-prone areas.

People aged 65 or older account for more than 40 percent of the town's population.

The municipal government has plans in place to support the evacuation of residents of each district. But residents say there is no way to secure evacuation of the entire town if multiple disasters occur.

People living in areas located between 5 and 30 kilometers from a nuclear power plant are supposed to take shelter in their own homes or public facilities, in principle, when a serious nuclear accident takes place.

But the series of earthquakes that rocked central Kyushu around Kumamoto Prefecture in April underscored anew the devastating effects of multiple disasters. The swarm of quakes included two registering a maximum intensity of 7 on the Japanese seismic scale, which caused severe damage to buildings across wide areas of Kumamoto Prefecture.

Ehime Prefecture is likely to be shaken violently if it is struck by the predicted massive Nankai Trough earthquake.

But the prefecture is ill-prepared for such a gigantic quake, with the ratio of public facilities that are quake-proof in the prefecture being the third lowest in Japan. These public facilities are supposed to play a key role in disaster response scenarios.

Evacuation plans are designed mainly to cope with situations in the wake of a single nuclear accident.

At the very least, however, the central and local governments should give serious consideration to the possibility of a nuclear accident being triggered or accompanied by other disasters like an earthquake and a landslide, and evaluate whether the lives of local residents will be protected in such situations.

Satoshi Mitazono, the new governor of Kagoshima Prefecture who took office last month, has indicated his intention to ask Kyushu Electric Power to halt the two reactors at its Sendai plant in response to local anxiety that has been aroused by the Kumamoto earthquakes.

Shikoku Electric Power's decision to bring the Ikata reactor back on stream despite the fresh safety concerns is deplorable.

Another sticky issue is how to dispose of spent nuclear fuel.

If the No. 2 reactor at the Ikata plant is also restarted following the No. 3 unit, the spent fuel pool will become full in six to seven years. But there is no prospect of building a new storage facility for spent fuel. There is no practical way, either, to reprocess spent MOX fuel.

The utility, which covers the Shikoku Island, has apparently enough capacity to meet power demand during this summer too.

The company has estimated that restarting the reactor will boost its annual earnings by 25 billion yen (\$247 million). But this offers no compelling case for bringing the reactor back online at this moment. Electric utilities, the central government and local governments in areas where nuclear power plants are located should all stop seeking to restart reactors until they have first dealt with the raft of safety issues.

August 15, 2016

## Ehime people fear repeat of Fukushima disaster

### Kumamoto quakes raise fears over restart at Ikata nuclear plant

<http://www.japantimes.co.jp/news/2016/08/15/national/kumamoto-quakes-raise-fears-over-restart-at-ikata-nuclear-plant/#.V7Huy6Jdeos>

JJ

IKATA, EHIME PREF. – People living near Shikoku Electric Power Co.’s Ikata nuclear plant in Ehime Prefecture fear a repeat of the Fukushima disaster, especially after devastating quakes shook Kyushu in April.

The plant’s No. 3 reactor was fired up Friday, leading some to anticipate economic benefits for local businesses but others to question the wisdom of building a nuclear facility in such an active quake zone. The heaviest quakes pummeled Kumamoto Prefecture, but temblors also shook Oita Prefecture to the northeast.

The median tectonic line fault belt runs from Shikoku, which includes Ehime Prefecture, to the Kinki region, on an extension of the active fault zone of Kumamoto and Oita. The Ikata nuclear plant is located across a channel from Oita and some 8 km south of the median tectonic line fault belt.

Tadayoshi Yamashita, a 60-year-old fisherman in Ikata, said he feared that Ehime would be hit next when he saw news about the Kumamoto quakes. He is anxious about being able to get away.

“I won’t be able to evacuate if I am trapped under a collapsed house when a nuclear accident occurs,” he said.

But given that the plant supports the livelihoods of a large number of people, “I cannot say ‘yes’ or ‘no’ ” to the restart, Yamashita said.

Many of the town’s residents live in old houses, which are vulnerable to shocks.

“I try not to think about the possibility that a nuclear accident and the collapse of my house might happen simultaneously,” said Yoshio Imura, 80.

His wife, Fudeko, 82, spoke of the need for help in the event that their home collapses. It would be difficult to do anything by themselves, she said.

Fujiko Abe, 66-year-old landlady of the Hamanoya guesthouse, said she hopes the reactor restart will lead to the town’s revitalization.



At the same time, she is worried about her grandchild being at school should a major quake strike. But Abe said she tells herself the restart is good for business and she won't worry about a disaster unless one occurs.

Shikoku Electric received a flood of inquiries from residents immediately following the Kumamoto quakes. The utility responded by posting a message on its website at the end of April saying the Ikata facility would be safe even if the active fault of the Kyushu region moved together with the median tectonic line fault belt.

But in May, 12 residents in Ehime Prefecture filed a petition at Matsuyama District Court, seeking to block or cancel the reactivation of the No. 3 reactor.

August 16, 2016

## Ranking the dangers of active faults

### Danger of active faults to be ranked

[http://www3.nhk.or.jp/nhkworld/en/news/20160816\\_01/](http://www3.nhk.or.jp/nhkworld/en/news/20160816_01/)

A Japanese government task force that fosters earthquake research is set to review the method for evaluating the dangers posed by active faults.

Experts have pointed out that the task force failed to properly represent risk in its long-term assessment of a fault line zone that may have caused a major earthquake in southwestern Japan in April.

The task force has published information on 97 major active faults across Japan, including the probability that each will trigger earthquakes.

The probabilities are generally small, because such quakes usually occur within a span of several thousand years.

Among them is the Futagawa fault line zone, which is believed to have triggered a major earthquake in Kumamoto, southwestern Japan in April.

According to the previous assessment, the probability of a temblor being triggered by part of the Futagawa zone within 30 years was between slightly above 0 percent and 0.9 percent.

Some have criticized such small numbers, saying they failed to represent danger and made people feel safe.

The task force drew up a new plan to rank the active faults on a scale of 4, according to how likely they are to cause earthquakes.

It will designate the rank of S, meaning that the probability is quite high, or greater than 3 percent, that a fault could trigger an earthquake within 30 years.

It will designate the rank of A for a range of 0.1 to 3 percent. And the rank of Z is for probability of less

than 0.1 percent. The rank of X means that there is not a clear probability, but a jolt could be triggered in the near future.

Officials say when applying the new ranking system to 97 major fault zones, about one-third of them will be labeled S, or the rank of the greatest threat.

They are scheduled to convene a committee meeting on Friday to finalize the new system.

August 17, 2016

## **Ikata restart: Serious concerns remain**

### **Editorial: Grave concerns remain over restart of Ikata nuclear plant**

<http://mainichi.jp/english/articles/20160817/p2a/00m/0na/012000c>

Shikoku Electric Power Co. has restarted the No. 3 reactor at its Ikata Nuclear Power Plant in Ikata, Ehime Prefecture, and begun generating and transmitting electric power. It is the fifth reactor that has been reactivated after passing safety screenings by the Nuclear Regulation Authority (NRA) -- following the No. 1 and 2 reactors at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture and the No. 3 and 4 reactors at Kansai Electric Power Co.'s Takahama plant in Fukui Prefecture.

- **【Related】** Ikata nuclear plant's No. 3 reactor begins generating power
- **【Related】** Shikoku Electric restarts reactor under post-Fukushima regulations
- **【Related】** 4 radiation protection shelters near Ikata nuke plant located in landslide risk areas

Ehime Gov. Tokihiro Nakamura told a news conference, "The best possible safety measures have been taken at the plant. An accident similar to that in Fukushima will never happen." His remarks appear to signify that the myth of the infallible safety of atomic power stations, which had been prevalent in the electric power industry and the government until the outbreak of the Fukushima nuclear crisis in March 2011, have been revived.

In particular, serious concerns remain about the Ikata plant from the viewpoint of preventing a nuclear disaster.

The biggest problem is that the power station is situated at the base of the Sadamisaki Peninsula, which is 40 kilometers long from east to west and about 800 meters wide at its narrowest location. Approximately 4,700 people live in areas west of the nuclear plant, but should a nuclear accident occur at the station, the escape route for local residents could be blocked.

Moreover, the median tectonic line fault, one of Japan's largest active faults, is situated only about six to eight kilometers off the nuclear plant. A powerful Nankai Trough quake is feared to hit Shikoku Island where the power station is located. A complex disaster of a powerful earthquake and a nuclear accident could happen. The ground in some areas of the Sadamisaki Peninsula is fragile.

Under evacuation plans worked out by the prefectural and municipal governments, residents of areas west of the plant would escape from the peninsula in cars or boats if a nuclear accident were to occur.

However, if a complex disaster were to hit the peninsula, there are fears that residents might not be able to flee by land or sea. In such a situation, residents would be required to stay indoors at home or in evacuation shelters to avoid being exposed to radiation.

However, if the area were to be hit twice by a temblor registering 7 on the 7-point Japanese intensity scale just like in the Kumamoto Earthquake, it would be difficult to continue staying indoors.

Public evacuation shelters are not absolutely safe. There are seven radiation proof facilities in the town of Ikata. However, four of them are located in landslide caution zones.

The Ikata plant is Japan's only nuclear plant using mixed oxide (MOX)-fuel consisting of plutonium and uranium since operations at the Takahama Nuclear Power Plant have been suspended in response to a court order. It has been pointed out that MOX-fuel makes control rods more ineffective than conventional nuclear fuel. Furthermore, specifically how to dispose of spent MOX-fuel has not yet been determined.

Local bodies hosting nuclear plants are obligated to work out evacuation plans for local residents in case of a nuclear accident. Even if such plans are inadequate, the NRA still approves reactivation of nuclear plants because such plans are neither subject to screening by the NRA nor a precondition for restarting atomic power stations. A system under which a third-party organization would check the efficacy of evacuation plans before restarting nuclear plants needs to be established.

Shikoku Electric Power estimates that the operation of Ikata plant's No. 3 reactor will increase the company's annual profits by some 25 billion yen. However, power companies across the country have leeway to supply electricity to households and businesses this summer. There is no need to make haste to restart idled nuclear plants from the viewpoint of ensuring a stable supply of electric power.

The government and power companies' attempts to rely on nuclear plants while indefinitely postponing countermeasures against a possible complex disaster are unacceptable.

August 18, 2016

## Five years to get rid off radioactivity...

### **LDP sets goal of lifting evacuation orders near Fukushima plant in 5 years**

<http://mainichi.jp/english/articles/20160818/p2a/00m/0na/021000c>

The ruling Liberal Democratic Party (LDP) on Aug. 17 decided on a target of lifting evacuation orders for radioactively contaminated areas near the crippled Fukushima nuclear plant in the next five years, with the goal to be combined with proposals from Komeito and put forward to Prime Minister Shinzo Abe within the month.

The plan would create "recovery bases" in each of the municipalities that are currently still off-limits due to contamination from the Fukushima No. 1 Nuclear Power Plant meltdowns. Until this month no policy had been put forward by the national government on how to handle the decontamination of the so-called "difficult-to-return" areas and the return of evacuees, but on Aug. 5 the LDP and Komeito gave a draft of the policies to the governments of these municipalities.

Under the policies, the parties propose that the municipal governments meet with the prefectural government and create plans for setting up the recovery bases. The national government would then evaluate the plans. The current "difficult-to-return" areas would not be redefined before having their evacuation orders lifted.

A draft outline of the proposal that will be made to the prime minister was also shown. It included a suggestion to transfer to interim storage facilities an amount of contaminated soil equivalent to the amount at homes and schools in affected areas by fiscal 2020.

## Ban maintained on Monju

### Nuclear regulators keep ban on Monju reactor

[http://www3.nhk.or.jp/nhkworld/en/news/20160818\\_23/](http://www3.nhk.or.jp/nhkworld/en/news/20160818_23/)

Japan's nuclear regulator has dismissed a plea to lift its order banning the operation of an experimental reactor in Fukui Prefecture.

The Nuclear Regulation Authority in 2013 ordered the Japan Atomic Energy Agency, which operates the prototype Monju fast breeder reactor, to keep it offline.

The order came after the operator was found to have failed to inspect about 10,000 items at the plant.

On Thursday, officials of the operator asked the authority to lift the order, saying they had improved situations that constituted violations of safety provisions.

The officials said they had completed maintenance of all relevant devices by April, and reviewed maintenance methods based on each one's importance.

They also said they plan to upgrade checking systems by using information technology to decrease errors.

But the authority expressed doubt, saying another maintenance irregularity was found at the plant this month.

The authority recommended last November that the reactor's operator be replaced.

But discussions on a successor have not been concluded, and it is unknown when the reactor will be allowed to resume operation.

August 19, 2016

## Mitazono find fault with evacuation routes

### Kagoshima governor inspects evacuation routes around Sendai nuclear plant

<http://www.japantimes.co.jp/news/2016/08/19/national/kagoshima-governor-inspects-evacuation-routes-around-sendai-nuclear-plant/#.V7brD6Jdeos>

Kyodo

KAGOSHIMA – Kagoshima’s recently elected anti-nuclear governor said Friday the prefectural government will review evacuation plans for residents near the Sendai power plant in Satsumasendai. **“I found problems with the roads, evacuation drills and other things,”** Gov. Satoshi Mitazono told reporters during a safety tour of areas around the nuclear power station. **“They should be tackled immediately.”** Elected just last month, the governor plans to ask Kyushu Electric Power Co. to halt two reactivated reactors.

The No. 1 and No. 2 units were restarted last year, becoming the first two to go back online under the stricter safety rules prompted by the Fukushima nuclear crisis.

A court ordered Kansai Electric Power Co. in March to suspend two reactors at its Takahama plant over safety concerns after their restarts earlier this year. The No. 3 reactor at Shikoku Electric Power Co.’s Ikata plant went online last week.

Mitazono, a former TV Asahi commentator, defeated incumbent Yuichiro Ito, who consented to the two restarts, in the election on July 10.

He toured Satsumasendai and neighboring Ichikikushikino, just 30 km from the plant, to check evacuation routes and discuss how residents will escape in an emergency.

While exchanging views with the new governor, some residents of Satsumasendai expressed concern about their evacuation route, saying the road is too narrow.

Mitazono repeated his intention to request by early September that Kyushu Electric temporarily halt the two reactors for safety checks due to the strong earthquakes that hit nearby Kumamoto and Oita prefectures in April.

**While the governor is not authorized to suspend operation of the reactors, the utility is likely to seek consent from local residents regarding safety at the plant.**

**Regardless of the governor’s request, the No. 1 and No. 2 reactors are scheduled to be taken offline for regular checks on Oct. 6 and Dec. 16, respectively.**

## New method for assessing dangers of active faults

### New method to predict danger of active faults

[http://www3.nhk.or.jp/nhkworld/en/news/20160819\\_24/](http://www3.nhk.or.jp/nhkworld/en/news/20160819_24/)

Japanese government experts say they will adopt a new method of assessing the probability that the country's main active faults will cause large-scale earthquakes.

A government task force for earthquake research made the decision on Friday.

Under the new method, 97 main active faults in and around the country will be ranked on a **4 level scale**.

**The highest rank of S means the probability of the fault causing a large-scale earthquake within 30 years is 3 percent or greater.**

The rank of A refers to the probability of 0.1 percent to smaller than 3 percent. The rank of Z shows the chance of less than 0.1 percent.

The rank of X means that the probability is unclear but that the chance of a fault causing a jolt in the near future cannot be ruled out.

Some experts have suggested that the conventional method may mislead people about the probability of a fault line causing a major earthquake.

August 24, 2016

## Should TEPCO reactors in central Japan restart?

### **Two Tepco Kashiwazaki-Kariwa reactors may pass geared-up safety checks by March**

<http://www.japantimes.co.jp/news/2016/08/24/national/two-tepco-kashiwazaki-kariwa-reactors-may-pass-geared-safety-checks-march/#.V71e46Jdeos>

Kyodo

Nuclear regulators have decided to gear up the safety assessment of two reactors operated by Tokyo Electric Power Company Holdings Inc. in central Japan, raising the possibility of finishing the process by next March, sources said Tuesday.

Reactor Nos. 6 and 7 at the Kashiwazaki-Kariwa plant in Niigata Prefecture are boiling water reactors, the same type as the ones that suffered core meltdowns in 2011 at Tepco's Fukushima No. 1 complex.

All reactors in Japan — either BWRs or pressurized water reactors — are required to meet tougher safety criteria imposed after the Fukushima crisis, but the BWR assessment has been delayed due to the need to install safety equipment that involves extensive work.

If reactors 6 and 7 clear the assessment, they will become the first BWRs technically qualified to resume operation under the post-Fukushima rules.

Facing massive decommissioning costs and compensation payments after the Fukushima disaster, Tepco applied for the safety assessment of the two reactors in September 2013, hoping that restarting the units will help turn around its business.

But it is unclear whether the development will lead to their swift restart because Niigata Gov. Hirohiko Izumida has said he will “not talk about restarting” the reactors unless a study on the Fukushima calamity is sufficiently carried out.

The Kashiwazaki-Kariwa complex on the Sea of Japan coast is one of the world's largest nuclear power plants in capacity if all of its seven reactors were in operation.

Allowing Tepco to reactivate its reactors can be controversial, as the utility is still struggling to scrap the crippled reactors at the Fukushima plant. Tens of thousands of people who lived nearby also remain displaced evacuees.

The Nuclear Regulation Authority decided last August to prioritize checking the two Kashiwazaki-Kariwa reactors, hoping to make them a model case of the BWR assessment process. But it retracted the decision in March after Tepco failed to offer sufficient explanation on questions raised by the regulators. But Tepco has come up with the necessary documents and the NRA decided to reinstate the priority status of the Kashiwazaki-Kariwa reactors at least until mid-September. The NRA has conveyed its plan to other utilities whose BWRs are being checked, the sources said.

Under the new safety requirements, BWRs must be equipped with filtered venting systems so that radioactive substances will be reduced when gas and steam need to be released to prevent damage to containment vessels.

The venting facilities are not an immediate requirement for PWRs as they are housed in containers larger than those of BWRs, allowing more time until pressure rises inside the containers.

Currently, two reactors at Kyushu Electric Power Co.'s Sendai plant and another reactor at Shikoku Electric Power Co.'s Ikata plant are operating in Japan after passing the safety checks. They are all BWRs.

## Checking for "less durable" material

### **Probe to check for less durable reactor material**

[http://www3.nhk.or.jp/nhkworld/en/news/20160824\\_02/](http://www3.nhk.or.jp/nhkworld/en/news/20160824_02/)

Japan's Nuclear Regulation Authority is to instruct nuclear power plant operators to check if a less durable material has been used in their reactors.

The authority is taking the step after the steel in some parts of the reactor walls for a nuclear plant under construction in France was found to contain more carbon than it should. Steel with a high carbon concentration can be damaged more easily. The components are produced by a French company for export.

The regulators are to tell the operators to check the makers and production methods of the reactor walls and other equipment that is important for ensuring safety, and to report their findings by the end of September.

Under the Japanese criteria, the carbon content of the components in question should be 0.25 percent or less.

The regulators say if any plants are found to have used steel produced by the same method as the French material, they will investigate whether it meets the criteria.

August 26, 2016

## How will Kyushu Electric respond?

### **Governor to call on Kyushu Elec. to halt nuclear plant operation**

<http://mainichi.jp/english/articles/20160826/p2g/00m/0dm/049000c>

FUKUOKA (Kyodo) -- The governor of Kagoshima Prefecture on Friday afternoon is set to request Kyushu Electric Power Co. suspend two reactors at its Sendai nuclear plant in the southwestern Japan prefecture, sources close to the matter said.

Gov. Satoshi Mitazono, who was elected on an antinuclear platform last month, is expected to make the request regarding the plant's Nos. 1 and 2 reactors -- two of only three reactors currently operating in the country -- at his meeting with the utility's President Michiaki Uriu, slated at the prefectural government office at 3 p.m.

The former TV commentator is likely to call on the utility to re-examine safety measures for the complex, citing increasing concerns among citizens about nuclear power security after huge earthquakes hit nearby prefectures in April, according to the sources.

Kyushu Electric is expected to prepare its answer to the request by early September.

Governors have no legal power to suspend operation of nuclear power plants.

Regardless of the governor's request, the Nos. 1 and 2 reactors are scheduled to be taken offline for regular checks on Oct. 6 and Dec. 16, respectively.

See also : <http://www.asahi.com/ajw/articles/AJ201608260058.html>

### **Governor to seek suspension of nuclear reactors**

[http://www3.nhk.or.jp/nhkworld/en/news/20160826\\_05/](http://www3.nhk.or.jp/nhkworld/en/news/20160826_05/)

Kagoshima Prefecture's new governor on Friday will ask the operator of a nuclear power plant to suspend its operation in order to re-check its safety.

The 2 reactors at the plant in southwestern Japan went online last year for the first time under the government's new regulations.

Satoshi Mitazono plans to request the suspension of the Sendai plant in his meeting with senior officials of Kyushu Electric Power Company.

He will also ask the utility to fully disclose information in the event of an accident and promote renewable energy.

Mitazono won in the election last month. He insisted on the campaign trail that the plant should be temporarily halted for safety re-checks as worries among residents have been growing since the April



earthquakes in neighboring Kumamoto Prefecture.

After taking office, Mitazono visited Satsumasendai City, where the plant is located, to check evacuation measures to be implemented for residents in the event of a nuclear disaster. He also studied the timing to ask for the plant's suspension and the specific content of his request.

Kyushu Electric Power currently plans to suspend the 2 reactors for regular inspections. Number One will go offline in October and Number Two in December.

Governors have no legal authority to order reactors offline. Attention is focused on how the firm will react to Mitazono's request.

August 27, 2016

## **EDITORIAL: Kyushu Electric in spotlight after governor calls for shutdown**

<http://www.asahi.com/ajw/articles/AJ201608270026.html>

Newly elected Kagoshima Governor Satoshi Mitazono on Aug. 26 asked Kyushu Electric Power Co. to immediately shut down two reactors at its Sendai nuclear power plant for a fresh safety inspection. The two reactors at the Sendai plant in Satsuma-Sendai, Kagoshima Prefecture, are the only ones online in Japan.

Mitazono asked the utility to expand its support for the local government's plans for emergency evacuations during severe nuclear accidents while rigorously inspecting the plant equipment and systems. **Mitazono's move was a response to public concerns about the safety of the plant following a series of earthquakes that rocked neighboring Kumamoto Prefecture in April.**

A prefectural governor has no power to order the suspension of the operation of an online reactor. But while stumping for the July election, Mitazono promised a temporary halt to the Sendai reactors. The incumbent had allowed the reactors to be restarted.

Kyushu Electric ought to embrace the safety concerns that the governor has raised.

Mitazono cited seven priority items for the inspection of the equipment he requested, including the reactor pressure vessel and the containment vessel. He also called on the utility to investigate active faults around the nuclear plant and provide accurate information with regard to the safety of the reactors in a timely manner so as to prevent any erosion of trust between local residents and the operator.

In asking the utility to step up its support for the evacuation plans, Mitazono referred to the views and opinions he heard during his inspection of roads and medical and welfare facilities around the plant.

**The steps envisioned by Mitazono are necessary for preventing nuclear accidents and minimizing damage when an accident does occur.**

Kyushu Electric responded to Mitazono's requests by saying it will "carefully check their content and deal with them."

But the company has shown no sign of changing its position that the safety concerns are groundless, as the reactors were **brought back on stream after clearing safety checks by the Nuclear Regulation Authority.**

**But the situation changed dramatically after a string of earthquakes in Kumamoto Prefecture, including two powerful temblors that registered a maximum of 7 on the Japanese seismic intensity scale.**

The company should realize that this created huge anxiety among local residents and prompted Mitazono to make his request.

Even though Mitazono is not empowered to make the utility accept his requests, both central authorities and the electric power industry are sufficiently alarmed that the head of the government of a prefecture where a nuclear plant is located has called for a halt to the operations of reactors.

The prevailing view is that Kyushu Electric will refuse to shut down the reactors right now and continue operating them until their next regular inspections, which are slated for October and December, respectively.

**After the regular inspections, however, the utility will find it difficult to restart the reactors if the governor refuses to approve it because of the company's unsatisfactory response to his requests.**

It seems the only option for Kyushu Electric is to offer convincing answers to the safety concerns Mitazono has raised.

Mitazono is not alone in voicing concerns about the safety of nuclear reactors. Niigata Governor Hirohiko Izumida has taken a critical view of Tokyo Electric Power Co.'s plan to restart two of the seven reactors at the Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture.

It is still fresh in our memory that the Otsu District Court in March ordered Kansai Electric Power Co. to shut down two reactors at its Takahama plant that had just been brought back online.

Is the electric power industry willing to make sincere responses to these warnings about nuclear safety from local government and the judiciary?

**How Kyushu Electric responds to Mitazono's requests will be a litmus test of the industry's attitude.**

August 28, 2016

## **Evacuation drills in Fukui and Kyoto prefectures**

### **Fukushima scenarios used in evacuation drills at two Japanese nuclear plants**

JII, Kyodo

TAKAHAMA, FUKUI PREF. – Some 11,000 residents of Fukui and Kyoto prefectures participated in two major disaster drills on Saturday and Sunday centered on hypothetical n – Some 11,000 residents of Fukui and Kyoto prefectures participated in two major disaster drills on Saturday and Sunday centered on hypothetical nuclear accidents at Kansai Electric Power Co.'s Takahama and Oi nuclear power stations. rcises were jointly organized by the central government and the prefectural governments of Fukui, Shiga and Kyoto.

Saturday's drill at Takahama involved about 9,000 residents. It was intended to examine the workability of evacuation plans approved by the national government last December.

The scenario was a strong earthquake off Wakasa Bay, near the plant. The tremor measured a lower 6 on the Japanese seismic intensity scale of 0 to 7.

The facility's No. 3 reactor was assumed to have lost all power, leading to the release of radioactive substances — as happened at the Fukushima No. 1 plant in 2011.

Evacuation plans require residents within 5 km of plants to evacuate immediately upon an accident occurring. Those living up to 30 km away are meant to stay indoors until radiation alarms detect fallout in the air.

Some experts have cast doubt on whether it is a good idea to order people to stay indoors when reactors are spewing radiation.

For example, when quakes pummeled Kyushu this spring, about 160,000 houses and buildings were damaged. If that were to occur in Fukui, many residents would find it difficult to shelter indoors.

In the Kumamoto earthquake, there were cases where people returned to their homes after the initial quake, only to be hit when houses collapsed in the second quake, said Hirotada Hirose, a professor emeritus at Tokyo Woman's Christian University, a specialist in disaster risk management.

"If a severe nuclear disaster occurs, evacuating in phases isn't likely to go well," he said. "The evacuation plan should assume many scenarios."

These could include cases where an earthquake cuts traffic, jamming the roads with panicking residents who ignore advice and are trying to flee in large numbers.

Nonetheless, Saturday's exercise finished without any major hiccups.

"By doing the drills with local governments and residents over and over again, disaster-prevention skills will improve," said Fukui Gov. Issei Nishikawa.

As part of the exercise, at the town hall of Mihama, Fukui Prefecture, Kansai Electric workers screened evacuees for radiation exposure. They also checked the buses for contamination.

One of the would-be evacuees was Masatoshi Nose, 46, a city government employee from Obama, Fukui Prefecture.

"As this is a drill, I was able to come here smoothly," Nose said. "But in a real disaster situation, it may take an entire day."

Also, poor visibility scrubbed plans to use a Ground Self-Defense Force helicopter to extract 20 residents from near Takahama. About 180,000 people live within 30 km of the plant whose No. 3 and No. 4 reactors were restarted in January and February, only to be halted again after the Otsu District Court in Shiga in March issued a provisional injunction following a petition by residents.

Meanwhile, on Sunday about 2,000 local residents participated in an evacuation drill under a scenario where Kansai Electric's Oi nuclear power plant in Fukui Prefecture experiences a catastrophic accident.

The drill was organized by the Fukui Prefectural Government.

The residents took shelter in their homes or evacuated to elsewhere in the prefecture as part of an effort to test response times to an accident.

The evacuation drill was only carried out within Fukui Prefecture itself as no evacuation plan covering a wider area has been drawn up for the plant, located in the town of Oi.

Residents within 5 km of the plant fled to the city of Tsuruga, and Oi residents within 30 km of the plant moved to the city of Ono, about 100 km away.

For the evacuees from Oi, a facility was set up for the distribution of iodine tablets to mitigate radiation exposure and to check for contamination.

August 29, 2016

## Japan braces for Lionrock

[http://www3.nhk.or.jp/nhkworld/en/news/20160829\\_23](http://www3.nhk.or.jp/nhkworld/en/news/20160829_23)

People in Japan are bracing for another powerful typhoon that is approaching the main island with violent winds and torrential rain.

The Meteorological Agency says Typhoon Lionrock is packing winds of more than 160 kilometers per hour near its center. It is moving northeast at a speed of 25 kilometers an hour near the Izu Island chain, south of Tokyo.

The agency warns that the tropical cyclone will advance toward regions between Kanto, including Tokyo, and northern Japan on Tuesday.

Weather forecasters are urging people to prepare for powerful winds and high waves.

In western Japan, a cold air mass in the upper atmosphere has destabilized the weather in the region, bringing torrential rain.

Bands of well-developed thunderclouds are expected to slowly move eastward toward the Kinki and Tokai regions through Tuesday morning.

The Meteorological Agency is warning of possible flooding, landslides, tornados and other disturbances.

## Building on radioactive soil

### Couple built home on top of radioactive soil due to inaccurate city sketch

<http://mainichi.jp/english/articles/20160829/p2a/00m/0na/011000c>

FUKUSHIMA -- A couple unknowingly built a new home in Fukushima on top of bags containing radioactive soil because they received an inaccurate waste storage sketch created by the Fukushima Municipal Government, it has been learned.

The couple has been unable to remove four flexible container bags of radioactive soil found buried under their home, as doing so could leave their house leaning. They say the city has not apologized.

"Far from admitting responsibility and apologizing, they haven't even tried to examine the site. They have also been reluctant to release information, and have acted extremely insincerely," a statement from the pair said.

The couple initially received a Fukushima Municipal Government sketch showing buried waste on a plot of land they purchased, but it contained no dimensions. About 66,000 similar sketches without dimensions have already been distributed, and it is possible that similar incidents could occur in the future as the storage of waste collected in the wake of the meltdowns at Tokyo Electric Power Co.'s Fukushima No. 1 Nuclear Power Plant becomes prolonged.

In five Fukushima prefectural municipalities, including the city of Fukushima, contaminated soil collected during decontamination work has mostly been stored onsite, while other local bodies have stored it at interim storage facilities. The city of Fukushima is the only one of the five municipalities to have handed landowners waste storage sketches without any dimensions. Those provided by the other four municipalities show dimensions. When land changes hands, the diagrams are normally handed from the previous landowner to the new one.

In November 2013, a man in Fukushima bought a 300-square-meter plot of decontaminated land, and received a "monitoring chart" from the previous landowner with a diagram showing where radioactive soil was buried, along with radiation measurements taken before and after the decontamination. Based on the diagram, the man built a new home, avoiding the northeast of the plot of land where the waste was shown to be buried.

However, when the city came to dig up the buried waste in October 2015, it was found that six flexible container bags with a total capacity of six cubic meters lay under the northeast part of the new home. Four of them could not be removed due to fears of the home being left leaning.

When the man made an official information request for documents on decontamination in May this year, he was given a diagram containing dimensions. This showed that the waste was buried several dozen centimeters closer to the southwest, nearer the center of the plot of land. The man says the actual burial spot was even further toward the center.

A Fukushima Municipal Government official said the purpose of the diagram without dimensions was to display the amount of radiation, and that the burial spot it showed was only a rough indication. The municipal government said the basis of the diagram with dimensions, on the other hand, was different, being used to record the burial spot of waste under the Act on Special Measures Concerning the Handling of Radioactive Pollution.

A city official commented that the decontaminated soil was supposed to be removed quickly and the officials had not expected it to be there until the time a land transaction was made and a home built. The city is considering replacing about 26,000 diagrams that are due to be distributed with ones that show dimensions. It is also considering publicly informing people that the diagrams that have been issued without dimensions are not accurate indications of where waste is buried.

August 30, 2016

## Typhoon hits Tohoku

### **Powerful typhoon directly hits Pacific side of Tohoku region for first time on record**

<http://mainichi.jp/english/articles/20160830/p2a/00m/0na/024000c>

Large and powerful Typhoon Lionrock reached an area around the Iwate Prefecture city of Ofunato at around 6 p.m. on Aug. 30, the Japan Meteorological Agency (JMA) said.

- **【Related】** Evacuation preparation advisories issued as Typhoon Lionrock was approaching Tohoku
- **【Related】** Typhoon Lionrock approaches Tohoku region
- **【Related】** Strong typhoon expected to bring heavy rain, strong winds to Kanto

This is the first time that a typhoon has directly hit the Pacific Ocean side of the Tohoku region in northeastern Honshu since the JMA began compiling statistics on typhoons in 1951.

The typhoon, this year's 10th, will likely speed up before passing into the Sea of Japan late on Aug. 30. As of 5 p.m. on Aug. 30, the typhoon's central pressure was 965 hectopascals, with wind speed near its center up to 35 meters per second and maximum instantaneous wind speed at 50 meters per second.

The powerful typhoon has wreaked havoc on transport systems in some regions. Japan Airlines and All Nippon Airways cancelled 60 and 37 flights, respectively. A total of 51 bullet train services were cancelled either completely or partially on the Hokkaido, Tohoku and Akita Shinkansen lines.

## NRA's method of quake calculation is wrong

### **NRA, utilities continue to use quake calculation method avoided by gov't research panel**

<http://mainichi.jp/english/articles/20160830/p2a/00m/0na/013000c>

The Nuclear Regulation Authority (NRA), power companies and other entities have continued to use an old method of calculating the maximum level of shaking from earthquakes that could hit nuclear plants despite indications from the government's Earthquake Research Committee that this could result in underestimates, it has been learned.

The Earthquake Research Committee has been using a new formula for calculating the maximum level of shaking that would occur in an earthquake, or "standard ground motion," based on a revision in 2009. The NRA insists there is no need to review its current formula, but an expert from the Earthquake Research Committee insists, "The NRA's judgment is wrong." The situation raises questions about the nuclear watchdog's policy.

With respect to the old formula for calculating standard ground motion, Kunihiko Shimazaki, former acting chairman of the NRA, pointed out in June that the projected maximum impact of earthquakes on Kansai Electric Co.'s Oi nuclear plant and other facilities may have been underestimated and should be re-evaluated. The NRA, however, decided in July to retain the current method. The old formula has also been used for other nuclear power stations besides the Oi plant. Doubts about the formula, therefore, will likely affect safety reviews of other nuclear plants as well as decisions on whether to give the green light to restart those plants.

The Earthquake Research Committee is a government organ tasked with conducting research on earthquakes and other related matters. In 2006, it released a method of calculating ground motion -- based on the width and length of faults -- which the NRA and utilities adopted to calculate standard ground motion. However, there have been suggestions that the formula undervalues the magnitude of earthquakes, resulting in underestimation of ground motion in some cases. For this reason, the

Earthquake Research Committee released a new formula in 2009, and has since been using it to calculate ground motion of earthquakes around the country.

A calculation manual devised by the Earthquake Research Committee contains both methods, but the government research panel has started considering revising the manual based on the current state of affairs.

A representative of the NRA's secretariat commented, "The 2006 formula is used based on the assumption that detailed research will be conducted. As power companies are conducting detailed research, it is a proper method to be used in evaluating nuclear plants."

Kazuki Koketsu, who heads the Earthquake Research Committee's division in charge of evaluating strong ground motion and is a professor at the University of Tokyo's Earthquake Research Institute, disagrees. "The 2009 formula is used for making predictive calculations of ground motion triggered by active faults. That's because the 'width of faults' needed for calculations in the method adopted by the NRA cannot be ascertained even through detailed research. No matter which scholar we ask, we get the same answer that the NRA's judgment is wrong," he says.

## Typhoon halts work at Daiichi plant

### **Nearing typhoon halts work at Fukushima Daiichi**

[http://www3.nhk.or.jp/nhkworld/en/news/20160830\\_26/](http://www3.nhk.or.jp/nhkworld/en/news/20160830_26/)

Workers at the troubled Fukushima Daiichi nuclear plant have suspended some of the decommissioning work and are bracing for rain and winds from a powerful typhoon.

Typhoon Lionrock is expected to make landfall along Japan's northeastern coast on Tuesday afternoon, passing off Fukushima Prefecture.

Tokyo Electric Power Company says workers secured electric cables and hoses on the plant compound on Monday.

On Tuesday, the operator suspended work at the plant's port. It also stopped the operation of a crane being used to demolish a temporary cover over one of the reactor buildings. Officials say they are closely watching to make sure the cover is not blown off by the typhoon.

TEPCO says it has also taken measures to prevent contaminated rain water and groundwater from leaking into the ocean.

In past typhoons, it was thought that contaminated rainwater flowed into the ocean through a drainage system. There were also concerns that radioactive groundwater might leak into the ocean as rain could increase the groundwater in the compound.

This time the operator has installed stronger pumps and increased their number.

The utility says as of 11 AM Tuesday, there were no changes in groundwater levels at the plant's site.

Other measures taken earlier include rerouting the drainage system into the plant's port instead of directly into the ocean. TEPCO also raised the barriers around tanks that store tainted water.

### **Decontamination workers preparing for typhoon**

[http://www3.nhk.or.jp/nhkworld/en/news/20160829\\_31/](http://www3.nhk.or.jp/nhkworld/en/news/20160829_31/)

People doing decontamination work in areas affected by radioactive fallout from the 2011 Fukushima nuclear accident are preparing for Typhoon Lionrock.

Last year in September, about 400 bags of radioactive soil and waste were swept away when a river in Iitate Village, Fukushima Prefecture, overflowed its banks.

On Monday, Environment Ministry officials instructed local authorities to take measures to prevent such incidents. Workers secured bags of radioactive waste with ropes and covered contaminated soil with vinyl sheets.

The officials plan to suspend clean-up operations for Tuesday, and to send workers to safeguard waste sites.

## **Icewall: Japan's "Hail Mary play"**

### **Japan's 'Hail Mary' at Fukushima Daiichi: An Underground Ice Wall**

[http://www.nytimes.com/2016/08/30/science/fukushima-daiichi-nuclear-plant-cleanup-ice-wall.html?emc=edit\\_th\\_20160830&nl=todaysheadlines&nid=32427321&r=0](http://www.nytimes.com/2016/08/30/science/fukushima-daiichi-nuclear-plant-cleanup-ice-wall.html?emc=edit_th_20160830&nl=todaysheadlines&nid=32427321&r=0)

By MARTIN FACKLER

FUKUSHIMA DAIICHI NUCLEAR POWER STATION — The part above ground doesn't look like much, a few silver pipes running in a straight line, dwarfed by the far more massive, scarred reactor buildings nearby. More impressive is what is taking shape unseen beneath: an underground wall of frozen dirt 100 feet deep and nearly a mile in length, intended to solve a runaway water crisis threatening the devastated Fukushima Daiichi Nuclear Power Station in Japan.

Officially named the Land-Side Impermeable Wall, but better known simply as the ice wall, the project sounds like a fanciful idea from science fiction or a James Bond film. But it is about to become a reality in an ambitious, and controversial, bid to halt an unrelenting flood of groundwater into the damaged reactor buildings since the disaster five years ago when an earthquake and a tsunami caused a triple meltdown. Built by the central government at a cost of 35 billion yen, or some \$320 million, the ice wall is intended to seal off the reactor buildings within a vast, rectangular-shaped barrier of man-made permafrost. If it becomes successfully operational as soon as this autumn, the frozen soil will act as a dam to block new



groundwater from entering the buildings. It will also help stop leaks of radioactive water into the nearby Pacific Ocean, which have decreased significantly since the calamity but may be continuing.

However, the ice wall has also been widely criticized as an expensive and overly complex solution that may not even work. Such concerns re-emerged this month after the plant's operator announced that a section that was switched on more than four months ago had yet to fully freeze. Some also warn that the wall, which is electrically powered, may prove as vulnerable to natural disasters as the plant itself, which lost the ability to cool its reactors after the 45-foot tsunami caused a blackout there.

The reactor buildings are vulnerable to an influx of groundwater because of how the operator, Tokyo Electric Power Co., or Tepco, built the plant in the 1960s, by cutting away a hillside to place it closer to the sea, so the plant could pump in water more easily. That also put the buildings in contact with a deep layer of permeable rock filled with water, mostly rain and melted snow from the nearby Abukuma Mountains, that flows to the Pacific.

The buildings managed to keep the water out until the accident on March 11, 2011. Either the natural disasters themselves, or the explosive meltdowns of three of the plant's six reactors that followed, are believed to have cracked the buildings' basements, allowing groundwater to pour in. Nearly 40,000 gallons of water a day keep flooding into the buildings.

Once inside, the water becomes highly radioactive, impeding efforts to eventually dismantle the plant. During the accident, the uranium fuel grew so hot that some of it is believed to have melted through the reactor's steel floors and possibly into the basement underneath, though no one knows exactly where it lies. The continual flood of radioactive water has prevented engineers from searching for the fuel. Since the accident, five robots sent into the reactor buildings have failed to return because of high radiation levels and obstruction from debris.

The water has also created a waste-management nightmare because Tepco must pump it out into holding tanks as quickly as it enters the buildings, to prevent it from overflowing into the Pacific. The company says that it has built more than 1,000 tanks that now hold more than 800,000 tons of radioactive water, enough to fill more than 320 Olympic-size swimming pools.

On a recent visit to the plant, workers were busily erecting more durable, welded tanks to replace the temporary ones thrown up in a hurry during the early years after the accident, some of which have leaked. Every available patch of space on the sprawling plant grounds now appears to be filled with 95-foot tanks. "We have to escape from this cycle of ever more water building up inside the plant," said Yuichi Okamura, a general manager of Tepco's nuclear power division who guided a reporter through Fukushima Daiichi. About 7,000 workers are employed in the cleanup.

The ice wall is a high-technology bid to break that cycle by installing what might be the world's largest freezer. Pipes almost 100 feet long have been sunk into the ground at roughly three-foot intervals, and filled with a brine solution supercooled to minus 30 degrees Celsius, or minus 22 Fahrenheit. Each pipe is supposed to freeze a column of soil about a foot and a half in radius, large enough to reach the ice column created by its neighboring pipes and form a seamless barrier.

Engineers with the wall's builder, the construction giant Kajima Corp., estimate that it will take about two months for the soil around a pipe to fully freeze. Solidifying the entire wall, which consists of 1,568 such underground pipes, will require 30 large refrigeration units and consume enough electricity to light more than 13,000 Japanese homes for a year.

The technique of using frozen barriers to block groundwater has been used to build tunnels and mines around the world, but not on this scale. And certainly not on the site of a major nuclear disaster.

Since the start, the project has attracted its share of skeptics. Some say buried obstacles at the plant, including tunnels that linked the reactor buildings to other structures, will leave holes in the ice wall, making it more like a sieve. Others question why such an exotic solution is necessary when a traditional steel or concrete wall might perform better.

Some call the ice wall a flashy but desperate gambit to tame the water problem, after the government and Tepco were initially slow to address it. Adding to the urgency is the 2020 Olympics, which Prime Minister Shinzo Abe of Japan helped win for Tokyo three years ago by assuring the International Olympic Committee that the water troubles at Fukushima Daiichi were under control.

“It’s a Hail Mary play,” said Azby Brown, a Japan-based researcher for Safecast, an independent radiation-monitoring group. “Tepco underestimated the groundwater problem in the beginning, and now Japan is trying to catch up with a massive technical fix that is very expensive.”

Supporters and skeptics alike will soon learn if that gambit will succeed. After two years of work, Kajima finished installing the pipes and refrigerator units to create the ice wall in February. At the end of March, it switched on part of the ice wall for the first time — roughly half a mile that runs between the reactor buildings and the Pacific. Most of the other, uphill side of the wall was activated in mid-June.

Kajima is freezing the wall in stages under orders from the Nuclear Regulation Authority, Japan’s nuclear watchdog. The authority is concerned that cutting off the groundwater too suddenly might lead to a reversal of flows, causing the radioactive water accumulated inside the reactor buildings to start pouring out into the surrounding soil, possibly reaching the Pacific. It has told Kajima to leave a half-dozen “gateways” in the uphill side that will not be closed until much of the contaminated water is drained from the buildings.

This month, Tepco told the nuclear agency that the seaside segment of the ice wall had frozen about 99 percent solid. It says a few spots have failed to solidify because they contain buried rubble or sand left from the plant’s construction a half-century ago, which now allow groundwater to flow through so quickly that it will not freeze.

Tatsuhiko Yamagishi, a spokesman for Tepco, said the company was trying to plug these holes in the ice wall with quick-drying cement. “We have started to see some progress in temperature decrease,” he said. Even if the cement helps make the ice wall watertight, skeptics question how long it can last. They point out that such frozen barriers are usually temporary against groundwater at construction sites. They say the brine solution used to chill the pipes is highly corrosive, which could make them break or leak. It is also unclear whether the system could break down under the stresses of operating in a high-radiation environment where another earthquake could lead to another power loss.

“Why build such an elaborate and fragile wall when there is a more permanent solution available?” said Sumio Mabuchi, a former construction minister who has called for building a slurry wall, a trench filled with liquid concrete that is commonly used to block water.

Isao Abe, a Kajima engineer overseeing the ice wall, said his company had made the wall more durable by installing underground pipes that are easy to replace if they corrode. He also said the ice wall was self-sealing, meaning that if another earthquake caused cracks, any incoming water would freeze right away, restoring the wall. He also said it would take months for the wall to thaw, giving engineers ample time to restore power even if the plant has another outage.

Mr. Abe said the wall was intended to operate until 2021, giving Tepco five more years to find and plug the holes in the reactor buildings, though skeptics say this difficult task will require more time. Mr. Abe also pointed out that the ice wall was part of a broader strategy for containing the radioactive water. Before

installing the ice wall, Kajima also built a conventional steel wall underground along the plant's border with the Pacific last year.

Tepco says that wall has already stopped all measurable leaks of radioactive materials into the sea. However, some scientists say that radioactive water may still be seeping through layers of permeable rock that lie deep below the plant, emptying into the Pacific far offshore. They say the only way to eliminate all leaks would be to repair the buildings once and for all.

Even if the ice wall works, Tepco will face the herculean task of dealing with the huge amounts of contaminated water that have accumulated. The company has installed filtering systems that can remove all nuclear particles but one, a radioactive form of hydrogen known as tritium. The central government and Tepco have yet to figure out what to do with the tritium-laced water; proposals to dilute and dump it into the Pacific have met with resistance from local fishermen, and risk an international backlash.

For now, the only visible sign that the freezing has begun are silver-dollar-size patches of ice that have formed on top of the aboveground, silver pipes. At one spot, the No. 4 reactor building loomed, an enormous cube six stories tall with concrete sides that showed large gashes left by the tsunami.

**"The water is here, just three meters beneath our feet,"** said Mr. Okamura, the Tepco general manager, who stood near the pipes wearing a white protective suit, goggles and a surgical mask. **"It still flows into the building, unseen, without stopping."**

September 1, 2016

## **Worst contaminated areas will be "safe" in 2022**

### **Ban to be lifted on Fukushima's worst-affected zone in 2022**

<http://www.asahi.com/ajw/articles/AJ201609010066.html>

By NORIYOSHI OTSUKI/ Senior Staff Writer

Some of the most contaminated areas of Fukushima Prefecture rendered uninhabitable by the 2011 nuclear disaster will be declared safe to live in again in 2022.

The government's decision to lift the partial ban on repatriation to the "difficult-to-return zone" was announced Aug. 31 after Prime Minister Shinzo Abe called a joint meeting of the government's Nuclear Emergency Response Headquarters and Reconstruction Promotion Council.

By 2022, the area's 24,000 or so residents will have been displaced for more than a decade and there is no way of knowing how many will choose to return to their hometowns.

The difficult-to-return zone encompasses seven municipalities situated in a 20-kilometer radius of the crippled Fukushima No. 1 nuclear power plant as well as a spur of land northwest of the radius.

Partial lifting of the ban, in the eyes of the government, is reasonable as "radiation levels in the zone have dropped" even though no decommissioning work has been done there.

The government said the move is aimed at bolstering efforts to rebuild the prefecture, adding that leaving the zone intact would only perpetuate negative images of the area and sully the reputation of local products.

The ban will initially be lifted for areas where local government buildings, train stations and community halls are located, and eventually the rest of the zone.

There was no word, however, on how many years it will take for that to happen.

The government envisages enacting a law to designate areas earmarked as rebuilding hubs so as to encourage residents to return. The government will try to give priority to decisions by local officials as to which areas fall into that category.

In preparation for the lifting of the partial ban, the government will start extensive decontamination work in the zone from fiscal 2017, which begins next April.

The government estimates it would take 1 trillion yen (\$9.7 billion) to clean up the entire zone, and is balking at making such an outlay on grounds of time and cost.

Even if the operation done on a limited basis, it is bound to come with a hefty price tag.

Funds needed for construction of housing and makeshift shops in the hub areas will be set aside in the government's budget, starting from fiscal 2017.

According to government officials, some municipalities will likely to set up more than one rebuilding hub. But one of the villages in the zone may end up having no hub at all due to depopulation.

A 2015 survey by the Reconstruction Agency found that the share of displaced people from Okuma, Futaba, Namie and Tomioka who expressed their intention to return to their hometowns varied from 11.4 percent to 17.8 percent. While the ratio was 32.8 percent for Iitate, no figures were available for Katsurao and Minami-Soma.

## **Ikata: Cooling water leaks**

### **Cooling water leaks at Ikata nuclear plant**

[http://www3.nhk.or.jp/nhkworld/en/news/20160901\\_27/](http://www3.nhk.or.jp/nhkworld/en/news/20160901_27/)

The operator of the Ikata nuclear power plant in western Japan says it found evidence of a leak of cooling water from pipes at its No.2 reactor. That unit has been offline.

Officials say they believe the amount is tiny and there's no effect on the environment.

Shikoku Electric Power Company says on Thursday workers found a crack about 3 centimeters long on a pipe that's used for circulating cooling water for the reactor. The crack was coated with boric acid. The cooling water contains the substance.

The company believes about 10 milliliters of cooling water containing radioactive substances leaked from the crack, but says it has caused no harm to the outside environment.

The No.2 unit has been offline since January 2012, nearly one year after the accident at the Fukushima Daiichi plant.

The utility suspects a boric-acid solution that remained after an inspection conducted following the reactor's suspension leaked later.

Similar parts are used in the No.3 unit, which went online in August. But the company says there's no problem with its operation as an inspection was conducted before the reactivation.

Company official Koichi Niiyama says the utility will further investigate the cause of the crack.

## The importance of evacuation plans

### **EDITORIAL: Typhoon No. 10 underscores the importance of evacuation plans**

<http://www.asahi.com/ajw/articles/AJ201609010028.html>

Typhoon No. 10 left behind a trail of destruction in northern parts of Japan, leaving us to wonder if there was no way to save the victims.

It is distressing to know that people fell victim to the destructive force of huge masses of water despite repeated warnings about the danger.

In Hokkaido, Iwate Prefecture and other parts of northern Japan, wide areas were inundated after hours of fierce rainstorms. In many of the areas, rivers burst their banks, causing floods.

Nine residents were found dead at a nursing home for elderly people in Iwaizumi, Iwate Prefecture, on Aug. 31 after the facility was deluged by mud from an overflowing river.

Drifting logs reached the roof of the one-story building, and the windows were mostly buried by brownish dirt. The picture of the inundated nursing home speaks volumes about the unbridled violence of raging muddy rivers.

People showing symptoms of dementia were living together at the home.

The tragedy has raised some questions. Was there an effective emergency evacuation plan for the residents? How did the workers at the facility respond to the situation? Were the people at the home sufficiently aware of the danger?

In an adjacent rehabilitation center for elderly people, nobody was killed because all residents took refuge in the upper floors of the three-story building. What difference was there in the safety situations of the two facilities?

The operator of the facility and the local government should make careful investigations into the disaster to find answers to these questions and glean lessons from the tragedy.

In ordinary circumstances, the risk of flooding rises sharply when rainfall surpasses 50 millimeters an hour. In Iwaizumi, rainfall of 70 mm an hour was recorded in the evening of Aug. 30. The cumulative rainfall since Aug. 29 reached 250 mm.

The tragedy came as a fresh reminder of the importance of early evacuation before nightfall.

It has been repeatedly pointed out that such disasters tend to cause a heavy death toll among elderly and disabled people who have difficulty evacuating on their own.

In 2006, the government established guidelines for supporting evacuations of people who require assistance during disasters.

In 2013, the disaster countermeasures basic law was revised to require local governments to compile lists of people living in their respective areas who are vulnerable in disasters. Local governments have also been urged to develop separate evacuation plans for these people.

The nursing-care insurance program requires group homes and homes for elderly people requiring special care to craft evacuation plans and ensure the procedures are known and understood by all employees.

The program has also made it mandatory for these facilities to conduct evacuation drills.

These efforts to improve preparedness for disasters are important. But the question is whether the measures are designed to ensure effective responses to actual disasters.

Many welfare facilities are located in areas vulnerable to landslides, such as hilly and mountainous locations where it is relatively easy to procure land plots for such facilities.

In 2009, torrential downpours in the Chugoku and Kyushu regions triggered a mudflow in Yamaguchi Prefecture that hit a home for elderly people requiring special care, resulting in seven deaths.

It is important to prepare effective evacuation plans for such facilities, taking into account their geographical features.

At night, it is difficult for the small number of workers alone to evacuate all residents of the facilities.

It is vital for facilities to build a system of cooperation with the local communities in such situations.

This is a good opportunity for welfare facilities around the nation to make sweeping reviews of their disaster preparedness.

In rainy Japan, flooding is a familiar disaster.

The latest typhoon caused flooding in wide areas, leaving many residents cut off and some people trapped in cars in the water.

We need to do more to obtain knowledge about the disaster risks around our own homes and become savvy with ways to avoid disasters.

September 2, 2016

## Typhoon makes icewall melt in parts

### Typhoons cause 'ice wall' to melt at Fukushima nuclear plant

<http://www.asahi.com/ajw/articles/AJ201609020020.html>

By KOHEI TOMITA/ Staff Writer

Rainfall from recent typhoons caused partial melting of the "ice wall" at the Fukushima No. 1 nuclear plant, allowing highly radioactive water to leak from around the damaged reactor buildings, the plant's operator said Sept. 1.

Tokyo Electric Power Co. said melting occurred at two sections of the ice wall, which is designed to divert groundwater away from the reactor buildings.

TEPCO officials believe that during the latest typhoon, contaminated water from around the reactor buildings flowed through openings of the ice wall created by the deluge and reached downstream toward the sea.

The groundwater level near a seaside impermeable wall temporarily rose to 28 centimeters below the ground surface when Typhoon No. 10 passed the area on Aug. 30.

Before the typhoon hit, the water level was 35 cm below the surface.

Around 5.5 cm of rainfall a day fell in the area when the typhoon hit.

The groundwater level, however, actually rose by 7 cm, although 740 tons of groundwater was pumped out of the section.

“If there had been an additional 15 cm of rain, (the contaminated water) could have poured out over the ground surface” and spilled into the sea, a TEPCO official said Sept. 1.

The Meteorological Agency’s initial forecast said Typhoon No. 10 would bring a maximum 20 cm of rain a day at some locations in the Tohoku region.

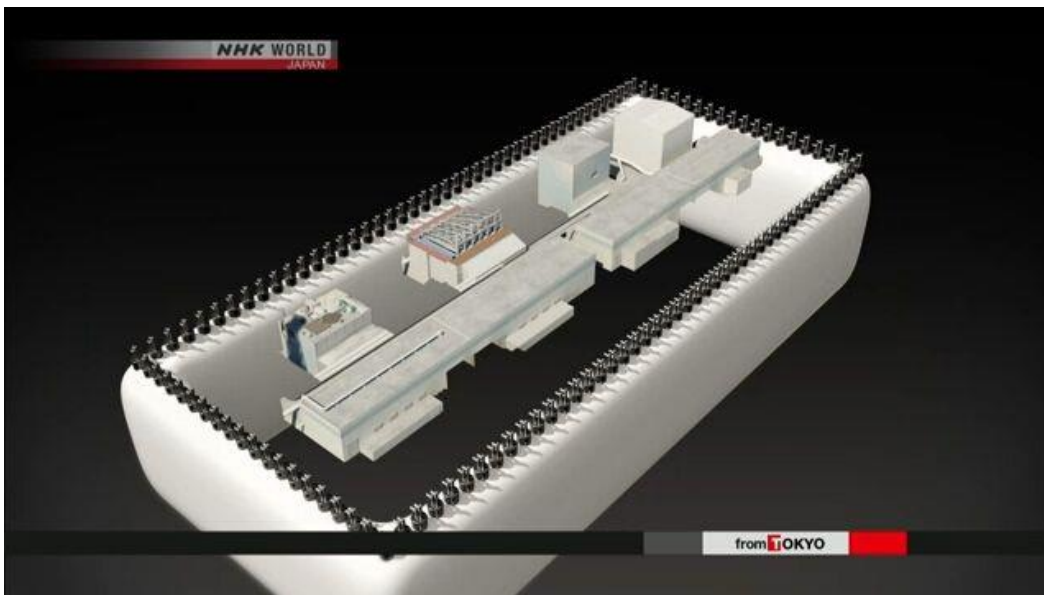
The 34.5-billion-yen (\$335 million) frozen wall was completed in spring to prevent groundwater from entering the reactor buildings and mixing with highly radioactive water.

TEPCO admitted the underground wall of frozen dirt is not working.

The company said the temperatures at the two sections of the frozen wall have climbed above zero since Typhoon No. 7 approached Fukushima Prefecture on Aug. 17.

The company believes that the partial melting was caused by the influx of water brought by the typhoons and heavy rain in between.

TEPCO plans to freeze the wall again by pouring chemicals into pipes that extend underground.



### **Temperatures rose in parts of reactor ice wall**

[http://www3.nhk.or.jp/nhkworld/en/news/20160902\\_06/](http://www3.nhk.or.jp/nhkworld/en/news/20160902_06/)

The operator of the crippled Fukushima Daiichi nuclear power plant says due to recent heavy rain temperatures rose above zero degrees Celsius in some parts of an underground ice wall.

Tokyo Electric Power Company has been trying to freeze soil around damaged reactors since March. The aim is to cut the volume of contaminated water by reducing the flow of groundwater into damaged reactor buildings.

But the company says a series of storms have been dumping heavy rain in and around the plant since mid-August, pushing up temperatures in some sections of the ice wall.

The utility says wall temperatures to the south of the No.4 reactor rose from minus 5 degrees to plus 1.8 degrees at the highest through Thursday. It adds wall temperatures to the east of the No.3 reactor also went up from minus 1.5 degrees to plus 1.4 degrees.

Temperatures in these sections had been higher than others parts of the wall even before the storms. It's feared that some ice in the sections may have melted as the rain increased groundwater flows.

In response, the firm decided to inject a chemical agent in these 2 places to solidify soil, reduce water flow, and speed up freezing.

Experts point out that the ice wall is not as effective as estimated in decreasing groundwater flows. Discussion on the effectiveness is underway at the Nuclear Regulation Authority.

## Test fishing for flounder

### Test fishing for flounder begins off Fukushima coast

<http://www.asahi.com/ajw/articles/AJ201609020065.html>

By KAZUMASA SUGIMURA/ Staff Writer

IWAKI, Fukushima Prefecture--Fishermen here caught flounder for sales on Sept. 2 for the first time since the 2011 disaster at the Fukushima No. 1 nuclear plant.

Eleven boats equipped with dragnets left Hisanohama wharf in the morning, and they snared five of the bottom-dwelling flatfish, previously a specialty of Fukushima Prefecture.

"It is a big step (for flounder fishing)," said Akira Egawa, 69, head of the Iwaki city fishery association. "We are going to recover one by one."

On Aug. 25, 10 kinds of fish, including flounder, were added to the list for "test fishing" off the coast of Fukushima Prefecture. These fish can be caught for the resumption of sales of "safe" fish.

In 2010, 734 tons of flounder were caught in Fukushima Prefecture, the third most in Japan.

The peak season for flounder fishing is around the end of October.

## Checking weak (French) steel in all reactors

### Steel in Troubled French Nuclear Reactor Used in Japanese Plants

<http://www.bloomberg.com/news/articles/2016-09-02/steel-in-troubled-french-nuclear-reactor-used-in-japanese-plants>

Stephen Stapczynski Emi Urabe

Thirteen Japanese nuclear reactors were constructed with steel from the same company used in a French power plant that's under scrutiny for anomalies found in the reactor vessel's structure.



Six utilities used steel from Japan Casting & Forging Corp., they all said in separate statements on Friday. The steelmaker was identified by Japanese authorities last month as supplying steel to the Flamanville nuclear plant, developed by Electricite de France SA and Areva SA, where the French safety authority last year found weaker-than-expected steel.

Japan's nuclear regulators asked utilities last month to examine reactor parts manufactured by the same companies as the Flamanville facility. Utilities must now evaluate whether their reactor pressure vessels meet Japan's standards and report the results to the Nuclear Regulation Authority by Oct. 31.

The Japanese facilities affected include Kyushu Electric Power Co.'s Sendai No. 1 and 2 reactors, the company said Friday. The plant was restarted last year and is facing opposition from the region's new governor, who has demanded they be temporarily shut for inspections.

Reactors that are currently operating don't need to be shut down, Yoko Kobayashi, an official with the NRA's planning division, said Friday. The affected utilities are now required to submit manufacturing reports and past evaluation results, she said.

### **Nuclear Challenge**

The steel scrutiny is latest hurdle for nuclear power in Japan and the government's goal of having it account for as much as 22 percent of its energy mix by 2030 in the wake of the 2011 Fukushima disaster. Local court challenges have threatened reactor operations, and even those restarted under new post-Fukushima safety rules have faced a rocky road. Only three of the nation's 42 operable reactors are online. Parts manufactured by JCFC met rigorous standards requested by the utilities, and the company will provide support going forward, Seigo Otsubo, an official at the company, said Friday.

EDF and Areva are conducting additional tests to determine whether the anomalies are a safety issue. The two companies said in April that the submission of their report to French regulators about the Flamanville reactor has been delayed until year-end.

EDF has also determined that steam generator channel heads at 18 French reactors contain anomalies similar to those at Flamanville, Autorite de Surete Nucleaire, the safety regulator, said in June.

Japanese reactors that used steel from JCFC, according to statements from the companies:

- Tokyo Electric Power Co. Holdings Inc.'s Fukushima Dai-2 No. 2, No. 4
- Kansai Electric Power Co.'s Takahama No. 2, Oi No. 1 and No. 2
- Kyushu Electric Power Co.'s Genkai No. 2, No. 3, No. 4, Sendai No. 1, No. 2
- Shikoku Electric Power Co.'s Ikata No. 2
- Hokuriku Electric Power Co.'s Shika No. 1
- Japan Atomic Energy Agency's Tsuruga No. 2

September 3, 2016

## **Typhoon nearing Kyushu island**

### **Typhoon nearing Japan's Kyushu island**

<https://my.over-blog.com/dashboard/welcome>

A strong typhoon is heading north over the Pacific and moving towards Japan's southwestern island of Kyushu.

The Japan Meteorological Agency says Typhoon Namtheun will approach Kyushu on Monday. The agency is advising residents to take precautions against landslides and flooding in low-lying areas.

The agency says that as of 0 AM on Sunday Japan Time, Namtheun is focused 80 kilometers south-southwest of the city of Makurazaki in Kagoshima Prefecture. It is packing winds of up to 126 kilometers per hour near its center. It is traveling north at a speed of 10 kilometers per hour.

On Saturday, the typhoon brought localized torrential rain to **Kagoshima** Prefecture.

### **Utilities to check forged steel in all reactors**

[http://www3.nhk.or.jp/nhkworld/en/news/20160903\\_07/](http://www3.nhk.or.jp/nhkworld/en/news/20160903_07/)

Power utilities in Japan have found that **all their reactors** use steel components made in the same way as supposedly weak French products. They are now set to check the durability of the components in question.

The utilities examined the makers and production methods of key components at the instruction of Japan's Nuclear Regulation Authority. The results were announced on Friday.

The probe came **after steel in some parts of reactor walls made in France was found to contain more carbon than it should. Steel with high carbon content can be damaged more easily.**

The French products were made using the forging method. The Japanese utilities say all 46 reactors at their 18 nuclear plants used some parts made by forging.

Japanese regulators say the method itself is not a problem. But they say flawed manufacturing quality control could result in higher carbon content in products.

The utilities plan to examine production records and other factors to check the strength. They are to report the findings by the end of October.

September 5, 2016

### **Kyushu Electric will not halt plant**

### **Kagoshima governor expresses regret**

[http://www3.nhk.or.jp/nhkworld/en/news/20160905\\_21/](http://www3.nhk.or.jp/nhkworld/en/news/20160905_21/)

The Governor of Kagoshima Prefecture Satoshi Mitazono has called Kyushu Electric Power Company's position extremely regrettable.

Mitazono had asked the operator of the Sendai nuclear power plant to suspend its 2 reactors and conduct another safety check after powerful earthquakes hit neighboring Kumamoto Prefecture in April.

Mitazono said he will soon make another request to the power company, after discussing the matter with officials and experts.

## **Kyushu Electric nixes governor's request to halt nuclear plant**

<http://www.asahi.com/ajw/articles/AJ201609050044.html>

KAGOSHIMA--Kyushu Electric Power Co. on Sept. 5 knocked back a request by Kagoshima Governor Satoshi Mitazono to immediately shut down its Sendai nuclear power plant in light of recent earthquakes in the region.

Mitazono, who was elected in July on a campaign pledge to suspend the reactor operations for a safety review, submitted his request to Kyushu Electric on Aug. 26, citing concerns about active faults around the facility.

Michiaki Uriu, president of Kyushu Electric, delivered the company's response to Mitazono in person at the Kagoshima prefectural government office.

He said the two reactors at the Sendai nuclear plant would continue to generate electricity until mandatory safety inspections are carried out later this year.

The utility did, however, promise to give stronger backing to the prefectural government's review of evacuation plans and provide more information about the plant to local residents in the event of a natural disaster or nuclear accident.

Uriu told Mitazono, "We understand your concerns in all seriousness and plan to take steps to reduce the anxiety felt by Kagoshima residents."

Mitazono expressed dismay at Kyushu Electric's decision and indicated he may submit another request to shut down the plant "if the need arises."

"I strongly requested that in the wake of the earthquakes in Kumamoto the nuclear plant should be stopped for another inspection," Mitazono said. "I wish you could abandon the mind-set that nuclear plants are infallibly safe."

In his August request, Mitazono called for an immediate suspension of the nuclear plant operations and a further safety examination on grounds that residents of Kagoshima had become more concerned after a series of earthquakes from April hit Kumamoto Prefecture bordering Kagoshima to the north.

Kyushu Electric argued that the prefectural governor does not have the legal authority to suspend nuclear plant operations, which the utility said were vital for stable corporate performance.

**The company also feared that if it went along with the request it could jeopardize operations at other nuclear plants around Japan.**

The Sendai plant's No. 1 reactor will undergo a periodic safety inspection from Oct. 6, and the No. 2 reactor from Dec. 16.

Kyushu Electric said the inspections will incorporate seven factors asked for by Mitazono, including the reactor pressure vessel.

The utility also said it will undertake special additional inspections covering aspects not included in the governor's request, such as whether bolts on equipment had loosened.

The company pledged to provide additional vehicles to the 16 that elderly residents can use to evacuate in the event of an accident at the plant. The offer represents the company's commitment to providing support for the planned revision of evacuation plans.

But it rejected Mitazono's request for a study of active faults in the vicinity of the Sendai plant on the grounds that a considerable number of such studies had already been conducted.

### **Utility will not suspend reactors despite request**

[http://www3.nhk.or.jp/nhkworld/en/news/20160905\\_20/](http://www3.nhk.or.jp/nhkworld/en/news/20160905_20/)

The operator of the Sendai nuclear power plant in southwestern Japan says it will not suspend the plant's reactors despite a request by the governor of Kagoshima Prefecture to do so in order to recheck their safety.

The operator says it will instead conduct special inspections at the same time the reactors undergo regular inspections.

On Monday, the president of Kyushu Electric Power Company Michiaki Uriu handed a written reply to Governor Satoshi Mitazono.

It was in response to a request by the governor to stop the plant in light of rising concerns among residents after strong quakes hit neighboring Kumamoto Prefecture.

Two reactors at the Sendai plant went back online last year after the government imposed stricter regulations following the 2011 accident at the Fukushima Daiichi plant.

In his reply, Uriu said during the special inspections workers will check the equipment and the functioning of facilities that the governor is requesting.

He said the inspections will be conducted at the same time as the regular inspections which are scheduled from October for the No.1 reactor, and December for the No.2 reactor.

Other measures outlined in the reply include increasing the number of quake observation points around the plant by about 10 and preparing more vehicles to evacuate people from nearby social welfare facilities.

The document also said the utility will disclose more information on the state of the plant after an earthquake strikes.

Mitazono called Uriu's reply extremely regrettable. **The governor said he will make another request after further consideration.**

September 6, 2016

## "Controlled release" of contaminated water safer than uncontrolled...

### **Tepco adviser says treated Fukushima water safe for release into Pacific**

<http://www.japantimes.co.jp/news/2016/09/06/national/science-health/tepco-adviser-says-treated-fukushima-water-safe-release-pacific/#.V88NkTVdeov>

Bloomberg

Treated water from the Fukushima No. 1 nuclear plant is **safe to be released under controlled circumstances into the Pacific Ocean**, according to an independent Tepco adviser.

"It is much better to do a controlled release in my view than to have an accidental release," Dale Klein, a former chairman of the U.S. Nuclear Regulatory Commission, said in an interview in Tokyo. "I get nervous about just storing all that water when you have about 1,000 tanks. You have all the piping, all the valves, everything that can break."

More than five years after the meltdowns at Fukushima No. 1, Tokyo Electric Power Company Holdings Inc. continues to struggle to contain the radiation-contaminated water that inundates the plant.

About 300 tons of water — partly from the nearby hills — flows into the reactor buildings daily, mixing with melted fuel and becoming tainted, according to Tepco. For perspective, that's roughly the amount of water contained in one lane of an Olympic-size swimming pool.

The water is currently pumped out of the buildings and purified, lowering its radioactive content with a system called Advanced Liquid Processing System, or ALPS. **The treated water, which still contains a radioactive element known as tritium**, is then stored in one of roughly 1,000 tanks at the site.

What to do with the treated water remains a headache for Tepco.

The utility was urged by the International Atomic Energy Agency in May 2015 to consider discharging the water into the ocean.

In early 2014, Klein, an independent adviser to Tepco, criticized the company's progress in managing the water situation, saying at the time that the task distracted it from other important challenges associated with the cleanup.

Tepco will cooperate with the government, local authorities and fishermen regarding what to do with the tritium water, spokesman Tatsuhiro Yamagishi said.

**As of July 28, Tepco stored 668,352 tons of treated water at Fukushima No. 1, while 188,462 tons of untreated water was waiting in a second set of tanks to be processed by ALPS**, according to Yamagishi.

The government agency overseeing handling of the treated water has not decided whether to go ahead with an ocean release because it needs to "weigh any potential impact on society," according to an official who asked to not be named, citing internal policy.

"I hope the government will help move toward a decision," Klein said.

**Nuclear power plants routinely and safely release diluted concentrations of tritium-laced water**, according to the U.S. Nuclear Regulatory Commission.

Release of the “water will not be a safety issue, but it will be an emotional issue,” Klein said. “A lot of people are not going to know what tritium is and they’re just going to perceive that the water is glowing in the dark.”

September 7, 2016

## **Nuke workers & anti-terrorism**

### **Japan to start background checks of nuclear workers in anti-terrorism effort**

[http://www.japantimes.co.jp/news/2016/09/07/national/japan-start-background-checks-nuclear-workers-anti-terrorism-effort/#.V8\\_1WzVdeos](http://www.japantimes.co.jp/news/2016/09/07/national/japan-start-background-checks-nuclear-workers-anti-terrorism-effort/#.V8_1WzVdeos)

Kyodo

The nation’s nuclear watchdog decided Wednesday to require background checks for workers at nuclear power plants and other facilities as part of its anti-terrorism measures.

Following recommendations from the International Atomic Energy Agency, the Nuclear Regulation Authority will introduce the measure in late September.

Still, actual implementation is expected to begin next year or later due to necessary regulation changes needed in regards to handling nuclear materials.

It is also unclear how the new measure will be effective in improving security as the operators will conduct the background checks based on information provided by the workers rather than in cooperation with police or other law enforcement authorities.

The regulation will cover employees and subcontractors who enter restricted areas where nuclear materials are kept and those who have access to important information at such facilities.

Under the system, operators will make the workers submit a copy of their resident registry and a written oath stating they have no association with terrorist organizations or crime syndicates. Employees will also be asked where they have traveled overseas, whether they have committed any crimes in the past and whether they have a history of drug addiction.

While such background checks are the norm in other countries’ nuclear industries, Japan had fallen behind due to privacy concerns.

Nuclear plants and facilities in the United States and Europe conduct such background checks in cooperation with the authorities, who check applicants’ criminal records.

Workers at nuclear power plants include employees of utility firms, plant manufacturers and construction firms.

At Tokyo Electric Power Company Holdings Inc.’s Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture, for example, 6,700 people were working there as of August even though its seven reactors are shuttered.

## **Background checks for nuclear workers**

[http://www3.nhk.or.jp/nhkworld/en/news/20160907\\_28/](http://www3.nhk.or.jp/nhkworld/en/news/20160907_28/)

The operators of nuclear power plants in Japan are to start background checks on facility workers next year as part of terrorism prevention efforts.

The Nuclear Regulation Authority decided to introduce the security regulation at a meeting on Wednesday.

The new regulation will cover workers who enter critical areas or who have access to information on nuclear material. Power companies will ask them to declare their medical history, including alcohol and drug addiction, as well as any criminal record or links to terrorist groups. The workers will self-report such information or submit documents to prove their declarations.

The utilities will be allowed to share the written declarations.

Japan is said to be the only major country without such a security system. The International Atomic Energy Agency called for countries to introduce background checks on workers at nuclear facilities after the 2001 terrorist attacks in the United States.

At Wednesday's meeting, an official of the NRA said the new guidelines would benefit the public despite privacy concerns.

A major challenge will be how to make the system effective. Some of the general population called for a stricter framework to allow statements on criminal records to be cross-checked by administrative offices.

## **Mitazono calls again for reactor halt**

### **Governor calls again for Sendai plant suspension**

[http://www3.nhk.or.jp/nhkworld/en/news/20160907\\_23/](http://www3.nhk.or.jp/nhkworld/en/news/20160907_23/)

The governor of Kagoshima Prefecture, home to the Sendai nuclear power plant, has urged the plant operators in person to halt the reactors for fresh safety checks.

Satoshi Mitazono met Kyushu Electric Power Company President Michiaki Uriu at the utility's headquarters in Fukuoka Prefecture on Wednesday.

Mitazono asked Uriu to stop the reactors as soon as possible and conduct fresh checks to ensure the safety of nearby residents.

The governor also asked that the utility address issues that residents are still worried about. These include concerns about some evacuation routes and preparations for possible accidents.

Uriu said the company will work sincerely to ease concerns and boost safety at the plant and public confidence.

Kyushu Electric on Monday had rejected the governor's earlier request for suspending operation of the reactors.

The governor called for the suspension last month in view of growing concerns among residents following recent strong earthquakes in neighboring Kumamoto Prefecture.

Utility officials had replied that they would not immediately suspend operation, but perform special checks instead when the reactors are suspended during the regular inspection period next month.

Uriu said the utility would conduct the special inspections thoroughly.

The reactors at the Sendai plant went back online last year after the government imposed stricter regulations following the 2011 accident at the Fukushima Daiichi nuclear plant.

### **Kagoshima governor once again requests nuclear reactor halt**

<http://mainichi.jp/english/articles/20160907/p2g/00m/0dm/076000c>

FUKUOKA (Kyodo) -- Kagoshima Gov. Satoshi Mitazono once again requested Wednesday that Kyushu Electric Power Co. immediately suspend the operation of two reactors at its nuclear power plant in the southwestern prefecture after the utility rejected his earlier call.

Following a meeting with Mitazono in Fukuoka, Kyushu Electric President Michiaki Uriu indicated to the press that the operator is likely to reject the request, saying he wants the company to be "spared of" the suspension as it will conduct "special safety checkups" thoroughly on the Sendai nuclear plant reactors -- two of only three nuclear reactors currently operating in Japan.

The latest request came after the new governor demanded on Aug. 26 that the utility halt the plant's Nos. 1 and 2 reactors to verify their safety, citing local worries about the plant's safety after major earthquakes rocked neighboring Kumamoto Prefecture and its vicinity in April.

Kyushu Electric rejected the request on Monday, suggesting instead that special checks be conducted on the reactors using underwater cameras to prove the facility's safety during its upcoming regular maintenance. The utility's response prompted Mitazono to express his dissatisfaction.

The governor has no legal power to suspend the operation of the reactors.

The Nos. 1 and 2 reactors at the Sendai plant are scheduled to go through a roughly two-month-long regular checkup from Oct. 6 and from Dec. 16, respectively, during which the plant's operation will be suspended.

Currently, the two Sendai reactors and one reactor at Shikoku Electric Power Co.'s Ikata plant in western Japan are operating in the country after passing tougher safety checks introduced in the wake of the Fukushima nuclear power plant crisis triggered by a powerful earthquake and tsunami in March 2011.



## Kagoshima governor repeats demand for halt to nuclear plant

<http://www.asahi.com/ajw/articles/AJ201609070038.html>

FUKUOKA—Stung by an earlier rejection, Kagoshima Governor Satoshi Mitazono on Sept. 7 again demanded that Kyushu Electric Power Co. immediately suspend operations of the Sendai nuclear power plant for safety inspections.

Mitazono, who won the gubernatorial election in July on a campaign pledge to halt operations of the nuclear plant in his prefecture, handed a letter of his demands to Kyushu Electric Power President Michiaki Uriu at a building beside the company's head office in Fukuoka.

"As the governor, I have to protect the safety of residents," Mitazono told Uriu. "There are also requests (from residents) concerning roads and vehicles for evacuations. In order to protect the safety of the people in my prefecture, please make a bold decision."

Uriu remained noncommittal to the governor's request.

"We will consider your demands in a sincere manner toward further reducing anxieties over the nuclear power plant among the people in Kagoshima Prefecture and from the viewpoint of further improving the safety and trustworthiness of the nuclear power plant," Uriu said.

On Aug. 26, at a Kagoshima prefectural government building, Mitazono conveyed to Uriu growing public concerns of a possible accident at the nuclear power plant in Satsuma-Sendai in light of the powerful earthquakes that hit neighboring Kumamoto Prefecture in April.

The governor asked Uriu to suspend operations of the nuclear plant for safety inspections and strengthen support for the prefectural government's evacuation plans in the event of a disaster.

On Sept. 5, however, Uriu visited the Kagoshima prefectural government and told Mitazono that Kyushu Electric will continue operating its two reactors at the nuclear plant until regular inspections start later this year.

But Uriu added that the company will take additional "special inspections," apart from the regular inspections.

He also said Kyushu Electric will additionally deploy more than 10 vehicles to support evacuations of elderly residents in the event of a disaster and that it will disclose seismometer data at the nuclear plant in real time.

Those additional measures did not satisfy Mitazono. He criticized Uriu's refusal to shut down the reactors as "extremely regrettable."

A governor does not have the legal authority to order a shutdown of a nuclear power plant. But under safety agreements, a prefectural government can call for measures deemed necessary to ensure the safety of the plant based on an inspection of the site.

On Sept. 5, Kyushu Electric applied to the Nuclear Regulation Authority, the country's nuclear safety watchdog, for regular inspections of the No. 1 reactor at the Sendai plant starting on Oct. 6. It also plans to implement regular inspections of the No. 2 reactor from Dec. 16.

September 9, 2016

**Disappointing**

## **Kagoshima governor hints at dropping action to halt nuclear reactors**

<http://www.japantimes.co.jp/news/2016/09/09/national/kagoshima-governor-hints-dropping-action-halt-nuclear-reactors/#.V9LNWzVdeos>

Kyodo

KAGOSHIMA – Kagoshima Gov. Satoshi Mitazono suggested Friday he may give up on his pursuit to have Kyushu Electric Power Co. immediately suspend the operation of two reactors at its nuclear power plant in the southwestern prefecture after the utility's president again rejected the request.

"Thinking realistically, time is short before (the reactors will go through) regular checkups," Mitazono said when asked by reporters whether he will ask the utility again to immediately halt the operation of the reactors.

A roughly two-month-long regular checkup is scheduled to begin for the Nos. 1 and 2 reactors at the Sendai plant from Oct. 6 and from Dec. 16, respectively, during which the plant's operation will be suspended.

Mitazono's remarks came after he received a written rejection from Kyushu Electric President Michiaki Uriu, who instead promised additional safety measures.

"I've been calling for the early suspension. It's regrettable," Mitazono, elected on an anti-nuclear platform in July, told Uriu in a meeting at the Kagoshima Prefectural Government office building.

Kyushu Electric said in writing that its rejection reflected the Nuclear Regulation Authority's view that there was no need to suspend operations of the two-reactor complex in Satsumasendai.

The utility presented a plan to conduct special checkups prior to the scheduled start of regular checks, prepare additional vehicles to help evacuate residents living within 30 kilometers of the nuclear complex in case of a nuclear accident and help remove fallen trees and other objects on evacuation roads when they are blocked after earthquakes and other disasters.

As for the enhanced safety steps, Mitazono said his calls for the reactors' immediate suspension have contributed to advancing the complex's safety "a few steps forward."

Mitazono has been calling for the immediate suspension of the two reactors at the Sendai complex, citing local worries about the plant's safety after major earthquakes rocked neighboring Kumamoto Prefecture and its vicinity in April.

Currently, the two Sendai reactors and one reactor at Shikoku Electric Power Co.'s Ikata plant in Ehime Prefecture are operating in Japan after passing tougher safety checks introduced in the wake of the Fukushima nuclear crisis triggered by a powerful earthquake and tsunami in March 2011.

Prefectural governors have no legal power to suspend the operation of reactors.

## **But is the concept of a legal radiation limit acceptable?**

### **0.1% of food items exceed radiation limit 5 1/2 years after nuke disaster**

<http://mainichi.jp/english/articles/20160909/p2a/00m/0na/023000c>

A total of 0.1 percent of major food products from the 17 prefectures northeast of Shizuoka Prefecture registered radioactive contamination released in the Fukushima nuclear crisis in fiscal 2015, according to the Ministry of Agriculture, Forestry and Fisheries.

The government has been measuring radioactive contamination levels in the farm and marine products regularly since the meltdown at the Fukushima No. 1 nuclear plant. Immediately after the outbreak of the nuclear disaster in March 2011, radioactive cesium was detected in domesticated rice and beef. However, as the government has taken measures to reduce radiation levels in food items, **cesium exceeding the government-set limit is now detected only in wild vegetables, game meat and the like**, raising questions over whether to continue the intense inspection regime.

The upper limit for radioactive cesium in food items is 100 becquerels per kilogram. This level was set in April 2011 to satisfy the safety concerns of the public, but is in fact more than 10 times stricter than the European Union standard.

According to the agriculture ministry, 260,538 food items were inspected in fiscal 2015, and 99 percent of farm products had cesium of less than 25 becquerels per kilogram. The tests showed that 264 items, or 0.1 percent of the total, had cesium exceeding the upper limit. Of these, 259 -- or 98 percent -- were wild mushrooms, game meat, freshwater fish and other so-called "hard-to-control items."

The remaining five cases were farmed produce: two cases of rice (in Fukushima Prefecture); two cases of soybeans (in Fukushima Prefecture); and one case of buckwheat (in Iwate Prefecture). The rice happened to be cultivated for private use. The government has been checking all bags of rice grown in Fukushima Prefecture as part of efforts to respond to consumer concerns. Therefore, there have been no cases of rice exceeding the upper cesium limit being shipped.

The agriculture ministry says it is known that plenty of potassium fertilizer can help curb cesium absorption. It was found that the soybeans and buckwheat exceeded the upper limit because they were grown in places that had insufficient potassium fertilizer. None of those products was shipped to market. Besides these fresh foods, 15 processed food items such as dried persimmons had cesium exceeding the upper limit.

Meanwhile, consumers have great concern over ocean fish caught near Fukushima Prefecture partly because of the contaminated water leaking from the crippled Fukushima nuclear power station. The local fishery has voluntarily abstained from operating along the Fukushima Prefecture coast, but fish such as flounder and Pacific cod have been caught in waters off the coast.

Shortly after the outbreak of the nuclear crisis, 6 to 16 percent of the fish caught off the coast exceeded the upper limit, but none of the fish caught in the same area exceeded the limit last year. However, river fish such as mountain trout and Japanese daces continue to register cesium exceeding the upper limit, as radioactive materials in un-decontaminated mountain forests flow into the rivers when it rains. Up to 240 becquerels of cesium was detected last year in freshwater fish in five prefectures including Fukushima, Tochigi and Miyagi.

In the wake of the nuclear accident, there was a spate of cases in which beef cattle which ate rice straw contaminated with cesium had cesium exceeding the safety limit. As such, all beef cattle and beef have been inspected for cesium in the 17 prefectures for the past five years. However, no beef cattle have registered cesium over the legal limit in the past three.

Strontium-90, which is believed to be easily absorbed into bones and cause cancer, was detected in two items. But the density of the radioactive isotope in those items was 0.35 becquerels per kilogram and 0.05 becquerels per kilogram -- about the same as before the nuclear crisis.

**The cumulative cost of inspections in the 17 prefectures is about 4 billion yen.** An official of the agriculture ministry's Food Safety Policy Division told the Mainichi Shimbun, "The cesium levels of 99.99 percent of

vegetables, tubers and roots have dropped below 25 becquerels. There must be farm products for which we can scale down inspections if cultivation management continues to be carried out properly as in the past."

The Consumer Affairs Agency and other organizations hosted a symposium in Tokyo earlier this month on ways of handling radioactive materials in food products and conducting inspections, and to discuss a future inspection system. While a consumer group called on the government to continue the inspection system as the results would help the public feel secure, some stated that the risk of cesium contamination was extremely low and that it would be better to use the funds for fighting disease-causing germs that pose a higher risk.

Unfavorable reputations hurting specific production areas were also reported at the symposium. Osamu Kimijima, a 65-year-old shiitake mushroom farmer from Yaita, Tochigi Prefecture, who joined the symposium as a panelist, said, "We are still suffering from groundless rumors." He cultivated shiitake mushrooms on about 100,000 logs before the nuclear meltdowns, but he abandoned all of them after the nuclear incident and bought new logs from Kyushu.

Kimijima currently uses about 50,000 logs and ships about 7 to 8 metric tons of shiitake mushrooms each year. Only about 5 becquerels of cesium are detected in his shiitake, but the problem is that gate prices are low. Kimijima called for understanding from consumers to dispel groundless rumors.

"The prices are about half of those from other production areas simply because they are produced in Tochigi Prefecture. We are trying to sell them on a negotiation basis at direct sales depots and the like as much as possible," he said.

Takeshi Yamasaki, head of the non-profit organization Science of Food Safety and Security and symposium attendee, said, "No matter how you look at it, it is excessive to inspect all cattle. Even if the scope of inspections is scaled down, there will be no change in risks involving beef." He emphasized that it will be enough to conduct monitoring specific to individual situations.

Apart from individual food products, what are radiation exposure levels of entire everyday meals? The Health, Labor and Welfare Ministry purchased 210 items such as rice, vegetables and fish at supermarkets in 13 prefectures including Tokyo, Fukushima and Iwate between September and October of 2015, and calculated the annual dosage of cesium individuals receive from each food product.

**The results of the ministry's calculations were 0.0009 to 0.0015 millisieverts. Food products in other prefectures had 0.0006 to 0.0012 millisieverts. After all, there was little difference between them.** The cesium dosages are about one-thousandth of the annual exposure of 1 millisievert -- the baseline for safety limits for food products. A health ministry official said, "The risk stemming from receiving cesium from meals as a whole is extremely small."

September 11, 2016

## **83 species of fish now eligible for test fishing**

### **83 species now eligible for test fishing off coast of Fukushima**

<http://www.asahi.com/ajw/articles/AJ201609110002.html>

By KAZUMASA SUGIMURA/ Staff Writer

IWAKI, Fukushima Prefecture--Ten species were added to the list of catches eligible for test fishing off the coast of Fukushima Prefecture, but lingering concerns about radiation are keeping sales of such marine products low.

Still, the latest additions, which include the Japanese flounder, the white-spotted conger eel and the spotted halibut, have encouraged fishermen who have been struggling to rebuild their lives since the Fukushima nuclear disaster started in March 2011.

The Fukushima Prefectural Federation of Fisheries Cooperative Associations on Aug. 25 added the 10 species to bring the total number eligible for test fishing to 83. The additions were approved during a meeting in Iwaki of the prefectural council for the rebuilding of regional fisheries.

"I think **the 83 fish species accounted for about 70 percent of our pre-disaster hauls,**" said Tetsu Nozaki, president of the prefectural fisheries federation. "I am placing particularly high hopes for a great boost in the value of our catches from the resumed fishing of Japanese flounder."

Test fishing for flounder started on Sept. 2.

The Soma-Futaba fisheries cooperative association, which is part of the prefectural federation, plans to resume catches of white-spotted conger eel in September. But the Iwaki city fisheries cooperative association has decided to wait until water temperatures are low enough to ensure freshness of the white-spotted conger eel.

Test fishing has expanded because the environment of the sea has significantly improved since the initial impact of the nuclear disaster. Radioactivity levels in fish caught there now stably remain within the safety limit for many species.

Despite extensive testing to ensure safety of Fukushima marine products, many dealers are still reluctant to buy the species.

Fish and shellfish from Fukushima Prefecture are being shipped to various parts of Japan, such as the Tohoku, Kanto, Chubu and Hokuriku regions. Prices of seafood items from Fukushima Prefecture are not much lower than those from other prefectures, according to Yoshiharu Nemoto, head of the fishing ground environment division with the Fukushima Prefectural Fisheries Experimental Station.

Yet few dealers are bidding for Fukushima marine products. If this trend continues with more Fukushima fish reaching the market, unsold leftovers from the prefecture could start to pile up and project a negative image, Nemoto said.

"It will become more necessary than ever to make publicity efforts, such as regularly releasing data concerning safety," he said.

Test fishing began in June 2012, 15 months after the Great East Japan Earthquake and tsunami caused the triple meltdown at the Fukushima No. 1 nuclear power plant. Initially, only three species were covered: two kinds of octopuses and one type of shellfish.

While coverage has since expanded in stages, the latest addition of 10 species at one time is second only to the addition of 12 species, including brown sole and red sea bream, in August 2015.

Since April 2011, the Fukushima prefectural government has been monitoring the impact of radioactive fallout from the Fukushima No. 1 nuclear plant on fish and shellfish. The radiation tests, which cover about 200 samples every week, have so far been conducted on 38,000 samples of 184 species.

The concentration of radioactive cesium initially exceeded the central government's safety limit of 100 becquerels per kilogram in most of the fish and shellfish surveyed. But the concentration has declined from year to year, and no sample has exceeded the safety limit since April 2015.

In more than 90 percent of the samples tested in July 2015 and later, radioactivity levels were below the detection limit.

Radioactivity levels in fish caught near the Fukushima No. 1 nuclear plant are also falling.

The central government's Japan Fisheries Research and Education Agency (FRA) on Aug. 25 released data on radioactivity levels in Japanese flounder caught in July in waters around the crippled nuclear plant. The FRA said its high-precision tests, with a lower limit of detection set at a mere 1 becquerel per kg, found radioactivity levels of less than 10 becquerels per kg in all 41 individual organisms tested. More than 90 percent of them measured less than 5 becquerels per kg.

Catches from test fishing have continued to grow: 122 tons in 2012, 406 tons in 2013, 742 tons in 2014 and 1,512 tons in 2015.

But last year's catch was only 5.8 percent of the annual catch of 26,050 tons averaged over the decade preceding the 2011 disaster.

Fishermen are holding out high hopes for more fish species being eligible for catches.

September 12, 2016

## Shelter or not shelter?

### **EDITORIAL: Residents should top agenda on debate at Sendai evacuation plans**

<http://www.asahi.com/ajw/articles/AJ201609120012.html>

Kagoshima Governor Satoshi Mitazono has twice asked Kyushu Electric Power Co. to immediately shut down the two online reactors at its Sendai nuclear power plant in the southern prefecture.

Kyushu Electric, however, has persistently refused. Mitazono has indicated he has practically given up hope of having the Sendai plant's No. 1 and No. 2 reactors taken immediately offline.

A prefectural governor has no authority to order the suspension of a nuclear reactor. However, Mitazono still proceeded to call for a cessation, amid enhanced safety concerns among the public following the succession of devastating earthquakes in neighboring Kumamoto Prefecture this spring.

Kyushu Electric, on its part, maintains that the safety of the nuclear plant has been assured by the central government's Nuclear Regulation Authority. The utility probably rejected Mitazono's requests in line with the central government policy because any agreement to shut down the Sendai reactors would have repercussions for other nuclear plants across Japan.

The Sendai No. 1 and No. 2 reactors are expected to be taken back offline for routine inspections in October and December, respectively. Both the governor and Kyushu Electric probably believe that they will have their real showdown when the reactors are brought back online thereafter.

The important thing, in the issue at hand, is to enhance the safety and peace of mind of the residents, although attention is often focused on the motivations of and the tug of war between Mitazono and Kyushu Electric. Both parties have the responsibility to give the residents a top place in their agendas in continuing their talks and taking necessary measures.

During the exchanges to date, Mitazono has won an array of additional safety measures from Kyushu Electric, which include conducting special inspections apart from regular checkups, deploying more vehicles for emergency evacuations and providing assistance to improving an emergency evacuation route. **But that still leaves a mountain of unresolved problems.**

An inevitable question involves the wisdom of having residents taking shelter indoors in the event of a nuclear plant disaster.

A central government guideline says that when there are enhanced risks of radioactive substances leaking out of a nuclear reactor, people living within 5 kilometers of the nuclear plant should be the first to be evacuated, in principle, whereas those living between 5 km and 30 km of the plant are supposed to remain at home, or elsewhere indoors, on standby. **The guideline is intended to avoid confusion and disorder from a rush of evacuees.**

But the recent succession of Kumamoto earthquakes, which involved a pair of major shocks that measured the maximum 7 on the Japanese seismic intensity scale, destroyed many houses and buildings. Aftershocks ensued, obliging many people to spend nights in their cars. Roads, bridges and evacuation centers were also damaged in many areas.

**Concerns spread among the residents of Kagoshima Prefecture in the wake of the Kumamoto earthquakes that emergency evacuation plans based on the guideline would not work in the event of a compound disaster that involves both an earthquake and a nuclear accident.** Such concerns should have provided the impetus for Mitazono's request.

The wisdom of the sheltering plan is a question shared by local governments across Japan that play host to, or are located near, nuclear power plants. During a survey taken by The Asahi Shimbun this summer, more than 40 percent of the more than 150 local governments that responded said they had concerns about sheltering, with more than 20 percent of the responding local governments saying they believe the guideline must be reviewed.

Mitazono is soon expected to set up a panel of experts to discuss the nuclear power issue, a committee that he vowed during his election campaign to establish. The panel should review a broad array of issues, including emergency evacuation plans, and Kyushu Electric should also respond with sincerity.

Both Mitazono and Kyushu Electric should have the determination to lead all discussions across Japan in addressing all relevant issues on the basis of their exchanges to date.

September 13, 2016

## **Korea's earthquake prompts nuke safety concerns**

### **South Korea's biggest recorded earthquake triggers nuclear safety concerns**

<http://www.japantimes.co.jp/news/2016/09/13/asia-pacific/south-koreas-biggest-recorded-earthquake-triggers-nuclear-safety-concerns/#.V9gkEDVdeot>

Reuters

SEOUL – Two earthquakes that jolted South Korea on Monday night, including the largest ever recorded in the country, prompted concerns about the safety of nuclear plants clustered in the quake-prone southeast. Korea's Meteorological Agency said the two earthquakes, of magnitude of 5.1 and 5.8, occurred near the city of Gyeongju. They could be felt in the capital Seoul, over 300 km (185 miles) to the northwest. Fourteen people were injured but there were no reports of serious damage, a Ministry of Public Safety and Security official said.

Nonetheless, Korea Hydro & Nuclear Power Co. shut down four nuclear reactors at the Wolsong complex in Gyeongju as a precaution.

South Korea's reactors are designed to withstand a magnitude 6.5 or 7.0 earthquake, according to the Nuclear Safety and Security Commission.

Orders were given to nuclear operators to upgrade old reactors to that standard after the disaster at Japan's tsunami-crippled Fukushima Daiichi nuclear power plant in 2011.

"That will be completed by next year," said Shim Eun-jung, a spokeswoman at the nuclear watchdog. South Korea's 25 reactors supply about one-third of its electricity and make it the world's fifth-largest user of nuclear power. It plans to add 9 more nuclear plants by 2027, according to the nuclear watchdog. As in many countries, nuclear power is controversial in South Korea, especially after a 2012 scandal over parts being supplied with fake certificates prompted shutdowns.

Park Jong-kwon, head of an anti-nuclear civic group in South Gyeongsang Province, said no more nuclear reactors should be built in southeastern cities like Ulsan and Gyeongju as they are close to an active fault line.

"Even though nuclear reactors are designed to withstand an earthquake of a magnitude 7.0, if they are hit by 4.5- and 5.8-magnitude earthquakes several times, they can be knocked down by a real 7.0-magnitude earthquake at a single blow," Park said.

About 70 percent of South Korea's nuclear reactors are in the southeast, partly to locate them further away from North Korea, with which the country remains technically at war.

Greenpeace Korea filed a lawsuit against the nuclear watchdog Monday, before the earthquakes, urging it to scrap a plan to add two more reactors in Ulsan.

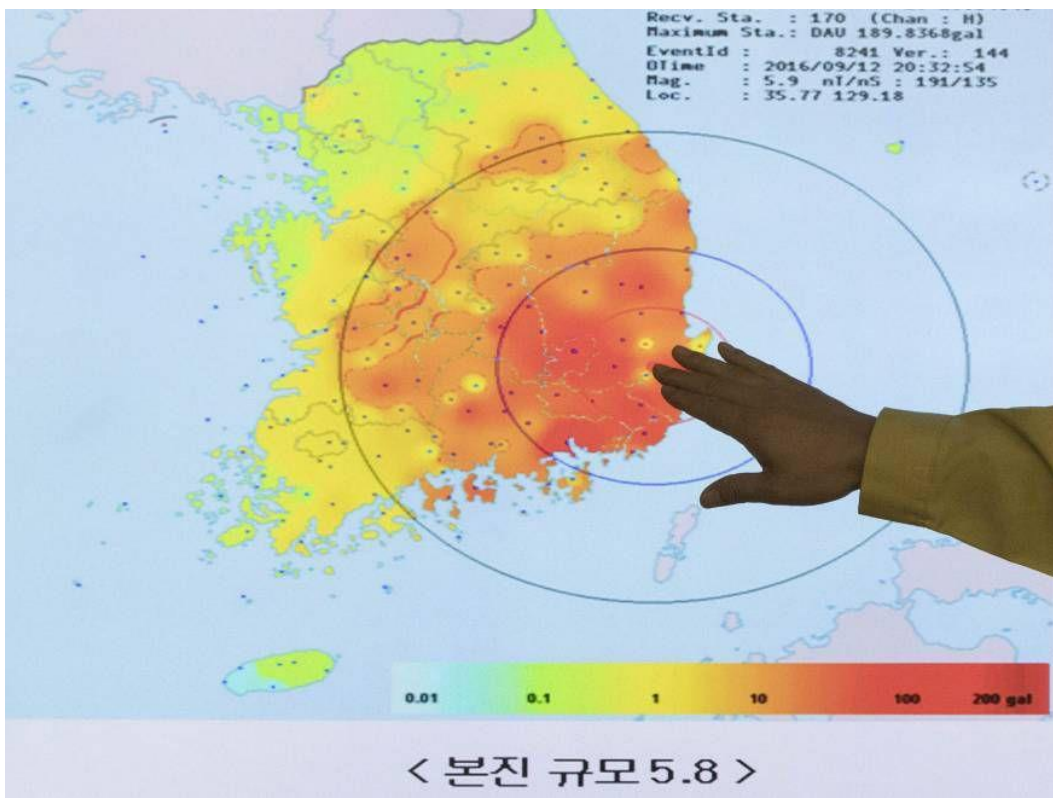
Koreans living near the nuclear power plant in Gyeongju city also voiced anxiety.

"When I heard the news, the first thing that came to my mind was that a Fukushima-like accident could happen," Byun Woo-hee, a 59-year-old professor, said.

## **Two strong temblors rock South Korea, prompting shutdown of four reactors**

<http://www.japantimes.co.jp/news/2016/09/13/asia-pacific/two-strong-temblors-rock-south-korea-prompting-shutdown-four-reactors/#.V9eY0DVdeos>





An officer from the Korea Meteorological Administration briefs about an earthquake at the National Earthquake and Volcano Center of the Korea Meteorological Administration in Seoul Monday. Officials say two earthquakes have jolted a city in southeastern South Korea, but there are no reports of serious injuries or damage. | SUN DONG-JIN / YONHAP VIA AP

SEOUL – Two strong earthquakes jolted a historic city in southeastern South Korea on Monday, but there were no reports of serious injuries or damage, officials said.

The Korea Meteorological Administration said the quakes measured magnitude-5.1 and -5.8 and were centered near Gyeongju city. It said the magnitude-5.8 quake was the largest ever recorded in South Korea.

Local television showed children hiding under a dinner table and goods falling off the shelves at a supermarket.

Officials said two people received minor injuries, but gave no further details. The Yonhap news agency said minor cracks appeared in some buildings, but no major damage was reported.

The quakes shook large areas of the country, including the capital, Seoul, where tall buildings swayed. South Korea experiences relatively little seismic activity, unlike neighboring Japan, which has frequent major quakes.

Gyeongju was the capital of one of the Korean Peninsula's ancient kingdoms and is now a popular tourist destination.

South Korea's nuclear operator meanwhile said early on Tuesday it suspended operation of four reactors at a nuclear power complex as a precaution late Monday after two earthquakes struck the country's southeast.

The earthquakes occurred on Monday night near the city of Gyeongju, according to South Korea's meteorological agency.

Two injuries had been reported as a result of the quake, but no serious damage had been immediately reported, the agency said.

State-run Korea Hydro and Nuclear Power Co. shut down the Wolsong No.1, Wolsong No. 2, Wolsong No. 3 and Wolsong No. 4 reactors, with a combined capacity of 2,779 megawatts, an official with the operator said.

It was not immediately clear when the four reactors would restart.

The shutdown of the four takes the number of reactors offline in the country to seven, according to KHNP website.

KHNP, owned by state-run utility Korea Electric Power Corp., operates 25 nuclear reactors in Asia's fourth-largest economy.

## Operating Takahama reactors for 60 years

### Kansai Electric Confirms Life Extension Work For Takahama Reactors

<http://www.nucnet.org/all-the-news/2016/09/13/kansai-electric-confirms-life-extension-work-for-takahama-reactors>

Kansai Electric Power Company has published details of work it will carry out to improve the safety of its Takahama-1 and -2 nuclear reactor units in Fukui prefecture, southwest Japan, **in an effort to operate them for 60 years**, the Japan Atomic Industrial Forum (Jaif) said. In June 2015 the two units were approved to have their operating periods extended to 60 years, or two decades beyond the original 40 years. It was the first time that nuclear units in Japan had been granted such clearance. However, various upgrades need to be carried out including installation of shielding for the upper parts of the containment vessels, replacement of refuelling water tanks, additional fire protection, relocation of the seawater intake facility for Unit 2 and replacement of central control panels. The work is scheduled to be completed the work during the 2019 fiscal year, Jaif said. Both units are 780-MW pressurised water reactors. Takahama-1 began commercial operation in November 1974 and Takahama-2 in November 1975. They have been shut down since inspections in 2011 following the Fukushima-Daiichi accident.

September 20, 2016

## Typhoon reaches Kagoshima

### Typhoon Malakas makes landfall in Kagoshima

[http://www3.nhk.or.jp/nhkworld/en/news/20160920\\_02/](http://www3.nhk.or.jp/nhkworld/en/news/20160920_02/)

A powerful typhoon has made landfall on Japan's southwestern prefecture of Kagoshima.

Officials with the Meteorological Agency say Typhoon Malakas hit near Osumi Peninsula in the prefecture's south shortly after midnight on Tuesday.

The storm has an atmospheric pressure of 945 hectopascals at its center. It is forecast to continue heading east along the Pacific coast of Japan's main island.

In Makurazaki City in Kagoshima Prefecture, officials recorded heavy rainfall of more than 110 millimeters per hour.

Meteorologists are forecasting downpours of more than 50 millimeters of rain an hour in some areas on Tuesday.

Officials are calling on residents to be on alert for floods and high waves.

September 21, 2016

## Typhoon raises groundwater to surface

### TEPCO pumping groundwater from Fukushima plant

[http://www3.nhk.or.jp/nhkworld/en/news/20160921\\_09/](http://www3.nhk.or.jp/nhkworld/en/news/20160921_09/)

The operator of the Fukushima Daiichi nuclear power station says it is pumping groundwater from under the plant **to prevent contaminated water from leaking into the adjacent port.**

Tokyo Electric Power Company says the heavy rains brought by Typhoon Malakas have raised the underground water levels around the plant's embankments.

TEPCO officials say they added pumps to prevent the groundwater from rising further. They say **the water rose nearly to the surface** shortly before 10 PM on Tuesday.

The officials say **this has prevented rain from permeating the ground and increased the risk that the rainwater could become contaminated and flow into the port.**

The utility says that while it is pumping the groundwater to prevent leakage, it will measure the radioactive substances in the water.

### Typhoon rain raises tainted Fukushima plant groundwater to surface

<http://www.japantimes.co.jp/news/2016/09/21/national/typhoon-rain-raises-tainted-fukushima-plant-groundwater-near-surface/#.V-lvYDVdeos>

Staff Report, JII

Heavy rain brought by Typhoon Malakas caused contaminated groundwater to rise to ground level at the radiation-hit Fukushima No. 1 nuclear plant Tuesday night, raising fears of tainted water flooding out to the plant's port area, its operator said.

Tokyo Electric Power Company Holdings Inc. said in a press release that plant workers are doing their utmost to pump up tainted groundwater at the Fukushima compound, while trying to measure the level of radioactive substances contained in the water.

Under normal circumstances, groundwater taken from wells around the damaged reactor buildings at the Fukushima plant is filtered and stored in numerous tanks built on the compound.

Shortly before 10 p.m. Tuesday, groundwater reached the surface level at an observation well near the seawall at the power plant's port, and at 11:30 p.m. Tuesday, groundwater stood at 3 cm above the surface level, Tepco said.

The well has a far higher wall and the ground around it is paved, the company said, playing down the possibility that any water flowed out of the well.

By 9 a.m. Wednesday, the water level had dropped to 3 cm below the surface.

Meanwhile, some rainwater may have flowed directly into the port before seeping underground, according to the company.

Tepco will continue pumping groundwater around the seawall, located near the damaged No. 1 to No. 4 reactors, and carry out close examinations of water inside the port, the company said.

In order to curb the flow of groundwater into the sea, the company has covered the seawall with water shields and carries out groundwater pumping operations.

Typhoon Malakas itself was downgraded to an extratropical depression at around 9 p.m. Tuesday as it moved along the coast of the Tokai region and swayed toward the Pacific. It was initially forecast to hit the Kanto region in the early hours of Wednesday.

The previous typhoon, Lionrock, earlier this month killed at least 17 people. Before Lionrock, two typhoons had claimed at least two lives in the northeast.

## Trying to dispel rumors about Fukushima food

### 'Farm inns' near Fukushima nuke plant see surge in guests

<http://mainichi.jp/english/articles/20160921/p2a/00m/0na/016000c>

NIHONMATSU, Fukushima -- The number of "farm inns" run by local residents here in the Towa district, dozens of kilometers from the crippled Fukushima No. 1 Nuclear Power Plant, has steadily been increasing to accommodate a rising number of visitors and guests.

The farm inns are being run **to dispel groundless rumors about local farm products being tainted with radioactive substances** from the nuclear power station. Four farm inns opened in 2012, one year after the outbreak of the nuclear crisis, and there are currently 24 farm inns in the Towa district about 40 kilometers northwest of the nuclear complex. Two more farm inns are expected to open in the future. Guests of the inns can enjoy working on farms and cuisine using local ingredients so that they can feel assured of the safety of locally-produced products. The farm inns are gaining popularity and attracting **more than 1,000 guests a year**, as people visit and stay there to enjoy both lodging and local cuisine, **thinking that such activities will help disaster-stricken communities recover.**

The Towa district is a rural area **in the mountains**. The area's population has halved to about 6,500 over the last 50 years as it suffered from depopulation and the nuclear accident promoted local residents to stop farming.

The situation was such that local residents focused on farm inns. That's because demand for lodging facilities increased in the Towa district facing evacuation zones around the nuclear power plant as work to assess radiation levels and other radiation-related projects began in the evacuation districts. A non-profit organization comprised of local residents played a coordinating role and recruited farmers to run inns there. Most of the people who initially used the farm inns were researchers and administrative officers. But currently, many college students and company employees use them for training. A total of 1,106 people stayed at the inns in 2015.

On the evening of Sept. 8, about two dozen students of Tokyo-based Daito Bunka University stayed at six farm inns there for a seminar camp. The inns served their specialty dishes in an effort **to show the students that local farm products have been shipped after clearing radiation checks**.

The "Tanbo" farm inn run by Masatoshi Muto, a 65-year-old vegetable farmer, served home-made meals using special vegetables such as cucumbers and carrots. Male students said they liked the food because the vegetables were so fresh. Muto said he had felt depressed at times when he was told by some people that "we don't want to eat food from Fukushima." But he said, "I feel uplifted when I see our guests enjoy eating." Hironao Takahashi, a 19-year-old sophomore who stayed at the inn, said, "I've come to know that they check their products carefully before shipping them. From now on, I would like to see the foodstuff with my own eyes and judge without being influenced by rumors."

Tatsuhiko Ono, a 62-year-old vegetable farmer and a key figure in the group of farm inn operators, said, "Even if we show scientific data, we cannot easily persuade people about the safety of our products unless they come and visit production sites." The value of total vegetable shipments from the entire Towa district remains about 80 percent of pre-disaster levels, he said. "We hope that people who visit our farm inns will send a message about the attractiveness of the Towa district."

## What about that leak?

### TEPCO: Possible water leak at Fukushima plant during typhoon

<http://www.asahi.com/ajw/articles/AJ201609210047.html>

By KOHEI TOMIDA/ Staff Writer

Tokyo Electric Power Co. said Sept. 21 it will check for radiation contamination in seawater near its crippled Fukushima nuclear plant after heavy rain from Typhoon No. 16 brought tainted groundwater to the surface.

The water reached the top of wells at the Fukushima No. 1 nuclear power plant, and there is a possibility that some of it spilled into the sea.

"We will analyze the seawater because we cannot determine whether groundwater containing radioactive materials has actually leaked," a TEPCO official said.

The official added that the company believes most of the water that may have poured into the sea was rainwater that had not seeped into the ground.

The utility constantly monitors groundwater levels in wells around the reactor buildings at the plant to prevent overflows.

TEPCO said groundwater in wells on the seaside area of the nuclear complex reached the surface around 10 p.m. on Sept. 20 amid the heavy rain brought by the approaching typhoon. The water kept rising despite workers' efforts to lower the level using makeshift pumps and septic tank trucks. The groundwater level remained the same as of 7 a.m. on Sept. 21 before it finally dropped to about 3 centimeters from the surface two hours later, the company said. According to TEPCO, about 575 millimeters of rain fell in the area of the nuclear plant from Aug. 1 to Sept. 20.

September 25, 2016

## Fukushima food fair held in India to dispel rumors

### Fukushima food fair held in India

[http://www3.nhk.or.jp/nhkworld/en/news/20160925\\_01/](http://www3.nhk.or.jp/nhkworld/en/news/20160925_01/)

An event featuring food from Japan's disaster-hit Fukushima Prefecture has taken place in the Indian capital, New Delhi. **The organizers hope to dispel unfounded rumors about the safety of the foodstuffs.**

A group of Japanese expatriates from Fukushima organized the event held on Saturday at a Japanese school in the city.

Rumors about the safety of food from Fukushima persist from the nuclear accident in 2011 that followed a massive earthquake and tsunami. Tests found the products harmless.

Items on sale at the event included rice balls, made of rice grown in Fukushima and cooked in water from the prefecture.

Traditional potato stew and juice made from locally-produced peaches were also on offer.

Visitors formed long lines to purchase freshly-made rice balls and munched them on the spot.

An Indian man who was in Japan at the time of the disaster said he knew the food from Fukushima was called into question in the wake of the nuclear accident. He added he is convinced of its safety.

Proceeds from the event will be donated to areas in Japan's Kumamoto Prefecture and the vicinity, which were ravaged by powerful quakes in April this year.

A representative of the organizers said they will never forget the support extended to Fukushima from across Japan and are eager to help people in Kumamoto and neighboring Oita rebuild their lives.

September 26, 2016

## Cesium accumulated in dams: Don't touch it

### High levels of radioactive cesium pooling at dams near Fukushima nuke plant

<http://mainichi.jp/english/articles/20160926/p2a/00m/0na/007000c>

High concentrations of radioactive cesium have been **accumulating at the bottom of 10 major dams within a 50-kilometer radius** from the disaster-stricken Fukushima No. 1 Nuclear Power Plant, a survey by the Environment Ministry has found.

Radioactive cesium emanating from the 2011 nuclear disaster is pooling at those dams, which are used to hold drinking water and for agricultural use, after the substances flew into there from mountains, forests and rivers. The radiation levels at the bottom of those dams top those set for designated waste at over 8,000 becquerels per kilogram.

While the Environment Ministry plans to monitor the situation without decontaminating the dams on the grounds that radiation levels in dam water is not high enough to affect human health, experts are calling for the ministry to look into measures to counter any future risks.

The ministry began a monitoring survey on those dams and rivers downstream in September 2011 to grasp the moves of radioactive substances flowing into them from mountains and forests that are not subject to decontamination work. The survey samples water at 73 dams in Tokyo, Iwate and seven other prefectures about once every several months.

Among them, there were 10 dams in Fukushima Prefecture where the average concentration of cesium in the surface layer of bottom soil measured between fiscal 2011 and 2015 topped the regulated levels for designated waste. Those dams include Ganbe Dam in the village of Iitate with 64,439 becquerels per kilogram of cesium, Yokokawa Dam in the city of Minamisoma with 27,533 becquerels, and Mano Dam in Iitate with 26,859 becquerels.

Meanwhile, the surface water at those 10 dams contained 1-2 becquerels per liter of cesium, which is below the drinking water criteria at 10 becquerels.

While the total amount of cesium deposited at the bottom of those dams is unknown from the environment ministry's survey, a separate study conducted at **Ogaki Dam in the town of Namie** by the Ministry of Agriculture, Forestry and Fisheries' Tohoku Regional Agricultural Administration Office estimated in December 2013 that there was **a combined 8 trillion becquerels of cesium 134 and cesium 137 at the dam**. The figure came about after estimating the amount of accumulated cesium every 10-meter-square area based on cesium levels in sedimentary soil sampled at 110 locations at the bottom of **the dam, which is for agricultural use**.

The National Institute for Environmental Studies in Tsukuba, Ibaraki Prefecture, will shortly begin a full-scale survey on cesium concentrations at several dams.

"At the moment, it is best to contain cesium at those dams. If we dredge it, the substance could curl up and could contaminate rivers downstream," said an Environment Ministry official.

October 3, 2016

## Niigata gubernatorial election & nuke safety

### **EDITORIAL: Niigata governor candidates must debate nuclear safety in earnest**

<http://www.asahi.com/ajw/articles/AJ201610030020.html>

Official campaigning for the upcoming Niigata gubernatorial election started on Sept. 29, setting the stage for debate on the safety of a nuclear power plant in the prefecture.

The issue of the safety of the Kashiwazaki-Kariwa nuclear power plant has gained even more traction as Niigata Governor Hirohiko Izumida, who has been cautious about approving Tokyo Electric Power Co.'s plan to restart the idled plant, has announced he will not seek re-election.

The Nuclear Regulation Authority's safety inspections of the offline reactors, which the electric utility is seeking to bring back online, are in their final stages.

The election inevitably revolves around whether the new governor should allow TEPCO to proceed with the plan if the NRA gives the green light.

Four independent rookie candidates are running for the poll. But the race is effectively shaping up as a one-on-one battle between Tamio Mori, the former mayor of the city of Nagaoka in the prefecture supported by the ruling Liberal Democratic Party and its junior coalition partner, Komeito, and Ryuichi Yoneyama, a doctor backed by the Japanese Communist Party, the Social Democratic Party and the People's Life Party & Taro Yamamoto and Friends.

Some 460,000 people live within 30 kilometers of the Kashiwazaki-Kariwa nuclear plant. The candidates should announce their proposals to protect the safety of these residents during campaigning for the Oct. 16 election.

Plans to ensure the safe and smooth evacuations of residents living around nuclear power plants when a serious accident occurs are described as the last safety net for nuclear power plants.

The governors of prefectures where nuclear plants are located, as the chiefs of the local governments, have to take on a huge responsibility for the safety of local residents.

Izumida has insisted that he wouldn't start discussions on any plan to restart a reactor in his prefecture unless the 2011 disaster at the Fukushima No. 1 nuclear power plant, also operated by TEPCO, is fully reviewed and explained.

He has undertaken his own investigation of the catastrophic accident by setting up an expert committee within the prefectural government.

Izumida has also criticized the fact that the new nuclear safety standards introduced after the 2011 accident don't require plans for evacuating local residents. He has been calling on the central government to improve the standards.

In 2002, it was revealed that TEPCO had covered up damage at its nuclear power plants including the Kashiwazaki-Kariwa plant. The magnitude-6.8 Niigata Chuetsu-oki offshore earthquake, which rocked Niigata Prefecture in July 2007, triggered a fire and resulted in small leaks of radiation at the plant. Many people in the prefecture along the Sea of Japan remain deeply concerned about the safety of the nuclear plant and distrustful of TEPCO.

Izumida has responded to the concerns by raising issues about nuclear safety.

In the gubernatorial race, Yoneyama has cast himself as the candidate to carry on Izumida's legacy.



“I will take over the (nuclear power) policy of Izumida and won’t start discussions on any reactor restart unless the Fukushima disaster is fully reviewed and explained,” he has said.

Mori, who has been critical of Izumida’s political approach, has taken a different stance toward the issue. “I will put the top priority on the safety of people in the prefecture and rigorously examine the conclusion the NRA reaches (in its safety inspection),” he has said.

The difference in position on the issue between the two candidates is likely to be a key factor for Niigata voters at the polls.

The governors of prefectures hosting nuclear power plants have the “right to consent” to a plan to restart a reactor. But this is only a conventional right based on safety agreements with the electric utilities involved and has no legal basis.

When new Kagoshima Governor Satoshi Mitazono, who took office in July, asked Kyushu Electric Power Co. to suspend the operation of its Sendai nuclear power plant in the prefecture, he was criticized for undermining the central government’s energy policy.

But the criticism is off the mark. When a nuclear accident occurs, the local communities around the plant suffer the most.

To allay anxiety among residents in areas around nuclear plants, the local governments concerned, through negotiations with the operators of the plants, have established systems and rights that allow them to become involved in safety efforts.

The Fukushima disaster has only increased anxiety among residents around nuclear power plants.

The chief of the local government in an area home to a nuclear plant has every right to refuse to entrust the safety of local residents entirely to the utility and the central government.

Niigata Prefecture is not an area where TEPCO supplies power, but it has been bearing the risks involved in the operation of a massive nuclear power plant that generates electricity for the Tokyo metropolitan area.

The gubernatorial election will be a choice that directly affects the central government’s energy policy. We are eager to see the candidates engaged in meaningful debate on the safety of the nuclear plant based on a national perspective.

October 5, 2016

## Mihama No.3 and the 40-year rule

### Another aging reactor passes safety checks to operate beyond 40 yrs

<http://mainichi.jp/english/articles/20161005/p2g/00m/0dm/074000c>

TOKYO (Kyodo) -- Another aging nuclear reactor in Japan passed a key safety assessment Wednesday as a step toward going back on line, signaling a **weakening of the force of a rule introduced after the 2011 Fukushima disaster to limit reactors' operations to 40 years in principle.**

- **【Related】** Editorial: Japan should phase out aging nuclear reactors
- **【Related】** 40-year rule for Japan's nuclear reactors sidelined as Mihama unit passes screening

- **【Related】** NRA's Takahama reactor approval a blow to 40-year lifespan rule

The No. 3 unit at Kansai Electric Power Co.'s Mihama plant in Fukui Prefecture is the latest reactor seeking to continue in service beyond the 40-year limit to pass the screening, after two such units at the utility's Takahama complex, also in Fukui.

The No. 3 unit went offline in May 2011 for a regular checkup and has not been restarted since due to inspections to meet tougher safety requirements introduced after the Fukushima disaster.

But hurdles remain before the Mihama reactor can restart. It will have to obtain further permission from the Nuclear Regulation Authority on details of equipment design and other issues by the end of November, when it will reach 40 years since entering service.

Missing the deadline would require the utility to scrap the reactor.

Even if the deadline is not missed, resumption of the reactor is not expected before the spring of 2020 to allow time for the operator to finish preparing all the required safety measures, according to Kansai Electric.

Kansai Electric plans to spend about 165 billion yen (\$1.6 billion) to upgrade the facilities to meet the new regulations, which reflect the lessons learned from the Fukushima Daiichi nuclear power plant disaster.

The 40-year operational limit has been included in the regulations with the aim of encouraging the retirement of aging reactors that could be prone to accidents.

Although operation for an additional 20 years is possible, nuclear regulators initially indicated that it would be extremely difficult to actually get approval for an extension.

Some utilities have decided to scrap their aging reactors due to expensive safety costs. Kansai Electric has also given up restarting the Nos. 1 and 2 reactors of the three-unit Mihama plant.

**But the 40-year-old limit has come to look as if it lacks teeth because utilities are still seeking extensions where they see it as economically viable, with nuclear regulators acknowledging that technical issues could be overcome with sufficient investment.**

October 6, 2016

## Sendai No.1 off line for inspection

### Sendai No.1 reactor undergoing regular inspection

[http://www3.nhk.or.jp/nhkworld/en/news/20161006\\_17/](http://www3.nhk.or.jp/nhkworld/en/news/20161006_17/)

The first nuclear reactor restarted under new post-Fukushima government regulations has been taken off line for regular inspections.

The Sendai No.1 reactor in Kagoshima Prefecture, southwestern Japan, was fully halted on Thursday morning.

Kyushu Electric Power Company, its operator, plans to inspect 124 points. In addition to examining the reactor, workers will conduct safety checks on mobile power generators and a device to prevent hydrogen explosions inside the reactor containment vessel. Both were introduced following the 2011 Fukushima accident.

Inspections will continue through January 6th. Kyushu Electric plans to restart the reactor around December 8th and resume power generation 3 days later.

Kagoshima Governor Satoshi Mitazono had earlier asked Kyushu Electric to cease operation at the plant for safety checks.

The utility rejected the request, but began special inspections last week to see if emergency power generators and other equipment are properly functioning.

### **Kyushu Electric begins scheduled checkup of nuclear reactor**

<http://mainichi.jp/english/articles/20161006/p2g/00m/0dm/056000c>

The No. 1 and No. 2 reactors are seen at the Sendai nuclear power plant in Satsumasendai, Kagoshima Prefecture, in this photo taken from a Mainichi helicopter. (Mainichi) FUKUOKA (Kyodo) -- Kyushu Electric Power Co. on Thursday started a scheduled three month-long inspection of a reactor at its Sendai Nuclear Power Station in the southwestern Japan prefecture of Kagoshima.

The checkup requires suspending the reactor's operation and leaves only two reactors active in Japan -- the No. 2 reactor at the Sendai plant and the No. 3 reactor at Shikoku Electric Power Co.'s Ikata plant in western Japan. The Sendai No. 2 reactor is also scheduled to be suspended for regular checks from Dec. 16 to Feb. 27.

The Sendai complex's No. 1 reactor is the first unit to undergo regular checks after passing tougher safety criteria introduced in the wake of the Fukushima nuclear crisis triggered by the massive earthquake and tsunami in March 2011.

Kyushu Electric said it started gradually moderating the No. 1 reactor Wednesday evening by inserting rods to control nuclear fission. The inspection started early Thursday morning after the reactor ended power generation and was cut off from the transmission unit.

The inspection covers 124 items, including 16 to be newly conducted under the new safety criteria, such as checking apparatus to prevent hydrogen explosions.

Kyushu Electric has already launched special checks at the Sendai plant, after Kagoshima Gov. Satoshi Mitazono demanded the plant be halted following powerful earthquakes in Kyushu in April. The special checks will be conducted along with the regular checks.

## **Underestimating earthquake scale**

### **Nuclear Regulation Authority method may underestimate quake sizes: study**

<http://mainichi.jp/english/articles/20161006/p2a/00m/0na/012000c>

A technique that estimates the scale of earthquakes announced by the Earthquake Research Committee in 2006 may be underestimating the size of earthquakes -- a problem for the Nuclear Regulation Authority, which bases its earthquake resistance plans on the system.

- **【Related】** NRA, utilities continue to use quake calculation method avoided by gov't research panel
- **【Related】** NRA sees no need to review maximum quake estimate at Oi nuke plant
- **【Related】** Editorial: Doubts about nuclear plant's quake resistance shake trust in NRA

Professor Kazuki Koketsu presented the results of his evaluation of the 2006 system at a research session of The Seismological Society of Japan on Oct. 5. Koketsu is a professor at the Earthquake Research Institute at The University of Tokyo and the head of the Subcommittee for Evaluation of Strong Ground Motion, part of the Earthquake Research Committee.

Koketsu compared the estimations of the 2006 technique and a 2009 method to the actual observed data from the magnitude 7.3 Kumamoto Earthquake in April.

While the 2009 technique predicted a magnitude of 7.0 to 7.2 for the active fault, the 2006 technique underestimated the possible magnitude as between 6.6 and 6.9. Koketsu concluded that the 2009 technique is more appropriate for estimating the scale of earthquakes.

However, the Nuclear Regulation Authority (NRA) still uses the estimates of the strongest possible tremor made by the 2006 system as the basis for examining earthquake resistance design plans for nuclear reactors.

In response to Koketsu's presentation, a representative of the NRA stated at a press conference held on Oct. 5, "We will begin discussion over whether we should adopt the 2009 system after the Subcommittee for Evaluation of Strong Ground Motion has coordinated its views on the matter."

The 2006 technique bases its estimates on both the estimated length and breadth of active faults. In 2009, the Earthquake Research Committee released a new system based mainly on the length of faults in order to calculate the expected magnitude of quakes on as many active faults as possible in a short amount of time. In Koketsu's study, the 2006 system miscalculated the length and width of the faults involved in the Kumamoto earthquake, leading to the underestimation of the scale.

While both techniques appear side by side in the research committee's manual, the committee's national earthquake scale prediction map for quakes measuring at least lower-6 on the 7-point Japanese intensity scale estimated to occur within the next 30 years along active faults are all calculated using the 2009 system.

October 7, 2016

## Flange-type storage tank leaks again

### Radioactive water leaks from storage tank at Fukushima plant

<http://www.asahi.com/ajw/articles/AJ201610070036.html>

THE ASAHI SHIMBUN

**Up to 32 liters of radioactive water** leaked from a storage tank at the crippled Fukushima No. 1 nuclear plant, but the contaminated liquid has been contained, Tokyo Electric Power Co. said Oct. 6.

The leaked water is currently within barriers surrounding the tank that are designed to block the flow of fluids, TEPCO, the plant's operator, said.

The liquid contained water that had been treated to remove radioactive strontium and other substances, as well as highly contaminated water from the bottom of the tank that was stored shortly after the nuclear accident started in 2011.

**A radioactivity level of 590,000 becquerels of beta ray-emitting materials was detected per liter of the leaked water.**

The water seeped out of a tank with bolted seams on its sides, which are more prone to leaks than those with welded walls.

**TEPCO continues to use the bolted containers despite the risk because production of welded tanks cannot keep pace with the buildup of contaminated water,** mainly from groundwater entering the damaged reactor buildings, at the nuclear plant.

## **Storage tank leaks at Fukushima Daiichi plant**

[http://www3.nhk.or.jp/nhkworld/en/news/20161007\\_02/](http://www3.nhk.or.jp/nhkworld/en/news/20161007_02/)

Workers at the crippled Fukushima Daiichi nuclear plant have found a leak of highly radioactive water from a waste water tank.

Its operator, Tokyo Electric Power Company, says the water likely leaked from a seam of the tank.

The leaked water was spotted on Wednesday on the side of one of an array of steel tanks holding contaminated water that is continuously generated at the site.

TEPCO's analysis found 590,000 becquerel per liter of beta-emitting radioactive materials in the water.

Tokyo Electric estimates that 32 liters of such highly radioactive water had trickled out, mixed with rainwater, and remained within a barrier around the tank.

Workers moved water in the tank to another one to lower the water level enough to halt the leak.

The leaking cylindrical tank is made by splicing steel plates with bolts. But they have had waste water leaks in the past from seams.

The operator has been replacing these leak-prone tanks with new seamless ones. But the increasing volume of waste water makes it difficult for the utility to completely do away with the old ones.

October 10, 2016

## Evacuation drill at Genkai plant

### Evacuation drill for Genkai nuclear plant accident draws 2,500 locals

[http://www.japantimes.co.jp/news/2016/10/10/national/evacuation-drill-genkai-nuclear-power-plant-accident-participated-2500-locals/#.V\\_zPXMldeos](http://www.japantimes.co.jp/news/2016/10/10/national/evacuation-drill-genkai-nuclear-power-plant-accident-participated-2500-locals/#.V_zPXMldeos)

JJI

SAGA – About 2,500 residents in Saga, Fukuoka and Nagasaki prefectures took part in a joint evacuation drill Monday, practicing for a serious accident at Kyushu Electric Power Co.'s Genkai nuclear plant. Some municipalities, including the plant's host town of Genkai, Saga Prefecture, conducted exercises for multiple disasters causing the collapse of homes, based on lessons from the powerful earthquakes in April in Kumamoto Prefecture.

All four prefectures are located in Kyushu.

Among the various components of the exercise, about 40 residents in Genkai took shelter at the town office on the assumption that their homes were destroyed by an earthquake. They also evacuated by bus to a facility in the Saga city of Ogi by taking a 35-km alternative route, assuming that the most direct route was unusable due to quake damage.

At the Ogi facility, officials simulated the operation of a shelter for evacuees.

A helicopter and high-speed ship were meanwhile used to carry residents from the island of Iki in Nagasaki Prefecture to Fukuoka Prefecture.

October 11, 2016

## Nukes: What of security and transparency?

### Toyama tritium researcher's data targeted in cyberattacks

[http://www.japantimes.co.jp/news/2016/10/11/national/crime-legal/toyama-tritium-researchers-data-targeted-cyberattacks/#.V\\_zN0sldeos](http://www.japantimes.co.jp/news/2016/10/11/national/crime-legal/toyama-tritium-researchers-data-targeted-cyberattacks/#.V_zN0sldeos)

JJI

Research data and personal information may have been stolen from a personal computer belonging to a researcher of tritium, a radioactive isotope of hydrogen, at the University of Toyama's Hydrogen Isotope Research Center, the university said.

In addition to research data, hackers may have stolen personal information such as email addresses on some 1,500 people, including other researchers, the school said Monday.

Most of the possibly affected research data were those that have already been published or were slated to be published, and no highly confidential information was compromised, it said.

According to the university, **two staff members of the center received emails containing a virus in November 2015 and a PC of one of them, a member of the teaching staff, was infected. The PC continued questionable communications with an outside party for about six months.**

The center learned of the virus infection in June following an alert from an outside organization.

The university, based in the city of Toyama, briefed the education ministry on the cyberattacks in mid-June. Earlier in October, it started informing researchers who may have been affected.

The center conducts research on hydrogen, deuterium and tritium, including their use for energy.

Tritium is regarded as a candidate for fuel in nuclear fusion reactors, and is also one of the contaminants in the water building up at the Fukushima No. 1 nuclear plant.

## **Fears of nuclear data leak after university's research unit hacked**

<http://mainichi.jp/english/articles/20161011/p2a/00m/0na/010000c>

The University of Toyama's Hydrogen Isotope Research Center came under cyber-attack and information on research results related to the Fukushima nuclear crisis, as well as personal information on nearly 1,500 researchers and others, is feared to have leaked, it has been learned.

A spokesperson for the center, known for its research on tritium that can be used as fuel for a nuclear fusion reactor, explained, "The research results have already been published and there was no sensitive research data." The research results include those on methods of disposing of contaminated water from the crippled Fukushima No. 1 Nuclear Power Plant.

According to officials of the University of Toyama, two researchers' personal computers came under attack in November 2015. A part-time researcher specializing in tritium science and technology had their computer infected with a virus after opening a file attached to an email sent in by someone under the guise of a friend. Up until June this year, at least 1,000 compressed files were created by remote control and a total of four rounds of massive communications were carried out. The hacking came to light after an external organization alerted the university.

The investigation by the university found that **most of the 59,318 files stored in the computers had apparently leaked out. Yet the university has not been able to confirm the content of 17,612 files among all of the files in question,** officials said.

The university reported the incident to the Education, Culture, Sports, Science and Technology Ministry and Toyama Prefectural Police **in June this year** when the data leak came to light. **But the university had not informed relevant organizations about the problem until Oct. 7.** Takayuki Abe, head of the Hydrogen Isotope Research Center, said, "It took time to closely examine the situation."

October 14, 2016

## **Kashiwazaki-Karima: How safe?**

## TEPCO to review plan to reactivate nuclear reactors due to liquefaction fears

<http://mainichi.jp/english/articles/20161014/p2a/00m/0na/012000c>

Tokyo Electric Power Co. (TEPCO) announced on Oct. 13 at a meeting of the Nuclear Regulation Authority (NRA) that it will review its plan for reactivation of the No. 6 and 7 reactors at the Kashiwazaki-Kariwa Nuclear Power Plant in Niigata Prefecture due to the possibility that ground liquefaction from an earthquake could collapse the plant's tidal levees.

The NRA's safety inspections on TEPCO's reactivation plan for the plant's No. 6 and 7 reactors were nearing completion, but the process is expected to be prolonged.

The Kashiwazaki-Kariwa plant uses boiling water reactors, the same as the crippled Fukushima No. 1 Nuclear Power Plant, which was the site of the 2011 nuclear disaster. If the safety inspections went without a problem, Kashiwazaki-Kariwa was expected to be the first boiling water reactor plant to pass the new safety standards.

The Kashiwazaki-Kariwa plant is divided into a lower area at an elevation of 5 meters above sea level that holds its No. 1 through 4 reactors, and a higher area at an elevation of 12 meters above sea level where its No. 5 through 7 reactors stand. TEPCO has applied to the NRA for safety inspections of the No. 6 and 7 reactors, a precursor to reactivation. The plant was affected by soil liquefaction when the 2007 Chuestu offshore earthquake struck, so the NRA instructed TEPCO to carefully examine the effects that ground liquefaction would have on the plant. It was learned from TEPCO analysis that the levees protecting the No. 1 through 4 reactors could be destroyed if the soil liquefied.

TEPCO estimates that tsunami up to the height of 7.6 meters could hit the plant. If the levees, which stand 15 meters above sea level, were to collapse due to tsunami, the area holding the No. 1 through 4 reactors would become flooded. TEPCO had planned to use the No. 3 reactor building as the "emergency response location" that workers would use as a forward base for operations during times of emergency, but it now intends to **use the No. 5 reactor building in order to avoid potential flooding** and is seeking understanding from the NRA on this point.

However, the area holding the No. 1 through 4 reactors is also where many facilities are located including an earthquake-resistant structure meant to be used as a disaster response center. These could become unusable if the area was flooded. Furthermore, **the No. 5 reactor building is located only around 130 meters from the No. 6 reactor, so if workers used the former to respond to a disaster at the No. 6 reactor, they could be exposed to very high radiation levels** of 70 millisieverts per week. The NRA plans to newly examine whether these issues affect the ability to respond to a major disaster at the No. 6 and 7 reactors. **TEPCO also intends to pursue reactivation of the No. 1 through 4 reactors, but large-scale construction expected to take over a year is necessary to deal with the possibility of ground liquefaction. This is expected to prevent TEPCO from applying for safety inspections for these reactors for the time being.**

October 16, 2016

## Earthquake hits northeastern Japan

### M5.3 quake hits northeastern Japan, no tsunami warning issued

<http://mainichi.jp/english/articles/20161016/p2g/00m/0dm/050000c>



TOKYO (Kyodo) -- An earthquake with a preliminary magnitude of 5.3 jolted northeastern Japan on Sunday, Japan's weather agency said. No tsunami warning was issued.

There are no immediate reports of casualties or damage from the 4:37 p.m. quake. The focus of the temblor was about 20 kilometers underground in the Pacific Ocean off Miyagi Prefecture, the Japan Meteorological Agency said.

Tohoku Electric Power Co. said it saw no abnormality at the Onagawa Nuclear Power Station in Miyagi Prefecture.

The quake measured 4 on the Japanese seismic intensity scale of 7 in some areas in Miyagi such as Ishinomaki, and 3 in wider areas including Iwate and Yamagata prefectures.

October 18, 2016

## Listen to the public's voice

### **EDITORIAL: Niigata governor election shows anxiety about nuclear power**

<http://www.asahi.com/ajw/articles/AJ201610180023.html>

In an upset, Ryuichi Yoneyama, a rookie candidate backed by the opposition Japanese Communist Party, the Social Democratic Party and the Liberal Party, was elected governor of Niigata Prefecture on Oct. 16. Yoneyama presented a tough stance toward the proposed restart of Tokyo Electric Power Co.'s Kashiwazaki-Kariwa nuclear power plant in the prefecture, which was the main election issue.

He emerged victorious in a virtual one-on-one contest against Tamio Mori, a former mayor of Nagaoka in the prefecture, who was backed by the ruling Liberal Democratic Party and its junior coalition partner, Komeito.

The outcome could be called a manifestation of the public will that wants to halt the headlong way the administration of Prime Minister Shinzo Abe is seeking to have Japan's idled nuclear reactors brought back online.

The election highlighted the strong anxiety that Niigata Prefecture residents have concerning nuclear power.

Yoneyama said in his campaign pledge that he would not discuss the restart of the Kashiwazaki-Kariwa plant unless the causes of the 2011 disaster at TEPCO's Fukushima No. 1 nuclear power plant, its impact and the challenges it highlighted are scrutinized.

He has the responsibility to follow through on his promise and confront the central government and TEPCO, which are seeking to have the Kashiwazaki-Kariwa's nuclear reactors brought back online, with a resolute attitude.

Hirohiko Izumida, the incumbent governor who has consistently taken a cautious stance toward a nuclear restart, did not seek re-election.

Attention was focused during the gubernatorial race on whether Izumida's policy line would be succeeded. It was initially thought that Mori, a former head of the Japan Association of City Mayors who emphasized the connections he has with the central government, had an overwhelming advantage. But Yoneyama, who announced his candidacy immediately before official campaigning started and asserted he would follow Izumida's stance over the nuclear restart issue, turned out to have more pull.

An Asahi Shimbun survey of eligible voters in Niigata Prefecture found that, while only about 20 percent of the respondents said they approved the restart of the Kashiwazaki-Kariwa nuclear plant, more than 60 percent opposed it. Yoneyama was elected by that public opinion.

Kashiwazaki-Kariwa, where seven nuclear reactors are concentrated, is one of the world's largest nuclear plants. A serious cover-up of technical problems there came to light in 2002. The Niigata Chuetsu-oki Earthquake of 2007 resulted in a fire and the leakage of a small amount of radioactive substances there. It stands to reason that many feel anxious about plant operations.

Izumida told the central government that plans for evacuating local residents in the event of a nuclear plant disaster are not covered by the screenings by the Nuclear Regulation Authority, and called for the central government's Nuclear Emergency Response Guideline to be improved. He also used an expert panel of the prefectural government to pursue an independent investigation into the Fukushima nuclear disaster.

The governor also questioned TEPCO's delay in announcing that core meltdowns had occurred at the Fukushima No. 1 nuclear plant. That led to TEPCO's acknowledgment this year of a cover-up.

One can say that Izumida has demonstrated that a prefectural governor can play various roles without leaving the safety of a nuclear plant up to the central government. The election results have shown that many residents of Niigata Prefecture want their governor to continue that stance.

The Abe administration, which defines nuclear energy as an important mainstay power source, is hoping to restart nuclear reactors that have passed NRA screenings. It also defines the restart of the Kashiwazaki-Kariwa nuclear plant as an indispensable step for rehabilitating the embattled TEPCO, which has virtually become a government-owned entity.

The administration, however, should sincerely face up to the public will in Niigata Prefecture.

In Kagoshima Prefecture as well, the winner in a gubernatorial election this summer was a candidate who called for a nuclear plant in the southern prefecture to be taken temporarily offline.

It is the duty of top officials responsible for national politics to listen to the voices of the public.

## Preparing standards for shutdown after giant eruption

### Nuclear watchdog eyes standards for reactor shutdown in fear of giant volcanic eruption

<http://mainichi.jp/english/articles/20161018/p2a/00m/0na/008000c>

The Nuclear Regulation Authority (NRA) held a meeting of a panel of outside experts on Oct. 17 to start considering the formulation of standards for ordering a nuclear power plant to shut down in preparation for a giant volcanic eruption.

- **【Fukushima & Nuclear Power】**

Arguing that there is a high possibility of smaller volcanic eruptions occurring ahead of a giant eruption, the expert panel showed a proposal to prepare for a giant eruption after a smaller eruption occurs. But the panel did not show specific details of standards.

According to the NRA's proposal, a giant eruption is believed to occur following small-, medium- or large-scale eruptions. With such a possibility in mind, the NRA said that the expert panel would consider how to respond in the event of small- and medium-sized eruptions occurring and extremely abnormal data being observed. The NRA listed crustal movement, seismic activity and temperatures and gasses of a volcano as data to be subject to monitoring.

Meanwhile, there was a spate of suggestions from experts at the meeting that it would be difficult to detect signs of a giant eruption. For example, Tetsuo Kobayashi, professor emeritus at Kagoshima University, said, "Even if there is a significant phenomenon, whether or not it will lead to a giant eruption will not be known until the last minute."

The NRA is to examine data on past volcanic eruptions, but **it will likely face difficulties in working out standards as there are very few cases of giant eruptions being observed in the world.**

The NRA had given the green light for two reactors at Kyushu Electric Power Co.'s Sendai Nuclear Power Plant in Kagoshima Prefecture to restart, saying, "The possibility of a giant volcanic eruption occurring at the periphery of the nuclear plant is very low." If the NRA deems there is a sign of a giant eruption, it will order a relevant power company to halt the operation of nuclear reactors and take nuclear fuel out from the reactors. But in order to take out nuclear fuel from reactors, several years have to be spent to cool down the atomic fuel first. And yet, nothing has been decided as to where such fuel should be sent.

October 20, 2016

## Olympics: Some events could take place in Fukushima

### **Bach: Events could be held in northeast Japan**

[http://www3.nhk.or.jp/nhkworld/en/news/20161019\\_29/](http://www3.nhk.or.jp/nhkworld/en/news/20161019_29/)

The head of the International Olympic Committee has suggested holding some events of the 2020 Tokyo Games in areas of northeastern Japan that were devastated by the earthquake and tsunami of 2011.

IOC President Thomas Bach, now visiting Japan, met Prime Minister Shinzo Abe in Tokyo on Wednesday.

Bach told Abe the IOC is thinking of holding some Olympic events in the disaster zone to contribute to revival efforts. He said this could show the world how the areas have recovered. Abe welcomed the idea.

Abe also promised the government's participation in talks to cut costs for the games.

Bach had proposed 4-way talks by the Tokyo Metropolitan Government, the IOC, Tokyo 2020 organizers and Japan's government.

Reporters later asked Bach if baseball and softball will be held in Fukushima City. Bach said it's an option under consideration. He added that since the sports are very popular in Japan, having the country's team play in the disaster zone would send a strong message.

## Shika plant: Rain and negligence could have led to disaster

### Key electrical switchboard at Shika nuke plant almost flooded: NRA

<http://mainichi.jp/english/articles/20161020/p2a/00m/0na/003000c>

A key electrical switchboard at Shika Nuclear Power Plant in Ishikawa Prefecture was nearly flooded after rainwater flowed into one of the plant's reactor buildings last month, Japan's nuclear regulator has revealed.

- **【Related】** Fault under Shika nuclear reactor likely to be active: NRA expert panel
- **【Related】** Utilities aim to overturn NRA expert panel's fault assessment

The Nuclear Regulation Authority (NRA) instructed plant operator Hokuriku Electric Power Co. to draw up a report illustrating preventive measures on the grounds that **the incident could have led to a serious accident.**

"We'd like to raise our awareness of safety by learning lessons from the trouble," Hokuriku Electric President Yutaka Kanai told NRA officials on Oct. 19.

An area around the atomic power station in Shika, Ishikawa Prefecture, had about 30 millimeters of rainfall per hour on Sept. 28, flooding roads on the plant grounds, according to the NRA. Some 6.6 metric tons of rainwater flowed into the first floor and basement of the No. 2 reactor building through an underground passage for temporary cables, causing an electrical switchboard for lighting to short out.

**The accident is attributable to the volume of rainwater exceeding the capacity of a drainage pump in the building, to a gap in the lid covering the underground passage, and to the plant operator's failure to repair a crack in the floor of the reactor building.**

**There are important systems in the flooded area, including an electrical switchboard that supplies power to an emergency reactor cooling unit, and emergency batteries. If these devices had been submerged, they could have become inoperable.**

## Flooded switchboard at Shika plant worries NRA

### Rainwater flood in Shika nuclear plant raises concerns at NRA

By TAKASHI SUGIMOTO/ Staff Writer

*The Shika nuclear plant in Ishikawa Prefecture operated by Hokuriku Electric Power Co. (Asahi Shimbun file photo)*

The Nuclear Regulation Authority has instructed Hokuriku Electric Power Co. to further investigate and prevent a recurrence of flooding that short-circuited the emergency lighting system at its Shika nuclear plant in Ishikawa Prefecture.

The 6.6 tons of rainwater that entered the No. 2 reactor building at the Shika plant in late September also came close to drenching power batteries prepared for emergency use.

“It was never imagined that such a volume of rain would flood the building,” NRA Chairman Shunichi Tanaka said Oct. 19. “There was the possibility of losing an important safety function.”

The Shika plant is currently offline, but the flooding incident could prompt the NRA to review the screening process required before the nuclear reactor is cleared to resume operations.

Hokuriku Electric President Yutaka Kanai apologized for the incident at a special meeting with the NRA on Oct. 19 and acknowledged that the downpour caught the company off-guard.

“Measures to stop flooding were an afterthought because the altitude of the plant site is comparatively high,” Kanai said. “There was a delay in dealing with the warning signals because of a weak sense of crisis among those on duty at the time.”

According to the utility’s report submitted to the NRA, a drainage ditch next to the reactor building was partially covered for road construction work. The rainfall on Sept. 28 flooded the road, and some of the water entered cable piping leading to the reactor building because a lid had been partially moved to allow for passage of a temporary cable.

The rainwater eventually reached the first floor of the reactor building, and power sources for emergency lighting short-circuited. Some of the rainwater leaked through cracks in the floor and fell as far as the second floor basement, according to the report.

The water reached the floor just above the room on the first floor basement where power batteries are kept. Those batteries are a crucial power source for the plant’s operations in the event electricity is cut off in an earthquake.

According to the Japan Meteorological Agency, as much as 26 millimeters of rain fell per hour on that day. The 2011 disaster at the Fukushima No. 1 nuclear power plant was caused in part by the loss of emergency power sources in the tsunami that swamped the plant.

That accident led to the creation of stricter safety standards on measures to prevent flooding of reactor buildings, including erecting levees against tsunami and installing watertight doors.

However, not much attention was focused on the possibility of flooding through piping.

Anti-flooding measures were not high on the priority list at the Shika plant because there are no nearby rivers. Piping into the reactor building was also not required to be sealed off.

The NRA will ask Hokuriku Electric for new safety measures when it screens the No. 2 reactor at the Shika plant under the utility’s application to resume operations.

The NRA is also expected to wait until Hokuriku Electric presents a more detailed report before looking into whether the incident was unique to the Shika plant or whether there is a need to expand the safety measures to other nuclear plants when conducting screenings before operations can resume.

October 21, 2016

## Power cut to uranium facility after quake

### Outside power temporarily cut to Okayama uranium processing facility after quake

<http://mainichi.jp/english/articles/20161021/p2a/00m/0na/013000c>



The Japan Atomic Energy Agency's Ningyo-toge Environmental Engineering Center in Kagamino, Okayama Prefecture, is pictured in this May 2013 file photo. (Mainichi)

The external power supply to a uranium processing facility in Okayama Prefecture was temporarily cut following a powerful Oct. 21 earthquake that hit Tottori Prefecture and surrounding areas, the Nuclear Regulation Authority (NRA) said.

- **【Related】** M6.6 quake strikes western Japan, no tsunami warning issued
- **【Related】** Disaster message board instructions available in foreign languages after Tottori quake

External power was lost for a time at the Japan Atomic Energy Agency's Ningyo-toge Environmental Engineering Center in Kagamino, Okayama Prefecture, after the magnitude-6.6 quake. Locally, the quake registered an upper 5 on the 7-point Japanese seismic intensity scale, according to the NRA. However, no problems were reported at the plant, as an emergency power supply system kicked in immediately. The facility was not in operation at the time of the quake.

In related news, operations at the No. 3 reactor at Shikoku Electric Power Co.'s Ikata Nuclear Power Plant in Ehime Prefecture have not been disrupted. There is reportedly no problem with Chugoku Electric Power Co.'s Shimane nuclear plant in Shimane Prefecture, which is not in operation.

## **“Temporary” storage sites yet another concern for residents**

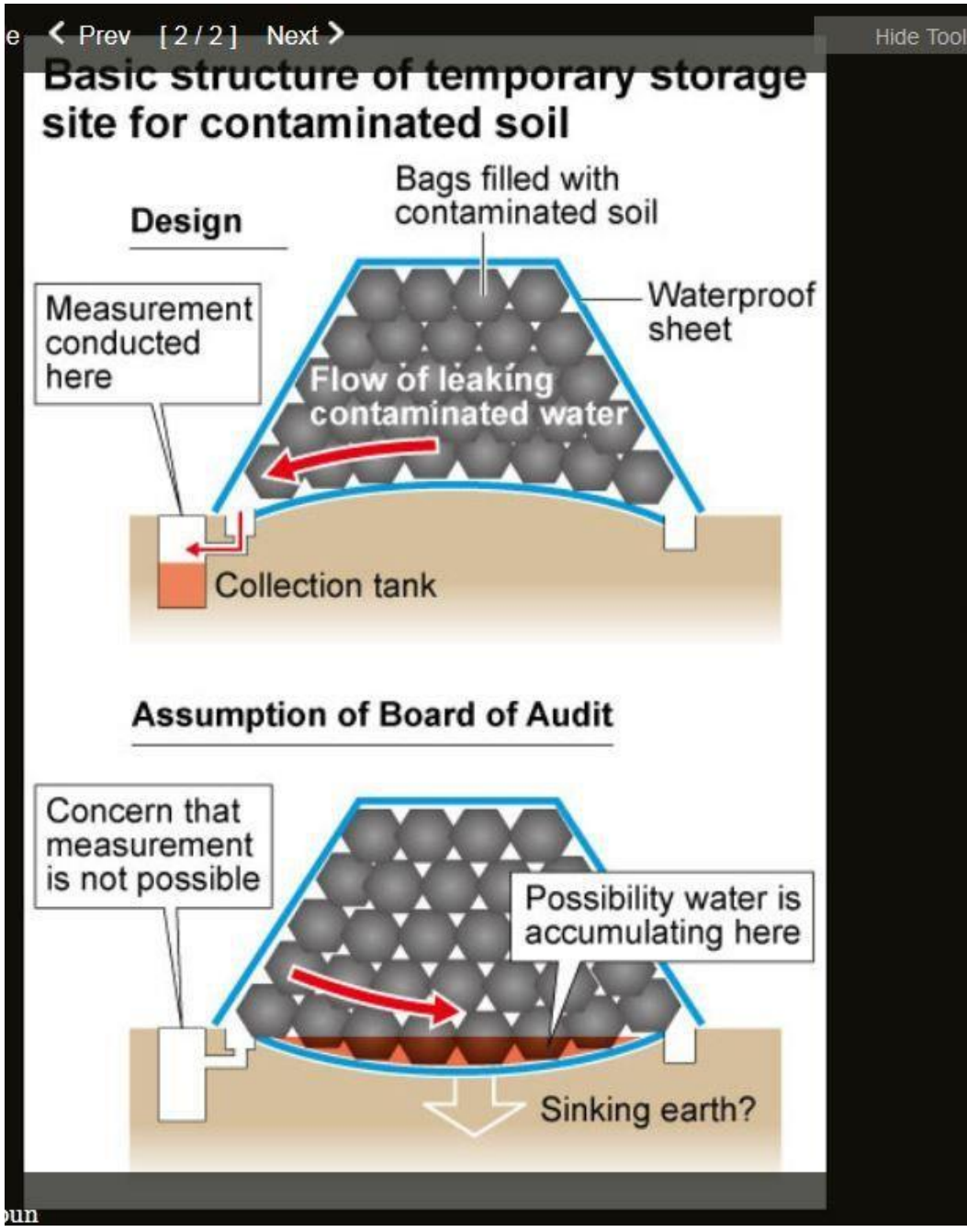
### **Study: Possible water problem at storage sites in Fukushima**

<http://www.asahi.com/ajw/articles/AJ201610210044.html>



It might be difficult to measure radiation levels in water at this temporary storage site for contaminated soil in Fukushima Prefecture. (Kenji Izawa)

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Bags of radiation-contaminated soil could be sinking into the ground at temporary storage sites in Fukushima Prefecture, allowing water to accumulate within instead of flowing to outside tanks for testing, the Board of Audit said.

No confirmation has been made that the ground at the sites is actually sinking or if contaminated water has pooled inside. But Board of Audit officials are asking the Environment Ministry to consider additional safety measures if signs indicate that this is actually occurring.

The board's study focused on 34 of the 106 temporary storage sites that the Environment Ministry set up for soil removed through decontamination work after the disaster in March 2011 unfolded at the Fukushima No. 1 nuclear power plant.



Construction of the storage sites started in 2012, and the transfer of contaminated soil to these facilities was completed in 2015.

The temporary storage sites were designed to have a slight mound on the ground in the center to allow water from the bags to flow down into surrounding collection tanks for periodic measurements of radiation levels.

Internal Environment Ministry guidelines called for this setup at storage sites containing bags that are not waterproof.

The Board of Audit studied 34 temporary storage sites where the bags are not waterproof. These bags were piled five deep or higher at those sites.

The study showed that at 31 of the sites, the weight of the bags may have not only flattened the mound in the center, but it also could have created an indent in the ground where the leaking water could accumulate.

If the water does not flow to the tanks, it will be difficult to determine the radiation levels.

The study also noted that the foundations at the sites were soft to begin with and may be unable to support the bags of soil. The sinking phenomenon could worsen as time passes.

The Environment Ministry played down the risk of the water contaminating areas around the storage facilities.

“Even if the ground has sunk, the structure is designed so water does not leak outside the site,” a ministry official said. “Eventually, the water should collect in the tanks. We will make every effort to oversee the sites as well as use waterproof bags as much as possible.”

A total of 4.16 billion yen (\$40 million) was spent to construct the 31 temporary storage sites.

The Environment Ministry designed the temporary storage sites under the precondition they would be used for only three years and then removed. For that reason, measures were not taken to strengthen the foundations to prevent the ground from sinking, even if soft farmland was chosen for a site.

The plan is to eventually return the land where the temporary storage sites have been built to its original state and return it to the landowners

However, the Board of Audit’s study adds another concern for residents, many of whom had opposed construction of the temporary storage sites in their neighborhoods.

Toshio Sato, 68, has evacuated to Fukushima city from his home in Iitate village, where four of the possible problem storage sites are located.

“There are some people who want to resume growing rice once they return home,” Sato said. “If water is accumulating, there is the possibility it could unexpectedly overflow into surrounding areas. The concerns just seem to emerge one after another.”

The government plans to lift the evacuation order for a large part of Iitate in March 2017.

(This article was compiled from reports by Kosuke Tauchi, Shoko Rikimaru, Kenji Izawa and Akifumi Nagahashi.)

November 6, 2016

## Radioactive sludge in car wash tanks

## Car wash septic tanks emerge as radiation threat in Fukushima

<http://www.japantimes.co.jp/news/2016/11/06/national/car-wash-septic-tanks-emerge-radiation-threat-fukushima/#.WCBnqMmDmos>

Kyodo

Highly radioactive sludge is turning up in septic tanks at car washes in Fukushima Prefecture, and the readings are as much as seven times higher than the government's limit, auto industry officials say.

While the government-set limit is 8,000 becquerels per kilogram, some of the sludge is giving off **57,400 becquerels per kg**, a document obtained by Kyodo News says.

The source of the radioactivity is believed to be ash and soot that stuck to vehicles shortly after the triple core meltdown at the Fukushima No. 1 nuclear power plant in March 2011, the officials said Saturday.

**Fukushima Prefecture has some 1,700 auto maintenance facilities where a growing number of septic tanks are reaching capacity, they said, adding that the amount of tainted sludge accumulated from washing cars likely weighs several thousands of tons.**

To prevent the septic tanks from overflowing, some of the maintenance facilities are manually scooping up the mud, which has prompted industry groups to warn authorities about the health hazards workers face, the officials said.

The Japan Automobile Dealers Association, Japan Automobile Service Promotion Association and Japan Light Motor Vehicle and Motorcycle Association have been urging the central government and Tokyo Electric Power Co., which manages the defunct Fukushima No. 1 plant, to address the issue.

But their calls for action have not been heeded, the Environment Ministry and the utility admitted.

**The issue has failed to gain attention until now in part because the decontamination law only requires that companies report on radiation levels in sewage sludge and incinerated ash, not other waste products.**

Although the companies that install the septic tanks know about the radiation problem, they couldn't go public about it for fear of losing customers.

Kunikazu Noguchi, associate professor of radiation protection studies at Nihon University in Tokyo, said all tainted sludge should have been designated as radioactive waste and disposed of by the central government, instead of being kept in septic tanks.

"The fact that the government failed to act on this problem for 5½ years shows its negligence," Noguchi said. "To remove sludge that contains nearly 60,000 becquerels of radioactive material per kilogram, you need to do so with extra caution, in line with guidelines set by the Environment Ministry."

November 9, 2016

## 2020 Olympics: Baseball in Fukushima?

### Fukushima eyed for baseball, softball games in 2020 Olympics

[http://www.japantimes.co.jp/news/2016/11/09/national/fukushima-eyed-baseball-softball-games-2020-olympics/#.WCRF\\_8mDmos](http://www.japantimes.co.jp/news/2016/11/09/national/fukushima-eyed-baseball-softball-games-2020-olympics/#.WCRF_8mDmos)

by Andrew Mckirdy

Staff Writer

Tokyo 2020 Olympic organizers on Wednesday gave the green light for disaster-affected Fukushima Prefecture to host baseball and softball games.

Three cities — Fukushima, Koriyama and Iwaki — are under consideration to stage part of the competition as the two sports return to the Olympic program after an absence of 12 years.

Riccardo Fraccari, president of the World Baseball Softball Confederation, will visit Japan next week to inspect the venues. The International Olympic Committee will make the final decision when it holds its executive board meeting from Dec. 6 to 8.

“We want to emphasize this as a ‘recovery games’ and we want to work together with everyone to move it forward,” said 2020 executive board member Toshiaki Endo.

“These Olympics and Paralympics are not just for Tokyo but for the whole of Japan. We only have 1,353 days left, so we need everyone to make an effort so we can put on a fantastic event.”

IOC President Thomas Bach floated the idea of hosting baseball and softball games in Fukushima during a visit to Tokyo last month to take part in the World Forum on Sport and Culture.

“I felt that President Bach had a strong feeling toward Fukushima when he came here,” said Fukushima Gov. Masao Uchibori. “The idea of a ‘recovery games’ is once again in the spotlight and people are thinking carefully about how that can be achieved.

“It can show the courage of Fukushima Prefecture and the Tohoku region, and on a wider scale Kumamoto and Tottori — places that are working hard to recover from disaster.”

The Yomiuri Giants professional baseball team occasionally hosts Nippon Professional Baseball games at all three venues. Fukushima Azuma Baseball Stadium and Iwaki Green Stadium both have capacities of 30,000, while the older Koriyama Kaiseizan Baseball Stadium holds 18,200.

Neighboring Miyagi Prefecture is hoping to stage rowing and canoe sprint events as a result of a cost-cutting review currently being undertaken by the IOC, Tokyo Metropolitan Government, Tokyo 2020 organizers and the national government.

“Miyagi Prefecture, Iwate Prefecture and Fukushima Prefecture all suffered a lot of damage from the Great East Japan Earthquake,” said Uchibori.

“These three prefectures have a close bond and always work together. We want to form a movement. We want to show our appreciation to people and get people excited about the Tokyo Olympics. I’d like to consult with my fellow governors.”

Uchibori also said he would like his prefecture to host other Olympic-related events such as training camps and a section of the torch relay.

Baseball and softball were voted back onto the Olympic program as a joint bid at an IOC session in Rio de Janeiro in August ahead of the Summer Games. The format of the competitions has yet to be decided.

November 11, 2016

## Disaster drill at Ikata plant

### Disaster drill underway for Ikata nuclear plant

[http://www3.nhk.or.jp/nhkworld/en/news/20161111\\_19/](http://www3.nhk.or.jp/nhkworld/en/news/20161111_19/)

A major anti-disaster drill is being held on Friday at a nuclear plant in western Japan. The exercise is based on the scenario of a powerful earthquake striking the region.

About 23,000 people are taking part in the annual drill at the Ikata plant in Ehime Prefecture. It's the first such exercise since the No.3 reactor was reactivated in August.

Local residents joined officials from 90 organizations, including central and local governments and the operator, Shikoku Electric Power Company.

Plant workers gathered at an emergency control center to deal with the situation.

Officials used the lessons learned from the 2011 Fukushima Daiichi plant accident and built the center on higher ground to protect it from tsunami.

An exercise to evacuate residents by boat was held for the first time at Cape Sada. The plant is located at the base of the cape. A major quake could disrupt road traffic, blocking evacuation by land routes.

Ehime prefectural officials are reviewing their evacuation plans after a series of quakes hit Kumamoto Prefecture in April.

The many challenges they face include finding temporary accommodation for isolated residents in an emergency. Only 10 facilities are protected against radiation.

The officials say they hope the drill will help them to test the effectiveness of their evacuation plans.

November 12, 2016

## Is this supposed to be reassuring?

### **JNFL to take radioactive waste out of Aomori facilities if volcanic eruption looks likely**

<http://mainichi.jp/english/articles/20161112/p2a/00m/0na/001000c>

Japan Nuclear Fuel Ltd. (JNFL) is planning to bring radioactive waste, including spent nuclear fuel, out of its three facilities in Aomori Prefecture that are involved in the nuclear fuel cycle project if it detects signs of a possible volcanic eruption.

The stipulation is part of the guidelines for action to be taken by the three facilities in Rokkasho, Aomori Prefecture, in response to a possible massive eruption of two volcanoes near the plants, which JNFL unveiled at a screening meeting of the Nuclear Regulation Authority on Nov. 11.

However, there have been no prospects of JNFL securing other facilities to which the radioactive waste can be relocated; JNFL says it will deliberate its options.

The three facilities in Rokkasho are a nuclear fuel reprocessing facility, a plant for processing spent nuclear fuel into mixed-oxide fuel, and a center for managing storage of highly radioactive waste. Pools at the reprocessing facility currently hold some 3,000 metric tons of spent nuclear fuel from nuclear power plants across the country, as well as uranium, powdered MOX fuel and vitrified radioactive waste generated through reprocessing. Under the plan, all such substances would be removed from the facilities if signs of a huge volcanic eruption are detected.

However, pools at atomic power stations across the country holding spent nuclear fuel are almost full, and the Rokkasho facilities are the only ones in Japan where vitrified radioactive waste can be stored.

There are two volcanoes neighboring the Rokkasho facilities that have caused massive eruptions in the past -- Mount Towada, which straddles Aomori and Akita prefectures, and Mount Hakkoda in Aomori Prefecture. Pyroclastic flows from a Towada eruption have reached the premises of one of the Rokkasho facilities in the past.

JNFL intends to monitor the volcanic activities of these mountains in an effort to detect signs of a possible eruption. However, numerous experts have pointed out the difficulty of predicting a massive eruption.

November 13, 2016

## **Nuclear evacuation drill around Tomari plant**

### **Japan holds nuclear evacuation drill for tsunami**

[http://www3.nhk.or.jp/nhkworld/en/news/20161113\\_20/](http://www3.nhk.or.jp/nhkworld/en/news/20161113_20/)

Japan's government is holding its first drill to evacuate people living near a nuclear power plant that has been hit by a tsunami.

The 2-day exercise began on Sunday in communities near the Tomari plant in Hokkaido. It has been offline pending a government screening for a restart.

The drill was based on the scenario that the reactors had lost their cooling functions after a powerful quake and a tsunami had cut off nearby roads.

A mock warning for a major tsunami was relayed through a public address system in Tomari Village.

Residents gathered at an elementary school as evacuees and village officials explained to them that they would be transported by bus to the regional capital of Sapporo, 60 kilometers away.

In neighboring Kyowa Town, workers used heavy machinery to remove driftwood that had blocked the roads.

Inside the plant compound, paramedics in protective gear covered the interior of an ambulance to prevent contamination by radioactive materials.

Firefighters used a water cannon to stop the spread of radioactive substances. Nuclear plants have been required to have water cannons since the Fukushima accident.

Officials from the Secretariat of the Nuclear Regulation Authority and local municipalities gathered at the off-site center about 10 kilometers from the plant.

The State Minister of the Cabinet Office, Tadahiko Ito, who's in charge of nuclear disaster prevention, arrived at the center 90 minutes late because bad weather had prevented him from using a helicopter. The officials at the center had a video conference with Prime Minister Shinzo Abe in Tokyo. He declared an emergency and told the officials to evacuate people within a 5-kilometer radius of the plant.

A drill for evacuating residents by bus and another to help foreign tourists will take place on Monday.

Another exercise is scheduled early next year to prepare for a possible accident at the Tomari plant during a snowstorm.

See also : <http://www.japantimes.co.jp/news/2016/11/14/national/disaster-preparedness-drill-held-nuclear-power-plant-hokkaido/>

## **Drill staged for tsunami, nuclear accident**

[http://www3.nhk.or.jp/nhkworld/en/news/20161113\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20161113_12/)

A nuclear evacuation drill has begun in communities near an offline nuclear power plant in Japan's northern island of Hokkaido. It is the nation's first such exercise that involves central government officials and an evacuation from tsunami.

The 2-day drill started on Sunday morning, with nearly 14,000 people taking part. Officials from more than 400 organizations, including the central and local governments, are also involved.

The drill started out based on a scenario that there had been an earthquake with an intensity of 6 plus on the Japanese seismic scale of zero to 7.

The scenario also assumed that the cooling system for reactors at the Tomari power plant was no longer operating, and that a tsunami had cut off roads around the plant.

A warning of a major tsunami was broadcast in the village of Tomari, which hosts the plant. That prompted residents to evacuate by foot to an elementary school on high ground.

Village officials told them they would be bused to Sapporo, more than 60 kilometers away, due to the situation at the plant.

In the afternoon, prefectural officials will practice removing debris left by the tsunami to make roads

passable.

The Tomari plant is undergoing safety screening by the Nuclear Regulation Authority for possible restart of its reactors.

November 16, 2016

## "Economically practical": 20 more years for Mihama No.3

### **NRA exception gives new lease on life to another aging reactor**

<http://www.asahi.com/ajw/articles/AJ201611160045.html>

By HIROSHI ISHIZUKA/ Staff Writer



The No. 3 reactor of the Mihama nuclear power plant stands in the background. The two reactors in the foreground will be decommissioned. (Asahi Shimbun file photo)

The nation's nuclear watchdog granted approval Nov. 16 for the aging No. 3 reactor at the Mihama nuclear plant to operate for an additional 20 years, making an exception for the second time.

The plant in Fukui Prefecture operated by Kansai Electric Power Co. will reach its 40-year-lifespan at the end of the month.

The Nuclear Regulation Authority previously allowed the No. 1 and No. 2 reactors at the Takahama nuclear plant, also in the prefecture, to extend operations for 20 years. That authorization was given in June.

Limiting nuclear plant operations to 40 years, in principle, was decided on in the aftermath of the 2011 accident at the Fukushima No. 1 nuclear power plant.

The decision, made while the Democratic Party of Japan was in control of government, was supported by the Liberal Democratic Party and Komeito, then in opposition but now ruling as a coalition. Under that new rule, there was a provision for a one-time exemption to allow extension of operations for 20 years. But **the DPJ government said such extensions would be "extremely exceptional."**

The latest approval does not mean the Mihama No. 3 reactor will be resuming operations any time soon. Kansai Electric Power must first implement the measures it promised to heighten safety. Anti-quake measures and the switching of electric cables that total about 1,000 kilometers in length is expected to take more than three years, meaning that operations will only resume by March 2020 at the earliest.

In order to allow for an extension, a nuclear plant operator has to pass three screenings based on tougher safety standards before the 40-year deadline is reached.

Kansai Electric Power submitted an application to the NRA in November 2015 for an extension of the Mihama reactor.

Under safety screening based on new standards, the estimated size of the shaking of a possible earthquake that might hit the area around the plant was raised from 750 gal to 993 gal. A gal is a measure of ground acceleration related to seismic shaking.

The higher standard meant Kansai Electric Power had to demonstrate that equipment at the Mihama plant could withstand shaking of that size. The utility was also told to switch the electric cables used on the plant site to ones that were less flammable.

With the November deadline approaching, the NRA pushed the Mihama No. 3 reactor safety screening to the top of its list. In October, the agency approved the utility's basic policy for safety measures. It later also approved the detailed design plans for plant equipment.

**The latest decision by the NRA means Kansai Electric Power now has the three approvals it needs to extend operations for 20 years.**

## **Operation extension approved for Mihama reactor**

[http://www3.nhk.or.jp/nhkworld/en/news/20161116\\_18/](http://www3.nhk.or.jp/nhkworld/en/news/20161116_18/)

Japan's nuclear regulator has said an aging reactor will be allowed to operate beyond its 40-year maximum life span.

The No.3 reactor at the Mihama nuclear power plant, on the Sea of Japan coast, has been given a 20-year extension. The Nuclear Regulation Authority made the unanimous decision on Wednesday.

The reactor, in Fukui Prefecture, went offline in March 2011 for a regular checkup and has not been restarted.

The Mihama reactor turns 40 years old later this year, and it will now be permitted to run until November 2036.

The Nuclear Regulation Authority heard evidence on Wednesday that the reactor's pipes and electric cables are expected to meet required standards for up to 60 years since operations began in 1976.



Some members referred to a 2004 accident at the reactor in which 5 workers were killed after high-temperature steam leaked from a damaged pipe. They urged the operator, Kansai Electric Power Company, to keep checking for possible decay to the facility.

The reactor is the third in Japan to be granted an extension, after 2 reactors at the nearby Takahama plant were approved for restarts in June.

Kansai Electric said it will not restart operations until additional safety work has been completed, by March 2020 at the earliest. It said **it believes the restart will be economically practical**.  
See also: <http://mainichi.jp/english/articles/20161116/p2g/00m/0dm/047000c>

November 22, 2016

## 7.4 earthquake strikes off Fukushima coast

### 1-m tsunami on coast of Fukushima Daiichi plant

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_21](http://www3.nhk.or.jp/nhkworld/en/news/20161122_21)

The operator of the Fukushima Daiichi nuclear power plant says tsunami waves reached the coastline next to the plant on Tuesday morning, but have caused no problem so far.

A magnitude 7.4 earthquake struck off the coast of Fukushima Prefecture, triggering tsunami.

Tokyo Electric Power Company told the prefectural government that a tsunami as high as 1 meter was observed at 6:34AM.

The utility said there has been no change in radiation levels at the site. It says workers are patrolling the reactor buildings and the embankment area to monitor the situation.

### Tsunami waves observed in Miyagi, Fukushima, Iwate

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_17/](http://www3.nhk.or.jp/nhkworld/en/news/20161122_17/)

Tsunami waves have been observed along the coast of Miyagi, Fukushima, and Iwate prefectures in northeastern Japan, following a strong earthquake on Tuesday morning.

The Meteorological Agency says a tsunami measuring 1.4 meters reached Sendai Port in Miyagi.

The waves reached 90 centimeters at Soma Port in Fukushima, 80 centimeters at Kuji Port in Iwate, and 60 centimeters at Onahama Port in Fukushima.

## Cooling system at Fukushima Daini reactivated

### Quake prompts temporary halt to cooling of spent fuel rods at Fukushima No. 2 Pool

<http://www.japantimes.co.jp/news/2016/11/22/national/quake-prompts-temporary-halt-cooling-spent-fuel-rods-fukushima-no-2-pool/#.WDPyuX2Dmos>

by Reiji Yoshida  
Staff Writer

A powerful earthquake that rocked the Tohoku region Tuesday morning temporarily stopped the critical cooling system of a spent fuel pool of the Fukushima No. 2 nuclear power plant for about 100 minutes, Tokyo Electric Power Company Holdings Inc. said the same day.

The cooling system was automatically shut down at 6:10 a.m. at the No. 3 pool after sensors detected changes in the water level of a tank that pumps cooling water into the pool, home to 2,360 still-hot spent fuel assemblies and 184 unused ones.

Tepco spokesman Kenichi Nakakuki said the quake likely shook up the water inside the tank, triggering the automatic shutoff.

After confirming that no water had leaked from the tank, Tepco reactivated the cooling system at 7:47 a.m., Nakakuki said by telephone.

No radioactive materials have been leaked from the No. 2 plant, Tepco said. The station is located 12 km south of the heavily damaged Fukushima No. 1 nuclear power plant.

At 6:38 a.m., tsunami of 1 meter in height reached the coast facing the No. 1 plant, but there were no reports of new damage at the plant, Tepco said. The plant was wrecked in the triple meltdown crisis after the March 2011 tsunami-quake disaster.

The Fukushima No. 2 power plant, too, was damaged by the 2011 tsunami but workers there managed to safely shut down its reactors, barely avoided a meltdown crisis.

Operations at the No. 2 plant's reactors have been suspended since the 2011 disaster due to strong opposition from local residents.

During the shutdown of the cooling system at the pool, the surface temperature of the water at the No. 2 plant rose by 0.2 degree to 29.5 degrees.

Thousands of nuclear fuel assemblies would be severely damaged, releasing massive amounts of radioactive materials into the environment, if the water in the spent fuel pools boils up and exposes the rods.

Internal rules at Tepco have set the upper limit of the pools' surface temperatures at 65 degrees. If the cooling function was lost and unable to be recovered, the surface temperature would have risen to 65 degree in about seven days, according to Tepco.

In the wake of the 2011 meltdown crisis at the Fukushima No. 1 plant, Japan suspended operations of all of its 48 commercial reactors nationwide. Since then, four have been reactivated after passing stringent new safety regulations set by the Nuclear Regulation Authority.

All of the 48 reactor buildings have spent fuel pools that house thousands of fuel assemblies because Japan has yet to build a final disposal site for them due to opposition from local residents near candidate sites. Prime Minister Shinzo Abe's government has worked to reboot more reactors once they pass NRA's safety standards test.

### **Cooling system restored at Daini plant**

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_19/](http://www3.nhk.or.jp/nhkworld/en/news/20161122_19/)

The Tokyo Electric Power Company says it has restored a cooling system at the Fukushima Daini nuclear power plant that briefly stopped after Tuesday's earthquake.

TEPCO says the system that cools the spent nuclear fuel pool at the No.3 reactor halted about 10 minutes after a strong quake struck off Fukushima Prefecture in the morning.

The utility says it was able to reactivate the system's water pumps about one hour and 40 minutes later, and the cooling operation was restarted. It says no abnormalities were detected.

TEPCO officials said at a news conference that they believe the pumps stopped after the quake shook the water in the pool, activating an alert system.

They said the pool's water temperature was 29.5 degrees Celsius when the cooling operation was restarted. That was 0.2 degrees higher than before the pumps stopped. The upper limit for suspending operations is 65 degrees. Officials said that they also found no abnormalities with the fuel.

The TEPCO officials added that at the Daini plant, one of the monitors for observing nuclear materials in dust in the air also stopped due to a power outage. But it later resumed operation.

At the crippled Daiichi plant in the same prefecture, the officials said that they stopped transferring contaminated water at a water disposal facility as a precaution.

One-meter-high waves were observed at both nuclear plants around 6:30 AM.

The utility's officials also said they have detected no changes so far in radiation levels measured at monitoring posts around the plants.

### **Quake disrupts cooling of fuel at Fukushima No. 2 nuclear plant**

<http://www.asahi.com/ajw/articles/AJ201611220029.html>

Cooling equipment for a spent nuclear fuel pool at the Fukushima No. 2 nuclear power plant temporarily shut down after a magnitude-7.4 earthquake rocked eastern Japan on Nov. 22.

The plant's operator, Tokyo Electric Power Co., is looking into the details of the incident that occurred at the No. 3 reactor building around 6:10 a.m., 11 minutes after the earthquake struck off the coast of Fukushima Prefecture.

Pumps for the cooling system automatically halted after an alarm was triggered when the water level fell in the tank that adjusts the water conditions in the spent fuel pool, according to the Nuclear Regulation Authority and TEPCO.

After workers checked the system and confirmed that there were no abnormalities, including water leaks, the cooling equipment was restarted at 7:47 a.m.

The pool accommodates 2,544 spent fuel assemblies.

The plant straddles the coastal towns of Tomioka and Naraha in the prefecture and is located 12 kilometers south of TEPCO's crippled Fukushima No. 1 nuclear plant.

The water temperature in the pool was 28.7 degrees when the cooling equipment stopped. It had gradually increased to 29.5 degrees until operations resumed.

If the suspension continued, it would have taken seven days for the temperature to reach the maximum operational limit of 65 degrees.

According to TEPCO, the tide level in front of the Fukushima No. 1 nuclear plant was 1 meter high, but no abnormalities were confirmed at the plant.

No problems were reported at Japan Atomic Power Co.'s Tokai No. 2 nuclear power plant in Ibaraki Prefecture and Tohoku Electric Power Co.'s Onagawa nuclear power plant in Miyagi Prefecture.

Monitoring posts that measure radiation levels in the air showed no abnormalities.

## An aftershock of 3/11?

### **Magnitude-7.4 quake likely an aftershock from five years ago**

<http://www.asahi.com/ajw/articles/AJ201611220050.html>

A tsunami rushes up the Sunaoshikawa river in Tagajo, Miyagi Prefecture, at 8:06 a.m. on Nov. 22. (Video footage provided by a reader)



tsunami rushes up the Sunaoshikawa  
river in Tagajo, Miyagi Prefecture, early on  
Nov. 22. (Provided by a reader)

The magnitude-7.4 earthquake that struck eastern Japan early Nov. 22 was almost certainly an aftershock from the massive temblor that hit the same region in 2011.

The latest offshore quake triggered tsunami along a vast stretch of Pacific coastline, causing the evacuation of around 9,000 residents.

Sendai Port reported the highest waves at 1.4 meters.

The Japan Meteorological Agency concluded the quake was likely an aftershock of the deadly 2011 Great East Japan Earthquake that triggered towering tsunami and a nuclear disaster.

Koji Nakamura, senior coordinator for seismological information at the JMA, warned of the likelihood of another "quake with a magnitude of 7 or so striking over the next week."

The focus of the quake that struck at 5:59 a.m. was believed to be off the coast of Fukushima Prefecture. It struck at a depth of only 25 kilometers.

Tsunami were recorded reaching six prefectures along the Pacific coast of the main Honshu island.

Although tsunami warnings and evacuation instructions were issued, there were reports of only minor injuries.

The Fire and Disaster Management Agency said that as of 10:40 a.m., it could confirm that 12 people were injured due to the quake.

Aftershocks from the 2011 quake with magnitudes of 7 or so have been recorded in the Tohoku region at a pace of about one a year, but the tsunami triggered this time was likely due to the comparatively large scale of the quake and the shallowness of the focus.

Rail services were also disrupted by the quake, with bullet train runs on the Tokaido, Tohoku, Joetsu and Hokuriku Shinkansen lines temporarily stopped for about 30 minutes. Services then resumed.

## Tsunami warning lifted for N.E.

### Japan lifts tsunami warning for northeast coast

<http://www.asahi.com/ajw/articles/AJ201611220019.html>

THE ASSOCIATED PRESS

Japan has lifted a tsunami warning for its northeastern coast nearly four hours after a powerful offshore earthquake.

A tsunami advisory for waves of up to 1 meter remains in place for much of the Pacific coast.

The earlier warning was for waves of up to 3 meters. The Japan Meteorological Agency had urged residents to flee quickly to higher ground.

The largest wave recorded was 1.4 meters at Sendai Bay.

## Get away from the sea!

### Bitter lessons of 3/11 tsunami put to use with latest quake evacuation

<http://www.asahi.com/ajw/articles/AJ201611220062.html>

REUTERS

When massive tsunami waves slammed into Japan's northeastern coast more than five years ago, about 18,000 people perished, prompting authorities to revise warning systems and evacuation plans to try to save more lives.

On Tuesday, when a magnitude 7.4 quake hit the same area, the country swung into action, using lessons learned in the 2011 disaster to ensure coastal residents evacuated well before the much smaller waves hit. Prior to 2011, warning broadcasts were mostly limited to television, radio and city officials on loudspeakers, with volunteer firemen in trucks roaming the roads, telling residents to flee to higher ground.

But on the day now known as "3/11," some of these failed due to power outages after the huge magnitude 9.0 quake, while many firefighters were killed when the waves--30 meters high in places--rushed ashore. "A lot of people told us they weren't able to hear any of the broadcasts, the waves were bigger than expected, and many went back after the first one to check things out," said Tsunetaka Omine, a disaster official in Iwaki, a city where around 460 residents died in 2011.

Iwaki now blasts warnings to every mobile phone in the area, sends email messages and broadcasts on local radio in addition to the older methods.

Previous elaborate systems designating specific evacuation centers have also been abandoned along the coast in many cases as too complicated. Some designated areas were too low and became death traps where scores seeking safety drowned.

**"Now, we basically just tell people to stay away from the sea, to head to the highest possible ground,"** Omine said.

**As a result, as sirens wailed shortly after dawn on Tuesday, ships headed out of harbors to deeper water and lines of cars snaked up nearby hills.**

Public broadcaster NHK, always a key player in disaster prevention, revamped its broadcasts after 2011 in response to criticism that it had been too calm in its reporting, leading some to take warnings less seriously.

So on Tuesday, announcers abandoned their usual careful modulation for an unsettling note of urgency, repeatedly telling listeners, "Do not go near the water, a tsunami is coming!" as messages flashed on the screen in red saying "Tsunami! Run!"

And in a nod to a growing number of foreign residents, a dubbed version of the NHK channel broadcast **warnings in English, Chinese and Korean.** Several young foreign English teachers died in 2011, prompting speculation they had not known of the danger.

Kathy Krauth, a teacher with a Tokyo international school leading a dozen students on a study tour, was staying at a traditional Japanese inn in the coastal town of Ofunato and was evacuated to higher ground soon after the quake struck.

Four hours later, the group was finally allowed back to their inn--and were promptly relocated to a hotel at a higher, safer elevation.

"I felt like the lessons of 3/11 were really taken to heart," Krauth said. "The feeling was, we just don't know, but we're going to be as cautious as we can."

**"I knew i had to escape"**

## Tohoku coastal residents rush to high ground after quake in fear

<http://mainichi.jp/english/articles/20161122/p2a/00m/0na/011000c>

Residents listen to tsunami information on the radio at a shelter in Shichigahama, Miyagi Prefecture, on Nov. 22, 2016. (Mainichi)

On the morning of Nov. 22, a powerful earthquake and tsunami hit the Tohoku region of Japan, which was hit hardest in the 2011 Great East Japan Earthquake and tsunami. The epicenter was located off the coast of Fukushima, but shocks were felt in a wide swath of the country from Hokkaido to the Chugoku region, and tsunami warnings and advisories were issued -- and later lifted -- for the northeastern coast of Japan.

- **【Related】** M7.4 quake hits northeastern Japan, causing tsunami

Many residents on the coast of Fukushima Prefecture evacuated to public facilities and other sites on high ground. Some 80 people evacuated to Higashi Shogai Gakushu Center in the Haramachi Ward of Minamisoma, Fukushima Prefecture.

"My home is right across from the nursing home where many elderly people died in the tsunami caused by the Great East Japan Earthquake," said Sachiko Nakagawa, 60, a resident of the Kamishibusu district of Haramachi Ward. "When I learned that a tsunami warning had been issued, I knew I had to escape, so I jumped into my car."

Atsuko Tanabe, 62, lives in the Kaibama district of Haramachi Ward, another area that saw many casualties in the 2011 disaster. "I felt the shaking and jumped out of bed, grabbed just my wallet, cell phone and cell phone charger, and evacuated right away," she said.

Hirono Municipal Junior High School in the Fukushima Prefecture town of Hirono, where its residents had all been evacuated in the past due to the ongoing nuclear disaster, sent a text to its students early in the morning, instructing them to put their safety first. In Fukushima Prefecture, classes were cancelled for the day at 61 elementary and junior high schools and 24 high schools, primarily in the prefecture's coastal areas.

According to the Fukushima Prefectural Government, 3,119 people in the prefectural city of Iwaki had evacuated to 59 community centers and other facilities as of 9:30 a.m., and at one point, around 350 cars stood by on nearby roads. In Minamisoma, approximately 250 people had evacuated to five facilities within the city, while some 70 people evacuated to parks on high ground.

Meanwhile, there have been reports of injuries from the quake. In Iwaki, a woman in her 60s fell off her bed and suffered minor injuries, while a woman in her 20s experienced hyperventilation. Both were taken to the hospital, but their conditions are not life-threatening.

People with looks of concern stared down at the ocean from Hiyoriyama Park in the city center of Ishinomaki, Miyagi Prefecture. Masako Kudo, 40, from the Iwate Prefecture city of Takizawa, who was on a family trip to Ishinomaki when the quake struck, held her five-year-old daughter's hand as she said, "We're not familiar with the area so we came here, thinking that we better take action as quickly as possible."

At around 7:40 a.m., radio announcers reported that tsunami had been observed in Ishinomaki. A local 68-year-old man who was listening to the report looked worried, saying, "The tsunami might get high." He said he'd stayed in an evacuation center for over seven months after the 2011 disasters, and added, "The shaking wasn't as bad as it was then, but this reminds me of that time."



## Fukushima plants: "No abnormalities", says TEPCO

### **FUKUSHIMA EARTHQUAKE: Tepco Says 'No Abnormalities' At Nuclear Stations**

<http://www.nucnet.org/all-the-news/2016/11/22/tepcosaysnoabnormalitiesatfukushima-nuclear-stations-after-earthquake>

Japanese Nuclear operator Tokyo Electric Power Corporation (Tepco) said there are no abnormalities at either the Fukushima-Daiichi or Fukushima-Daini nuclear stations following a 7.4 magnitude earthquake off the coast of the prefecture early on 22 November 2016 local time.

**The company said on its social media feeds that no abnormalities had been found, no radiation level changes detected, and no injuries reported after the earthquake.**

Tepco said the cooling function of the Fukushima-Daini Unit 3 spent fuel pool resumed at 07:47 local time after cooling water supply stopped at 06:10 due to the earthquake.

Tepco said the stoppage was caused by the tremor and "strong acceleration" at the power plant. Unconfirmed reports said that at 06.38, the Fukushima-Daiichi and Daini stations had a tsunami wave about 1m high.

Coastal residents in Japan were ordered to move to higher ground after the earthquake struck off the coast of Fukushima prefecture.

The Japan Meteorological Agency issued a tsunami warning for waves of up to 3m in Fukushima and Miyagi prefectures, and a tsunami advisory for much of the rest of northeast Japan's Pacific coast.

Tsunamis of 1.4 metres and 90 centimetres were reported in Sendai and Soma about an hour after the earthquake, and the tsunami warning area was widened later in the morning.

Fukushima prefecture is home to the Fukushima-Daiichi and Fukushima-Daini nuclear power stations where seven reactors in operation at the time were destroyed by a huge tsunami following an offshore earthquake in March 2011.

The Japan Meteorological Agency put the quake at 7.4 magnitude while the United States Geological Survey said it was 6.9 magnitude. It struck at a shallow depth of seven miles) shortly before 06.00 local time on Tuesday (2100 GMT on Monday) in the Pacific off Fukushima.

#### **Related reports in the NucNet database (available to subscribers):**

- IAEA Confirms 'Further Progress' Towards Full Operation Of Fukushima Frozen Wall (News in Brief No.230, 21 November 2016)

## Why did the cooling system stop?

### TEPCO to study cooling system stoppage

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_40/](http://www3.nhk.or.jp/nhkworld/en/news/20161122_40/)

Tokyo Electric Power Company says it will study whether an appropriate response was made when a cooling system at the Fukushima Daini nuclear power plant stopped briefly after Tuesday's earthquake.

The system that cools the spent nuclear fuel pool at the No.3 reactor went down about 10 minutes after a strong quake struck off Fukushima Prefecture in the morning.

TEPCO didn't inform all the news media of the incident until nearly 2 hours later. Utility officials said the powerful quake and tsunami warning may have caused confusion. They said they will work to ensure that they are able to take appropriate and swift actions in times of emergency.

The officials said it restarted the cooling system about one hour and 40 minutes later, and that no abnormalities have been detected.

They said they believe the pumps stopped after the agitated water in the pool activated an alert system.

## Explanations

### 7.4 quake was triggered by vertical split in undersea rock: experts

<http://www.japantimes.co.jp/news/2016/11/22/national/m-7-4-quake-triggered-vertical-split-undersea-rock-experts/#.WDQ1s32Dmos>

by Mizuho Aoki and Daisuke Kikuchi

Staff Writers

The major earthquake that triggered tsunami in the Tohoku region Tuesday was caused by a type of jolt that is likely to cause tidal waves, according to the Meteorological Agency.

The temblor also caused tsunami across a widespread area because it originated at a shallow point under the seabed.

The tsunami measuring up to 1.4 meters were the highest since the magnitude-9 Great East Japan Earthquake of March 11, 2011, that killed more than 15,000 people.

The magnitude-7.4 quake Tuesday jolted northeastern Japan early at 5:59 a.m. in a vertical split of an undersea rock.

In this mechanism, a rock plate 60 km off Iwaki, Fukushima Prefecture slid vertically, creating a gap in the seabed level and pushing the seawater up, seismology experts said.

The Meteorological Agency said it considers the quake an aftershock of the 2011 earthquake. Experts said people need to be alert for further aftershocks for the next few days.

“Although I personally don’t think there will be a massive magnitude-9 earthquake, there is possibility of a similar scale of earthquake,” said Masanobu Shishikura of the National Institute of Advanced Industrial Science and Technology (AIST).

Shinji Toda, a professor at Tohoku University’s International Research Institute of Disaster Science, agreed, saying it is possible another magnitude-7 quake could hit the Tohoku region.

Meanwhile, Manabu Takahashi, a professor at the Institute of Disaster Mitigation for Urban Cultural Heritage at Ritsumeikan University, said even though the magnitude-7.4 quake was relatively strong, it was not surprising.

“Looking at data accumulated over the past 100 years, earthquakes with magnitudes of around 7 occur about three times in five years” in Japan, Takahashi said. “As it caused a tsunami, it’s fair to say it was a moderately large quake, but not a major quake.”

He also said there could be a larger earthquake in the near future.

“The Meteorological Agency has previously considered a first big quake as the main shock, but you’ll never know when the biggest one will come,” Takahashi said.

A series of magnitude-7 earthquakes have occurred in the Pacific Ocean off Japan since seismic activities intensified after the 2011 earthquake, which is estimated to have had 200 times more energy than Tuesday’s temblor.

“Before March 11, we didn’t see much of this type of earthquake in the area. But since the major calamity, we’ve started to see it in the region,” Shishikura of AIST said.

In that sense, the quake could have been triggered by the March 11 earthquake, he said.

Information from Kyodo added

## Caught in traffic in the midst of tsunami warnings

### Tsunami evacuation hindered by traffic

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_45/](http://www3.nhk.or.jp/nhkworld/en/news/20161122_45/)

Some residents who attempted to drive to higher ground after tsunami warnings in northeastern Japan early Tuesday found themselves caught in traffic.

An official of Iwaki City, Fukushima Prefecture, says a main road from the coastal district to inland areas was filled with cars apparently trying to evacuate.

The official says he saw many cars carrying entire families and that the traffic congestion was unusual for that time of day. He says the atmosphere was tense, as the residents were apparently reminded of the

March 2011 tsunami.

He called on residents not to use their cars if they are able to evacuate on foot, as part of the road is designated as an area that could be submerged in the event of a tsunami.

In Ishinomaki City, Miyagi Prefecture, more than 100 people evacuated to a park on higher ground.

But a narrow road leading to the park soon became jammed.

Some drivers parked their cars on the roadside, hindering others from getting by. Traffic was backed up for a long way as a result.

The city has been asking residents to evacuate on foot in principle.

## TEPCO unable to check for possible leaks

### TEPCO: Leak of radioactive water unlikely at Fukushima plant

Tokyo Electric Power Co. said radioactive water likely did not leak from its stricken Fukushima No. 1 nuclear plant following the morning earthquake that spawned a tsunami on Nov. 22.

TEPCO officials said the company manually shut down equipment that was transferring contaminated water from reactor buildings after the magnitude-7.4 earthquake struck off the coast of Fukushima Prefecture.

The measure was taken because water being transferred could have spilled out if a pipe in the system was fractured in the quake, they said.

“It may be the first time that we suspended a facility of our Fukushima No. 1, Fukushima No. 2 or Kashiwazaki-Kariwa nuclear power plants due to a quake since the Great East Japan Earthquake and tsunami (in March 2011),” said Naohiro Masuda, president of Fukushima Daiichi Decontamination & Decommissioning Engineering Co., TEPCO’s in-house organization.

He made the remark at a news conference at the utility’s head office in Tokyo.

Groundwater mixing with contaminated water in damaged reactor buildings has been a serious problem at the plant since the nuclear disaster unfolded in 2011.

“The biggest risk is a tsunami causing contaminated water that has accumulated (in the reactor buildings) to leak and pollute the environment,” said Masuda, explaining why the company halted operations of the water transfer facility.

After the Japan Meteorological Agency issued a tsunami warning at 6:02 a.m., the company ordered workers in lower areas of the plant to evacuate to higher ground. They have been unable to check for possible leaks around the reactor buildings and the turbine buildings near the sea.

“It is a bit inappropriate that we’ve been unable to do so,” Masuda said. “That’s why we suspended the transfer facility. We think that no water will leak now.”

TEPCO also reported that pumps to cool water in the spent nuclear fuel pool at the No. 3 reactor building of the Fukushima No. 2 nuclear power plant shut down after the quake. The company said this was an

automatic mechanism that kicked in after the water level changed in the tank that adjusts water conditions in the pool.

“It is a result of the fact that the automatic suspension device worked normally,” Masuda said. The pumps were later restarted.

## Can be improved

### **Meteorological Agency to review tsunami warnings**

[http://www3.nhk.or.jp/nhkworld/en/news/20161122\\_43/](http://www3.nhk.or.jp/nhkworld/en/news/20161122_43/)

The Meteorological Agency says it will review its tsunami warning system, after underestimating the size of waves caused by Tuesday's magnitude 7.4 earthquake.

A tsunami measuring 1.4 meters was observed at Sendai Port in Miyagi, northeastern Japan, shortly after 8 AM.

The agency had issued a tsunami advisory earlier for waves of up to one meter along coastal areas in Miyagi.

It upgraded the advisory to a tsunami warning 6 minutes after the larger waves were observed.

Agency officials say they will improve the tsunami warning system after analyzing the cause of the discrepancy.

They say a delay in issuing a warning could prevent residents from evacuating quickly.

When an earthquake occurs, the agency consults its database of around 100,000 computer simulations to forecast the height of possible tsunami waves.

Officials say the simulations may not have fully reflected the influence of topography in the bay where the port is located.

In 2011, the agency issued tsunami warnings just after the March 11 earthquake that hit the country's northeast.

However, the actual height of the waves was much higher than it had warned.

November 23, 2016

## Seismic activity continuing

### Seismic activity continues off Fukushima

[http://www3.nhk.or.jp/nhkworld/en/news/20161123\\_16/](http://www3.nhk.or.jp/nhkworld/en/news/20161123_16/)

Japanese weather officials say seismic activity is continuing off Fukushima Prefecture after a magnitude-7.4 earthquake struck the area early Tuesday morning.

They are urging people to stay alert for another possible tremor of the same strength which could strike within the next 7 days.

The officials say they had observed 85 quakes registering 1 or higher on the Japanese scale of zero to seven by 11 AM on Wednesday.

Tuesday's quake caused a 1.4-meter tsunami at Sendai Port in Miyagi Prefecture, northeastern Japan. That's the highest in the country since the huge 2011 earthquake struck the region.

Fishermen in Higashimatsushima City in the prefecture went to local ports on Wednesday to check for damage.

They said about 40 percent of 700 rafts at Satohama Port, which are used for farming seaweed, were piled up or had become entangled with one another.

Yoshinori Shitara, an official with a local fishery association, said they had just recovered from the disaster 5 years ago. He said the seaweed crop had been good this year and that he feels disappointed.

Fishermen at another port worked to salvage a ship capsized by tsunami waves. They were also trying to recover its anchor.

One fisherman said that a powerful typhoon hit the area earlier this year and he was sad to see this kind of damage again.

## Sugu Nigete!

### VOX POPULI: Jolting reminder that the next 'Big One' is never far away

<http://www.asahi.com/ajw/articles/AJ201611230025.html>

Vox Populi, Vox Dei is a daily column that runs on Page 1 of The Asahi Shimbun.

In big letters on the television screen were the words "Sugu Nigete!" (Flee right now!). The thought of another killer tsunami hitting Japan filled me with dread.

Tsunami were observed along a broad coastal stretch of eastern Japan, triggered by a major earthquake that struck in the early morning of Nov. 22.

In Miyagi and Fukushima Prefectures, many people fled to higher ground. A survivor of the tsunami of March 2011 said with emotion, "I don't want to lose anything more in a tsunami." Another said, "I fled with nothing but the clothes on my back."

I was able to breathe a bit easier after hearing there was no significant tsunami damage.

"You can never tell when a quake will strike, so you just have to be mentally prepared at all times," said Rinka Imamura, a first-year student of Ogata Senior High School in Kochi Prefecture.

Imamura will be chairing an international senior high school students' summit on tsunami preparedness, slated to be held Nov. 25 and 26 in the coastal town of Kuroshio where her school is located. The biggest tsunami the town could feasibly expect is estimated at 34 meters.

On Nov. 5 this year, World Tsunami Awareness Day was observed worldwide for the first time. The date was chosen for what happened on Nov. 5, 1854, according to the old lunar calendar, in Wakayama Prefecture: Just before a tsunami was about to hit, a local businessman warned his neighbors and set fire to sheaves of rice straw to guide people to higher ground.

I hope participants in the students' summit in Kuroshio will share all of their thoughts with their peers from around the world.

Steady progress is being made in promoting disaster preparedness among the public. But during the Nov. 22 incident, traffic backups slowed and disrupted the evacuation process. And it was also revealed how difficult it was for the elderly to flee at short notice.

We all need to think about what we need to do when we must evacuate immediately.

It has been five years and eight months since the Great East Japan Earthquake, but seismic activity will continue in the region.

We must remind ourselves that the March 2011 disaster is not just a piece of history, and we might be living on borrowed time, so to speak, until the next "Big One" strikes.

November 24, 2016

## Earthquake strikes Fukushima coast again

### Magnitude 6.1 earthquake hits off Fukushima

<http://www.asahi.com/ajw/articles/AJ201611240016.html>

THE ASSOCIATED PRESS

A strong earthquake has shaken the same area in Japan hit by a magnitude 7.4 earthquake two days ago. No tsunami warning was issued.

The Japan Meteorological Agency says a magnitude 6.1 earthquake struck Thursday morning off the shore of southern Fukushima Prefecture.

It said that there may be slight changes in sea levels, but there is no risk of damage from a tsunami.

The U.S. Geological Survey recorded the magnitude at 5.6.

The earthquake was felt in Tokyo, 225 kilometers southwest of the epicenter.

There were no immediate reports of damage or injuries.

## TEPCO reassuring on Facebook page

<https://www.facebook.com/OfficialTEPCOen>

Fukushima Nuclear Power Stations Safe and Secure after a Large Earthquake: At 5:59 a.m. on November 22, a magnitude 7.4 earthquake struck off the coast of Fukushima near the two Fukushima Nuclear Power Stations, Daiichi and Daini. No abnormalities were found for each Unit of the power stations except for temporary stoppage of the cooling function at Fukushima Daini Unit 3 spent fuel pool. An alarm went off for the lowering water level of the cooling water supply tank and effectively stopped the cooling water supply. Since undulation of the cooling water from the shock of the earthquake set off the alarm, the tanks were checked over and found no damages or leakage. The operations were resumed one and a half hours later by reactivating the pump after conducting safety checks. No radiation level changes have been detected at the monitoring posts installed along each power station's site boundary. All of the workers on site were evacuated to higher ground and no injuries have been reported at the power stations. After the tsunami warning was lifted, on-site patrols were conducted including the seaside areas of the power stations and found no abnormalities at either location.

November 25, 2016

## Waves over 2 meters

### Tsunami in Miyagi likely topped 2 meters

[http://www3.nhk.or.jp/nhkworld/en/news/20161125\\_12/](http://www3.nhk.or.jp/nhkworld/en/news/20161125_12/)

A fishery port in Japan's northeastern prefecture of Miyagi was found to have been hit by a tsunami more than 2 meters high after Tuesday's strong earthquake.

That's bigger than the 1.4-meter tsunami the Meteorological Agency described as the highest observed just after the magnitude-7.4 earthquake struck off neighboring Fukushima Prefecture. The agency had warned of tsunami along the coast of northeastern Japan.

A fishery cooperative worker took a photo of the tsunami at the port of Ohama in Higashimatsushima. It shows that the waters reached an inclined road about 60 meters inland and more than 2 meters above sea



level.

Professor Fumihiko Imamura of Tohoku University's International Research Institute of Disaster Science says he believes the photo shows traces of the tsunami.

He also says a simulation by his institute shows that about 10 kilometers west of the port, the surface of the sea rose 2.5 meters.

Imamura says residents need to remember that waves can be higher than forecast and to evacuate quickly.

The head of a branch of the Miyagi prefectural fishery cooperative, Takashi Sasaki, says he was surprised to hear of tsunami as high as an adult human.

November 27, 2016

## People worried about continuing to run old reactors

### **Fukushima aftershock renews public concern about restarting Kansai's aging nuclear reactors**

<http://www.japantimes.co.jp/news/2016/11/27/national/fukushima-aftershock-renews-public-concern-restarting-kansais-aging-nuclear-reactors/#.WDqAuX2Dmos>

by Eric Johnston

Staff Writer

KYOTO – The magnitude-7.4 aftershock that rocked Fukushima Prefecture and its vicinity last week, more than five years after the mega-quake and tsunami of March 2011, triggered fresh nuclear concerns in the Kansai region, which hosts Kansai Electric Power Co.'s Mihama plant in Fukui Prefecture..

The aftershock came as the Nuclear Regulation Authority approved a two-decade extension for Mihama's No. 3 reactor on Nov. 16, allowing it and two others that have already been approved to run for as long as 60 years to provide electricity to the Kansai region.

Residents need to live with the fact that they are close to the Fukui reactors, which are at least 40 years old. Despite reassurances by Kepco, its operator, and the nuclear watchdog, worries remain over what would happen if an earthquake similar to the one in 2011, or even last week, hit the Kansai region.

**Kyoto lies about 60 km and Osaka about 110 km from the old Fukui plants. Lake Biwa, which provides water to about 13 million people, is less than 60 km away.**

In addition to Kepco's 40-year-old Mihama No. 3, reactors 1 and 2 at the Takahama nuclear power plant in Fukui are 42 and 41 years old, respectively.

In the event of an accident, evacuation procedures for about 253,000 residents of Fukui, Shiga, and Kyoto prefectures who are within 30 km of the plants would go into effect.

But how effective might they be?

The majority does not live in Fukui. Just over half, or 128,500, live in neighboring Kyoto, especially in and around the port city of Maizuru, home to a Self-Defense Forces base. Another 67,000 live in four towns in Fukui and about 58,000 live in northern Shiga Prefecture.

Plans call for Fukui and Kyoto prefecture residents to evacuate to 29 cities and 12 towns in Hyogo Prefecture and, if facilities there are overwhelmed, to Tokushima Prefecture in Shikoku. Those in Shiga are supposed to evacuate to cities and towns in Osaka Prefecture.

In a scenario put together by Kyoto Prefecture three years ago, it was predicted that tens of thousands of people would take to available roads in the event of a nuclear accident. A 100 percent evacuation of everyone within 30 km of a stricken Fukui plant was estimated to take between 15 and 29 hours, depending on how much damage there was to the transportation infrastructure.

But Kansai-based anti-nuclear activists have criticized local evacuation plans as being unrealistic for several reasons.

First, they note that the region around the plants gets a lot of snow in the winter, which could render roads, even if still intact after a quake or other disaster, much more difficult to navigate, slowing evacuations even further.

Second is the radiation screening process that has been announced in official local plans drawn up by Kyoto and Hyogo prefectures.

While automobiles would be stopped at various checkpoints along the roads leading out of Fukui and given radiation tests, those inside would not be tested if the vehicle itself has radiation levels below the standard.

If the radiation is above standard, one person, a “representative” of everyone in the car, would be checked and, if approved, the car would be allowed to continue on its way under the assumption that the others had also been exposed to levels below standard. This policy stands even if those levels might be more dangerous to children than adults.

Finally, there is the question of whether bus drivers would cooperate by going in and out of radioactive zones to help those who lack quick access to a car, especially senior citizens in need of assistance.

None of the concerns about the evacuation plans is new, and most have been pointed out by safety experts, medical professionals and anti-nuclear groups.

But with the NRA having approved restarts for three Kansai-area reactors that are over 40 years old, Kansai leaders are responding more cautiously to efforts to restart Mihama No. 3 in particular.

“It is absolutely crucial that local understanding for Mihama’s restart be obtained,” said pro-nuclear Fukui Gov. Issei Nishikawa in July, after a local newspaper survey showed that only about 37 percent of Fukui residents agree with the decision to restart old reactors.

Shiga Gov. Taizo Mikazuki, who is generally against nuclear power, was even more critical of the NRA’s decision to restart Mihama.

“There are major doubts about the law that regulates the use of nuclear reactors more than 40 years old. The central government and Kepco need to explain safety countermeasures to residents who are uneasy. People are extremely uneasy about continuing to run old reactors,” the governor said earlier this month. *Kansai Perspective* appears on the fourth Monday of each month, focusing on Kansai-area developments and events of national importance with a Kansai connection.

November 30, 2016

## NEAA: Independent voices around nuclear accidents

### In Defense of the Public Interest: Connecting and Amplifying Independent Voices around Nuclear Accidents

français

**Akio Matsumura**

**Excerpts** from the Asahi Shimbun Editorial on Nov 23, 2016:

For planet Earth, the passage of five years and eight months represents nothing but a flash.

The Magnitude 7.4 earthquake that struck eastern Japan on **November 22, 2016**, believed to an aftershock of the Great East Japan Earthquake of March 11, 2011, served as a wake up-up call, for us humans whose memories are woefully short.

This time, many people became alarmed when they learned of the temporary failure of the cooling water pump for the spent nuclear fuel pool at the Fukushima No. 2 nuclear power plant operated by Tokyo Electric Power Co (TEPCO). In the immediate aftermath of the March 2011 disaster, however, the shutdown of the cooling water pump at the Fukushima No. 1 nuclear power plant presented a serious threat to the spent nuclear fuel. A possible massive release of radioactive substances was feared.

We are concerned that this particular lesson from the 2011 disaster may have already been forgotten.

We must all learn humbly from each disaster. It is up to all of society--individuals and corporations alike--to keep planning viable countermeasures steadily and surely.

Ultimately, that is the only way to prepare for the next disaster, which may strike even today. Japan's government and the Tokyo Metropolitan government flood the news with promotions of the 2020 Tokyo Olympic games. With this excitement in the foreground, we take little notice of the fact that there is little to no news of how repairs proceed, whether the crews face difficulty, and how many areas cannot even be entered at Fukushima's nuclear site. Indeed, to a casual observer in Japan or the United States it appears that Fukushima's nuclear issues were solved long ago and remain under control today. Of course, this is not the case. I am concerned that many aspects of the Fukushima nuclear crisis continue to affect human and environmental safety.



An aerial view shows Tokyo Electric Power Co.'s Fukushima Daiichi nuclear power plant in Naraha town, Fukushima prefecture, Japan, in this photo taken by Kyodo November 22, 2016. Mandatory credit Kyodo

Kyodo/via REUTERS

Because the media has shifted its spotlight away from the crisis, it is important to keep in mind the following facts:

- Because of strong radiation, no one can approach reactors No.1, 2, and 3. No solution to remove the irradiated cores is expected for at least forty years.
- TEPCO uses 400 tons of water every day to cool the melted cores of the three crippled reactors, and another 400 tons of ground water are pouring into the damaged reactor building every day. In addition, rain washes away radioactive materials remaining at the site into the sea.
- Phytoplankton (algae) absorb radioactive isotopes from Fukushima, which sustain microscopic zooplankton and larvae. These microorganisms, the major feedstock for fish and marine mammals, are then carried along the North Pacific Current to the West Coast of North America, and spread as far as Alaska and Chile.
- An underground wall of frozen dirt 100 feet deep and nearly 1 mile length — officially called “Land-Side Impermeable Wall” or Ice Wall — cost \$320 million and completely failed in its objectives of preventing the flow of contaminated water.
- According to Japan’s Ministry of Economy, Trade and Industry, cleanup measures will cost several billion dollars per year if any real progress is to be made. Japan’s government is unlikely to set aside so much money from its budget.

What we learned from the Fukushima nuclear accident was that the priorities of the Japanese government and TEPCO were not to protect public, and regrettably many eminent Japanese nuclear scientists spoke for TEPCO or kept silent. TEPCO has admitted, five years later, that it delayed two months in using the term “meltdown” at the site. To experts observing from around the world, it was obvious that a meltdown was underway from the moment massive releases of fission gases appeared.

I also have a hard time accepting how the International Atomic Energy Agency (IAEA) handled the situation — from the initial crisis to today. Early on, the IAEA sent experts to Fukushima to assess the situation and provide expertise to the Japanese government and TEPCO. Why did they not lodge a

complaint when Japan’s government decided on 12.5 miles (20 km) evacuation zone – one quarter of the United States’s recommendation of 50 miles (80 km) and one-tenth (!) of the 125 miles (200 km) that included Tokyo recommended by the United Kingdom, France, and Germany? The IAEA’s mission is to promote the peaceful use of nuclear energy while inhibiting its use for any military purpose, including nuclear weapons. These objectives should include a moral obligation to prioritize public safety, and not to defend the positions of member governments and the nuclear industry.

**INTERACTIVE MAP: Nuclear Power Plants and State Fragility Index**

Explore in full format (not compatible with Internet Explorer) *Click on each power plant or country for more information.*

*Double-click to zoom, click and drag to move.*

In my judgment, the probability of terrorist attacks on one of the 430 nuclear power reactors worldwide is significant and growing. Given the political, economic, and environmental incentives for governments and industry, discussion around nuclear power security and safety is very likely to remain opaque and underdeveloped. To hedge against the lack of accurate information, it is in the public’s interest to establish an independent expert network on nuclear power safety and security. The late Dr. Hans-Peter Durr, former Director of Astrophysics at the Max Planck Institute in Germany, advised me days after the Fukushima crisis began that once the nuclear power accident occurred, there would be no scientific solution to stop it for decades. He said that only way to minimize damage would be to bring together the wisdom of experts from diverse fields to look at the total picture of the nuclear accident.

I am very encouraged by the support I have received in establishing the International Advisory Council of the Nuclear Emergency Action Alliance (NEAA). With plenty of help, I have recruited experts from diverse fields: nuclear engineering, medicine, environmental health and justice, the military, biology, social activism, business, and social media. Our members are at the top of their fields, and all are highly praised and recommended by their colleagues and the public alike. *(Note: we each represent ourselves alone in this Council – professional background is for context only.)*

I am extremely pleased to introduce the current membership of the International Advisory Council of the NEAA.

**NEAA International Advisory Council**

<b>Last</b>	<b>Professional Background</b>	<b>Country</b>	<b>Note: The IPPNW was awarded the Nobel Peace Prize in 1985.</b>
Alvarez	Founder of the Environment Policy Institute	USA	Robert Claus
Biegert	Director of the Nuclear-Free Foundation	Germany	Oleg
Bodrov	Chairman of Green World	Russia	Rinaldo
Brutoco	Founding President of the World Business Academy	USA	Helen
Caldicott	Founding President of Physicians for Social	Australia	Agnes

Denes	Responsibility International Conceptual and Environmental Artist, pioneer of the ecological art movement	USA, born Budapest, Hungary	Arne Johnanson
Fjortoft	Fonder of the Worldview International Foundation	Norway	Subrata
Ghoshroy	Research affiliate at the Program in Science, Technology, and Society at the Massachusetts Institute of Technology	USA	Roza (Rose)
Goncharova	Head of Genetic Safety Laboratory, National Academy of Science of Belarus, Institute of Genetics and Cytology	Belarus	Pervez
Hoodbhoy	Member of the Permanent Monitoring Panel on Terrorism of the World Federation of Scientists	Pakistan	Scott
Jones	Career naval officer, Qualified nuclear weapons delivery pilot	USA	David
Krieger	Founder of the Nuclear Age Peace Foundation	USA	Claus
Montonen	Professor of Elementary Particle Physics at University of Helsinki	Finland	Eisuke
Matsui	Director of Gifu Research Institute for Environmental Medicine	Japan	Akio
Matsumura	Founder of NEAA, Founder of the Global Forum of Spiritual and Parliamentary Leaders	Japan	Mitsuhei
Murata	Former Japanese Ambassador to Switzerland	Japan	Andreas
Nidecker	Founder of Physicians for Social Responsibility/International Physicians for the Prevention of Nuclear War/Switzerland (PSR/IPPNW/Switzerland)	Switzerland	Michel

Prieur	President of the International Center of Comparative Environmental Law (CIDCE), Professor Emeritus of University of Limoges	France	Muhammad
Riaz Pasha	Scientist and former Adviser/ Technical Consultant to the Pakistan Atomic Energy Commission	Pakistan	Alex
Rosen	Vice President of the International Physicians for the Prevention of Nuclear War Germany	Germany	Vinod
Saighal	Major General (ret), Executive Director of Eco Monitors Society	India	Jurgen
Scheffran	Professor of Climate Change and Security at University of Hamburg	Germany	Alice
Slater	Lawyer, Nuclear Age Peace Foundation	USA	Gordon
Thompson	Executive Director of Institute for Resource and Security Studies	USA	Francisco Chico
Whitaker	World Future Council (WFC), Catholic Commission for Justice and Peace	Brazil	Yves
Lenoir	Social movement for children of Chernobyl. President of the French Association Enfants de Tchernobyl Belarus	France	<b>First</b>

We do not know when, where or how a nuclear power accident will occur, but we have to admit the reality that governments and industry will make all possible efforts to hide any dangers from the public.

In this day and age, we have access to information and the means to connect experts to analyze, interpret, and communicate it. The challenge ahead is to build and maintain an effective, independent network that works in defense of the public interest.

December 2, 2016

**When is "trouble" likely to turn into disaster?**

## **NRA aims to delay evacuation of vulnerable people in cases of nuke plant power failure**

<http://mainichi.jp/english/articles/20161202/p2a/00m/0na/014000c>

The Nuclear Regulation Authority (NRA) plans to delay the evacuation process for vulnerable people in the case of nuclear plant power failure and other potentially dangerous incidents.

- **【Fukushima & Nuclear Power】**

This stance has been adopted **in response to the fact that power failures and other problems do not necessarily result in disaster**, and that some people become unwell or suffer from worsened medical symptoms during evacuation.

However, there are also some concerns regarding delayed evacuation -- which has prompted the NRA to consider listening to the opinions of electric power companies.

Specifically, under review is the evacuation process in response to an "Article 10 Alert" made by electric power companies to the government and local authorities based on the Act on Special Measures Concerning Nuclear Emergency Preparedness.

Under current regulations, if the alternating-current power at a nuclear plant is completely lost for more than 30 minutes, or the emergency core cooling system is activated following a coolant leak, vulnerable individuals such as the elderly and those with disabilities, who are within 5 kilometers of the nuclear plant, must be evacuated immediately.

**The NRA is considering delaying the evacuation process until the trouble becomes likely to develop into a more serious situation.**

At an NRA meeting on Nov. 30, one commissioner said, "We must discuss the risks of evacuation seriously."

December 5, 2016

## **No.3 cooling out for a while**

### **Fukushima reactor briefly loses cooling during inspection**

<http://mainichi.jp/english/articles/20161205/p2g/00m/0dm/079000c>

TOKYO (AP) -- One of the melted reactors at the tsunami-hit Fukushima nuclear power plant had a temporary loss of cooling Monday when a worker accidentally bumped a switch while passing through a narrow aisle of switch panels during an inspection and turned off the pumping system.

The plant's operator, Tokyo Electric Power Co., said cooling for the No. 3 reactor, one of the three that melted following the 2011 earthquake and tsunami, was out for nearly an hour before a backup pump kicked in.

The reactor had enough water left inside and there was no temperature increase or radiation leak from the incident, TEPCO spokesman Yuichi Okamura said at a news conference.



Even though there was no radiation leak or overheating of the core, or any injuries, the incident was a reminder that Fukushima's decommissioning work is running on a very fragile system.

The plant was largely running on makeshift pipes, wiring and other equipment in the first two to three years following the 2011 disasters, suffering a series of minor blackouts -- including those caused by rats chewing cables -- cooling stoppages and other problems.

The plant has since largely stabilized, but it remains vulnerable to unanticipated incidents as it continues to struggle with decommissioning work, which is expected to last decades.

Monday's incident occurred when the worker was passing by a dimly lit aisle that was only 85 centimeters (2.8 feet) wide, flanked by tall switch panels on both sides, Okamura said. With radiation levels still high, the worker was wearing a full-face mask and hazmat suit when he lost his balance while carrying equipment. His elbow jammed into the switch, breaking off its safety cover and inadvertently turning the lever to turn off the water injection pump to the No. 3 reactor.

Okamura acknowledged the lack of space at the site and said that the plant will seek ways to eliminate human errors like one on Monday.

## **Volunteer group continues checking fish off Fukushima as radiation levels drop**

<http://mainichi.jp/english/articles/20161205/p2a/00m/0na/022000c>

IWAKI, Fukushima -- As radioactive cesium levels in fish caught off the Fukushima Prefecture coast show lower levels that fall within safety limits set by the government, the Mainichi Shimbun recently accompanied a volunteer group that continues to measure these fish on one of its outings.

- **【Fukushima & Nuclear Power】**

The group, called "Iwaki Kaiyo Shirabetai Umi Labo" (Iwaki marine investigative squad ocean lab), began its activities three years ago. Rather than relying on the national government, Fukushima nuclear plant operator Tokyo Electric Power Co. or others for data on radioactive pollution in the ocean off Fukushima Prefecture, the group aims to obtain this information itself and share it across the country.

On Nov. 13, a Mainichi Shimbun reporter boarded one of the group's fishing ships, which set out from Hisanohama Port in Iwaki, Fukushima Prefecture. Two kilometers from the disaster-stricken plant, the group pulled up a large, 90-centimeter, 7.7-kilogram olive flounder. This fish was caught by Eriko Kawanishi, a civil servant who came from Tokyo to participate in the outing and said it was her first time ever to hold a fishing rod. A 90-centimeter fish would be a rare catch even for a veteran fisherman.

The olive flounder was refrigerated and taken back to veterinarian Seiichi Tomihara at the Aquamarine Fukushima aquarium in Iwaki for dissection. Based on the growth rings on its "otoliths," a structure located near the brain, Tomihara estimated the fish's age at 11 years. He said there is research estimating the life expectancy of olive flounders at around 12 years, adding, "This looks like one of the oldest (one can find)."

A 1-kilogram slice of the fish put in a detector showed 14.6 becquerels of radioactive cesium -- below the 100 becquerels-per-kilogram national safety limit for regular food products. Lately the research group has found no fish, including bottom-dwelling fish like olive flounder, that exceed this limit. In addition, radiation checks done by the prefectural government find hardly any cases of fish that top the safety limit.

Riken Komatsu, 37, joint-representative for the group, says, "This is the first time for us to check such an old olive flounder, and I thought there would be dozens of becquerels detected. The result was lower than I had imagined and I feel relieved."

Fish that were already adult at the time of the disaster, with a slowed metabolism and a narrow range of habitat, tend to show high radiation levels, Komatsu says. With time having passed since the disaster, the generational replacement of the fish in the area has moved forward. The group says the highest radiation level it has detected so far was 138 becquerels from a 56-centimeter olive flounder in July 2014.

Olive flounder caught off of Iwaki are known as "Joban-mono" and have a good reputation. There is hope among locals that the fish will regain their pre-disaster popularity.

Komatsu says, "The prefectural government and fishing cooperatives are also releasing radiation readings from fish taken off Fukushima Prefecture, but I feel there are few taken from waters near the nuclear plant. Stronger data showing the fish's safety (like data from fish near the plant) should raise the value of Fukushima olive flounder."

## Almost a fifth of Japanese anti-radiation shelters in landslide risk zones

### Nearly 20% of anti-radiation shelters in Japan located within landslide risk zones

<http://mainichi.jp/english/articles/20161205/p2a/00m/0na/011000c>

Of the 220 radiation protection shelters being prepared in areas about 30 kilometers from nuclear power plants in 17 prefectures in case of a nuclear disaster, 39 facilities, or 17.7 percent, are located in landslide risk zones, according to a Mainichi Shimbun study.

Radiation protection shelters are being prepared for those who will have a difficult time quickly evacuating far from nuclear plants in the event of a serious nuclear disaster, such as elderly people with health issues and people with disabilities. The buildings are equipped with anti-radiation filters and other materials to block radioactive rays and will serve as evacuation shelters for targeted residents. Some of them are intended to be used as disaster control offices.

In response to the March 2011 Fukushima Nuclear Power Plant disaster, the Cabinet Office introduced a subsidy system in which the cost of such shelters would be covered entirely by the government, and renovation work is being carried out on existing facilities such as hospitals and schools in 17 prefectures. The outline for rules over the subsidies for radiation protection shelters states that the candidate facilities need to be less likely to collapse in tremors or be flooded by tsunami under the assumption that a strong earthquake and nuclear disaster occur simultaneously. In regard to potential landslide disasters, however, the Cabinet Office has not set any restrictions on locations for such shelters because it "would place a limit on the number of candidate facilities."

The Cabinet Office is set to revise the subsidizing rules by the end of this fiscal year and in principle have local governments prepare radiation protection shelters outside landslide risk zones. If it is difficult for local governments to avoid such areas, the Cabinet Office will require them to take other safety measures such as securing separate shelters in case landslide disasters occur.

The Mainichi Shimbun surveyed the 17 prefectures that have such shelters and learned that in 11 prefectures they are located within landslide risk zones. Of the 220 shelters, seven are located within special landslide risk areas where the level of landslide hazards is particularly high.

Kyoto Prefecture had the highest rate of radiation protection shelters within landslide risk zones, with seven out of 10 shelters in the prefectural cities of Maizuru and Ayabe as well as the town of Ine being located in such hazard areas.

A representative from the Kyoto Prefectural Government told the Mainichi, "We did not think about landslide risks when selecting facilities for radiation protection shelters. We will take the matter into consideration."

Ehime Prefecture, where No. 3 reactor at Shikoku Electric Power Co.'s Ikata Nuclear Power Plant is in operation, came in second after Kyoto Prefecture for the highest rate of radiation protection shelters within landslide risk zones. Of the 13 designated shelters, five in the town of Ikata, where the nuclear plant is located, fall within the landslide risk zones. In Kagoshima Prefecture, home to Kyushu Electric Power Co.'s Sendai Nuclear Power Plant, whose No. 2 reactor is in operation, five out of 14 shelters are located within landslide zones. The five shelters are in the city of Satsumasendai, where the nuclear station is located, and also in the city of Ichikikushikino. Ten out of 31 shelters in Fukui Prefecture, home to the largest number of nuclear power plants in the country, are located within landslide risk zones.

December 6, 2016

## Could have been much worse

### Long active fault blamed for Fukushima quake

[http://www3.nhk.or.jp/nhkworld/en/news/20161206\\_05/](http://www3.nhk.or.jp/nhkworld/en/news/20161206_05/)

A seismologist says about three-fifths of an active fault running more than 50 kilometers off the northeastern prefecture of Fukushima shifted in last month's powerful earthquake.

The magnitude-7.4 quake on November 22nd registered a 5 minus on the Japanese seismic scale of 0 to 7. A tsunami 1.4 meters high was observed at a port in Miyagi Prefecture.

Professor Shinji Toda of Tohoku University analyzed the active fault that triggered the temblor, using data on seabed terrain and the locations of aftershocks.

He says a stretch of about 30 kilometers in the fault that runs from northeast to southwest shifted in the earthquake.

He believes a shift of the entire fault would have caused a more powerful quake, with a possible magnitude of 7.7.

He warns that the remaining part of the fault is close to the shore and has the potential to trigger a magnitude-7 quake.

Toda's findings contradict a 2014 analysis of the area by Tokyo Electric Power Company, the operator of

the damaged Fukushima Daiichi nuclear power plant.

It stated that 2 fault lines, each about 20 kilometers long, could cause an earthquake with a magnitude of up to 7.1, much less than that of November's quake.

Toda says it is important to improve that analysis, since the quake was more powerful than the utility's estimate.

TEPCO says it will review its estimates if necessary.

## Still checking radiation in fish

### Radiation in fish off Fukushima tests below detectable level

<http://www.asahi.com/ajw/articles/AJ201612060039.html>

FUKUSHIMA--Radiation in all seafood caught off Fukushima Prefecture tested below the detectable level in November for the first time since the 2011 nuclear disaster.

Species including bass, rockfish and stone flounder--sales of which were banned by the central government--were tested between Nov. 11 and Nov. 28, and the prefectural government said they all fell below the detection threshold, meaning radioactive cesium was not detected in any samples.

The main reason is that most fish species have undergone a generation change over the past five years with the contaminated marine life dying out, said officials at the prefectural government's fisheries experimental station.

In addition, the passage of time helped fish exude radioactive cesium from their bodies.

The prefectural government began the tests in April 2011 following the disaster at the Fukushima No. 1 nuclear plant the previous month.

Forty thousand fish and shellfish samples have been checked from 186 species over the past five and a half years.

The initial tests found that more than 90 percent of the samples were contaminated with radioactive cesium above the central government's safety limit of 100 becquerels per kilogram.

The percentage of polluted fish and shellfish then declined annually.

The tests since April last year showed that the pollution in all samples was within the safety limit.

The monitoring covers seafood caught in 30 locations, in waters with a depth of 5 meters and at a distance of hundreds of meters from the shore, including the area in a 20-kilometer radius of the crippled plant.

December 7, 2016

## Japan to help Iran with nuclear safety

## Japan to offer €2 million to Iran for nuclear safety cooperation

<http://www.japantimes.co.jp/news/2016/12/07/national/politics-diplomacy/japan-offer-e2-million-iran-nuclear-safety-cooperation/#.WEgf4H2Dmos>

Kyodo

Foreign Minister Fumio Kishida said Wednesday that Japan has decided **to offer Iran around €2.05 million (\$2.2 million) in the field of nuclear safety to help the Middle Eastern state steadily implement its historic nuclear deal with the West.**

“We agreed that bilateral relations are steadily making progress in a wide range of areas, including on cooperation for the steady implementation of the nuclear agreement,” Kishida told a joint news conference in Tokyo after his talks with Iranian counterpart Javad Zarif.

Zarif said at the outset of the meeting, which was open to the media, that he welcomes Japan’s “constructive contribution” that “strongly pushes the implementation” of the nuclear agreement.

The move comes amid uncertainty over the agreement’s future following the election of Donald Trump as U.S. president.

In his presidential campaign, Trump said that if elected, his “number one priority” as president would be to “dismantle the disastrous deal with Iran,” one promoted by President Barack Obama.

The nuclear deal Iran struck with six major powers in July last year limits Iran’s nuclear program in exchange for the lifting of most international sanctions. The deal has been endorsed by the U.N. Security Council.

Since the deal, Japan has been stepping up relations with the oil-rich country, lifting its sanctions on Iran in January and signing a bilateral investment pact the following month.

**Tokyo is pushing Japanese companies to do business amid intensifying foreign competition for access to the Iranian market.**

The ministers’ meeting came after Japanese Prime Minister Shinzo Abe expressed his readiness to visit Iran. Abe told of his willingness to travel to the country and boost economic ties during talks with Iranian President Hassan Rouhani on the sidelines of the U.N. General Assembly in New York in September, according to a Japanese official.

## Too much carbon in steel components?

### France may OK restart of 10 reactors following probe of Japanese parts

<http://www.japantimes.co.jp/news/2016/12/07/business/france-may-ok-restart-10-reactors-using-japanese-parts-probed-weaknesses/#.WEggj32Dmos>

Kyodo

PARIS – France’s nuclear watchdog may permit the restart of 10 of the 12 reactors it was checking after finding they use potentially weak steel components manufactured by a Japanese company.

The remaining two reactors are still under scrutiny by the country’s utility EDF, the Nuclear Safety Authority said in a statement on Monday.

With the ASN authorization, EDF will reactivate seven out of the 10 units as early as Dec. 31, according to Reuters.

The component in question was manufactured by Japan Casting & Forging Corp., which is based in Kitakyushu.

In June, ASN pointed to potential weaknesses of the Japanese steel components, with carbon concentrations exceeding standards. The Japanese part is used at 12 nuclear reactors in France, according to local reports.

EDF first conducted checkups on seven reactors that use the Japanese product and found four had higher risks of the excess concentrations.

The finding prompted ASN to order the utility on Oct. 18 to check the remaining five reactors, which were then in operation, earlier than initially scheduled.

France has 58 commercial nuclear reactors. At reactor 3 at the Flamanville nuclear plant, which is under construction, parts made in 2014 by Creusot Forge, a subsidiary of France's Areva SA, were found to lack strength. ASN later discovered that the parts manufactured by JCFC also had problems.

December 10, 2016

## Fukushima radiation all the way to Oregon

### Fukushima's radiation detected on Oregon's shores

<http://www.japantimes.co.jp/news/2016/12/10/national/science-health/fukushimas-radiation-detected-oregons-shores/#.WEv8AX2Dmot>

AP

SALEM, OREGON – Researchers say seaborne radiation from the Fukushima nuclear disaster has been detected on Oregon's shores.

Seawater samples from Tillamook Bay and Gold Beach indicate radiation from the nuclear disaster, but at extremely low levels not harmful to humans or the environment.

Citing the Woods Hole Oceanographic Institution, the Statesman Journal newspaper reports the samples were taken last winter and later analyzed.

Massive amounts of contaminated water were released and continue to be released from the crippled Fukushima No. 1 nuclear plant following a 9.0 magnitude earthquake and tsunami in March 2011 that triggered a triple core meltdown.

Woods Hole chemical oceanographer Ken Buesseler runs a crowdfunded, citizen-science seawater sampling project that has tracked the radiation plume as it makes its way across the Pacific Ocean.

December 26, 2016

## Taiwan protests lifting of ban on Japanese food

## Protesters in Taiwan demonstrate against lifting of Japanese food import ban

<http://mainichi.jp/english/articles/20161226/p2a/00m/0na/004000c>

TAIPEI -- A demonstration against the easing of import regulations on Japanese food was held here on Dec. 25, in a show of lingering concerns over the effects of the Fukushima nuclear disaster.

- **【Related】** Taiwan to ease food import ban on Japan except Fukushima
- **【Related】** Volunteer group continues checking fish off Fukushima as radiation levels drop
- **【Related】** 5 years after Fukushima meltdowns, wild game animals still show cesium contamination

The protest -- which according to organizers consisted of approximately 15,000 people largely related to the opposition Nationalist Party -- was a demonstration against the Taiwanese authorities' decision earlier this year to lift a ban on Japanese food imports from Ibaraki, Tochigi and Gunma prefectures -- which all neighbor Fukushima Prefecture -- as well as Chiba Prefecture.

Prior to the protest, a hearing on the easing of regulations was due to take place in New Taipei City on Dec. 25, but civilized discussion became impossible once the angered visitors became disorderly and started jostling with the police.

The food import ban -- which the ruling Democratic Progressive Party decided to lift after having taken office in May 2016 -- was imposed by Taiwan's previous president, Ma Ying-jeou, following the Fukushima No. 1 Nuclear Power Plant disaster in 2011. The ban applied to Japanese food imported from five Japanese prefectures -- namely Fukushima, Ibaraki, Tochigi, Gunma, and Chiba.

However, following the new government's decision to lift the ban on food from four of the five banned prefectures, there has been a backlash within Taiwan, predominantly from the Nationalist Party and environmental groups. Protesters have stated that, "Taiwan is importing polluted 'nuclear disaster food' from Japan that even Japanese people do not eat."

Although the lifting of the import ban involves food that circulates in Japanese markets, the escalation of the issue in the public domain is fuelling Taiwanese consumers' anxiety concerning Japanese food overall.

December 31, 2016

## 5.6 quake off Fukushima

### Magnitude-5.6 quake strikes off Fukushima

<http://www.japantimes.co.jp/news/2016/12/31/national/magnitude-5-6-quake-strikes-off-fukushima/#.WGk3K32Dmic>

KYODO, AFP-JIJI , STAFF REPORT – An earthquake with a preliminary magnitude of 5.6 struck off the coast of Fukushima Prefecture early Saturday, the Meteorological Agency said. No tsunami warning was issued. The 5:08 a.m. temblor, which originated at a depth of about 20 km, registered 4 on the Japanese earthquake intensity scale of 7 in the city of Iwaki.

The quake's epicenter was 244 km northeast of Tokyo.

Japan sits at the junction of four tectonic plates and experiences a number of relatively violent quakes every year, but rigid building codes and strict enforcement tend to keep damage to a minimum.

In March 2011, however, an offshore mega-quake and tsunami triggered a triple core meltdown at the Fukushima No. 1 power plant — the world's worst nuclear disaster since Chernobyl. Thousands lost their homes and remain displaced, and parts of the prefecture remain uninhabitable. On Wednesday, a 6.3-magnitude quake hit 18 km north-northeast of the town of Daigo, but there were no reports of injuries or damage.

December 28, 2016

## Ibaraki quake: What conclusions?

### Researcher: analysis of quake in Ibaraki

[https://www3.nhk.or.jp/nhkworld/en/news/20161229\\_04/](https://www3.nhk.or.jp/nhkworld/en/news/20161229_04/)

An earthquake researcher says **the northern part of Ibaraki Prefecture, and Fukushima Prefecture, which is located north of Ibaraki, became a seismically active region after the massive earthquake 5 years ago.**

Naoshi Hirata at the University of Tokyo's Earthquake Research Institute says old wooden houses and other fragile structures may not withstand tremors with an intensity of 6-minus on the Japanese seismic scale of zero to 7.

He added that people in quake-hit areas should stay away from potentially hazardous sites as aftershocks with intensities up to 6-minus could occur.

January 4, 2017

## Highschool students at Fukushima plant

### Students Visit Crippled Fukushima Plant

<https://www3.nhk.or.jp/nhkworld/nhknewslines/nuclearwatch/studentsvisitcrippledfukushimaplant/>

A group of high school students in Japan has visited the crippled Fukushima Daiichi nuclear plant. They're **the first minors to be admitted to the site**, and they're hoping the experience will help them contribute to the recovery of the surrounding community.

The students spent months preparing for their visit to the site of the 2011 nuclear disaster, and have been checking radiation levels around the region.

"I wanted to know how the workers feel, how far the decommissioning work has progressed, and what problems they have. I thought it would be best to see it with my own eyes, because there are some things you can't understand just from the media," says Miku Norii, who is in her second year and is a member of her school's science club.



After much preparation, and after securing permission from their parents, Miku and the other students headed to the plant. Radiation levels in most of the areas have fallen, so they were able to wear ordinary clothes.

But they did wear gloves and covered their shoes to avoid picking up contaminants. They carried devices that measured how much radiation they were being exposed to, and they stayed inside the bus as it blocks some of the radiation.

The first thing that caught their attention was the massive number of water tanks. They learned that contaminated water is building up at the site.

"Are there walls around the area where the tanks are lined up?" Miku asks.

"There are walls around it and a roof over it to prevent rainwater from getting in as much as possible," a TEPCO worker says.

They saw the reactor building left damaged by a hydrogen explosion. Miku learned that radiation levels near the reactor buildings remain high, so workers need to wear protective gear.

"They need to wear heavy equipment that close to the reactor building," Miku said.

Seeing the damaged reactor building was an encounter with harsh reality. The students could see why the job of decommissioning the plant could take 40 years, or until they reach middle age.

At the end of the tour, the students checked their total radiation exposure. They were relieved to see it was still within the safety guideline.

We caught up with Miku a month after she visited the plant to find out what lasting impression the trip had on her.

"I had done some research before going. But that's different than first-hand experience. When I saw the plant, I was able to feel its size, and the atmosphere. I'm now keenly aware that this is an issue we have to face squarely," Miku says. "I think we'll have opportunities to talk to people, both in and outside Fukushima -- and I hope we can convey our feelings, in our own words."

After our interview, Miku and her friends traveled to an area where residents had been evacuated. They continue to search for the hope that someday their beloved Fukushima will be fully restored.

January 5, 2017

## More quakes shake Fukushima and Ibaraki

### Pair of strong late-night quakes jolt Fukushima, Ibaraki

<http://www.japantimes.co.jp/news/2017/01/05/national/pair-strong-late-night-quakes-give-fukushima-ibaraki-jolts/#.WG4aTH2Dmos>

Kyodo

A magnitude-5.3 earthquake and another of magnitude-5.8 struck Fukushima and Ibaraki prefectures early Thursday, the Meteorological Agency said. No tsunami warning was issued.

The earthquakes occurred at 12:44 a.m. and 2:53 a.m., originating at depths of about 60 km and 30 km off the coast of Fukushima, respectively. They measured up to 4 on the Japanese seismic scale to 7 in southern Fukushima and northern Ibaraki.

After the quakes, no abnormalities were detected at the crippled Fukushima No. 1 nuclear plant and the nearby idled Fukushima No. 2 plant, according to Tokyo Electric Power Company Holdings Inc. Fukushima was hit hard by the March 11, 2011, earthquake-tsunami and nuclear crisis.

## "Several years"

### **'Several years' needed to restart Kashiwazaki-Kariwa plant: Niigata governor**

<http://www.japantimes.co.jp/news/2017/01/05/national/governor-says-restart-nuclear-plant-niigata-take-several-years/#.WG-v432Dmos>

Kyodo

Restarting the world's largest nuclear power plant will likely take "several years," the governor of Niigata Prefecture said Thursday, highlighting the difficulty of concluding the nuclear disaster reviews sparked by the triple core meltdown of March 2011.

Tokyo Electric Power Company Holdings Inc., better known as Tepco, has been trying to reactivate the Kashiwazaki-Kariwa nuclear plant, the world's largest by generation capacity, to generate much-needed revenue to offset ballooning costs and redress claims stemming from the 2011 nuclear disaster.

"There can be no discussions about a restart without reviewing" factors including the cause of the Fukushima nuclear disaster and evacuation plans for residents, Niigata Gov. Ryuichi Yoneyama said in his first talks with Tepco executives since assuming office in October.

Restarting reactors remains a sensitive issue in Japan following the crisis at the Fukushima No. 1 nuclear plant, a triple meltdown triggered by the Great East Japan Earthquake and ensuing tsunami that wrecked the coast of the Tohoku region in March 2011. Stricter safety standards were introduced after the crisis.

"I expect it will take several years to review" all the factors, Yoneyama told Tepco President Naomi Hirose and Chairman Fumio Sudo at the Niigata Prefectural Government's offices.

The prefectural government plans to set up independent panels to probe the Fukushima disaster and its health impact, as well as arrangements for evacuating residents in the event of another disaster.

Hirose remained confident, however, that both sides will find common ground, telling reporters after the meeting that he had the impression that Tepco and the prefectural government "can continue to have positive discussions."

Yoneyama has expressed his intention to visit the plant, as well as the Fukushima No. 1 plant.

Sudo told the governor that the utility will "earnestly address" the concerns of the prefectural government and community. After the meeting, he told reporters that local consent must "take priority."

"As an operator, we must be prepared," he said, suggesting that it will take a long time before the plant is restarted.

With total costs related to the 2011 disaster, including for compensation and decommissioning, likely to reach around ¥22 trillion (\$189 billion), Tepco is speeding up its turnaround efforts, aiming to reform its nuclear power and electricity transmission businesses.

Yoneyama's meeting with the Tepco executives was initially scheduled for November but postponed following a strong earthquake off the coast of Fukushima and the detection of bird flu in Niigata.

January 8, 2017

## Lower safety level to reduce costs

### Quake risk for Japanese-French nuclear plant in Turkey lowered to keep costs down, sources say

<http://www.japantimes.co.jp/news/2017/01/08/business/quake-risk-japanese-french-nuclear-plant-turkey-underestimated-keep-costs-sources-say/#.WHKOSn2Dmos>

Kyodo

Government-commissioned research firms have come up with a questionably low estimate for how badly an earthquake could rattle a nuclear power plant being built in Turkey by a Japanese-French venture, sources say.

The estimated "peak ground acceleration" — the term for ground motion caused by a quake — for the plant in the Black Sea province of Sinop is significantly lower than estimates given for quake-prone Japan's nuclear power plants, and that means it could be an attempt to reduce construction costs, the sources said Saturday.

Turkey is often struck by earthquakes.

The peak ground acceleration for the Sinop plant was estimated at around 400 gal (or 400 cm per second squared), but some experts said it should be "at least 500 gal, based on Japanese standards" and the topography and geography around Sinop.

For instance, the assumed ground acceleration is 620 gal for Kyushu Electric Power Co.'s Sendai nuclear power plant and 856 gal for Kansai Electric Power Co.'s Oi plant.

The assessment was part of a study commissioned by the Agency for Natural Resources and Energy, which is overseen by the Ministry of Economy, Trade and Industry. The aim of the study was to examine potential nuclear power plant construction deals involving Japanese companies in Turkey and Vietnam. Tokyo-based Japan Atomic Power Co. contracted to undertake the ¥2.4 billion (\$20.5 million) study and outsourced the ground acceleration estimate and assessment of active fault zones around the site to other Japanese research firms.

Japan Atomic said it "cannot disclose details of the study" and METI's agency said it has "not received a report" about the matter.

The joint venture by Mitsubishi Heavy Industries Ltd. and French nuclear giant Areva SA was granted exclusive negotiating rights in 2013 to build the Sinop plant. The administration of Prime Minister Shinzo Abe is eager to export nuclear technology to such emerging nations as Turkey and India as part of his national growth strategy.

The consortium plans to build four pressurized water reactors with an output of 1.1 million kilowatts each. Mitsubishi Heavy Industries says a contract with the Turkish government is expected to be sealed this year, with the first reactor expected to go online in 2023.

According to Japanese researchers, active faults are suspected to be present around the site of the envisioned plant. In 1968, a magnitude-6 temblor struck west of the site, and Turkish researchers have warned of the possibility of a major quake occurring in the region again. Residents are protesting the project.

## Quake resistance design of Turkey nuclear plant questioned

<http://mainichi.jp/english/articles/20170108/p2g/00m/0in/003000c>

TOKYO (Kyodo) -- Japanese research firms commissioned by the government have given a questionably low estimate for the maximum amount of lateral shaking from earthquakes that could affect a nuclear power plant in Turkey being built by a Japanese-French joint venture, sources privy to the matter said Saturday.

The assumed "peak ground acceleration" -- ground motion caused by an earthquake and one of the factors in assessing quake intensity -- for the plant in the Black Sea province of Sinop in quake-prone Turkey is **estimated at a significantly lower level than that for Japanese power plants in a possible attempt to reduce the construction cost**, the sources said.

While the peak ground acceleration for the **Sinop plant** is estimated at around 400 gal, experts said the estimate, given the topography and geography around Sinop, should be "at least 500 gal based on Japanese standards."

For instance, the assumed ground acceleration is 620 gal for Kyushu Electric Power Co.'s Sendai nuclear power plant in southwestern Japan and 856 gal for Kansai Electric Power Co.'s Oi nuclear power plant on the Sea of Japan coast.

The assessment was part of a study commissioned by the Agency for Natural Resources and Energy under the Ministry of Economy, Trade and Industry **to examine potential nuclear power plant construction deals involving Japanese companies in Turkey and Vietnam**.

Tokyo-based Japan Atomic Power Co. contracted to undertake the 2.4-billion-yen (\$20.52 million) study and outsourced the ground acceleration estimate and assessment of active fault zones around the planned construction site to other Japanese research firms.

Japan Atomic Power told Kyodo News it "cannot disclose details of the study." The agency said it has "not received a report" about the matter.

A joint venture of Japan's Mitsubishi Heavy Industries Ltd. and French nuclear giant Areva SA was granted in 2013 the exclusive negotiating right for construction of the Sinop plant. **The administration of Prime Minister Shinzo Abe is eager to export Japanese nuclear technology to emerging economies such as Turkey and India as part of the country's growth strategy.**

The consortium plans to build four pressurized water reactors with an output of 1.1 million kilowatts each. Mitsubishi Heavy Industries says a contract with the Turkish government is expected to be sealed this year with operation of the first reactor starting in 2023.

**According to Japanese researchers, some active faults are suspected around the envisioned plant site. In 1968, a quake of magnitude 6 occurred west of the site and some Turkish researchers warn of the possibility of a major earthquake occurring in the region. Local residents are protesting the construction plan.**

In the wake of the 2011 nuclear disaster at the Fukushima Daiichi power plant, triggered by a magnitude-9.0 earthquake and ensuing tsunami, Japan has put in place stricter rules for operating nuclear plants. But **using these same safety standards for nuclear plant contracts overseas would mean a sharp rise in construction costs.**

Japan had won a contract to build a nuclear plant in Vietnam, but the Southeast Asian country decided last year to scrap the costly construction plan.

January 10, 2017

## Safety measures approved for Ohi plant

### Nuclear watchdog approves safety measures for Ohi

[https://www3.nhk.or.jp/nhkworld/en/news/20170110\\_25/](https://www3.nhk.or.jp/nhkworld/en/news/20170110_25/)

Japan's nuclear watchdog has basically approved new safety measures for the 2 reactors at the Ohi nuclear plant in Fukui Prefecture, central Japan.

The operator, Kansai Electric Power Company, drafted the measures under the guidelines that were introduced after the Fukushima Daiichi accident in 2011.

Officials of the Nuclear Regulation Authority will now examine the safety procedures. They are expected to complete their assessment by the end of March.

12 reactors at 6 nuclear plants in Japan will then have passed the screening by the nuclear agency.

Kansai Electric plans to finish the necessary work and equipment tests by the end of September for restarting the reactors. But it will also need to obtain local consent.

The assessment process for the 2 reactors was resumed in November last year. It had been suspended for 9 months because older reactors were given priority.

January 12, 2017

## Radioactive contamination of fish "under limit" in 2016

### Radioactive substance in Fukushima fish under gov't limit in 2016

<http://mainichi.jp/english/articles/20170112/p2g/00m/0dm/038000c>

FUKUSHIMA, Japan (Kyodo) -- Levels of radioactive cesium in all fish and seafood sampled in the coastal waters of Fukushima Prefecture last year did not exceed the central government's safety limit for the first time since the 2011 nuclear crisis, a local fishery laboratory said Wednesday.

The finding that radioactive cesium readings were below the regulatory maximum of 100 becquerels per kilogram was welcomed by the local government and fishermen, who are seeking to allay public concerns about contamination following the crisis at the Fukushima Daiichi nuclear plant triggered by the March 2011 earthquake and tsunami.

According to the prefectural fishery laboratory, 95 percent of the 8,502 samples collected in 2016 showed radioactive cesium at levels that were hardly detectable, while readings for another 422 samples were below the limit.

"We were able to present data that fish and seafood in Fukushima are safe," said an official of the laboratory, which is hoping to expand the area and scope of sampling.

The prefectural government has been measuring concentrations of radioactive cesium in fish and seafood since April 2011, with sampling also undertaken in waters within a 20 kilometer radius of the nuclear plant.

The last time radioactive cesium readings surpassed the government limit was in March 2015.

The proportion of fish samples surpassing the limit has decreased every year since 2011, when the figure stood at 39.8 percent, according to laboratory data.

The figure stood at 16.5 percent in 2012, 3.7 percent in 2013, 0.9 percent in 2014 and 0.05 percent in 2015.

## No detectable (Japan-linked) radiation in Alaska seafood

### No sign of Japan-related radiation found in Alaska waters

<http://mainichi.jp/english/articles/20170112/p2g/00m/0in/041000c>

ANCHORAGE, Alaska (AP) -- State officials have announced that tests of Alaska seafood continue to show **no detectable amounts of radiation**, five years after a deadly earthquake and tsunami set off a nuclear disaster at a Japanese power plant.

More than 16,000 people were killed in 2011 after Japan's 9.1-magnitude earthquake, which led to nuclear meltdowns at the Fukushima Daiichi nuclear power plant.

Since then, U.S. and international agencies have been conducting tests to determine the health of marine life along the U.S. and Canada, KTVA-TV reported (<http://bit.ly/2iZxoG5>). Testing regions in Alaska include the Aleutian Islands and Bering Sea, Bristol Bay, the Gulf of Alaska and the southeast region.

The Alaska Department of Environmental Conservation said Monday testing last year confirmed Alaska seafood hasn't been affected by radiation from the nuclear plant.

"Testing performed in previous years showed no detectable levels of Fukushima-related radionuclides," according to a statement from the department. "Testing in 2016 also confirmed the quality and health of Alaska seafood has not been impacted by the Fukushima nuclear disaster."

While Alaska appears to be in the clear for now, the department has detected radiation in Canada and said radionuclides have been found in "ultra-low" levels in samples from Tillamook Bay and Gold Beach in Oregon.

"These findings do not indicate a threat to Alaska waters or the safety of consuming marine fish. DEC, in cooperation with its partners, currently deems fish and shellfish from Alaska waters unaffected by the nuclear reactor damage in Japan," the statement says.

State officials are still advising Alaska residents to be aware that "fish and shellfish are still subject to local toxins, such as those that cause paralytic shellfish poisoning."

January 15, 2017

## Safety checkups unsafe

### Pipe checks at Japan's nuclear control rooms conducted without removing insulation

<http://www.japantimes.co.jp/news/2017/01/15/national/running-blind-pipe-checks-nuclear-control-rooms-conducted-without-removing-insulation/#.WHs-T32Dmos>

JJI

The vast majority of Japan's 42 viable commercial nuclear reactors have not had detailed checkups performed on the air conditioning and ventilation systems of their central control rooms, it has been learned.

According to Japan Atomic Power Co. and nine utilities that manage nuclear power plants, the checkups — conducted at only two of the plants so far — are carried out without removing the insulation on the pipes. **Last month, Chugoku Electric Power Co. found extensive corrosion and holes, including one measuring 30 cm by 100 cm, in the ventilation pipes of the No. 2 reactor at the Shimane nuclear plant in Matsue, Shimane Prefecture. It was the first time the utility had removed the covering on the pipes since the reactor booted up in 1989.**

Concluding the pipes were not functioning properly, Chugoku Electric reported the degradation to the Nuclear Regulation Authority.

In the event of an accident, control rooms, which are staffed around the clock, must be self-contained to prevent outside air from entering.

Five reactors at the three nuclear plants that have been reactivated since 2015 have not undergone pipe inspections in which their insulation was removed. Of the five, the No. 1 reactor at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture and the No. 3 reactor at Shikoku Electric Power Co.'s Ikata plant in Ehime Prefecture are currently in operation.

Following the discovery of the pipe degradation at the Shimane No. 2 reactor, the NRA plans to check conditions at all of the nation's nuclear plants, sources said.

Hokuriku Electric Power Co. detected rust in the ventilation pipes of the No. 1 reactor at its Shika nuclear plant in Ishikawa Prefecture in 2003. After removing the covers and conducting further inspections, the company replaced the equipment in 2008.

**The NRA suspects that the pipe corrosion at the Shimane No. 2 reactor may violate nuclear regulatory standards,** an official said.

"As the plant is located near the sea, salt-containing air may have flowed into the pipes and hastened corrosion," a Chugoku Electric official said.

Most of the nation's nuclear plants are in coastal areas because they use seawater to cool their turbines.

January 18, 2017

## No.3 and No.4 Genkai reactors pass muster

### Two nuclear reactors in Saga Prefecture pass safety checks

<http://www.japantimes.co.jp/news/2017/01/18/national/two-nuclear-reactors-saga-prefecture-pass-safety-checks/#.WH9fS32Dmot>

Kyodo, Jiji

Two nuclear reactors in Saga Prefecture passed a key state safety assessment Wednesday, but uncertainty remains over whether operator Kyushu Electric Power Co. will win local support to bring them back online amid lingering safety concerns.

The No. 3 and No. 4 units of the Genkai plant are among many reactors in limbo after the tougher safety requirements were introduced in the wake of the Fukushima No. 1 nuclear power plant disaster in 2011. To restart the Genkai No. 3 and No. 4 units, Kyushu Electric needs approval from the Nuclear Regulation Authority for detailed designs of equipment and procedures for dealing with severe accidents. The reactors are expected to restart in April or later.

The government has been pushing for reactor restarts as nuclear power is regarded as a key energy source even after the Fukushima disaster. But the process has been slow, partly due to safety concerns. As for the resumption of the Genkai reactors, the city of Imari, which sits within a 30-km radius of the plant, has expressed concerns over evacuation preparations.

The Fukushima disaster led the central government to expand the areas around nuclear plants that should prepare for evacuation to 30 km from 10 km.

The 30-km areas around the Kyushu Electric plant, which faces the Genkai Sea, includes municipalities in Saga Prefecture, neighboring Fukuoka and Nagasaki prefectures, and 17 islands where about 20,000 people live.

In an emergency, residents on the islands would evacuate by ship. But critics say measures for safe evacuation in bad weather must be established.

While there are more than 40 commercial reactors across the country, only two are now operating — the No. 1 reactor at Kyushu Electric's Sendai plant in Kagoshima Prefecture and the No. 3 reactor at Shikoku Electric Power Co.'s Ikata plant in Ehime Prefecture.

The Sendai plant's No. 2 unit is operable, but is currently undergoing regular checkups.

Two reactors at Kansai Electric Power Co.'s Takahama plant in Fukui Prefecture were also restarted last year after clearing safety hurdles. But a court injunction in connection with safety issues shut them down with no clear timeline for a restart.

### Genkai plant reactors' safety measures certified

[https://www3.nhk.or.jp/nhkworld/en/news/20170118\\_15/](https://www3.nhk.or.jp/nhkworld/en/news/20170118_15/)



Japan's nuclear regulator has officially announced that safety measures for 2 reactors at the Genkai nuclear plant meet government requirements introduced after the 2011 Fukushima Daiichi accident.

The Nuclear Regulation Authority on Wednesday compiled an assessment approving restarts of the No.3 and 4 reactors at the plant in Saga Prefecture, western Japan. The facility is run by Kyushu Electric Power Company.

The regulator has been hearing from the public after compiling in November a draft assessment that had taken more than 3 years.

An NRA secretariat official at a meeting of the agency on Wednesday referred to strong earthquakes that took place last year in Kumamoto, near Saga Prefecture.

The official said some criticized the draft for failing to reflect the lessons of Kumamoto, but added that the government regulations require that the plant can function even during such quakes.

The official also said the operator checked the impact of the quakes and is taking necessary measures. The draft was approved on Wednesday with some of its wording revised.

The Genkai is to be the 2nd nuclear plant of Kyushu Electric to go back online, following the restarted Sendai plant. The Genkai facility is the 5th in the country whose safety measures have received NRA approval.

Detailed checks for quake resistance design and local consent are still needed. The reactors are expected to be back online this summer at the earliest.

Other issues are evacuation plans for elderly and challenged people as well as those living on 17 small islands near the plant in the event of a nuclear accident. Experts say the prefectural government and relevant municipalities must review their evacuation plans.

## 2 reactors online - 10 have passed the "safety" tests

### Operational status of Japan nuclear plants

[https://www3.nhk.or.jp/nhkworld/en/news/20170118\\_19/](https://www3.nhk.or.jp/nhkworld/en/news/20170118_19/)

Japan's nuclear regulator has so far approved safety measures for 10 reactors at 5 plants. Two of these reactors are online as of January 18th.

There are a total of 42 reactors at 16 nuclear power plants across Japan. That number excludes reactors set to be scrapped.

Twenty-six reactors are now being checked for compliance with regulations introduced after the 2011

Fukushima Daiichi nuclear disaster.

The 10 reactors that have cleared checks include 2 at the Genkai nuclear power plant, which were approved on Wednesday.

The others are: the Sendai No.1 and 2 reactors in Kagoshima Prefecture; the No.3 reactor at the Ikata plant in Ehime Prefecture; and the Takahama No.3 and 4 reactors in Fukui Prefecture.

They also include 3 reactors allowed to operate beyond the basic operational limit of 40 years. They are the Takahama No.1 and 2 reactors and the No. 3 at Mihama nuclear plant in Fukui.

The reactors now online are the Sendai No.1 and the Ikata No.3.

Operation of the No. 3 and 4 reactors at the Takahama plant was suspended after residents of a nearby prefecture filed a lawsuit.

The 3 aging reactors need additional safety measures before restarts. Their operator estimates it will take around 3 years for those reactors to go back online.

## Be a bit more careful when checking them!

### **Nuclear regulators order checks for duct decay**

[https://www3.nhk.or.jp/nhkworld/en/news/20170118\\_21/](https://www3.nhk.or.jp/nhkworld/en/news/20170118_21/)

Japan's nuclear regulators have ordered checks at nuclear plants after holes were found in ventilation ducts at the Shimane plant in western Japan.

The holes, apparently from decay, were found last month in the ducts at the central control room of the plant's No.2 reactor. If they are unfixed, the room could become contaminated in the event of a serious accident.

The plant's operator had failed to find the holes because the ducts are covered by insulation. The facility says the covers have not been removed for inspection since the reactor began operating.

The Nuclear Regulation Authority on Wednesday ordered operators of nuclear stations across Japan to check for similar problems, with priority on 4 reactors that have already been checked for restarts.

Those to be prioritized are the No.1 and 2 reactors at the Sendai plant in Kagoshima Prefecture, the Takahama No.3 reactor in Fukui Prefecture, and the Ikata No.3 reactor in Ehime Prefecture.

Inspectors have been asked to remove covers to check duct conditions in central control rooms and emergency headquarters.

The operators of the 3 plants say they checked for airtightness of central control rooms before the reactors were restarted. Engineers say even if holes open in the ducts, their covers could prevent leakage of contaminated air, securing airtightness in the rooms.

**Rules for plant operation stipulate that if fixing holes would take more than 10 days, reactors should be halted.**

As for non-priority reactors and reprocessing plants, regulators ordered checks before they are put back online or exchanging of nuclear fuel.

## Worrying review for Onawaga No.2

### **1,130 cracks, 70% rigidity lost at Onagawa reactor building**

<http://www.asahi.com/ajw/articles/AJ201701180054.html>

**Plans to resume operations at the Onagawa nuclear power plant's No. 2 reactor have taken a hit, as the building sustained 1,130 cracks in the walls and lost an estimated 70 percent of structural rigidity in the massive 2011 earthquake.**

Tohoku Electric Power Co. revealed the extent of the damage at a Nuclear Regulation Authority review meeting on Jan. 17 to investigate plans to bring the power station in Miyagi Prefecture back online. Tohoku Electric plans to extensively reinforce the damaged No. 2 reactor building. It is seeking to bolster the quake-resistance of the reactor to pass the stricter safety regulations on nuclear plants instituted by the NRA in the aftermath of the Fukushima nuclear crisis, triggered by the disaster.

However, that may be a long way off, as the nuclear watchdog said that it must inspect the cracks and the plans before the utility can proceed with the reinforcement project.

As with all nuclear power stations in the nation, the facility, which straddles the town of Onagawa and Ishinomaki city, went offline after the Great East Japan Earthquake and tsunami sparked the nuclear disaster.

A tremor of 607 Gals was recorded at the No. 2 reactor building when the magnitude-9.0 earthquake struck, but the structure was only built to withstand jolts of up to 594 Gals, according to Tohoku Electric. (Gal is a unit of acceleration used to describe how violently something shakes.)

A later architectural investigation found a total of 1,130 cracks on its walls, with 734 of them found on the top third-floor section. **There were more cracks in the upper levels of the building as that part swayed the most during the earthquake.**

The difference in the ways the uppermost section rocked compared to the lower portion when hit by aftershocks suggested that the structural rigidity of the third floor was down to 30 percent of what it was when the reactor began operating in 1995, according to the utility.

The lower section of the building, which covers two above-ground floors and three basement levels, was estimated to have lost 25 percent of its structural rigidity.

**Structural rigidity assesses a building's ability to withstand earthquakes and other stresses from outside without being distorted.**

(This article was written by Takashi Sugimoto and Masanobu Higashiyama)

January 19, 2017

## **Corroded holes found inside nuclear plant in Shimane**

<http://mainichi.jp/english/articles/20170119/p2a/00m/0na/002000c>

MATSUE -- Nineteen corroded holes have been discovered in air ducts inside the No. 2 reactor at the Shimane nuclear power plant, the Mainichi Shimbun has learned.

- **【Fukushima & Nuclear Power】**

As a consequence of this discovery, the Nuclear Regulation Authority decided on Jan. 18 to order all electric power companies to carry out checks on ducts inside all of their nuclear power plants. The corroded holes were discovered when insulating material -- that had been wrapped around the ducts -- was removed during a check in December 2016 at the No. 2 reactor at the Shimane plant, which is operated by Chugoku Electric Power Co. The largest hole of the 19 was found to be approximately 30 centimeters by 100 centimeters in size. Corroded holes in ducts present a threat as there is a chance that radioactive material could flow into the central control room via the holes during an accident -- thereby exposing power plant staff to radiation.

January 21, 2017

## **Crane collapses at Takahama plant**

### **Large crane collapses at Takahama nuclear plant**

[https://www3.nhk.or.jp/nhkworld/en/news/20170121\\_17/](https://www3.nhk.or.jp/nhkworld/en/news/20170121_17/)

A large crane has toppled onto a building storing nuclear fuel at the Takahama nuclear power plant in Fukui Prefecture, central Japan. Part of the building's roof was damaged. There were no reported injuries.

Workers at the plant found on Friday night that the crane had half-collapsed onto the building next to the containment vessel of the No.2 reactor.

The crane is about 110 meters long. It buckled where it hit the edge of the roof and is lying across another building.

Officials at Kansai Electric Power Company say no one was injured. They confirmed damage to a facility collecting rainwater on the roof, but say they have detected no change to radiation levels in the surrounding area.

The Secretariat of the Nuclear Regulation Authority says its inspectors have confirmed the falling crane caused wall panels inside the building to move. Workers are checking the building's functions to prevent radioactive materials from leaking.

Kansai Electric officials say they believe strong winds likely toppled the crane. They are investigating whether there was any problem in its installation.

Weather officials had warned of strong winds in the prefecture at the time.

The Takahama plant's operational chief, Masakazu Takashima, has apologized for the accident.

The Nuclear Regulation Authority in June last year approved the operation of the plant's No.1 and No.2 reactors beyond the basic limit of 40 years.

The crane was reportedly being used for construction work on the containment vessel as part of safety measures for the operation extension.

See also : <http://www.japantimes.co.jp/news/2017/01/21/national/crane-falls-building-spent-nuclear-fuel-takahama-plant/>

## **Large crane topples over at nuclear power plant in Fukui**

<http://www.asahi.com/ajw/articles/AJ201701210039.html>

TAKAHAMA, Fukui Prefecture--A large crane toppled in strong winds at the Takahama nuclear power plant here Jan. 20, causing some damage to the roofs of two buildings but no injuries.

Plant operator Kansai Electric Power Co. reported the incident before dawn Jan. 21 and said no change had been detected in radiation levels in surrounding areas.

The 113-meter tall crane used for construction work collapsed around 9:50 p.m. Nobody was working in the vicinity at the time. The plant's operations have been suspended.

The mangled wreckage lies on an auxiliary building for the aging No. 2 reactor and another building used to store spent nuclear fuel. The fuel rods were not disturbed, Kansai Electric said.

Winds gusting at 50.4 to 54 kph were raging at the time, and a warning had been issued in Fukui Prefecture.

In June last year, the Nuclear Regulation Authority approved the operation of the plant's No. 1 and No. 2 reactors beyond the basic limit of 40 years for another 20 years, the first time it had done so.

Kansai Electric plans to install dome-shaped concrete roofs on the upper part of the reactors' containment vessels as a safety step to fulfill the requirements for the extension.

To prepare for the full-fledged start of the installment work in February, the utility set up four big cranes in December.

January 24, 2017

**First raw milk since 3/11 from previous evacuation zone**

## First raw milk since 3/11 ships out from former evacuation zone

<http://www.asahi.com/ajw/articles/AJ201701240041.html>

The first shipment of raw milk has been made from an area once declared an evacuation zone after the 2011 accident at the Fukushima No. 1 nuclear power plant, paving the way for public consumption. Eighteen cows were milked starting at about 8 a.m. on Jan. 24 at Hiruta dairy farm in **Naraha, Fukushima Prefecture**.

About 400 liters of unpasteurized milk were collected and shipped in a tanker truck to a processing plant. The JA Zen-Noh Fukushima, part of the National Federation of Agricultural Cooperative Associations, will conduct a radiation test on the milk. If the product passes, it will be mixed with other raw milk from Fukushima before being distributed for consumption.

"Today marks the starting line," said Hiroaki Hiruta, 48, who operates the farm. "We want to continue producing safe and delicious milk."

After the Fukushima nuclear accident, residents in 11 cities, towns and villages were ordered to evacuate due to high radiation levels. Naraha's order was lifted in September 2015.

Immediately after the March 2011 nuclear accident, the shipment of raw milk from all of Fukushima Prefecture was prohibited, but the ban was lifted for all but the 11 evacuated municipalities by October 2011.

## Farm in ex-evacuation area near Fukushima nuke plant ships milk again

<http://mainichi.jp/english/articles/20170124/p2g/00m/0dm/080000c>

FUKUSHIMA, Japan (Kyodo) -- A dairy farm near the disaster-struck Fukushima Daiichi nuclear power plant in northeastern Japan began shipping raw milk again on Tuesday.

It was the first milk shipped for processing and public sale from an area previously designated for evacuation following the March 2011 nuclear disaster at the seaside plant in Fukushima Prefecture, according to the prefectural government.

Milk produced at the farm in the Naraha district had been checked for radioactive cesium every week from last May to December, with **no reading ever surpassing the government-set limit of 50 becquerels per kilogram. In fact, the readings were below the testing equipment detection limit.**

Around 400 kg of raw milk from 18 cows was shipped Tuesday.

"We were able to start operating this farm again with the support of so many people," said farm head Hiroaki Hiruta, 48. "I want to pay a debt of gratitude by making good milk."

Following the disaster, in which a massive amount of radioactive material was spewed into the air and sea, the central government banned milk shipments from the area in March 2011. Restrictions were lifted last December for the area where Hiruta's farm is located.

Similar restrictions are still in place for eight other districts, including the towns of Okuma and Futaba where the nuclear power station is located.

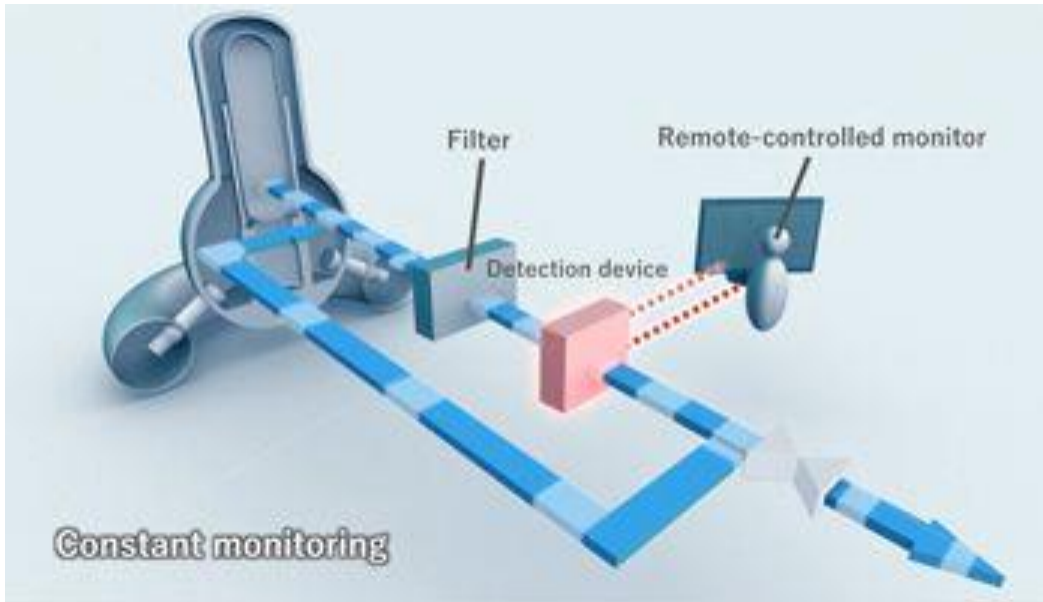
## Recriticality cannot be completely excluded

Includes an older video from TEPCO

## Video: Preventing Recriticality in Fuel Debris at Fukushima Daiichi Nuclear Power Station

<http://www.tepco.co.jp/en/decommision/index-e.html>

July 13, 2016



This video will explain the conditions of the fuel retained in the reactors of Units 1-3 at Fukushima Daiichi Nuclear Power Station, and TEPCO's measures to prevent recriticality-return to a point at which a nuclear reaction becomes self-sustaining- in the fuel debris there.

Watch the video here:

[https://www.youtube.com/watch?v=1\\_OwPO\\_CJR0](https://www.youtube.com/watch?v=1_OwPO_CJR0)

## Video: "The current situation at Fukushima Daiichi NPS" -From 3.11 toward the future- (Jan. 2017)

<http://www.tepco.co.jp/en/decommision/index-e.html>

Fukushima Daiichi Nuclear Power Station was attacked by a huge tsunami caused by Tohoku Pacific Ocean earthquake on March 11 2011.

We would like to show you the latest situation of Fukushima Daiichi, looking back the time of the accident.

[http://www.tepco.co.jp/en/news/library/archive-e.html?video\\_uuid=o6iw41m6&catid=61795](http://www.tepco.co.jp/en/news/library/archive-e.html?video_uuid=o6iw41m6&catid=61795)

January 26, 2017

## Crane safety measures ignored

### Proper precautions not taken on toppled crane

[https://www3.nhk.or.jp/nhkworld/en/news/20170126\\_14/](https://www3.nhk.or.jp/nhkworld/en/news/20170126_14/)

The operator of a nuclear plant on the Sea of Japan where a crane toppled earlier this month had not followed specified precautions to prevent the accident.

The crane, which is over 110 meters long, collapsed at the Takahama nuclear power plant in Fukui Prefecture on Friday, January 20th. It fell onto a building housing nuclear fuel and damaged part of its roof.

The operator, Kansai Electric Power Company, believes strong winds were to blame. Officials told media the next day they had taken precautions before the incident.

They explained that the tip of the crane's boom--which reached about 100 meters in height--was secured by wire to a 5-ton weight placed on the ground.

They said the measure was intended to protect the crane against winds of up to about 150 kilometers per hour.

Local weather officials on Friday morning had warned of winds in the area reaching a maximum momentary wind speed of 126 kilometers per hour later in the night.

According to the crane manufacturer's manual, the crane's back should be placed windward in the event wind speed is expected to top 36 kilometers per hour.

The manual also says the boom of the crane should be lowered to the ground when winds of more than 108 kilometers per hour are likely.

Neither of these measures had been taken before the crane toppled.

Kansai Electric officials say they are looking into whether the measures they took were appropriate and are also checking for any damages and corrosion on the crane.

The crane was being used for construction work on the number 2 reactor as part of safety measures required for extending operation of the aged reactor.



January 31, 2017

## Toshiba blames safety standards

### Toshiba Blames Stricter US Safety Standards For Increased Costs

<http://www.nucnet.org/all-the-news/2017/01/31/toshiba-blames-stricter-us-safety-standards-for-increased-costs>

Toshiba is scaling back ambitions for its nuclear business, saying construction costs have increased since the 2011 accident at Fukushima-Daiichi because of the imposition of stricter safety standards in the US.

The Japan Atomic Industrial Forum (Jaif) said on 31 January 2017 that costs had increased for equipment, facilities and materials to meet the new standards, with construction periods also extended, leading to higher personnel costs.

Total construction costs rose to “substantially more” than what had been expected when the orders were accepted, Jaif said.

The announcement followed an emergency board meeting to discuss the survival of one of Japan’s best known industrial conglomerates.

The company’s president and chief executive officer, Satoshi Tsunakawa was quoted by the Asahi Shimbun as saying Toshiba – owner of Westinghouse and its CB&I Stone & Webster subsidiary – would concentrate on designing, manufacturing and supplying nuclear reactors.

He said Westinghouse is “unlikely to carry out actual construction work for the future nuclear power plant projects to eliminate risk”.

Jaif said Westinghouse expects to incur a loss of as much as \$6.4bn (€5.9bn) on the construction of nuclear power plants in the US.

In December 2016, Toshiba said it may have to write off several billion dollars because of Westinghouse’s purchase of CB&I Stone & Webster, a US construction firm that specialises in nuclear power projects.

Toshiba said it needed to determine the value of the possible Westinghouse loss and the impact on its financial position.

Toshiba bought Westinghouse in 2006 for about \$5.4bn.

Westinghouse is supplying eight of its AP1000 reactor units for new-build projects, four in the US and four in China, and says “dozens more” AP1000 plants are planned around the world.

#### **Related reports in the NucNet database (available to subscribers):**

- Toshiba Expects Big Write-Down Over US Nuclear Acquisition (News in Brief No.256, 27 December 2016)

February 2, 2017

## NHK video: Deadly radiation

### **Nuclear watch: Deadly Radiation Estimated Inside Reactor Vessel**

<https://www3.nhk.or.jp/nhkworld/nhknewsline/nuclearwatch/deadlyradiationestimatedinsidereactorvessel/>

The operator of the crippled Fukushima Daiichi nuclear plant says its latest estimation of the radiation level inside one of the reactors was extremely high and had the potential to be lethal to a human within a short period of time.

Tokyo Electric Power Company conducted an inspection inside the containment vessel of the plant's No.2 reactor last month using a remote-controlled camera, as part of a survey to scrap the reactor.

An analysis of the images found that the radiation was up to 530 sieverts per hour at a concrete cylinder supporting the reactor.

The level is enough to be lethal to a human within a short period of time, despite a possible error margin of up to 30 percent.

A survey conducted 1 year after the nuclear accident at a different part inside the same containment vessel logged 73 sieverts per hour.

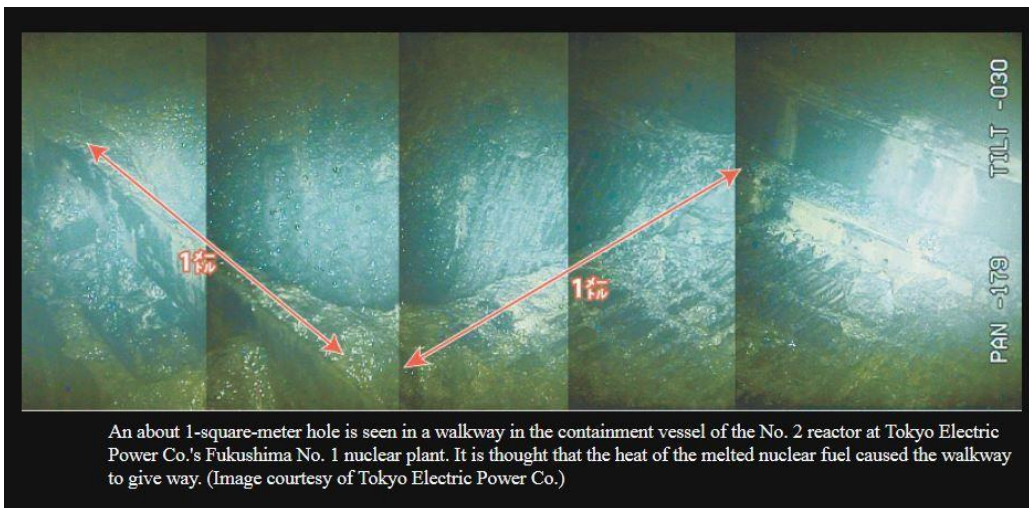
In the latest estimation inside the vessel, the area near its opening logged 50 sieverts per hour at maximum.

The operator officials say that there are no leaks of gas with radioactive substances from the containment vessel.

Officials suspect that fuel debris; a mixture of nuclear fuel and melted parts of the reactor's facility, may be emitting strong radiation inside the vessel.

Some molten fuel penetrated the reactor's bottom and has reached the containment vessel as fuel debris. The company plans conduct further inspections with a robot. There is a risk that some parts of the grating where the robot will be moving may be damaged by the high heat of the molten fuel.

## Radiation at No.2 reactor: Extremely high



## Radiation level at Fukushima reactor highest since 2011 disaster; grating hole found

<http://mainichi.jp/english/articles/20170202/p2g/00m/0dm/087000c>

TOKYO (Kyodo) -- The radiation level inside the containment vessel of the No. 2 reactor at the crippled Fukushima Daiichi nuclear complex stood at 530 sieverts per hour at a maximum, the highest since the 2011 disaster, the plant operator said Thursday.

- **【Related】** Radiation in Fukushima reactor containment vessel at deadly level: TEPCO
- **【Photo Special】** Radiation level at Fukushima reactor highest since 2011 disaster
- **【Related】** Footage points to difficulty in removing possible melted fuel at Fukushima plant

Tokyo Electric Power Company Holdings Inc. also announced that based on image analysis, **a hole measuring 2 meters in diameter has been found on a metal grating beneath the pressure vessel inside the containment vessel and a portion of the grating was distorted.**

According to TEPCO, the extremely high radiation level was found near the entrance area in the space just below the pressure vessel. The previously highest radiation level monitored in the interior of the reactor was 73 sieverts per hour.

The hole could have been caused by nuclear fuel that penetrated the reactor vessel as it overheated and melted due to the loss of reactor cooling functions in the days after a powerful earthquake and tsunami on March 11, 2011 hit northeastern Japan.

According to the image analysis, about 1 square meter of the grating was missing.

The plant operator plans to deploy a robot at the bottom of the reactor containment vessel, which houses the reactor pressure vessel, to check the conditions there.

The analysis follows TEPCO's discovery Monday of a black mass deposited on the grating directly beneath the pressure vessel, possibly melted fuel after the unit suffered a meltdown along with two other Fukushima Daiichi reactors.

Images captured using a camera attached to a telescopic arm on Monday also showed part of the grating has gone. A further analysis of the images found a 2-meter hole in an area beyond the missing section on the structure.

If the deposits are confirmed as fuel debris, it would be the first time the utility has found any at the three units that suffered meltdowns.

Following one of the world's worst nuclear disasters since the 1986 Chernobyl catastrophe, the No. 1 to 3 reactors suffered fuel meltdowns.

Portions of the fuel in the reactors are believed to have melted through the pressure vessels and accumulated at the bottom of the containment vessels.

The actual condition of the melted fuel has remained unknown due to high radiation

February 3, 2017

## Is "lower than the limit" safe enough?

### **All Fukushima seafood samples pass safety tests for radioactivity**

<http://www.asahi.com/ajw/articles/AJ201702030003.html>

By KAZUMASA SUGIMURA/ Staff Writer

IWAKI, Fukushima Prefecture--For the first time, radioactivity levels were lower than the government's safety limit in every seafood sample caught off Fukushima Prefecture for an entire year, officials said.

The Fukushima Prefectural Fisheries Experimental Station said 8,502 fish and shellfish samples were tested in 2016, and all recorded radioactivity readings under the safety standard of 100 becquerels per kilogram.

Ninety-five percent of them tested below the detection limit of around 15 becquerels per kilogram.

It was also the first time more than 90 percent of samples were below the detection threshold since the disaster at the Fukushima No. 1 nuclear plant started in March 2011, according to the officials.

People in the local fishing industry hope the numbers will help lead to a return to normal operations, although they say it is difficult to gauge the impact of harmful rumors about Fukushima seafood because prices depend on multiple factors, including quantity and quality.

"Test fishing is, after all, test fishing," said Yuji Kanari, a managing director with seafood wholesaler Iwaki Gyorui KK. "Turning that into full fishing operations like before (the disaster) will emerge as a major challenge this year.

"I hope that local consumption of locally produced goods that was disrupted by the nuclear disaster will soon be back."

The hauls from test fishing, which began in June 2012, have grown from year to year.

Preliminary figures show last year's catch at 2,072 tons, up 560 tons from 2015, but still only 7.9 percent of the annual catch of 26,050 tons averaged over the decade preceding the 2011 disaster.

Ninety-four species are eligible for this year's test fishing, which the Soma-Futaba fisheries cooperative association started on Jan. 10 and the Iwaki city fisheries cooperative association began on Jan. 12.

## Should radiation tests on food already be downsized?

## Gov't plan to cut back radiation tests on produce draws mixed reactions

<http://mainichi.jp/english/articles/20170203/p2a/00m/0na/004000c>

The national government suggested it would scale back radiation tests on produce from Tokyo and 16 other prefectures affected by the Fukushima nuclear disaster, at a citizen-oriented event in Tokyo on Feb. 2, drawing mixed reactions from those in attendance.

- **【Related】** Protesters in Taiwan demonstrate against lifting of Japanese food import ban
- **【Related】** 5 years after Fukushima meltdowns, wild game animals still show cesium contamination
- **【Related】** Fukushima food products still shunned by 15 percent of consumers: survey

A draft policy was put together by government bodies including the Ministry of Agriculture, Forestry and Fisheries and the Consumer Affairs Agency and calls for allowing reduction of the tests from the 2017 fiscal year. The plan was influenced by the fact that there are now almost no cases of agricultural products that exceed the regulatory limit for radioactive cesium of 100 becquerels per kilogram. Under the draft policy, the Tokyo Metropolitan Government or any of the affected prefectural governments whose agricultural products were at half or less of the limit for the past three years could choose to scale back their tests.

Representatives from consumer groups and Fukushima producers were present at the Feb. 2 meeting. There were many voices of opposition against the draft policy, saying it was too early to cut back the tests, or that the requirement for scaling them back should be stricter than half or less of the regulatory limit. On the other hand, another attendee said that over the last five years the tests had cost around 4 billion yen and the money should "be spent toward more meaningful goals."

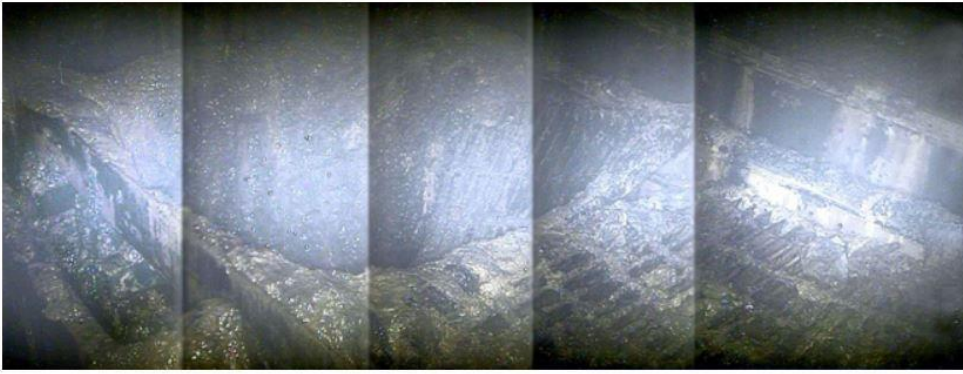
According to the testing results from fiscal 2011 through fiscal 2015, during the first two years the percentage of products like vegetables, fruits, tubers and meats from these areas with radioactive cesium in excess of the regulatory limit was between 0.1 percent and 5.9 percent, but since 2013 no excessive radiation has been detected.

The central government plans to hold an event to exchange ideas on the matter on Feb. 17 and get a better understanding of public opinion, before deciding on whether to actually downsize the testing.

## Deadly radiation level

### Radiation level in Fukushima reactor could kill within a minute

<http://www.asahi.com/ajw/articles/AJ201702030064.html>



Images show black lumps on grating for maintenance work below the No. 2 reactor's pressure vessel at the Fukushima No. 1 nuclear power plant. TEPCO says melted fuel likely caused at least two holes in the metal grating, including an opening measuring 1 meter by 1 meter. (Provided by Tokyo Electric Power Co.)

Radiation levels that can kill a person in a minute and holes created by melted nuclear fuel could further delay decommissioning operations at the No. 2 reactor of the Fukushima No. 1 nuclear plant.

Tokyo Electric Power Co., operator of the crippled plant, said Feb. 2 that the maximum estimated radiation level near what is believed to be melted fuel in the reactor was 530 sieverts per hour, the highest so far since the triple meltdown in 2011.

In its investigation into the interior of the No. 2 reactor, TEPCO also confirmed at least two holes on grating for maintenance work below the bottom of the reactor's pressure vessel.

"The holes were likely made when the melted nuclear fuel fell from the pressure vessel and melted the grating," a TEPCO official said.

The findings were made by studying images taken from a video camera attached to a pipe that was inserted into the reactor on Jan. 30.

Radiation levels were estimated at 20 sieverts per hour, 50 sieverts per hour and 530 sieverts per hour at three spots inside the reactor's containment vessel.

The company estimated the doses from the extent of disturbances in the images caused by radiation.

Although a TEPCO official said "there is a margin of error because radiation levels were not measured directly," the company believes the scattered melted nuclear fuel inside the containment vessel was emitting high levels of radiation.

After a number of failed attempts, the remote-controlled camera took the first pictures of possible melted fuel at the plant.

However, closer inspection of the images have revealed additional problems for TEPCO, which had believed most of the melted fuel had remained inside the reactor's pressure vessel.

TEPCO plans to send an investigative robot, called Sasori (scorpion), into the containment vessel this month to more accurately measure radiation doses at various spots and take additional footage of the scattered nuclear fuel.

The utility plans to use the data to determine a fuel-removal method.

But the robot was expected to use the circular grating, measuring 5 meters in diameter, to move around.

One of the holes is 1 meter by 1 meter, a potential pitfall for the robot, which is 59 centimeters long and 9 cm high.

TEPCO said it will consider a different route for the robot in its survey.

Fumiya Tanabe, an expert on nuclear safety who analyzed the 1979 Three Mile Island nuclear accident in the United States, said the findings show that both the preparation for and the actual decommissioning process at the plant will likely prove much more difficult than expected.

“We have few clues on the exact locations, the sizes and the shapes of the nuclear fuel debris,” he said. “The planned investigation by the robot needs a rethink. Work to decommission the plant will require even more time.”

TEPCO said it will need 30 to 40 years to complete the decommissioning process. The utility plans to start work to remove the melted nuclear fuel at the No. 2 and two other stricken reactors in 2021 after deciding on a removal method in fiscal 2018.

TEPCO has yet to determine the location and the condition of the melted fuel in the other two reactors. (This article was written by Takashi Sugimoto, Keisuke Katori and Eisuke Sasaki.)

### **Radiation in Fukushima reactor containment vessel at deadly level: TEPCO**

<http://mainichi.jp/english/articles/20170203/p2a/00m/0na/005000c>



A scorpion-like observation robot scheduled to go into the containment vessel of the No. 2 reactor at the Fukushima No. 1 nuclear plant. (Photo courtesy of Tokyo Electric Power Co.)

A scorpion-like observation robot scheduled to go into the containment vessel of the No. 2 reactor at the Fukushima No. 1 nuclear plant. (Photo courtesy of Tokyo Electric Power Co.)

Radiation inside the containment vessel of the No. 2 reactor at the Fukushima No. 1 nuclear plant measures as high as a deadly 530 sieverts per hour, the highest since the 2011 disaster, plant operator Tokyo Electric Power Co. (TEPCO) announced on Feb. 2.

- **【Related】** Radiation level at Fukushima reactor highest since 2011 disaster; grating hole found
- **【Photo Special】** Radiation level at Fukushima reactor highest since 2011 disaster
- **【Related】** Footage points to difficulty in removing possible melted fuel at Fukushima plant

TEPCO calculated the radiation dose from video noise on footage it took inside the containment vessel in late January, when a camera was inserted to examine conditions inside and scout a route for a scorpion-like observation robot scheduled to go into the vessel later this month.

Deployment of the robot is also being reconsidered after two gaping holes were found along the robot's planned path over a 5-meter-wide circular walkway inside the containment vessel, close to where the 530-sievert radiation dose was detected.

The holes in the metal grate walkway -- one of unknown size and the other measuring about 1 meter square -- make both routes considered for the robot impassable.

"We will consider re-evaluating what observations we can take with the robot," Yuichi Okamura, an acting general manager with TEPCO's on-site nuclear power division, told reporters at a Feb. 2 news conference. Piles of a black and dark brown substance several centimeters thick and thought to be melted nuclear fuel were also observed on the walkway, creating a further possible obstruction to the robot. Meanwhile, examination of the 1-meter-square hole suggests the walkway was struck with tremendous force, hinting that there may be a large amount of melted fuel below.

"It is possible that the nuclear fuel rods melted onto the control rods and then dripped down," Tokyo Institute of Technology professor of nuclear engineering Yoshinao Kobayashi told the Mainichi Shimbun. "It's highly likely that part of the bottom of the pressure vessel broke and the melted fuel flowed down (onto the walkway), and then the grating warped and gave way due to the fuel's heat."

See also : [http://www.japantimes.co.jp/news/2017/02/03/national/tepcu-finds-gaping-hole-grate-containment-vessel-potential-fuel-debris-fukushima-no-1-power-plant/#.WJSIY\\_KDmos](http://www.japantimes.co.jp/news/2017/02/03/national/tepcu-finds-gaping-hole-grate-containment-vessel-potential-fuel-debris-fukushima-no-1-power-plant/#.WJSIY_KDmos)

February 4, 2017

## Closed-door meetings & adulterated minutes

### **NRA's radioactive soil concerns omitted from minutes of closed-door meeting**

<http://mainichi.jp/english/articles/20170204/p2a/00m/0na/017000c>

Concerns raised by the Nuclear Regulation Authority (NRA) on how radioactive soil from the Fukushima nuclear disaster would be reused were omitted from the minutes of closed-door meetings on the issue, the Mainichi Shimbun has learned.

- **【Related】** Nuclear watchdog questions Environment Ministry's plan to reuse radioactive soil



- **【Related】** Environment Ministry deleted some of its remarks from minutes on contaminated soil meet

It has already come to light that comments from the Ministry of the Environment that could be interpreted as attempting to manipulate the conclusions of the meetings were left out when the minutes were publicly released. The latest revelation means yet another important part of the minutes is missing.

The meetings were held by the Ministry of the Environment between January and May last year with various radiation experts in attendance. In June, the experts decided to manage and reuse contaminated soil with levels of radioactivity under 8,000 becquerels of cesium per kilogram in public construction projects.

Related legislation reads "When deciding on technical standards to prevent radiation-related health problems, the Radiation Council must be consulted." The publicly released meeting minutes quote an Environment Ministry representative as saying, "We need to think about the consultations with the council. When we discussed the issue with the NRA, it placed importance on our management (of the reused soil)." The quote shows that the ministry had talked to the NRA, which has jurisdiction over the council, about consultations with the body.

However, a source has disclosed that even though the ministry representative mentioned specific concerns brought up by the NRA, saying, "The Nuclear Regulation Authority was most concerned about where the soil will be used, and whether it might be used in the yards of regular households," this comment was omitted from the minutes.

Furthermore, in a rough draft of the minutes obtained by the Mainichi Shimbun, during the fourth round of Environment Ministry meetings in February last year, an official stated, "Afterwards we will ask all committee members to review the meeting minutes. After that, during next fiscal year, we are thinking of receiving your support in dealing with the Nuclear Regulation Authority." However, these words were deleted from the publicly released minutes.

The ministry was unable to give a satisfactory explanation for the concerns raised by the NRA, and so there has been no consultation with the Radiation Council to set health standards. However, according to both the ministry and the NRA, they have discussed the issue of consultations with the committee and agree they are not yet necessary.

According to internal rules created by the authority in December 2013, the Radiation Council only needs to be consulted when setting standards by law or relevant regulations. The standards decided through the ministry meetings are only "basic ideas" before they are set by law or regulations.

The ministry plans to reuse contaminated soil on an experimental basis. An NRA representative commented, "Once the plans for the experiment are in place, we understand that they will discuss the issue with us again."

Even the existence of the closed-door meetings was originally not announced, but after repeated requests for information disclosure, the ministry revealed the meeting minutes in August last year. While the release was called a "full release," comments including ones that could be taken as attempting to manipulate the discussion toward a conclusion of using 8,000 becquerels per kilogram as an upper limit when reusing soil were deleted from the records. After this came to light, Environment Minister Koichi Yamamoto said the minutes were "meeting summaries that only included the points of what was said."

February 5, 2017

## "Drastic increase in radiation level"?

### Radiation at Fukushima Spikes to Highest Levels Since 2011

<http://www.ecowatch.com/fukushima-nuclear-radiation-2240464475.html>

True Activist

Nearly six years after the initial explosion caused a catastrophic meltdown at the Daiichi nuclear power plant in the Fukushima prefecture of Japan, the situation has suddenly taken a drastic turn for the worst. Tokyo Electric Power Company (TEPCO), the company which owns and operates the now defunct power plant, announced Thursday that radiation inside the containment vessel of one of the plant's failed reactors has now reached levels undetected since the disaster first occurred in 2011.

Radiation inside the reactor has reached 530 sieverts per hour, a drastic increase from the previously recorded 73 sieverts per hour recorded in the aftermath of the meltdown. **The level of radiation is so high that an official of the National Institute of Radiological Sciences told the Japan Times that medical professionals have never considered dealing with this level of radiation in their work.**

TEPCO has stated that the cause of the radiation spike is a 2 meter diameter hole inside the bottom grating of the containment vessel. The hole was likely caused by melted fuel.

Plans have been made to send a robot into the area to survey the damage as the true extent of the structural damage remains unknown. However, previous attempts to use robots to gauge damage or seal breaches at Fukushima have failed. Several robots were deployed to seal a breach in another containment vessel, which continues to release 300 tons of radioactive water a day into the Pacific Ocean. Due to the high temperatures present, all of the robots were rendered nonfunctional and unable to complete the task. While TEPCO previously claimed that most of the reactor's nuclear fuel remained contained in the pressure vessel, company spokesman Yuichi Okamura stated that "it's highly possible that melted fuel leaked through."

TEPCO has yet to state the expected impact of the radiation spike or the potential consequences of the nuclear fuel leak. The company is expected to detail its plan for containment and offer more details regarding the impacts of this latest development in the coming week. However, **given that TEPCO admitted to "covering up" the impact of the initial disaster with the full complicity of the Japanese government, it remains to be seen if they can be taken at their word.**

*Reposted with permission from our media associate True Activist.*

February 6, 2017

## Lower than the limits

## Fukushima Groundwater Radiation Substantially Below Targets, Says Tepco

<http://www.nucnet.org/all-the-news/2017/02/06/fukushima-groundwater-radiation-substantially-below-targets-says-tepco>

Radiation levels in purified groundwater pumped into the sea from sub-drain and groundwater drain systems at the Fukushima-Daiichi nuclear station in Japan were substantially below the operational targets set by Tokyo Electric Power Corporation (Tepco), according to a report submitted by Tepco to the International Atomic Energy Agency. Tepco said its operational targets are well below those specified by the country's nuclear regulator and about one-tenth lower than targets set by the World Health Organisation for acceptable drinking water. The results were confirmed by the Japan Chemical Analysis Centre, Tepco said. According to Tepco, analysis of seawater sampled during the discharge operation at the nearest seawater sampling post from the discharge point showed that radiation levels in seawater remain lower than the limits laid down by the regulator. The groundwater, which flows onto the nuclear site from hills behind the facility, mixes with contaminated water being used to cool melted fuel. **The treated groundwater is only released into the sea when it is confirmed that concentrations of radioactive material have been reduced to between 0.001% and 0.0001% of their original levels and are below operational targets.**

February 9, 2017

## NRA wants waterproofing of nuclear facilities

### Nuclear watchdog to require waterproofing measures at facilities

<http://mainichi.jp/english/articles/20170209/p2a/00m/0na/013000c>

The Nuclear Regulation Authority (NRA) is set to require power companies and other operators to **complete waterproofing measures of their nuclear facilities within the next year**, following an incident in which tons of rainwater flowed into the No. 2 reactor building at the Shika nuclear plant last fall, it has been learned.

The NRA conducted a survey on nuclear plant operators across the country to detect possible similar problems and released the results on Feb. 8. The survey found that measures to shut off the influx of water into reactor buildings had not been carried out on at least 655 parts of such structures at 10 nuclear facilities.

The facilities mentioned in the survey are: the No. 1 and 2 reactors at the Shika nuclear plant in Ishikawa Prefecture, the No. 2 reactor at Tohoku Electric Power Co.'s Onagawa nuclear plant in Miyagi Prefecture, the No. 1 through 4 reactors at Tokyo Electric Power Co. (TEPCO)'s Fukushima No. 2 nuclear plant in Fukushima Prefecture, the No. 1 through 7 reactors at TEPCO's Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture, the No. 3 through 5 reactors at Chubu Electric Power Co.'s Hamaoka nuclear plant in Shizuoka Prefecture, the No. 1 and 2 reactors at Chugoku Electric Power Co.'s Shimane nuclear plant in Shimane Prefecture, the No. 1 reactor at the Japan Atomic Power Co.'s Tsuruga Power Station in Fukui Prefecture, the Monju prototype fast-breeder reactor also in Fukui Prefecture, the Tokai Reprocessing

Plant in Ibaraki Prefecture and the Rokkasho Reprocessing Plant in Aomori Prefecture. The Shimane nuclear plant's No. 1 reactor and the Tsuruga Power Station's No. 1 reactor are under decommissioning work, while the Monju reactor and the Tokai Reprocessing Plant are set to be dismantled.

All the reactors in question are boiling-water reactors. Meanwhile, waterproofing measures have been completed on all of the country's pressurized-water reactors -- including the No. 1 and 2 reactors at Kyushu Electric Power Co.'s Sendai nuclear plant in Kagoshima Prefecture, which were reactivated amid much controversy.

Following heavy rainfall in late September last year, approximately 6.6 metric tons of rainwater flowed into the building housing the No. 2 reactor at the Shika nuclear plant by way of cracks and gaps around plumbing, causing short circuits in lighting switchboards. The crisis occurred as the amount of precipitation surpassed the capacity of makeshift drainage pumps, raising the risk that a storage battery for cooling the reactor in emergencies and other key safety equipment would become submerged and unusable.

The NRA's new safety regulations introduced in the wake of the 2011 meltdowns at the Fukushima No. 1 nuclear plant call on power companies and other plant operators to take measures to prevent an influx of rainwater and tsunami in reactor buildings from affecting key facilities. However, the regulations do not oblige plant operators to take such measures as fill in the gaps in pipes that penetrate reactor buildings. In response to the recent incident at the Shika plant, which the NRA views seriously, the agency has decided to effectively mandate plant operators to implement waterproofing measures at all nuclear facilities.

February 10, 2017

## High radiation, deposits and debris

### High radiation readings at Fukushima's No. 2 reactor complicate robot-based probe

<http://www.japantimes.co.jp/news/2017/02/10/national/high-radiation-readings-at-fukushima-no-2-reactor/#.WJ69qvKDmos>

KYODO

The high radiation estimates in the No. 2 reactor of the stricken Fukushima No. 1 nuclear plant will probably force a rethink of the nationalized utility's robot-based strategy for locating its molten fuel. According to an analysis of Thursday's abbreviated probe, the radiation in the primary containment vessel is about 650 sieverts per hour, more than the 530 sieverts estimated late last month, Tokyo Electric Power Company Holding Inc. said.

That level could kill a person quickly and indicates the fuel likely burned through the pressure vessel during the meltdown and is somewhere nearby.

Tepco, as the utility is known, halted Thursday's robot after its camera went dark. The company suspects the problem was caused by the radiation.

A number of government officials had questioned the 530-sievert reading because it was calculated from camera interference, rather than measured by a dosimeter. Given the unorthodox method, some were reluctant to release the figure.

But Thursday's analysis, also calculated via video footage, reinforced the experts' findings, making it likely the radiation in that particular spot, near the pressure vessel, is high despite the considerable 30 percent margin of error.

"I had hoped that the previous results were wrong, but it is certain that there is an area with high radiation levels inside the reactor," a government source said.

A Tepco official said a reading of 500 to 600 sieverts should be "basically correct," especially given that **the camera, which was designed for 1,000 sieverts of cumulative exposure, broke down within two hours.**

On Thursday, the robot was equipped with a high-pressure water pump to wash off deposits up to 2 cm thick suspected to be the melted remains of paint and cable insulation from a 7-meter rail leading to an area beneath the pressure vessel, which holds the core.

Tepco hopes to send another robot along the rail to survey the bottom of the pressure vessel later this month.

A previous attempt on Tuesday to clear the rail was suspended because of a water pump malfunction. The deposits cover 5 meters of the rail. The robot was able to clean about a meter of it close to the exterior of the primary containment vessel but it could not do any more because the deposits were too tough to remove, Tepco said.

**If the deposits aren't cleared, they might prevent the robot from getting beneath the pressure vessel,** it said.

Three of the Fukushima No. 1 plant's six reactors were hit by meltdowns after the March 2011 mega-quake and tsunami caused a station blackout that knocked out the plant's cooling systems. It is the worst nuclear disaster since the Chernobyl in 1986.

Tepco is still in the early stage of assessing the conditions in and around the damaged reactors so the fuel can be removed. The decommissioning is expected to take decades.

## **Radiation level in Fukushima No. 2 reactor measured higher**

<http://www.asahi.com/ajw/articles/AJ201702100035.html>

A pressure washer-equipped robot clears the path inside the containment vessel of Fukushima No. 1 nuclear power plant's No. 2 reactor on Feb. 9. The black lumps are believed to be melted fuel. (Provided by Tokyo Electric Power Co.)



A camera attached to the robot deployed inside Fukushima No. 1 nuclear power plant's No. 2 reactor shows how it clears its path covered with debris and deposits using a pressure washer. (Captured from video provided by Tokyo Electric Power Co.)

The road to decommissioning Fukushima No. 1 nuclear power plant's No. 2 reactor could be rockier than expected, as **radiation levels on Feb. 9 were even deadlier than those recorded in late January.** Tokyo Electric Power Co. announced that day that radiation levels inside the reactor were estimated at up to 650 sieverts per hour, much higher than the record 530 sieverts per hour marked by the previous survey.

A camera made its way inside the reactor's containment vessel for the first time on Jan. 30 and spotted fuel rods that had melted into black lumps in the nuclear accident in the aftermath of the 2011 Great East Japan Earthquake and tsunami disaster.

The plant operator made the latest estimate from the amount of camera noise experienced by the robot that ventured into the lion's den that morning.

**Equipped with a pressure washer,** the machine was deployed to pave the way for the Sasori (scorpion) robot that is set to survey the reactor's interior in greater detail.

The robot's task was to hose down melted fuel and other substances as it traveled along a rail measuring 7 meters long and 0.6 meter wide connecting the outer wall of the containment vessel with the reactor's core. It started operating from a point located 2 meters from the exit of the tunnel bored into the side of the vessel.

But about two hours into its journey, in which it had progressed about a meter, the camera footage started getting dark, TEPCO said. The amount of radiation emitted by the melted fuel may have taken a toll on the camera's well-being.

As the robot could be left stranded inside the vessel if the camera broke down completely, the utility called off the operation seven hours earlier than scheduled and retrieved the device.

TEPCO analyzed the footage and concluded that the doses amounted to about 650 sieverts per hour, which is deadly enough to kill a human in less than a minute.

As the robot's camera was designed to withstand a cumulative dosage of 1,000 sieverts per hour, the utility commented that "it's consistent with how the camera started to break down after two hours."

The plant operator plans to deploy the Sasori surveyor robot before the end of February.

"We will be assessing the amount of deposits and debris to decide how far Sasori can advance," a TEPCO official said.

February 13, 2017

## "It's only now the damage has been photographed"

### The Fukushima nuclear meltdown continues unabated

<https://independentaustralia.net/politics/politics-display/helen-caldicott-the-fukushima-nuclear-meltdown-continues-unabated,10019>

Dr Helen Caldicott, *explains recent robot photos taken of Fukushima's Daiichi nuclear reactors: radiation levels have not peaked, but have continued to spill toxic waste into the Pacific Ocean — but it's only now the damage has been photographed.*

RECENT reporting of a huge radiation measurement at Unit 2 in the Fukushima Daichi reactor complex does not signify that there is a peak in radiation in the reactor building.

All that it indicates is that, for the first time, the Japanese have been able to measure the intense radiation given off by the molten fuel, as each previous attempt has led to failure because the radiation is so intense the robotic parts were functionally destroyed.

The radiation measurement was 530 sieverts, or 53,000 rems (Roentgen Equivalent for Man). The dose at which half an exposed population would die is 250 to 500 rems, so this is a massive measurement. It is quite likely had the robot been able to penetrate deeper into the inner cavern containing the molten corium, the measurement would have been much greater.

These facts illustrate why it will be almost impossible to "decommission" units 1, 2 and 3 as no human could ever be exposed to such extreme radiation. This fact means that Fukushima Daichi will remain a diabolical blot upon Japan and the world for the rest of time, sitting as it does on active earthquake zones. What the photos taken by the robot did reveal was that some of the structural supports of Unit 2 have been damaged. It is also true that all four buildings were structurally damaged by the original earthquake some five years ago and by the subsequent hydrogen explosions so, should there be an earthquake greater than seven on the Richter scale, it is very possible that one or more of these structures could collapse, leading to a massive release of radiation as the building fell on the molten core beneath. But units 1, 2 and 3 also contain cooling pools with very radioactive fuel rods — numbering 392 in Unit 1, 615 in Unit 2, and 566 in Unit 3; if an earthquake were to breach a pool, the gamma rays would be so intense that the site would have to be permanently evacuated. The fuel from Unit 4 and its cooling pool has been removed. But there is more to fear.

The reactor complex was built adjacent to a mountain range and millions of gallons of water emanate from the mountains daily beneath the reactor complex, causing some of the earth below the reactor

buildings to partially liquefy. As the water flows beneath the damaged reactors, it immerses the three molten cores and becomes extremely radioactive as it continues its journey into the adjacent Pacific Ocean.

Every day since the accident began, 300 to 400 tons of water has poured into the Pacific where numerous isotopes – including cesium 137, 134, strontium 90, tritium, plutonium, americium and up to 100 more – enter the ocean and bio-concentrate by orders of magnitude at each step of the food chain — algae, crustaceans, little fish, big fish then us.

Fish swim thousands of miles and tuna, salmon and other species found on the American west coast now contain some of these radioactive elements, which are tasteless, odourless and invisible. Entering the human body by ingestion they concentrate in various organs, irradiating adjacent cells for many years. The cancer cycle is initiated by a single mutation in a single regulatory gene in a single cell and the incubation time for cancer is any time from 2 to 90 years. And no cancer defines its origin.

We could be catching radioactive fish in Australia or the fish that are imported could contain radioactive isotopes, but unless they are consistently tested we will never know.

As well as the mountain water reaching the Pacific Ocean, since the accident, TEPCO has daily pumped over 300 tons of sea water into the damaged reactors to keep them cool. It becomes intensely radioactive and is pumped out again and stored in over 1,200 huge storage tanks scattered over the Daichi site. These tanks could not withstand a large earthquake and could rupture releasing their contents into the ocean.

## Radiation levels might be higher

### Robot Measures Highest Radiation Levels Yet In Fukushima PCV

<http://www.nucnet.org/all-the-news/2017/02/13/robot-measures-highest-radiation-levels-yet-in-fukushima-pcv>

A robot sent into the Unit 2 primary containment vessel (PCV) at the Fukushima-Daiichi nuclear power station has measured radioactivity as high as 650 sieverts per hour (Sv/hr), Tokyo Electric Power Company (Tepco) has said. Tepco said the robot had been sent into the PCV on 9 February 2017 to clear a path for a “scorpion” robot to further explore the inside of the PCV. Tepco said “various safety precautions” were taken to ensure that radiation remained inside the PCV and to protect the robot. The robot and its cameras are designed to withstand 100 Sv/hr for 10 hours and the time it spends inside the PCV is being adjusted as necessary. Tepco said on 8 February 2017 that the radiation level in the Unit 2 PCV may have reached as high as 530 Sv/hr, but that reading was only an estimate based on analysis of images from the robot with a margin of error of 30%. Tepco said those images were “intriguing”, but further examination was necessary before it could be verified that they showed fuel debris from the March 2011 accident. That estimate of 530 Sv/hr far exceeded the previous high of 73 Sv/hr recorded at the reactor following the accident. At this level of radioactivity, a person could die from the briefest of exposures. At the time Tepco said it would not be surprised if even higher radiation levels were found



there, but only actual measurements would tell. Tepco said there had been no change to radiation readings outside the PCV.

February 15, 2017

## **Kashiwazaki-Kariwa restart: More lies from TEPCO (2)**

### **TEPCO gave inaccurate explanations about seismic capacity of nuke plant**

<http://mainichi.jp/english/articles/20170215/p2a/00m/0na/014000c>

Tokyo Electric Power Co. (TEPCO) has revealed that it had explained that the seismic capacity of a quake-absorbing structure called an "important anti-seismic building" at its Kashiwazaki-Kariwa Nuclear Power Plant in Niigata Prefecture was higher than it actually was, now saying that it "cannot withstand all types of shaking."

TEPCO made the revelation at a Nuclear Regulation Authority (NRA) safety screening session on the plant's No. 6 and 7 reactors on Feb. 14. The "important anti-seismic building" is supposed to serve as a frontline base in the event of a nuclear accident. The NRA demanded TEPCO give detailed explanations about how and why it provided the wrong information, saying harshly, "We cannot overlook this." According to the NRA and other sources, of the so-called "standard earthquake vibrations," the strongest seismic shaking the important anti-seismic building is assumed to withstand, TEPCO had said that the structure would not be able to withstand some types of seismic shaking. But the utility reversed its previous explanations at the latest meeting, saying, "It cannot withstand all types of shaking." TEPCO said that it had given the wrong explanation because the facts had not been conveyed from its section that analyzed the seismic capacity of the building in 2014 to the division in charge of attending safety screening session meetings.

A TEPCO official apologized at the meeting, saying, "We are sorry that our information sharing was insufficient."

### **Key Niigata nuclear plant building may not be quake-proof**

<http://www.asahi.com/ajw/articles/AJ201702150042.html>

Tokyo Electric Power Co. has revealed that a key building at its Kashiwazaki-Kariwa nuclear power plant may not be able to withstand even half of the assumed strongest seismic shaking, contrary to its earlier assurances.

TEPCO's disclosure came Feb. 14 during a screening by the Nuclear Regulation Authority (NRA) for the restart of the No. 6 and No. 7 reactors at the nuclear power plant in Niigata Prefecture, which is the world's largest.

The utility became aware of the possibility in 2014, but the information was not shared within the company. TEPCO reported to the NRA that the building can withstand temblors of 7, the highest category on the Japanese seismic intensity scale.

The building is designed to serve as an on-site emergency headquarters in the event of a severe accident, such as one caused by an earthquake.

An earthquake that occurred off the Chuetsu region of Niigata Prefecture in 2007 badly damaged the Kashiwazaki-Kariwa plant.

In response, TEPCO constructed the building in question in 2009. At that time, it said the structure could withstand the assessed biggest earthquake motions that are 1.5 times stronger than those described in the Building Standards Law.

In 2014, the utility checked the building's anti-quake capabilities again. It found that it may not be able to withstand horizontal movements triggered by even half the anticipated strongest earthquake, and that it could collapse into the side of an adjacent building.

That information was not conveyed to the company's division in charge of the NRA's screening, and thus escaped notice from NRA inspections.

Takafumi Anegawa, managing executive officer of TEPCO, apologized, saying, "We did not conceal the possibility. The in-house liaison was insufficient."

An NRA official said, "Information is not shared in the company. Lessons from the accident at the Fukushima No. 1 nuclear power plant are not utilized."

February 16, 2017

## Even robots can't take it

### **Robot stops working in Fukushima reactor**

[https://www3.nhk.or.jp/nhkworld/en/news/20170216\\_34](https://www3.nhk.or.jp/nhkworld/en/news/20170216_34)

The operator of the crippled Fukushima Daiichi nuclear power plant says it suspended a survey by a robot at one of its reactors after the device stopped working.

Tokyo Electric Power Company, or TEPCO, sent the scorpion-shaped robot into the containment vessel of the plant's No. 2 reactor on Thursday.

The company believes fuel in the reactor melted through its core during the 2011 accident and accumulated at the bottom of the facility's containment vessel.

The survey was aimed at getting a close look at what could be fuel debris -- a mixture of nuclear fuel and melted parts of the reactor.

The robot was also expected to measure radiation and temperatures there to gather data for scrapping the reactor.

TEPCO officials say the device was advancing on a metal rail leading to a central area below the reactor's core, but stopped moving before it could reach the center.

The officials say they decided to give up the robot and cut its remote-control cable.

TEPCO plans to analyze data collected by the robot and figure out how to carry out future probes.

## **Robotic reactor survey suspended midway**

[https://www3.nhk.or.jp/nhkworld/en/news/20170216\\_29/](https://www3.nhk.or.jp/nhkworld/en/news/20170216_29/)

The operator of the crippled Fukushima Daiichi nuclear power plant says it suspended a survey by a robot there after the device stopped working.

Tokyo Electric Power Company, or TEPCO, sent the scorpion-shaped robot into the containment vessel of the plant's No. 2 reactor on Thursday.

The survey was aimed at measuring radiation and temperatures there to gather data for scrapping the reactor.

TEPCO officials say the robot was advancing on a metal rail leading to a central area below the reactor's core while recording images and measuring radiation, but stopped moving before it could reach the center.

## **NHK Video: TEPCO admits test result error**

### **TEPCO Admits Test-Result Error**

Japan's nuclear watchdog is demanding an explanation from the Tokyo Electric Power Company after it submitted inaccurate plans for the restart of one of its plants.

The regulator is in the final stages of screening 2 of TEPCO's reactors at a plant in northern Japan. They must meet government requirements introduced after the 2011 Fukushima nuclear disaster.

Regulators met with TEPCO officials on Tuesday, and discussed buildings at the plant that would be used as a headquarters in an emergency. The company had initially said one of them didn't pass a number of quake-resistance tests 3 years ago.

But it admitted it actually failed all 7 tests -- meaning the building may not be quakeproof. That information was not passed on to the section in charge of a report that was submitted to the regulator. The prefecture's governor, Ryuichi Yoneyama, says he'll demand the company submit an investigative report.

"We have to trust TEPCO, but its explanation is now doubtful. We want the company to take responsibility for the error and explain things to us," he said.

The regulator is demanding TEPCO provide more details about how the error occurred.

"This is very regrettable," said Kashiwazaki Mayor Masahiro Sakurai. "I conditionally support plans to restart the plant. But now I think stricter terms are needed."

February 17, 2017

## Crack found at Shimane

### Crack spotted on Shimane reactor part

[https://www3.nhk.or.jp/nhkworld/en/news/20170217\\_01/](https://www3.nhk.or.jp/nhkworld/en/news/20170217_01/)

The operator of a nuclear power plant in western Japan says it has found a crack on the welded joint of a metal cover inside an offline reactor. It says no radiation has leaked.

Chugoku Electric Power Company says it analyzed imagery showing the interior of the No.2 reactor's pressure vessel at the Shimane plant in Matsue City. It adds the crack is roughly 55 centimeters long.

The firm says the footage was taken by an underwater camera for a mandatory inspection within 30 years of the start of the reactor's operation. It adds the check was the first of its kind since the reactor went online in 1989.

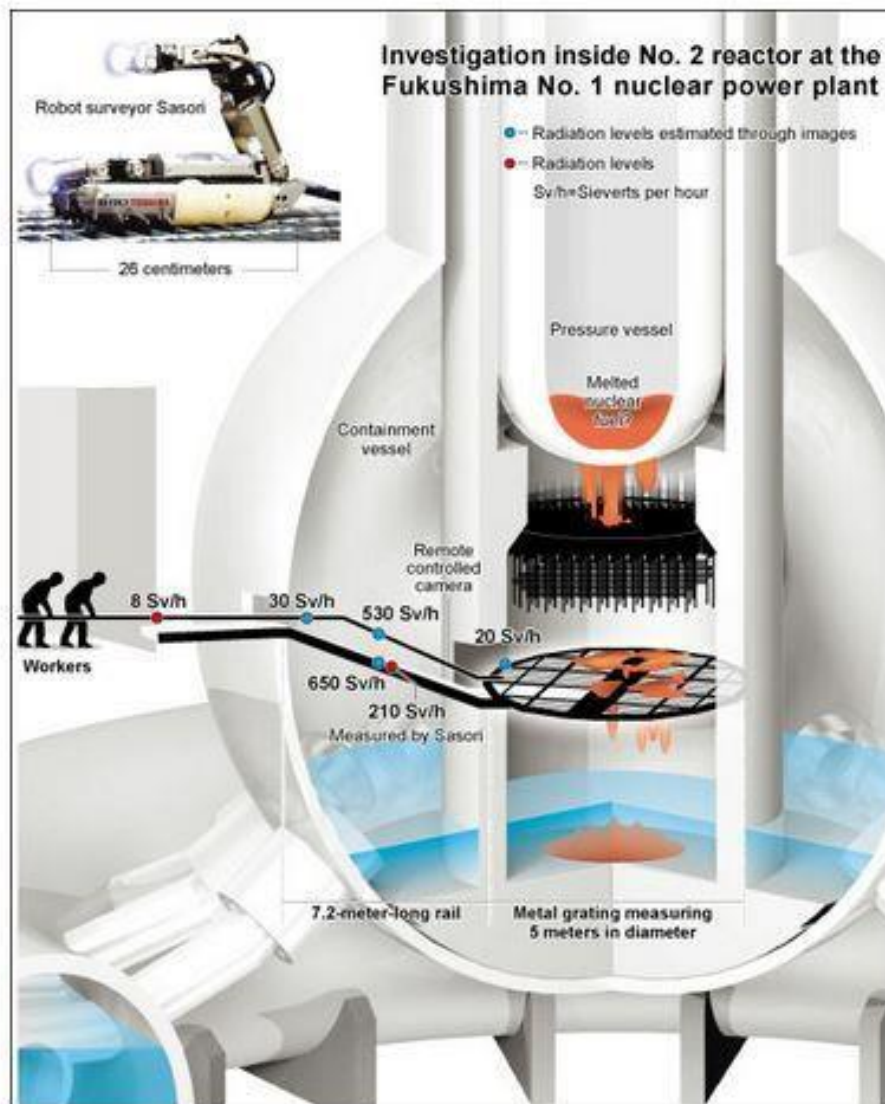
The company says the cover closes a hole that was created for workers to use during the construction of the reactor. The hole is about 50 centimeters in diameter.

The utility plans to determine the detailed status of the crack and its cause. It will also assess whether the crack will have adverse effects if the reactor comes back online.

In December, holes apparently caused by corrosion were spotted in ventilation ducts at the central control room of the reactor. The holes could lead to contamination of the room in the event of a serious accident.

February 19, 2017

## Where IS the fuel?



## Radiation levels at Fukushima reactor puzzle nuclear experts

<http://www.asahi.com/ajw/articles/AJ201702190042.html>

A robot was expected to solidify ways to clean up the No. 2 reactor at the Fukushima No. 1 nuclear plant, but its short-lived mission raised puzzling questions that could derail existing decommissioning plans. The robot, Sasori, was abandoned in the melted-down reactor after it became stuck in deposits and other debris that are believed to have interfered with its drive system.

But it did take radiation measurements that indicate Tokyo Electric Power Co., operator of the plant, was too optimistic about the state and location of the melted fuel within the reactor. **The melted fuel, in fact, may be spread out all over the reactor's containment vessel.**

Scientists had believed the melted nuclear fuel fell through the reactor's pressure vessel and landed on metal grating and the floor of the containment vessel.

The results of Sasori's investigation, coupled with previous data taken from possible images of the melted fuel, show the situation within the reactor is much worse than expected. And a fresh investigation into the reactor is now nowhere in sight.

A remote-controlled video camera inserted into the reactor on Jan. 30 took what are believed to be the first images of melted fuel at the plant, which suffered a triple meltdown after the March 2011 Great East Japan Earthquake and tsunami.

Based on the images, TEPCO estimated 530 sieverts per hour at a point almost halfway between the metal grating directly beneath the pressure vessel and the wall of the containment vessel. Black lumps on the grating are believed to be melted fuel.

A different robot sent in on Feb. 9 to take pictures and prepare for Sasori's mission estimated 650 sieverts per hour near the same spot.

Both 530 and 650 sieverts per hour can kill a person within a minute.

Sasori, equipped with a dosimeter and two cameras, on Feb. 16 recorded a reading of 210 sieverts per hour near the same location, the highest figure measured with instruments in the aftermath of the disaster.

Sasori was supposed to travel along a rail connecting the outer wall of the containment vessel with the metal grating to measure radiation doses and shoot pictures inside, essential parts of work toward decommissioning the reactor.

After traveling only 2 meters, the robot became stuck before it could reach the metal grating.

TEPCO at a news conference repeatedly said that Sasori's investigation was not a "failure" but had produced "meaningful" results.

However, an official close to TEPCO said, "I had great expectations for Sasori, so I was shocked by how it turned out."

Hiroaki Abe, professor of nuclear materials at the University of Tokyo who has studied TEPCO's footage, tried to explain why high doses were estimated between the pressure vessel and the containment vessel. "Instead of directly landing on the rail, the melted nuclear fuel may have flown off after it reacted violently with the concrete, which had a high moisture content, at the bottom of the containment vessel, just like what happens when lava pours into the sea," Abe said.

But he said this scenario raises a puzzling question, considering the estimated radiation readings near the area below the pressure vessel were down to 20 sieverts per hour, according to an analysis of the video footage.

"If nuclear fuel debris had splattered around, the radiation levels at the central area below the pressure vessel must be extremely high," he said. "In addition, deposits on the rail would have taken the shape of small pieces if they were, in fact, flying nuclear fuel debris. The findings are puzzling."

Images by the remote-controlled camera also showed that equipment in the lower part of the pressure vessel was relatively well preserved, indicating that the hole at the bottom of the vessel is not very large.

"How to remove nuclear fuel debris will all depend on how much remains inside the pressure vessel and how much fell out," Abe said.

Toru Obara, professor of nuclear engineering at the Tokyo Institute of Technology, stressed the need to retrieve substances from the bottom of the robots or elsewhere.

"We could get clues as to the state of the melted nuclear fuel and the development of a meltdown if we could figure out which materials mixed with the nuclear fuel," he said.

The surveys by the camera and robots were conducted from a makeshift center at the No. 2 reactor. The center's walls are made from radiation-blocking metal.

TEPCO and the government plan to determine a method to remove nuclear fuel debris in fiscal 2018 before they proceed with the actual retrieval process at one of the three destroyed reactors. One possible method involves filling the containment vessels with water to prevent radioactive substances from escaping.

(This article was compiled from reports by Kohei Tomida, Masanobu Higashiyama and Takashi Sugimoto)

## Fukushima peaches make model recovery

### Fukushima peach exports recover in Southeast Asia, sparking hope for other produce

<http://www.japantimes.co.jp/news/2017/02/19/national/fukushima-peach-exports-recover-southeast-asia-sparking-hope-produce/>

Fukushima Minpo

Fukushima peaches are making inroads into Southeast Asian markets in what prefectural officials see as a model case of recovery in its farm produce.

Fukushima grabbed the top share of Japanese peach exports to three Southeast Asian countries last year — 73.9 percent in Thailand, 76.8 percent in Malaysia and 55.9 percent in Indonesia.

In terms of volume, Fukushima exported a combined 30.6 tons of peaches to the three countries plus Singapore in 2016, surpassing the 23.9 tons logged in 2010 — the year before the triple meltdown at the Fukushima No. 1 power plant shattered trust in its farm produce in March 2011.

Given the improved figures, the Fukushima Prefectural Government now believes the measures it took to combat harmful rumors are paying off. It hopes to revive sales channels for other produce by using the recovery of peach exports as a base.

The prefectural government announced the export data at the end of January based on the Finance Ministry's trade statistics for 2016 and other figures compiled by the Fukushima headquarters of the National Federation of Agricultural Cooperative Associations, or JA Zen-Noh.

Fukushima is the nation's No. 2 peach-growing prefecture after Yamanashi and has been dubbed a "fruit kingdom" for the wide variety grown, including cherries, grapes, pears and apples.

Its peach exports peaked at 70 tons in 2008, thanks mainly to Taiwan and Hong Kong, but import bans imposed from the Fukushima disaster saw the peach trade collapse to zero in 2011.

According to the prefecture's public relations office, Fukushima was quick to review its sales strategy and shift focus to Southeast Asia, where some countries eased import restrictions on its produce at an early stage.

A decision to promote the sweetness and freshness of Fukushima peaches was also a major factor in grabbing the hearts of consumers, the office said.

Despite the success in Thailand, Malaysia and Indonesia, it may take time before other countries in the region follow suit.

In Singapore, for example, Fukushima peaches last year had a market share of only 12 percent among all peaches the city-state imported from Japan.

The prefecture is hoping that the improvements in the three countries will help persuade other markets, such as Hong Kong and Taiwan, that its peaches are safe.

The recovery of the fruit's reputation overseas has provided great encouragement to the prefecture's peach growers, including Shigeyoshi Saito, 58, of the city of Date.

“Along with other items, peaches are a main pillar of Fukushima’s farm produce,” he said. “I hope their good reputation in Southeast Asia will spread the word to the entire world.”

*This section focuses on topics and issues covered by the Fukushima Minpo, the largest newspaper in Fukushima Prefecture. The original article was published on Feb. 1.*

## Greenpeace new report: No return to normal

**« Our conclusion is that the highly complex radiological emergency situation in Iitate, and with a high degree of uncertainty and unknown risks, means that there is no return to normal in Iitate, Fukushima prefecture. »** [executive summary]

### No return to normal:

[http://www.greenpeace.org/japan/Global/japan/pdf/NRN\\_FINweb4.pdf](http://www.greenpeace.org/japan/Global/japan/pdf/NRN_FINweb4.pdf)

House Case Studies of the Current Situation  
and Potential Lifetime Radiation Exposure  
in Iitate, Fukushima Prefecture

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February 20, 2017

## Football to redeem Fukushima



## Rebuilding Fukushima through Soccer

<https://www3.nhk.or.jp/nhkworld/en/news/editors/3/rebuildingfukushimathroughsoccer/>

<https://www3.nhk.or.jp/nhkworld/en/news/videos/20170220141242874/>

A former soccer training facility close to Japan's crippled Fukushima Daiichi Nuclear Plant has been used as a staging point for recovery work since the 2011 nuclear disaster, but that's about to change.

Temporary dormitories for workers stand where there used to be a soccer field at the facility, called J-Village. The area is filled with memories for Shigenari Akashi, who worked as a coach for a junior youth team there for more than 10 years.

"National tournament finals used to be held here. Children from all over the country would practice hard, aspiring to play here," Akashi says.

J-Village was Japan's first national soccer training center. It opened in 1997 and over the years saw more than a million visitors. The complex was even used to train the national teams of Japan and Argentina. But the nuclear disaster changed everything. The facility is just 20 kilometers from the plant, so Tokyo Electric Power Company rented it to set up an operational base for containing the accident.

"I was in shock and at a loss for words when I saw the Self-Defense Forces' tanks here, and the gravel laid on the natural turf for the parking lot," says Akashi.

At the end of last year, the moment he had been waiting for finally arrived as TEPCO began work to return the facility to its original form.

Fukushima Prefecture has even bigger plans -- it wants to build Japan's first "all-weather soccer field" at the site. Part of the facility is scheduled to open in the summer of 2018.

The Japan Football Association has given the project its full support. The Japanese national team will use the new J-Village as its training base for the 2020 Tokyo Olympics.

But there are bigger challenges than rebuilding. There are fears over radiation levels -- in some areas they're still higher than international standards recommend. So the J-Village operator has a plan.

"The construction work will focus on largely replacing the soil, a technique we expect will reduce radiation levels more than usual decontamination methods," says Eiji Ueda, who is executive vice president at the facility. "We can emphasize how safe it is by hosting national teams from Japan or perhaps abroad for training."

A town near J-Village was evacuated because of the disaster. Residents got the green light to move back a year and a half ago but few have returned as most of the evacuees still live in a neighboring city.

Akashi and his co-workers have been giving soccer classes for children, including some who lived near J-Village. But there are mixed feelings about playing there again.

"I want to use the new J-Village, but I live far away now, so it will be hard to go there very often," says a boy at the facility.

"We still have the lingering memory of it being used as the staging ground for decommissioning work," says one father.

For Akashi, he's got a specific goal in mind.

"In reviving J-Village, we want to give back local people a gathering place and their sense of pride. We believe this will also help to revive Fukushima as a whole," he says.

The clock on the J-Village scoreboard is stopped at 2:46 p.m., the moment the earthquake struck. The deep rift created over the last 6 years will need to be filled so that the clock can move forward once more.

February 23, 2017

## Kashiwazaki-Kariwa: Smoke but no radiation leak (says TEPCO)

### Smoke emerges at TEPCO's Niigata nuclear plant

<http://mainichi.jp/english/articles/20170223/p2g/00m/0dm/083000c>

NIIGATA, Japan (Kyodo) -- Smoke emerged at a service building of the Kashiwazaki-Kariwa nuclear power plant in Niigata Prefecture on Thursday but it quickly halted after a firefighting effort by workers, its operator said.

Tokyo Electric Power Company Holdings Inc. said there was no radiation leak in the incident. The utility has not identified the cause of the incident.

The plant operator confirmed smoke coming out around 3:25 p.m. from a locker room inside the service building, located near the No. 6 and No. 7 reactors at the plant. The building is not a radiation controlled area, according to the company.

The two reactors on the Sea of Japan coast are being screened by the Nuclear Regulation Authority as TEPCO is seeking to resume their operation after they were halted following the 2011 nuclear meltdowns at the Fukushima Daiichi power plant, also operated by TEPCO.

February 27, 2017

## Wanted: Surprise inspections and more (and better-trained) inspectors

### Editorial: Time to transform Japan's nuclear plant inspection system

<http://mainichi.jp/english/articles/20170227/p2a/00m/0na/010000c>

The government has submitted to the Diet a bill to revise the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors. The bill includes the **introduction of surprise inspections at nuclear plants** by inspectors from the Secretariat of the Nuclear Regulation Authority, which would allow them to enter any part of a nuclear plant at any time, as well as a system where the state gives an overall evaluation to each plant based on the results of the inspections and other factors and release the data. These new systems are expected to come into operation in fiscal 2020.

- **【Related】** 2 more nuclear reactors effectively clear regulator's safety review

With surprise inspections, it will be difficult for power companies to hide problems at their nuclear plants. And since evaluation results will be published and comparison among nuclear plants will be possible, the principle of competition comes into play, which is expected to encourage utilities to voluntarily develop safety measures at their own plants.

In the meantime, the Nuclear Regulation Authority (NRA) should work on **boosting the number of nuclear plant inspectors and training such officials so that the revisions will lead to the improvement of nuclear plant safety.**

The NRA was established in the wake of the March 2011 nuclear disaster at the Fukushima No.1 Nuclear Power Plant and new safety standards subsequently came into effect. Restarts of idled nuclear reactors based on the new standards are underway. At the same time, reviews on nuclear plant inspection systems had been put on the back burner.

The pillars of nuclear plant inspections conducted by the government and power companies are regular checkups, which are carried out about once every 13 months, and security examinations done four times a year. With regular inspections, facilities with higher levels of importance are screened, while security examinations mainly judge whether a nuclear plant is operated safely.

The dates and contents of these checks are set prior to the actual inspections, however, and the system lacks flexibility, preventing the government from acting on a case-by-case basis to check problems at each plant.

NRA Chairman Shunichi Tanaka has said that there is corporate culture within power companies where they think their nuclear plants are fine as long as they pass safety checks by government regulators. The International Atomic Energy Agency has also pointed out that this way of thinking is problematic and the agency recommended Japanese authorities improve nuclear plant inspection systems in the pre-disaster year of 2007 and again in January 2016.

Under the proposed bill, **the division of roles shared by the government and power companies will be clarified. Utilities would be solely responsible for making sure that facilities at their nuclear plants meet safety standards, while the government would take the role of a watchdog,** monitoring power companies' safety measures and how inspections are being carried out to give an overall evaluation for each plant. The results of surprise inspections will be included in a nuclear plant's overall grade, which will be reflected in the next inspection.

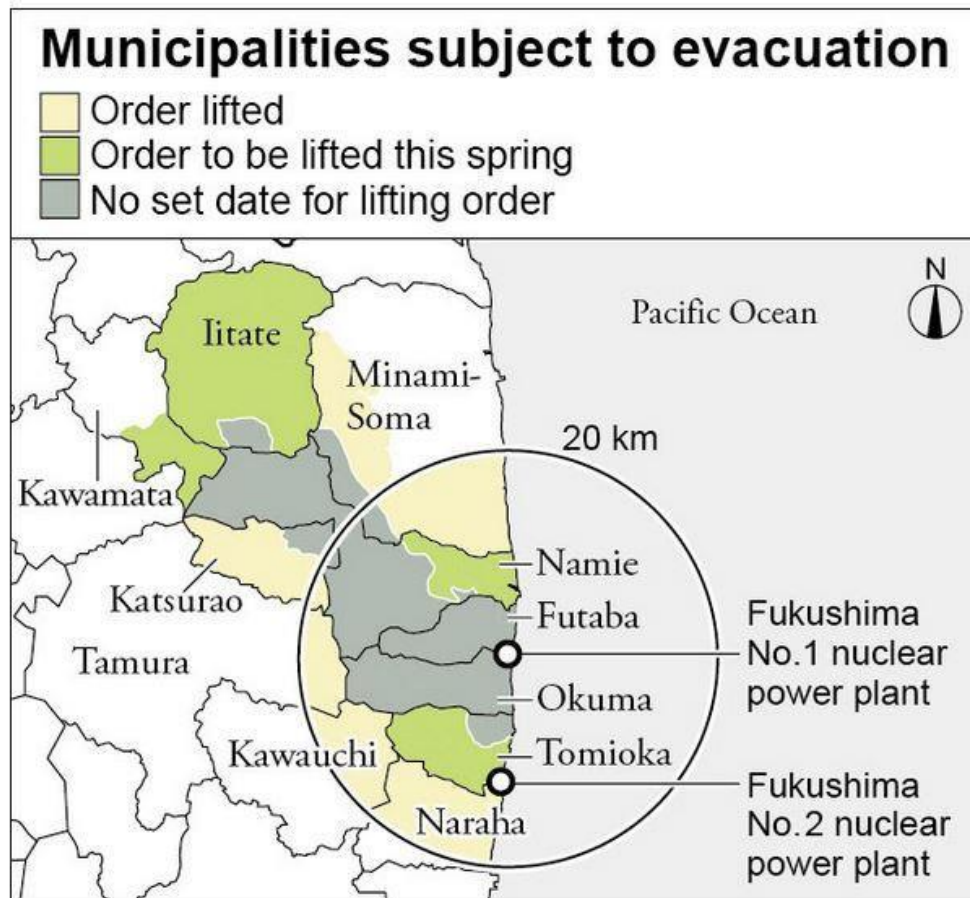
The new inspection system was inspired by those employed in the United States and other countries with nuclear power. While Japan will catch up with those countries in terms of the system after the law is revised, that alone is not enough.

In the United States, where around 100 nuclear reactors are in operation, there are some 1,000 inspectors at the U.S. Nuclear Regulatory Commission, and they undergo a two-year training program. In Japan, on the other hand, there are only around 100 inspectors for more than 40 reactors, and they receive a mere two weeks of training.

**Unless the quality and quantity of the nuclear plant inspectors are secured, the effectiveness of the new system would become questionable.**

Furthermore, **the overall grades for each nuclear plant should be released in a way to make it easier for the public to understand.** The government should also consider ways to make good use of the system such as changing the premiums of liability insurance policies for potential nuclear accidents depending on the nuclear plants' safety grades.

## How safe is safe?



### SIX YEARS AFTER: 4 more districts in Fukushima set to be declared safe to return to

<http://www.asahi.com/ajw/articles/AJ201702280051.html>

Evacuation orders will be lifted shortly for four more municipalities in Fukushima Prefecture, but the prospect of residents returning to their old homes in huge numbers seems unlikely.

The restrictions, in place since the immediate aftermath of the Fukushima nuclear disaster in March 2011, will be lifted by April 1.

About 32,000 residents will be affected, but there is no guarantee that all will soon, if ever, return.

In similar past situations, evacuated residents came back in dribs and drabs, and many never returned.

Authorities in Namie on Feb. 27 decided to accept the central government's proposal to lift the evacuation order for the town on March 31.

This means that orders for the municipalities of Kawamata and Iitate will be lifted the same day, and for Tomioka the day after.

Naraha and Katsurao are among five municipalities that are no longer subject to evacuation orders.

However, only 11 percent of Naraha residents and 9 percent of Katsurao residents have returned.

One reason for the low rates is that evacuees have already established new domiciles elsewhere. Others are concerned about the availability of medical workers in areas where evacuation orders will be lifted. In the aftermath of the accident at the Fukushima No. 1 nuclear power plant triggered by the 2011 earthquake and tsunami disaster, the central government ordered the evacuation of 81,000 residents in 11 Fukushima municipalities.

In 2012-13, the evacuation region was redesignated into three zones: one where returning would continue to be difficult; another where residential areas would be limited; and lastly, where preparations would be made for former residents to return.

In June 2015, the government decreed that all evacuees from the two latter zones should be allowed to return by March 2017. Efforts were made to decontaminate land affected by radiation fallout and to restore social infrastructure.

The next step involves the 24,000 former residents of the zone where returning continues to be considered difficult.

The government intends to pay for the decontamination of certain areas within that zone so former residents can return.

According to one estimate, the program would only cover about 5 percent of the entire area that is designated as difficult to return.

(This article was written by Chikako Kawahara and Osamu Uchiyama.)

March 1, 2017

## **M5.7 quake off Fukushima Prefecture**

### **M5.7 quake hits northeastern Japan**

[https://www3.nhk.or.jp/nhkworld/en/news/20170228\\_31/](https://www3.nhk.or.jp/nhkworld/en/news/20170228_31/)

A strong quake with a magnitude of 5.7 has hit northeastern Japan. The Japan Meteorological Agency says there is no threat of tsunami.

The quake occurred off Fukushima Prefecture at 4:49 PM on Tuesday. The agency estimates the focus was 52 kilometers deep.

The jolt registered an intensity of 5-minus on the Japanese scale of zero to 7 in the cities of Soma and Minamisoma and 2 towns in Fukushima Prefecture, as well as Iwanuma City in Miyagi Prefecture.

The tremor was felt widely in regions including the Tokyo metropolitan area.

Electric power companies say no abnormalities have been found at the Fukushima Daiichi and Daini nuclear plants, and the Onagawa plant in Miyagi Prefecture. All of them are offline.

Officials at police and fire departments say they have received no reports of damage.

## Kashiwazaki-Kariwa: TEPCO must resubmit restart papers

### TEPCO told it must re-submit papers to pass NRA screening

<http://www.asahi.com/ajw/articles/AJ201703010074.html>

The nation's nuclear watchdog, incensed at more blundering by Tokyo Electric Power Co., ordered it to re-submit documents for the restart of two reactors at the Kashiwazaki-Kariwa nuclear power plant after checking them again for accuracy.

The Nuclear Regulation Authority also summoned TEPCO's president to its office and gave him a dressing-down for failing to reveal information that could have compromised safety at the plant.

The NRA's action Feb. 28 followed revelations in mid-February that a key building at the facility may not be able to withstand anything like the strong earthquake shaking it is supposed to. This fact came to light in 2014 but was not reported to the NRA until last month.

TEPCO said that the information was not shared within the company, and as a result, was not conveyed to its division in charge of NRA screenings.

It was the first time for the NRA to summon TEPCO President Naomi Hirose to its office as part of the screening process for the restart of reactors.

"TEPCO needs to learn from other electric power companies, but its stance is insufficient. As the company lost public trust due to the accident (at the Fukushima No. 1 nuclear power plant in March 2011), it needs to make much greater efforts than others. But it is not doing so," said NRA chairman Shunichi Tanaka.

Hirose acknowledged that TEPCO needs to work harder to regain society's trust, saying, "We are taking that fact seriously."

He said TEPCO had shown "insufficient humility and displayed arrogance."

Hirose stated that the company intends to learn its lesson and will re-submit documents so that the plant passes the screening process.

To get to that point, the top management of TEPCO will have to check several thousand pages of documents. As drastic changes may have to be made, it is inevitable that the NRA screenings will be prolonged.

In 2013, TEPCO applied to the NRA for screenings so it can restart the No. 6 and No. 7 reactors at the Kashiwazaki-Kariwa nuclear power plant in Niigata Prefecture.

The screenings entered the final stage in 2016. But this coincided with big changes in policies over the designs of quake-resistant capabilities of buildings and measures for sea walls to deal with liquefaction. Then, this year, it was learned that TEPCO failed to report to the NRA for three consecutive years that a key building, which is expected to serve as an on-site emergency headquarters in the event of a severe accident, may not be able to withstand even half of the assumed strongest seismic shaking.

The upshot of the series of problems meant that the NRA wasted time for discussions.

But the NRA is also miffed that TEPCO seems unable to decide its basic policies in a determined manner.

(This article was written by Hiroshi Ishizuka and Masanobu Higashiyama.)

March 9, 2017

## To be demolished

### Fukushima laden with piles of radioactive soil that can't be moved into storage



Masaaki Sakai faces his home, which remains standing in the Fukushima Prefecture village of Iitate, on Feb. 15, 2017. In some spots the level of radiation exceeds 1 microsievert per hour, and Sakai has decided to have the structure demolished. (Mainichi)

Masaaki Sakai faces his home, which remains standing in the Fukushima Prefecture village of Iitate, on Feb. 15, 2017. In some spots the level of radiation exceeds 1 microsievert per hour, and Sakai has decided to have the structure demolished. (Mainichi)

FUKUSHIMA -- As decontamination planned in the wake of the Fukushima nuclear disaster nears an end this fiscal year, focus is shifting to the massive amount of radioactively tainted soil that has piled up during decontamination work. But the construction of interim storage facilities that are supposed to hold this waste within Fukushima Prefecture for up to 30 years before it is finally disposed of has been delayed. As of the end of February, only about 20 percent of the 16,000 hectares earmarked for interim storage has been acquired through land contracts. It thus appears inevitable that provisional and onsite storage that was only supposed to last for three years will drag on for a long time. The situation casts doubt on the prospects of finding a final resting place for the waste outside Fukushima Prefecture within 30 years. Six years after the disaster at the Fukushima No. 1 Nuclear Power Plant, the Fukushima Prefecture village of Iitate remains completely evacuated. With the exception of a so-called "difficult to return zone" in the south of the village, the central government plans to lift the evacuation order upon completion of decontamination work at the end of March.

Masaaki Sakai, 39, who now resides in the city of Fukushima, has a home in the Komiya district of Iitate, right next to the village's "difficult to return" zone. A dosimeter during a recent visit showed the area around the 60-year-old, snow-covered farmhouse stood at more than 1 microsievert per hour. The level equates to more than 5 millisieverts per year -- five times the 1 millisievert exposure limit for a regular person.

Sakai points out that level of radiation is sometimes higher. "Today the level is low because there is snow," he says. In the near future he plans to have his home pulled down, as the deadline for applying for the government to cover the cost of doing so is approaching.

"Even if I want to return to Iitate, if they say, 'Decide now' then the only thing I can do is decide not to return," he murmurs.

One of the reasons behind Sakai's decision not to return is the radioactively contaminated soil that remains in the village. Walking around the village, one can see mounds with green covers over them, concealing flexible containers that hold contaminated soil. According to the Ministry of the Environment, the amount of tainted soil stored temporarily like this, as of the end of January, totals roughly 2.4 million cubic meters for the village of Iitate alone, or enough to fill the Tokyo Dome baseball stadium twice. So far, however, only about 6,000 cubic meters of soil have been transported to interim storage facilities, while the amount due to be transported next fiscal year stands at about 22,000 cubic meters. At this pace, under a simple calculation, it would take over 100 years to transport all of the waste to interim storage facilities.

"There's no way I'm going to live surrounded by mountains of contaminated soil," Sakai says.

Makeshift storage of radioactive soil in areas that have not been evacuated also looks likely to be prolonged. In areas that aren't under evacuation orders, it is the local municipalities, not the government, that handle the decontamination work. In five municipalities including the cities of Fukushima and Koriyama, the contaminated soil left after decontamination work is mostly buried onsite.

Six years have passed since the outbreak of the Fukushima nuclear disaster, and in many cases people have asked for the waste to be removed so they can extend or rebuild their homes or resume farming activities, but the delay in building interim storage facilities means the only solution for the time being is to change the spot where the waste is buried.

It costs several hundred thousand yen to rebury waste in a single case, but until now the Ministry of the Environment has not allowed funds to be used for the reburying of such waste, on the premise that it is supposed to be stored for only a short period of time. Local bodies have still billed the central government by quietly tacking on the cost to the fee for other decontamination work, but this will become more difficult to do next fiscal year when decontamination work is completed.

In January, the Ministry of the Environment adopted a new policy of granting funds for the reburying of waste if the original location hindered the construction of a new home. An official at one local body commented that the move was a relief, but there are outstanding issues. As a rule, the government collectively bills Tokyo Electric Power Co. (TEPCO), operator of the Fukushima No. 1 Nuclear Power Plant, for the cost of decontamination work, but it is unclear whether TEPCO has to pay for the reburial of tainted soil.

Separately, decontamination work has also been carried out in prefectures besides Fukushima -- extending to 57 municipalities in seven prefectures, including Tochigi and Miyagi. The amount of contaminated soil in these cases stands at about 320,000 cubic meters. In about 95 percent of cases, the soil is stored onsite. But since interim storage facilities are designed for contaminated soil from Fukushima Prefecture alone, it has not even been decided what should be done with this waste.



March 10, 2017

## Lifting evacuation order in part of Namie and Tomokia

### **Govt. to lift more Fukushima evacuation orders**

[https://www3.nhk.or.jp/nhkworld/en/news/20170310\\_09/](https://www3.nhk.or.jp/nhkworld/en/news/20170310_09/)

The Japanese government is set to lift evacuation orders in 2 municipalities in Fukushima Prefecture, issued after the 2011 nuclear disaster.

The government will hold a joint meeting between the reconstruction taskforce and the nuclear disaster task force on Friday. On Saturday, it will be 6 years since the earthquake and tsunami.

Participants will decide on whether to lift an evacuation order in part of Namie town on March 31st and a portion of Tomioka on April 1st.

Following the accident at the Fukushima Daiichi nuclear plant, the government issued evacuation orders for 11 municipalities in the prefecture and has since gradually lifted them.

With the latest measure, the orders will be in effect only in no-entry zones with high radiation levels as well as part of the towns of Futaba and Okuma that co-host the nuclear plant.

About 1,150 square kilometers were initially subject to the government evacuation order. That number is now expected to shrink to about 369.

The central government hopes to continue decontamination work and infrastructure projects in some no-entry zones. It says it wants to create a hub for reconstruction by the end of fiscal 2021, where residents and decontamination workers will live.

But the government faces challenges in rebuilding communities as an increasing number of people, mainly the young, say they don't want to return to their hometowns even if evacuation orders are lifted.

March 11, 2017

## Decontamination far from completed

### **Decontamination work in Fukushima Pref. far from finished business**

<http://mainichi.jp/english/articles/20170311/p2a/00m/0na/027000c>

FUKUSHIMA -- With six years having passed since the onset of the nuclear disaster at Tokyo Electric Power Co. (TEPCO)'s Fukushima No. 1 nuclear plant, the government's decontamination plan in this prefecture is fast approaching the end of its first phase at the end of March.

- **【Related】** 1,436 evacuees have died in temporary housing since 2011 earthquake
- **【Related】** Over 120,000 evacuees remain 6 years after Great East Japan Earthquake
- **【Related】** Editorial: Hearing the voices of victims, 6 years from the Great East Japan Earthquake

As a consequence of the decontamination project -- and the fact that radioactive material decays over time -- radiation levels in Fukushima Prefecture have declined to some extent.

However, in certain areas of the prefecture, radiation levels continue to be high, and the issue of what to do with decontamination waste still needs to be tackled. The government does plan to carry out decontamination work in the neglected "difficult-to-return" evacuation zones in fiscal 2017, but local residents are skeptical that the end is near.

To date, the Environment Ministry has carried out decontamination work in 11 municipalities across the prefecture subject to evacuation orders. However, no decontamination has been done yet in the "difficult-to-return" zones. In other municipalities, where the radiation dose is 0.23 microsieverts per hour or higher, decontamination work has been performed by the relevant local government office.

Initially, the central government-led decontamination was supposed to finish in March 2014, but this was pushed back to March 2017, owing to delays related to makeshift storage sites for contaminated soil. The Environment Ministry plans to finish its decontamination work by the end of March 2017, after which it plans to move the contaminated soil to interim storage facilities.

In areas where the central government is in charge of decontamination, "follow-up" decontamination will also take place in the event that radiation levels do not drop enough, in the hope that residents will eventually be able to return home. Conversely, there will be no follow-up in cases where decontamination is being handled by a local authority, making local residents anxious.

Nevertheless, there are a few spots where follow-up decontamination has taken place in addition to the work in the 11 municipalities overseen by the government. There are nine such spots in total, and they are all in the city of Soma. The Soma Municipal Government initially intended to conduct decontamination in about 30 locations across the city, but this was eventually reduced to nine locations, owing to radiation level-related criteria for follow-up decontamination as instructed by the Environment Ministry.

A Soma Municipal Government representative stated, "Radiation levels are particularly high in forests here, and it is unknown what the future impact of this might be. I want to have a system set up whereby decontamination can be easily conducted again in the future, as necessary." (By Hanayo Kuno, Science & Environment News Department, Kazuhisa Soneda, Fukushima Bureau, Makoto Ogawa, News Layout Center, and Yohei Kanno, Visual Group)

March 13, 2017

**Ready to return?**

## Another reduction coming for Fukushima nuclear evacuation area

<http://www.japantimes.co.jp/news/2017/03/13/national/another-reduction-coming-fukushima-nuclear-evacuation-area/#.WMafIflKISos>

JJI

**FUKUSHIMA – The radiation evacuation area in Fukushima Prefecture will shrink to 30 percent of its initial size by April 1, six years after the March 2011 meltdowns at the Fukushima No. 1 nuclear plant.**

Of the 11 municipalities within the originally designated evacuation area, five have seen evacuation orders fully or partially lifted since April 2014.

Four others will follow on March 31 and April 1, rolling back the evacuation zone by 70 percent since the disaster.

**Close to 20,000 registered residents in the five municipalities are now allowed to return home, but only 13.5 percent have opted to do so.**

Persistent concerns about radiation exposure and slow infrastructure restoration are the main reasons that evacuees have not moved back, according to surveys.

In Naraha, where evacuation orders were completely lifted in September 2015, only 781 of 7,276 residents have returned. Most are elderly.

“I want to return because it’s my hometown, but I worry whether commercial facilities and medical institutions can continue operations in a town without young people,” said a housewife in her 60s who has evacuated to Iwaki, about 35 km to the south.

According to surveys by the Reconstruction Agency, the proportion of those who have stayed away from their hometowns as of last November stood at 31.1 percent for the town of Kawamata, 28.3 percent for the village of Katsurao and 26.1 percent for the city of Minamisoma.

Many in Minamisoma, the towns of Namie and Tomioka, and the village of Kawauchi cited a lack of shops, public transportation and other services essential to everyday life as reasons for not returning to their hometowns.

The proportion of people who cited concerns over medical services topped 40 percent each in those municipalities.

In Minamisoma, 54.8 percent expressed safety concerns over nuclear power and 40.7 percent noted worries about radiation.

The central and local governments have worked hard to lure back former and new residents through facility and infrastructure construction.

Tomioka, where the evacuation order will be lifted for most of the town on April 1, plans to open a temporary emergency hospital at a cost of ¥2.4 billion.

The municipal government also provides financial support and consulting services to businesses, while working on an “Innovation Coast” project to attract new industries, such as renewable energy and robotics, to the town.

“If people find it difficult to secure living standards they have at their current temporary homes back in their original hometowns, they won’t be able to return to their homes anytime soon,” said Ryusuke Takaki, an associate professor at Iwaki Meisei University.

see also NHK video:

March 10, 2017

<https://www3.nhk.or.jp/nhkworld/en/news/videos/20170310205653044/>

March 18, 2017

## Tough choices for evacuees

### Asking the tough questions about Fukushima

<http://www.japantimes.co.jp/news/2017/03/18/national/media-national/asking-tough-questions-fukushima/#.WM1Xo2dFeos>

In January, regional newspaper Fukushima Minpo interviewed Yosuke Takagi, state minister of economy, trade and industry. While talking about reconstruction plans for areas near the crippled Fukushima No. 1 nuclear power plant, Takagi mentioned resurrecting Dash-mura (Dash Village), a farm created from scratch by boy band Tokio for its Nippon TV series “The Tetsuwan Dash.”

The location of Dash-mura was always secret, lest Tokio’s fans descend on the project and destroy its rustic purity. But following the reactor accident caused by the Great East Japan Earthquake, it was revealed that the farm was in an area declared off-limits due to its proximity to the plant. It was promptly abandoned.

A different news outlet, Fukushima Minyu, clarified that the revival of Dash-mura is “nothing more than a personal idea of Takagi’s,” but that he intends to discuss it with related parties. An 80-year-old farmer who once worked with Tokio on the project told Minyu that bringing back the farm would be a great PR boost for the area’s agriculture, which is obviously Takagi’s aim. The show’s producer, however, after hearing of Takagi’s comment, tweeted that he knew nothing about the news, adding cryptically that “Dash-mura is no one’s thing.”

The Huffington Post called the Ministry of Economy, Trade and Industry to ask if it had any intention of reviving Dash-mura. A representative only “confirmed” that Takagi had “made such a comment” and said METI had no “definite plan” to that end but might “study it.”

Nevertheless, the idea fits in with the government’s goal of getting former residents to move back to the area. Last week, authorities announced they would further reduce the evacuation zone at the end of the month, which means it will have shrunk by 70 percent since April 2014. The concern is that few people want to return. Some have already made lives for themselves elsewhere and see a lack of opportunity in their old communities.

Many also remain suspicious of the government’s assurances that radioactivity has dropped to a safe level. There is still debate among experts as to whether or not the radiation in the area is dangerous. The government says that the problems caused by the accident are now “under control,” and affected residents can soon go back to their old lives.

One media outlet who has challenged this assumption is TV Asahi’s “Hodo Station.” On March 9, the nightly news show sent its main announcer, Yuta Tomikawa, to Iitate, a village located about 40 km from the crippled nuclear facility. All 6,000 residents were eventually evacuated after the accident. Standing in front of rows of black plastic bags, Tomikawa reported that, according to the government, decontamination efforts have been a success. A safe annual radiation level is 1 millisievert, but a local dairy farmer told Tomikawa that his own readings showed five times that level, adding that 70 percent of Iitate is wooded and forest land had not been decontaminated yet.

Moreover, the government is lifting the evacuation order for any areas where annual radiation levels are “no more than” 20 mSv. The International Commission on Radiological Protection told the government

that once the situation had stabilized in the affected areas, people could return if radiation dropped to between 1 and 20 mSv, but the lower the better. Exposure to 20 mSv for a short period may not be a problem, but it could have harmful effects in the long run.

Tomikawa did not say that people who returned to Iitate would be in danger, but he did imply that the government is manipulating numbers in an attempt to persuade evacuees to return to their homes. The web magazine Litera wrote that TV Asahi is the only mainstream media outlet to question the government line in this regard. Actually, Nippon TV did something similar, albeit indirectly. Last month, it rebroadcasted an episode of its “NNN Document” series about the married *manzai* (stand-up comedy) duo Oshidori Mako-Ken’s efforts to come to terms with the Fukushima meltdowns and their aftermath. The couple belongs to the large Osaka-based entertainment company Yoshimoto Kogyo, but ever since the disaster Mako has attended about 500 related news conferences, making a nuisance of herself by plying Tokyo Electric Power Company Holdings employees and government officials with questions the mainstream media don’t usually ask.

In order to gain access to the news conferences, she offered stories to the weekly magazine Spa! Her editor there told Nippon TV that Mako is now respected or resented by a lot of full-time journalists, partly because she’s a *geinojin* (entertainer) who has proved her mettle as a reporter, but mainly because of her hard-line queries, which put her interlocutors on the spot.

Following the disaster, Mako became suspicious when she saw people fleeing Tokyo in large numbers but heard nothing about it on the news. In order to make sense of the situation she’d watch unfiltered news conferences about the disaster on the internet. She realized only independent reporters asked tough questions, so she started attending them herself as a proxy for average people who didn’t understand what was going on. The more officials obfuscated, the more she studied.

She’s now recognized by some foreign press as one of the most informed persons on the subject — she even received a letter of encouragement from Pope Francis — and yet she’s shunned by the Japanese press. Nevertheless, she has dedicated followers, including workers cleaning up the reactor who often feed her questions to ask of officials. She’s won awards for her work, but from citizens groups, not media groups.

Nowadays, Mako and Ken do more free lectures on Fukushima No. 1 than they do comedy shows. One of their main themes is that media reports tend to confuse the public rather than inform them, but that’s really the fault of the government, which would like nothing better than for people to feel as if nothing ever happened.

March 21, 2017

## **ASTRID and security collaboration**

### **Japan, France confirm nuclear and security cooperation**

<http://mainichi.jp/english/articles/20170321/p2g/00m/0dm/030000c>

PARIS (Kyodo) -- Japanese Prime Minister Shinzo Abe and French President Francois Hollande on Monday confirmed bilateral cooperation in the research of the commercial use of nuclear power as well as in security.

**The two countries agreed on joint research on a French-led fast reactor development project called ASTRID, an acronym for Advanced Sodium Technological Reactor for Industrial Demonstration.**

As the leaders met, Japanese industry minister Hiroshige Seko, who is accompanying Abe, and French environment minister Segolene Royal signed a nuclear power cooperation agreement, stating that they will work together on nuclear fuel cycle and fast reactor development.

France aims to start the operation of ASTRID in the 2030s.

Abe and Hollande also attended a signing ceremony on a deal in which **Mitsubishi Heavy Industries Ltd. and Japan Nuclear Fuel Ltd. will each acquire a 5 percent stake in a nuclear fuel reprocessing joint venture to be established by French atomic energy company Areva.**

In the sphere of security, Abe revealed to reporters after the talks with Hollande that **Japan's Maritime Self-Defense Forces will jointly conduct naval exercises with France, the United States and Britain.** The Japanese premier welcomed the "significant" agreement on the exercises to be held in the Asia-Pacific region, including off Guam in the Western Pacific, apparently in view of China's expansionary maritime activities.

The Japanese leader said he and Hollande shared a view that the Indian and Pacific oceans are international public goods and need to be maintained as free and open areas.

Abe said a French training squadron, including a helicopter carrier, will visit Japan in late April.

On regional issues, Abe strongly condemned North Korea's nuclear and missile programs, while Hollande expressed Paris' support for Tokyo on the matter.

It was the 10th and final meeting between Abe and Hollande as the latter is not running in France's upcoming presidential election. The first round of the election is in April followed by a potential runoff vote in May.

As for economic issues, Abe and Hollande agreed on the importance of promoting free trade amid the threat of rising protectionism across the world following the inauguration of U.S. President Donald Trump. They affirmed cooperation for the early signing of the free trade agreement between Japan and the European Union.

Abe expressed Japan's support for "a strong Europe" to be maintained even after Britain's forthcoming exit from the bloc.

"Japan and Europe must fly the flag of free trade high, together with the United States," Abe said.

Hollande said the Japan-France relationship can be further strengthened.

France's election is one of a series in Europe this year in which public unease about immigration and the functions of the European Union have fuelled speculation voters could pick populist candidates over the current political establishment.

Abe arrived in Paris on Monday after talks with German Chancellor Angela Merkel in Hanover. He is scheduled to meet European Council President Donald Tusk and Italian Prime Minister Paolo Gentiloni before returning to Japan on Wednesday.

March 22, 2017

**Take nuke ruling seriously**

## Take nuclear disaster ruling seriously

<http://www.japantimes.co.jp/opinion/2017/03/22/editorials/take-nuclear-disaster-ruling-seriously/#.WNPFPGdFeos>

The court ruling last week that held Tokyo Electric Power Co. Holdings and the government responsible for failing to take steps to prevent the March 11, 2011, tsunami-caused meltdowns at Tepco's Fukushima No. 1 nuclear power plant should send a warning as authorities and the power industry move to restart nuclear reactors idled in the wake of the Fukushima disaster. The Maebashi District Court decision is only the first ruling on at least 30 damage suits filed across the country by evacuees from Fukushima Prefecture. But the Abe administration and the power companies need to seriously take the message in the ruling — that they need to maximally consider the risk of a severe nuclear power plant accident given the enormous damage that could result from such a disaster.

The Maebashi court rejected the claims by Tepco and the national government that the giant tsunami triggered by the Great East Japan Earthquake — which flooded the Fukushima No. 1 plant's emergency power system, leading to the loss of its reactor core cooling function and causing meltdowns in three of its six reactors — was unforeseeable and that they cannot be held liable for inaction to prevent the disaster. Pointing to a 2002 estimate by the government's Headquarters for Earthquake Research Promotion that there was a 20 percent chance of a magnitude-8 earthquake rocking areas off Fukushima within 30 years — and Tepco's own 2008 trial calculation based on the estimate that the No. 1 plant could be hit by a tsunami up to 15.7 meters high (almost the same height as the 15.5 meter-tsunami that hit on that day), the court determined that the power company was able to anticipate — and actually predicted — the tsunami risk but failed to take necessary action. It also accused the government of negligence to use its regulatory powers to get Tepco to take steps against possible tsunami damage. The argument by both Tepco and the government that the 2002 estimate was not scientifically established was refuted as the court called it a rational forecast that needed to be taken into account in assessing the tsunami-damage risk of a nuclear power plant.

Friday's ruling was on a suit filed by 137 people in 45 families who evacuated from Fukushima to Gunma and other prefectures to escape from the radioactive fallout from the Tepco plant meltdowns, seeking a total of ¥1.5 billion in compensation from the power company and the government. The court awarded 62 of the plaintiffs a combined ¥38.55 million in damages, saying that their right to lead their lives in peace had been violated by the Tepco plant accident. There are reportedly about 30 similar lawsuits filed across Japan, and the total number of plaintiffs — about 12,000 — testify to the enormous damage to people's lives from the nuclear disaster.

Six years after the March 2011 disasters, nearly 80,000 people from Fukushima Prefecture remain displaced from their homes. Reconstruction from the 2011 disasters continue to be slow in Fukushima compared with the two other severely affected prefectures of Miyagi and Iwate. Even as the government moves to lift evacuation orders in areas around the Tepco plant where the decontamination of polluted soil is deemed to have progressed, many of the former residents hesitate to return. Efforts to clean up the mess of the Fukushima No. 1 plant continue to be slow. The massive level of radiation inside the crippled reactor structures clouds prospects of work to dismantle the plant, which is expected to take decades. Since the Liberal Democratic Party returned to power in 2012, the administration of Prime Minister Shinzo Abe has sought to reactivate the nation's nuclear power reactors, most of which were idled in the wake of the 2011 disaster. Reversing its Democratic Party of Japan-led predecessor's policy of phasing out nuclear power, the administration now calls nuclear power a key "baseload" source of electricity supply. The government and the power industry say they have learned the lessons from the Tepco plant

meltdowns. Power companies have gone through a screening by the newly-created Nuclear Regulation Authority for restarting their reactors under what the administration calls the world's most stringent nuclear plant safety standards — updated since the Fukushima disaster to beef up resistance to natural disasters like quakes and tsunami, and defense against severe accidents. Both the government and the power industries emphasize the safety of the nuclear reactors that have thus resumed operations. The government and the power industry should still heed the warning in the court ruling and consider whether they are sufficiently assessing the risks of a nuclear power plant disaster, which — as the case of Tepco's Fukushima plant starkly reminds us — will bring massive consequences to the lives of so many people. Noting that Tepco could have averted the tsunami risk by taking easy steps, such as moving the emergency power system to higher grounds, the court severely criticized the power company for putting priority on economic interests over safety. Today, power companies seek to restart their nuclear reactors as they face the heavy financial cost of imported fuel to run their thermal power plants. The court battles over the responsibility of Tepco and the government for the 2011 disaster will continue. But they should take the Maebashi court's decision — that the Fukushima nuclear disaster was preventable — seriously, and avoid complacency in the regime to ensure safety in nuclear power plant operation.

March 27, 2017

## 11 Fukushima municipalities still without evacuation routes

### **Some Fukushima municipalities lack nuclear evacuation plans as no-entry orders lifted**

<http://mainichi.jp/english/articles/20170327/p2a/00m/0na/012000c>

Of the 11 municipalities in Fukushima Prefecture which came under evacuation orders after the 2011 Fukushima No. 1 nuclear plant meltdowns, five do not have evacuation plans in case a nuclear accident occurs again, even though no-entry orders are gradually being lifted.

- **【Related】** Evacuated Fukushima town planning for residents' return in fall 2017
- **【Related】** 40% of local leaders doubt 3.11 disaster area recovery by 2020 due to Fukushima crisis
- **【Related】** Radiation in Fukushima reactor containment vessel at deadly level: TEPCO

The central government requests local municipalities located near nuclear power plants to draw up evacuation plans in case of a nuclear emergency. According to central government policy, local governments should issue immediate evacuation orders to residents living within 5 kilometers of a plant in case of a "full-scale emergency" -- situations including the loss of cooling power at nuclear reactors. As a basic rule, those living between 5 and 30 kilometers from a plant are subject to indoor evacuation, and when a radiation dose of 20 microsieverts per hour is detected, evacuation should be completed within one week. Immediate evacuation is recommended when the dose hits 500 microsieverts per hour. A representative of the village of Katsurao, whose residents have started moving back, told the Mainichi Shimbun that the municipal government has not created its evacuation plan because "there are only two



officials in charge of the matter." The official added, "We don't have expert knowledge (about nuclear evacuations) and we can't handle it with all the other work we have to do. Neither the state nor the Fukushima Prefectural Government is giving us advice."

An official from the village of Iitate, where the evacuation order will be lifted at the end of March, said in addition to a workforce shortage, "it's difficult to make a plan before examining how many residents will come back." The city of Tamura, whose residents have started coming back, and the towns of Futaba and Okuma, where it remains unknown when residents will be able to return, do not have evacuation plans. Meanwhile, the towns of Namie and Tomioka have mapped out their plans, which take the basic principle of evacuating all townspeople in case of a full-scale emergency -- more drastic measure than central government policy requires -- saying that just following the state's evacuation policy will not protect their residents' safety. Namie Mayor Tamotsu Baba told the Mainichi, "Residents don't believe they would be safe if they remain inside a building."

With regard to local evacuation plans, a support team for nuclear accident victims at the Cabinet Office points out that while such plans are not requirement for the state to lift evacuation orders, local governments should prepare disaster prevention measures.

The stricken Fukushima No. 1 nuclear plant is different from other nuclear stations in the country as decommissioning work is in progress for all its six reactors. At the same time, a rough road is expected for the project to remove melted fuel, and the estimated hourly radiation dose inside No. 2 reactor is as much as 650 sieverts.

According to an opinion poll by the Reconstruction Agency targeting residents of the city of Tamura, 61.5 percent of those who said they wanted to live in other municipalities than Tamura cited concerns over decommissioning work and management of the nuclear plant as reasons for not wanting to come back. Hirotada Hirose, professor emeritus at Tokyo Woman's Christian University and an expert in nuclear disaster prevention, commented, "The condition of melted nuclear fuel (at the Fukushima plant) is unknown and aftershocks are still continuing in Fukushima Prefecture. It's a problem that evacuation orders are being lifted while local governments have not come up with their evacuation plans."

March 31, 2017

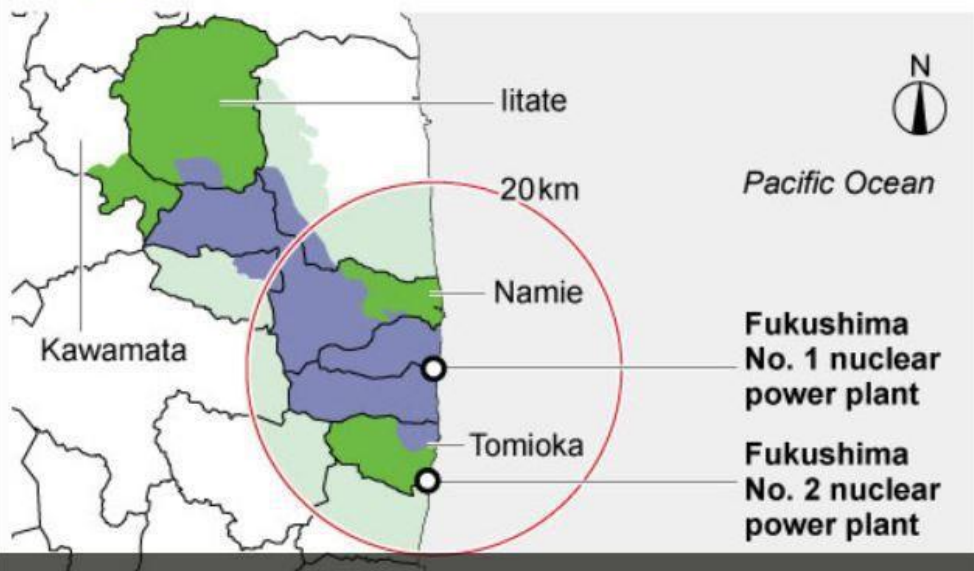
## How many will return home?

## Population affected by evacuation order:

①	<span style="display:inline-block; width:15px; height:15px; background-color:#4CAF50; border:1px solid black;"></span>	<b>In areas where evacuation order to be lifted this time</b>	<b>about 32,000</b>	
		Namie	<b>about 15,000</b>	(18%) ——— Ratio of people willing to return home
		Iitate	<b>about 6,000</b>	(34%)
		Kawamata	<b>about 1,000</b>	(44%)
		Tomioka	<b>about 10,000</b>	(16%)

②  **In areas the order had been lifted previously** **about 19,000** 13.5% returned

③  **In difficult-to-return zone** **about 24,000**



Asahi Shimbun

## Most Fukushima evacuation orders end save for no-go zones

<http://www.asahi.com/ajw/articles/AJ201703310049.html>

By KENJI IZAWA/ Staff Writer

More than six years after the nuclear accident, evacuation orders for areas in two towns and one village in Fukushima Prefecture were lifted after midnight on March 30, allowing residents to finally return home. The number of residents affected tops 32,000, including the population of Tomioka, where the same order is scheduled to be lifted on April 1.

That will result in the government's evacuation order issued right after the March 2011 accident at the Fukushima No. 1 nuclear power plant being lifted for almost all affected areas, apart from highly contaminated areas designated as a "difficult-to-return zone."

However, less than 20 percent of people had returned to areas where the order had already been withdrawn earlier, and not many residents from areas close to the nuclear plants are willing to go back.

On March 31, the order for parts of Namie and Kawamata towns and Iitate village was lifted. In the coastal Ukedo district in Namie, about seven kilometers north of the No. 1 plant, about 30 people, including Namie residents and the town mayor, gathered at a memorial for the 182 victims from the town before the dawn, hours after the lifting of the evacuation order.

Just after 5:30 a.m., they held a minute of silent prayer.

“I would like to achieve complete recovery until the ban (on the difficult-to-return zone in the town) is lifted entirely for Namie, while cooperating with the residents,” said Namie Mayor Tamotsu Baba.

In Namie, Iitate and Tomioka, the entire population had been living outside their homeland.

After the nuclear crisis unfolded, spawned by the Great East Japan Earthquake and tsunami, the government issued evacuation orders to 11 municipalities, for the total population of about 81,000.

Since then, one by one, the authority had lifted bans on areas that met certain safety criteria--estimated annual radiation doses totaling 20 millisieverts or less, and infrastructure and lifelines were reconstructed.

In Okuma and Futaba, where the Fukushima No. 1 nuclear plant is sited, the evacuation order remains in effect for all residents.

From now on, the government's priority will shift to encouraging evacuees' return and assisting them on becoming financially independent, while withdrawing in stages their compensation and accommodation payments.

In the government's fiscal 2017 budget, a fund of 23.6 billion yen (\$212 million) was set aside for restoring the local health-care system and facilities in the area impacted by the 2011 Great East Japan earthquake and tsunami, and nuclear crisis.

Restoring the essential services for living is part of the plan to encourage evacuees to return to their homes.

April 1, 2017

## **Evacuation order lifted for Fukushima town**

[https://www3.nhk.or.jp/nhkworld/en/news/20170401\\_03/](https://www3.nhk.or.jp/nhkworld/en/news/20170401_03/)

The Japanese government has lifted the evacuation order for most parts of a town in Fukushima Prefecture. It was issued after the 2011 nuclear disaster at the Fukushima Daiichi power plant.

The directive for Tomioka Town was lifted at midnight on Saturday in all areas except for no-entry zones with high radiation levels.

The town became the 9th municipality to be released from the order. The decree was initially imposed on 11 municipalities in the prefecture.

The government also withdrew the directives for some areas in Kawamata Town, Namie Town, and Iitate Village at midnight on Friday.

Areas still subject to the government evacuation order now make up 369 square kilometers. That is one-third of the initial size.

About 9,500 Tomioka residents are now allowed to return to their homes.

But in a survey conducted by the Reconstruction Agency and other institutions last year, only 16 percent of Tomioka's residents said they wanted to return to their hometown.

The town government had opened a shopping mall and a medical facility ahead of the lifting of the evacuation order.

In the future, it will be a challenge for the town to revive industries, decontaminate no-entry zones, and provide continued support for residents living outside the town.

April 3, 2017

## Lifting evacuation orders

### Lifting Fukushima evacuation orders

<http://www.japantimes.co.jp/opinion/2017/04/03/editorials/lifting-fukushima-evacuation-orders/#.WOI2GmekKos>

The lifting of evacuation orders in four municipalities around Tokyo Electric Power Co. Holding's Fukushima No. 1 nuclear power plant over the weekend does not normalize the lives of former residents forced out of their hometowns due to the radioactive fallout from the March 2011 triple meltdowns at the plant. The government needs to keep up support for the residents — both those returning to their hometowns and those choosing to stay out for various reasons — to help them rebuild their lives, which were shattered by the nuclear disaster six years ago.

Since 2014, the government has been moving to lift its evacuation orders issued to areas once designated no-go zones around the Tepco plant where the level of radioactive pollution is deemed to have declined to acceptable levels through decontamination efforts. The lifting of the evacuation orders in parts of the Fukushima towns of Namie, Tomioka and Kawamata and Iitate village on Friday and Saturday paves the way for the return of about 32,000 former residents. The total areas designated as no-go zones have now been reduced to roughly one-third of their peak — although areas that used to be home to 24,000 people will continue to be off-limits to former residents due to still high radiation levels.

Last month, Prime Minister Shinzo Abe said reconstruction from the March 11, 2011, disasters — the Great East Japan Earthquake and tsunami and the nuclear fiasco — is making steady progress and is “entering a new stage” with the lifting of evacuation orders to the former no-go zones around the Tepco plant. Also at the end of March, public housing assistance was terminated for people who had voluntarily evacuated from areas located outside the no-go zones out of fear of radioactive pollution.

However, government decisions alone will not return evacuees' lives to a state of normalcy. In areas where evacuation orders have earlier been lifted since 2014, only 13 percent of the former residents have returned to their hometowns. In Namie and Tomioka, where some parts of the towns will continue to remain off-limits due to high radiation levels, more than 50 percent of former residents told a Reconstruction Agency survey last year that they have no plans to return in the future.

Some of the former residents cite continuing concerns over the effects of radioactive contamination, while others point to the slow recovery of infrastructure crucial to daily life such as medical services and shopping establishments in their hometowns. Other former residents have started life anew in the places to which they have evacuated.

The prospect is also bleak for businesses that used to operate in the areas. According to a survey by the association of Fukushima Prefecture chambers of commerce and industry, about half of the companies located in the no-go zones were unable as of last September to reopen their businesses as they lost their customers and business partners in the years since the 2011 disaster. Many of the businesses that have reopened after the evacuation orders were lifted said they have not been able to earn the same level of profits as before the nuclear crisis.

Reconstruction from the March 2011 disasters continues to lag in Fukushima compared with the other devastated prefectures of Miyagi and Iwate, because of the additional woes caused by the Tepco plant disaster. Nearly 80,000 Fukushima residents remain displaced from their homes six years on — roughly half the peak figure of 165,000 but still accounting for a bulk of the national total of 123,000 as of February.

With the lifting of the evacuation orders, monthly payments of consolation money from Tepco to the residents of former no-go zones will be terminated in a year. Fukushima Prefecture's housing aid, essentially funded by the national government, to more than 20,000 Fukushima people who voluntarily evacuated from their homes outside the no-go zones was cut off at the end of last month — although substitute assistance programs will be continued on a limited scope.

Officials say that decontamination and restoration of social infrastructure have progressed in the former no-go zones around the Tepco plant. However, administrative decisions such as the lifting of evacuation orders alone will not compel evacuees to return to their hometowns or rebuild their communities shattered by the nuclear disaster. The government must keep monitoring the real-life conditions of residents in affected areas and extend them the support they need, as well as continue to improve crucial infrastructure so more evacuees feel they can return home.

April 7, 2017

## **New: Surprise inspections**

### **Revised reactor law lets nuclear regulators conduct surprise inspections**

<http://www.japantimes.co.jp/news/2017/04/07/national/revised-reactor-law-lets-nuclear-regulators-conduct-surprise-inspections/>

Kyodo

The Diet on Friday passed a sweeping nuclear inspection reform to allow regulators to conduct unannounced inspections of nuclear plants and give them unlimited access to needed data.

The enactment of the revised nuclear reactor regulation law comes after the International Atomic Energy Agency suggested that Japan, which has been holding periodic inspections using checklists, needs a more flexible system.

The new one, based on the U.S. system, will be implemented in fiscal 2020 after the Nuclear Regulation Authority sets specific rules.

The revised law stipulates that utility operators bear the responsibility for checking whether their nuclear facilities meet state standards, and gives government inspectors the power to freely check equipment and data to comprehensively monitor how the reactors are run.

The government will assess safety measures taken at each reactor and disclose the outcomes with the aim of promoting utilities' safety efforts.

April 13, 2017

## Restart of Osaka University reactor

### University in Osaka restarts research reactor

[https://www3.nhk.or.jp/nhkworld/en/news/20170412\\_26/](https://www3.nhk.or.jp/nhkworld/en/news/20170412_26/)

A university in Osaka has restarted its nuclear reactor designed for research for the first time in 3 years. The restart will allow the school to recommence **practical training**.

It's the first research reactor in Japan to go back online under more stringent regulations introduced by the government after the 2011 Fukushima Daiichi accident. 21 other similar facilities remain offline.

The reactor at Kindai University's Atomic Energy Research Institute has a maximum output of 1 watt, the lowest in Japan.

Due to the stricter safety requirements, the university hasn't been able to use the reactor since it was taken offline in 2014 for scheduled inspections.

After implementing measures under the new regulations, the institute restarted the reactor on Wednesday afternoon. It achieved criticality in about 25 minutes.

Experts say education in nuclear power engineering is vital to keep reactors in Japan running and to decommission them.

They say the offline state of Japan's research reactors has made it harder to encourage students to study nuclear engineering.

**Apart from Kindai University's facility, only 2 other research reactors in Japan have so far passed government screening to be restarted.**

March 15, 2017

## Can nuclear weapons offer an "insurance" policy?

### A European Nuclear Weapon Alliance?

[https://www.nytimes.com/2017/03/15/opinion/a-european-nuclear-program.html?\\_r=4](https://www.nytimes.com/2017/03/15/opinion/a-european-nuclear-program.html?_r=4)

To the Editor:

Those in Europe arguing in favor of a continental nuclear arsenal ("Fearing U.S. Withdrawal, Europe Considers Its Own Nuclear Deterrent," The Interpreter, March 7) are heavy on politics, but glaringly light on law and humanity.

Some Western nations like to squarely blame North Korea's 2003 withdrawal from the Nuclear Nonproliferation Treaty or Iran's program to enrich nuclear fuel for undermining the global nonproliferation regime. Without condoning the actions of North Korea or Iran, it is still plain to see that the creation of a European nuclear weapon alliance would violate both the spirit and the letter of the Nonproliferation Treaty.

Any use of even "smaller, shorter-range tactical weapons" would have catastrophic humanitarian consequences.

The majority of the world's nations will gather at the United Nations in New York at the end of March to begin negotiating a legally binding instrument to prohibit nuclear weapons. Such a treaty is urgently needed and long overdue.

Those advocating European nuclear weapons say they are seeking an "insurance policy." **Insurance policies pay out only when something goes wrong, which, in the realm of nuclear weapons, means it's too late.** The only way to ensure that nuclear weapons are never used is to abolish them. The world will begin an important step toward that goal this month.

RICK WAYMAN

SANTA BARBARA, CALIF.

*The writer is director of programs for the Nuclear Age Peace Foundation.*

April 18, 2017

## New NRA chief

### Japan nominates Fuketa to take over at atomic regulator

<http://www.asahi.com/ajw/articles/AJ201704180041.html>

REUTERS

The Japanese government on Tuesday said it has nominated Toyoshi Fuketa, a commissioner of the country's nuclear watchdog, to take the top post at the regulator, in the first change of leadership since it was revamped after the Fukushima disaster.

Fuketa, 59, was named to replace Shunichi Tanaka, 72, as the chairman of the Nuclear Regulation Authority (NRA), who is retiring in September, a parliamentary official said by phone. Fuketa's appointment requires confirmation by lawmakers.

His nomination comes six years after the meltdowns at the Fukushima No. 1 nuclear power plant, operated by Tokyo Electric Power Holdings, which led to a revision of atomic regulations, after an official inquiry into the disaster highlighted collusion between regulators and industry.

Fuketa was appointed as a commissioner of the NRA in 2012 when the NRA was set up to enforce new nuclear safety rules. **He is known for taking tough positions during safety reviews of reactors** and has been instrumental in directing the clean-up of the wrecked Fukushima plant.

**"Fuketa has a long background in research on reactor safety and replaces a figure (Tanaka) who was not seen as impartial, at least in some circles,"** said Andrew DeWit, a professor at Rikkyo University in Tokyo focusing on energy issues.

**"His appointment and international connections may help to overcome the industry's reluctance to adopt some internationally recognized safety practices,"** he said.

These include surprise inspections of nuclear plants and storage of spent uranium fuel in dry casks, rather than high up in reactor buildings as is mostly the case in Japan now.

An International Atomic Energy Agency review of Japan's regulatory framework last year made 26 suggestions and recommendations to address shortcomings, while citing only two examples of good practice.

Many of Japan's reactors are still going through a licensing renewal process by the new regulator, with all but three out of 42 operable reactors still in shutdown.

Fuketa has sometimes poured cold water on the schedule for the early restart of reactors, saying the projections of operators were too optimistic.

The government also nominated Shinsuke Yamanaka, 61, executive vice president of Osaka University in western Japan, to replace Fuketa, the parliamentary official added.

April 19, 2017

## **Japan's nuclear watchdog chief to step down after term ends in September**

<https://mainichi.jp/english/articles/20170419/p2a/00m/0na/009000c>

Nuclear Regulation Authority (NRA) Chairman Shunichi Tanaka is set to step down as his term expires in September this year, while the government proposed to the Diet on April 18 to promote the acting head to succeed Tanaka with the aim to maintain the status quo of the nuclear watchdog operation.

The NRA was launched in 2012 after the Fukushima nuclear disaster in March 2011 to review and inspect Japan's nuclear power stations. By promoting commissioner and acting chairman Toyoshi Fuketa, 59, who has been an NRA member since its launch, the government is looking to maintain current NRA policies on restarting idled reactors across the country.



If accepted by the Diet, Fuketa will assume the chairman position in September for a five-year term, and be replaced by Osaka University vice president Shinsuke Yamanaka, 61, as a commissioner.

Over the course of five years, power companies have applied for safety inspections for a total of 26 reactors at 16 nuclear stations to the NRA, but under Tanaka, only five reactors at three plants were restarted after passing safety inspections.

While some ruling party lawmakers criticized Tanaka's management for taking too much time on safety inspections, others pushed to keep him in the position, with a former minister saying, "He did a good job in restarting that many nuclear reactors. His comments at Diet sessions are carefully thought out, too." However, 72-year-old Tanaka has been reluctant about staying in his position with reasons including his age.

Fuketa specializes in safety measures at nuclear reactors and has been responsible for inspections of utilities' measures against serious incidents at their nuclear plants -- one of the prerequisites for a reactor to resume operation. He has criticized Tokyo Electric Power Co.'s plan to surround the Fukushima No. 1 nuclear plant with ice walls to block water from flowing into the plant, pointing out that they weren't effective in shutting out the water inflow. An enormous amount of contaminated water has been generated at the crippled power plant as ground water has flowed onto the premises of reactor buildings. Fuketa has recently released a comment, saying that he is determined to fulfill his responsibilities by completing one task at a time while always keeping in mind lessons from the Fukushima disaster.

April 23, 2017

## Evacuee mums fight restart

### **Mothers who fled Fukushima fallout raise voices against Genkai plant restart in Saga**

<http://www.japantimes.co.jp/news/2017/04/23/national/mothers-who-fled-fukushima-fallout-raise-voices-against-genkai-plant-restart-in-saga/>

Kyodo

SAGA – A group of mothers who evacuated from the Kanto region to Fukuoka Prefecture after the 2011 Fukushima nuclear crisis is ramping up protests against efforts to restart the Genkai nuclear plant in neighboring Saga.

After meeting with Minister of Economy, Trade and Industry Hiroshige Seko on Saturday, Saga Gov. Yoshinori Yamaguchi is expected to approve the restart of two reactors in the town of Genkai as early as Monday.

Earlier this month, four of the moms gathered for a meeting in Itoshima in Fukuoka and discussed plans to send the city a document and an inquiry conveying their opposition.

As they racked their brains to deliver effective expressions, the meeting lasted for around six hours until their children returned home from school.

Three of the moms moved to Itoshima after becoming worried their children would be adversely affected by exposure to the fallout spewed by the triple core meltdown at the Fukushima No. 1 plant in Fukushima Prefecture in March 2011. The plant is run by Tokyo Electric Power Company Holdings Inc.

“I wanted to go far away for the sake of my unborn child,” said 39-year-old Fumiyo Endo, the leader of the group.

But the place she relocated to was within 30 km of the Genkai plant run by Kyushu Electric Power Co.

In March, she attended a meeting of residents to get explanations about the restart but was concerned whether safety would be ensured by sheltering indoors as instructed should an accident occur.

She also felt angry after hearing a utility official say that restarting the plant is necessary “for a stable supply of power.” She said it sounded as if the utility did not care about human lives.

But she did not decide to leave Itoshima because she wanted to keep living there, to stay close to the sea and mountains.

Another member of the group said it was important to keep resisting.

“It is significant to protest against nuclear plants near the plant sites,” said photographer Nonoko Kameyama, 40.

Kameyama, a mother of three, has published a photo book of mothers hoping to bring about a society without nuclear power plants.

A day after attending the residents’ meeting, Endo and other members called the Saga Prefectural Government to urge it to reject the restart.

When asked by a prefectural official during the call what the name of their group was, they came up with an impromptu title: “Mothers Who Want to Save Children’s Lives.” Dozens of people have recently joined in response to its Facebook post.

The group has submitted petitions to Saga Gov. Yamaguchi and Itoshima Mayor Yuji Tsukigata.

“Resuming operations only makes residents feel unsettled and we cannot see a bright future,” said Endo.

“We want our leaders to understand such feelings.”

Yamaguchi is expected to approve the Genkai restart as early as Monday, after meeting with METI chief Seko on Saturday.

“The central government has shown a strong determination to work on nuclear energy policy in a responsible manner,” Yamaguchi said Saturday, adding he wants to convey his decision “as early as possible.”

The government is pushing for reactor restarts despite the triple core meltdown at Fukushima No. 1, saying nuclear energy is Japan’s key energy source.

In January, reactor Nos. 3 and 4 at the Genkai plant passed the tougher safety requirements introduced in the wake of the Fukushima crisis. On Feb. 24, a majority of the Genkai Municipal Assembly voted in favor of restarting the plant.

April 24, 2017

## Rising tensions

## **Demand in Japan for nuclear shelters, air purifiers surges as tension over North Korea mounts**

<http://www.japantimes.co.jp/news/2017/04/24/national/demand-japan-nuclear-shelters-air-purifiers-surges-tension-north-korea-mounts/#.WP4JKNykKos>

Reuters

Sales of nuclear shelters and radiation-blocking air purifiers have surged in Japan in recent weeks as North Korea has pressed ahead with missile tests in defiance of U.N. sanctions.

A small company that specializes in building nuclear shelters, generally under people's houses, has received eight orders in April alone, compared with six orders during a typical year.

The company, Oribe Seiki Seisakusho, based in Kobe, has also sold out of 50 Swiss-made air purifiers, which are designed to keep out radiation and poisonous gas, and is trying to get more, said Nobuko Oribe, the company's director.

A purifier designed for six people sells for ¥620,000 and one designed for 13 people and usually installed in a family-use shelter costs ¥1.7 million.

Concerns about a possible gas attack have grown after Prime Minister Shinzo Abe told the Diet this month that North Korea may have the capacity to deliver missiles equipped with sarin nerve gas.

"It takes time and money to build a shelter. But all we hear these days, in this tense atmosphere, is that they want one now," Oribe said. "They ask us to come right away and give them an estimate."

Another small company, Earth Shift, based in Shizuoka Prefecture, has seen a tenfold increase in inquiries and quotes for its underground shelters, according to Akira Shiga, a sales manager at the company.

The inquiries began to increase gradually in February and have come from all over Japan, he said.

North Korean missiles have fired with increasing frequency. Last month, three fell into waters within Japan's exclusive economic zone, some 300 to 350 km off the coast of Akita Prefecture.

The central government on Friday urged local governments to hold evacuation drills in case of a possible missile attack, heightening a sense of urgency among the public.

Some orders for the shelters were placed by small business owners for their employees, and others by families, Oribe said. A nuclear shelter for up to 13 people costs about ¥25 million and takes about four months to build, he said.

The shelter his company offers is a reinforced, air-tight basement with an air purifier that can block radiation as well as poisonous gas. The room is designed to withstand a blast even when a Hiroshima-class nuclear bomb exploded just 660 meters away, Oribe said.

North Korea said Sunday it is ready to sink a U.S. aircraft carrier to demonstrate its military might, in the latest sign of rising tensions.

The United States ordered the USS Carl Vinson carrier strike group to sail to waters off the Korean Peninsula in response to mounting concern over the reclusive state's nuclear and missile programs.

In Japan's previous experience with sarin gas, the Aum Shinrikyo doomsday cult killed 12 people and made thousands ill in attacks on Tokyo subways in 1995.

April 25, 2017

## Using radioactive soil for building purposes



Bags of radioactive soil in a temporary storage site in Iitate, Fukushima Prefecture, will eventually be transported to an interim storage facility. (Asahi Shimbun file photo)

### Tests to start on radioactive soil for use in reconstruction

<http://www.asahi.com/ajw/articles/AJ201704250038.html>

By YU KOTSUBO/ Staff Writer

MINAMI-SOMA, Fukushima Prefecture--The Environment Ministry is exploring the idea of reusing tons of radioactive soil as gravel **to rebuild infrastructure in this disaster-stricken prefecture and beyond.**

To gauge the feasibility of the project, it will conduct tests on whether contaminated soil can be securely contained without spillage while controlling the level of radioactivity.

The experiment is being conducted in a corner of a temporary storage site in the Odaka district here, just north of the crippled Fukushima No. 1 Nuclear Power plant.

If the tests go off without a hitch, the government is looking at reusing the soil as a construction material in recovery efforts.

Bags of soil gathered through decontamination efforts are kept at temporary storage sites around the Fukushima plant, which went into triple meltdown in the aftermath of the 2011 earthquake and tsunami disaster.

The first phase of the experiment involves 1,000 or so bags of contaminated soil that have to be sorted according to levels of concentration of radioactive cesium.

Radioactive soil with readings of about 2,000 becquerels per kilogram will be used for mock-up construction of seawalls and other structures. The soil will then be covered by fresh soil that is not contaminated.

The test will also explore practical safety management issues, including ways to prevent scattering of contaminated soil and keeping track of measurements of radioactivity of structures once they are completed.

Project workers began opening bags and sorting soil on April 24.

**The volume of contaminated soil collected within Fukushima Prefecture amounted to a whopping 16 million cubic meters as of the end of January.**

It will be kept at an interim storage facility that has been constructed within the jurisdiction of the towns of Futaba and Okuma in Fukushima Prefecture. **Within the next 30 years, the soil is supposed to be transported outside the prefecture for final disposal.**

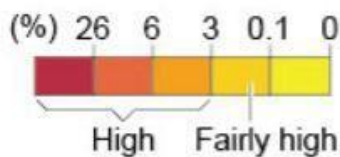
The Environment Ministry said it hopes the tests will show that the plan to reuse radioactive soil in construction is safe. Projects under consideration include building foundations for seawalls and roads. **The overall aim is to reduce the amount of soil that will need to be processed for final disposal.**

April 28, 2017

## Almost all Japan at risk of earthquake

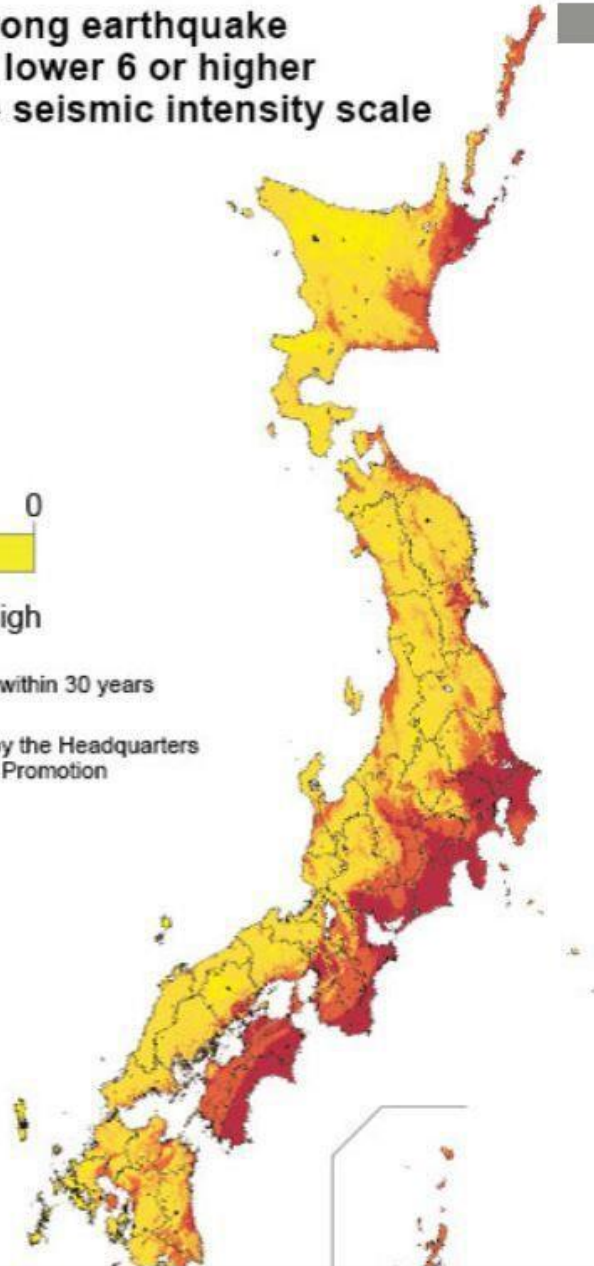
## Likelihood of strong earthquake with intensity of lower 6 or higher on the Japanese seismic intensity scale of 7 occurring

Show D



Probability of occurrence within 30 years from 2017

Based on data released by the Headquarters for Earthquake Research Promotion



### Earthquake probability maps show nearly all of Japan at risk

[http://www.mevaco.fr/products.html?productfilter\\_type=148&gclid=CMKKrf-Vx9MCFUu3GwodvKkEpA](http://www.mevaco.fr/products.html?productfilter_type=148&gclid=CMKKrf-Vx9MCFUu3GwodvKkEpA)

By TAKAHIRO TAKENOUCI/ Staff Writer

Southern Pacific coastal regions are at the greatest risk of earthquakes strong enough to topple buildings over the next 30 years, although almost every area of Japan is in danger, a report showed.

The grim but familiar warning was seen in the National Seismic Hazard Maps for 2017 released by the Headquarters for Earthquake Research Promotion on April 27.

Some city centers in the Pacific coastal areas of the Kanto, Tokai, Kinki and Shikoku regions have probabilities exceeding 80 percent for quakes with an intensity of lower 6 or higher on the Japanese seismic scale of 7 in the next three decades, according to the headquarters.

Naoshi Hirata, chair of the Earthquake Research Committee within the headquarters, said people living outside those high-risk zones should also be wary.

“Please don’t think your area is safe,” said Hirata, a professor of seismology at the University of Tokyo.

“Instead, consider every part of Japan to be highly likely to have intense earthquakes.”

The probability maps were based on the locations of active fault lines, previous seismic activity and predictions, and other topographic factors.

The maps are colored according to probabilities as of Jan. 1. Rates between 0.1 percent and 3 percent are classified as “fairly high,” while those at 3 percent and higher are “high.”

Compared with the 2016 data released in June, the sharpest rise in probability for an intensity-6 quake was around the city of Sanyo-Onoda in Yamaguchi Prefecture. It increased by 3.6 percentage points to 17.1 percent.

Ibara in Okayama Prefecture had the largest drop, down 0.65 percentage point to 9.56 percent.

These changes reflect new information obtained from a re-evaluation of active faults in the Chugoku region in July.

The likelihood of a disastrous subduction-zone temblor, such as the long-expected Nankai trough earthquake, increased slightly along the Pacific coast.

By location of city government offices, Chiba has the highest probability among major cities, at 85 percent, followed by Yokohama and Mito at 81 percent each, Kochi at 74 percent, Tokushima at 72 percent, and Shizuoka at 69 percent.

At the site of the Kumamoto city government office, the probability remained at 7.6 percent from last year.

Some parts of the Futagawa and Hinagu fault zones that triggered the deadly series of earthquakes in Kumamoto Prefecture in 2016 are still likely to cause strong aftershocks in the area.

The seismic hazard maps can be viewed at the Japan Seismic Hazard Information Station’s website: (<http://www.j-shis.bosai.go.jp/map/>).

April 30, 2017

## **Lack of transfer sites for 610 tons of spent fuel might delay closure plans for seven reactors**

<http://www.japantimes.co.jp/news/2017/04/30/national/transfer-sites-610-tons-spent-nuclear-fuel-undecided-decommissioning-plans-may-affected/#.WQeClNykKie>

About 610 tons of spent nuclear fuel stored at seven of the 17 reactors in Japan that are set to be decommissioned have no fixed transfer destination, it was learned Sunday, threatening to hold up the decommissioning process.

If it remains undecided where to transfer the spent nuclear fuel, work to dismantle reactor buildings and other structures may not be carried out as planned.

The tally excludes the six reactors at Tokyo Electric Power Co. Holdings Inc.’s Fukushima No. 1 plant, which was heavily damaged by the March 2011 earthquake and tsunami.

The seven reactors are

- 1) the Japan Atomic Energy Agency's Fugen advanced converter reactor,
- 2) the agency's Monju prototype fast-breeder reactor,
- 3) Japan Atomic Power Co.'s reactor 1 at its Tsuruga plant,
- 4-5) reactors 1 and 2 of Kansai Electric Power Co.'s Mihama plant,
- 6) reactor 1 of Chugoku Electric Power Co.'s Shimane plant and
- 7) reactor 1 of Kyushu Electric Power Co.'s Genkai plant,

according to the companies and the agency.

The Fugen reactor has 70 tons of spent mixed-oxide, or MOX, fuel, a blend of uranium and plutonium recycled from spent nuclear fuel.

The agency has abandoned its plans to move the MOX fuel out of the reactor site in the current fiscal year to March 2018. It has considered consigning the reprocessing of the fuel overseas but a contract has not been signed yet.

The agency's schedule to finish the decommissioning work by fiscal 2033 has remained unchanged, but an official admitted that the timetable will be affected if a decision on where to transfer the spent fuel is not made.

As for the trouble-prone Monju reactor, the agency has yet to submit a decommissioning program to authorities. How to deal with 22 tons of spent MOX fuel at the reactor is a major issue.

The Mihama No. 1 reactor has 75.7 tons of spent conventional nuclear fuel and 1.3 tons of spent MOX fuel, while the No. 2 reactor has 202 tons of spent nuclear fuel. Kansai Electric plans to take them out of Fukui Prefecture, which hosts the power plant, by fiscal 2035, but the transfer location has not yet been selected. At the Tsuruga plant's reactor 1, Japan Atomic Power plans to transfer 31.1 tons of the reactor's 50-ton spent nuclear fuel to the fuel pool of reactor 2, with the rest to be transported by fiscal 2026 to a Japan Nuclear Fuel reprocessing plant under construction in the village of Rokkasho in Aomori Prefecture. After being postponed more than 20 times, the completion of the reprocessing plant is currently slated for the first half of fiscal 2018 and the blueprint is undergoing screenings by the Nuclear Regulation Authority, a nuclear watchdog.

As nuclear fuel cannot be brought into the reprocessing plant until it starts operations after receiving all necessary regulatory approval, it is uncertain whether the Tsuruga reactor fuel can be transferred as planned.

Chugoku Electric aims to transfer 122.7 tons of spent nuclear fuel at its Shimane plant's reactor 1 to the Rokkasho reprocessing plant by fiscal 2029.

Kyushu Electric hopes to take 97.2 tons of spent nuclear fuel at the Genkai reactor 1 out of its fuel pool by fiscal 2029, but the destination has not been fixed.

At three other nuclear plants with reactors set to be decommissioned, spent nuclear fuel is mostly planned to be moved out of the current pools to other pools within the same plant.

In the case of Tepco's disaster-stricken Fukushima No. 1 plant, the site of the 2011 triple meltdown accident, where the 2,130 tons of spent nuclear fuel will be transferred to has yet to be decided.

Still, the decommissioning work for the six reactors there will not be affected in any significant way for the time being, as more urgent tasks, such as a survey of melted fuel, have been given higher priority, officials said.



## 610 tons of spent fuel and nowhere to go

Background:

After the end of WWII, Japan was persuaded by the Allies to embrace nuclear power -- partly as a way of expiating the horror of the Atomic Bomb explosions at Hiroshima and Nagasaki, but mainly as a way of achieving energy independence. To avoid the necessity of purchasing fuels off-island, the Japanese were urged to embrace the nuclear reprocessing option. By routinely extracting plutonium and unfissioned uranium from irradiated nuclear fuel, they were informed, new fuel could be fabricated by blending the recovered plutonium with the unfissioned uranium. This new plutonium-based fuel is called MOX – an acronym for Mixed Oxide fuel. As a result, Japan developed no plans for the long-term storage of irradiated nuclear fuel. Spent fuel was to be regarded as an energy resource rather than as nuclear waste. And as it happens, spent MOX fuel contains even larger amounts of highly toxic radioactive substances than spent uranium fuel from conventional reactors.

The **Fugen advanced converter reactor** started up in 1978. It was the first reactor in the world to use a full MOX fuel core. It had 772 MOX fuel assemblies, the most for any reactor anywhere. It has received the title of a historic landmark from the American Nuclear Society. The Fugen reactor boiled ordinary water as in standard boiling water reactor (BWR) but used heavy water as a moderator as in a CANDU reactor. The Fugen reactor was shut down permanently in 2005.

The **Monju prototype fast breeder reactor** (1994-2016) was designed to produce more plutonium as a byproduct than the plutonium it uses as a fuel. That's why it's called a "breeder". But for this breeding process to work, the fuel has to be much more "enriched" in fissile material. It has to be nuclear-weapons-usable material,, capable of sustaining a nuclear chain reaction using "fast neutrons", without the use of any moderator. That's why it's called a "fast" breeder. So, instead of using water as a coolant (which inevitably slows down the fast neutrons) the Monju reactor uses liquid sodium (a liquid metal) as a coolant. Needless to say, the liquid sodium becomes highly radioactive, just as the primary coolant of any reactor is highly radioactive.

The Monju reactor has been inoperative for most of the time since it was first built. It last operated in 2010, and last year it was decided to decommission it. The Japanese have no idea at present how to dispose of the spent fuel or the radioactive sodium from Monju. Radioactive sodium is yet another nuclear conundrum.

At **Fukushima-Daiichi nuclear power plant**, Unit 3 (one of the reactors that suffered a complete core meltdown) was fuelled with a heterogeneous core of uranium oxide fuel and plutonium-based mixed oxide fuel (about 6 percent of the fuel was MOX). Unit 3 was the only one of the six reactors at Fukushima-Daiichi that had MOX fuel in its core.

Gordon Edwards.

May 1, 2017

**Wildfire raging in no-entry zone**

## **Wildfire rages in highly radioactive Fukushima mountain forest**

<https://mainichi.jp/english/articles/20170501/p2a/00m/0na/003000c>

NAMIE, Fukushima -- A fire broke out in a mountain forest near the crippled Fukushima No. 1 Nuclear Power Plant on the evening of April 29, consuming an area approximately 20 hectares in size, according to prefectural authorities.

The fire started on 448-meter-high Mount Juman in Namie, Fukushima Prefecture, prompting the prefectural government to request the dispatch of the Ground Self-Defense Force (GSDF) on a disaster relief mission on April 30. A total of eight helicopters from Fukushima, Miyagi and Gunma prefectures as well as the SDF discharged water on the site to combat the fire.

As the fire continued to spread, however, helicopters from the GSDF, Fukushima Prefecture and other parties on May 1 resumed fire extinguishing operations from around 5 a.m.

The area is designated as a "difficult-to-return zone" due to high radiation levels from the Fukushima nuclear disaster, and entry into the area is barred in principle.

According to the Fukushima Meteorological Office, a lightning advisory had been issued for the town of Namie when the fire broke out, and Fukushima Prefectural Police suspect that lightning was to blame for the blaze as they continue to investigate the cause of the incident.

As of May 1, there were no major changes to radiation levels in the heart of Namie and other areas near the fire scene, according to the Ministry of the Environment.

"We will continue to closely watch changes in radiation doses in the surrounding areas," said a ministry official.

## **Wildfire continues in Fukushima**

[https://www3.nhk.or.jp/nhkworld/en/news/20170501\\_24/](https://www3.nhk.or.jp/nhkworld/en/news/20170501_24/)

A wildfire has been raging for more than 2 days near the damaged Fukushima Daiichi nuclear power plant.

The fire started in a mountain forest on the outskirts of Namie Town in Fukushima Prefecture. The area is part of a zone designated as "no-entry" due to high radiation levels following the 2011 nuclear disaster.

Fukushima and Miyagi prefectures and the Self-Defense Forces are using helicopters to fight the blaze. They are also looking at the possibility of using ground crews.

Footage from an NHK helicopter on Monday morning showed smoke rising from wide areas and fires burning in several locations.

Local officials and firefighters say the blaze abated somewhat on Monday afternoon thanks to rainfall. The wildfire is estimated to have burned about 20 hectares of land so far.

## "Woods and peat accumulate radiation"

### **Wildfire Burns in Fukushima 'No-Go Zone,' Sparking Fears of Airborne Radiation**

[www.ecowatch.com/wildfire-burns-in-fukushima-no-go-zone-sparking-fears-of-airborne-radi-2387730302.html](http://www.ecowatch.com/wildfire-burns-in-fukushima-no-go-zone-sparking-fears-of-airborne-radi-2387730302.html)

By Lauren McCauley

A wildfire broke out in the highly radioactive "no-go zone" near the crippled Fukushima nuclear power plant over the weekend, reviving concerns over potential airborne radiation.

Japanese newspaper The Mainichi reported that lightning was likely to blame for sparking the fire Saturday on Mount Juman in Namie, which lies in the Fukushima Prefecture and was one of the areas evacuated following the 2011 meltdown. The area continues to be barred to entry as it is designated a "difficult-to-return zone" due to continually high radiation levels.

Local officials were forced to call in the Japanese military, the Ground Self-Defense Force, to help battle the blaze, which continued to burn on Monday. At least 10 hectares of forest have burned so far.

"A total of eight helicopters from Fukushima, Miyagi and Gunma prefectures as well as the SDF discharged water on the site to combat the fire," The Mainichi reported. "As the fire continued to spread, however, helicopters from the GSDF [Ground Self-Defense Force], Fukushima Prefecture and other parties on May 1 resumed fire extinguishing operations from around 5 a.m. [local time]."

An official with the Ministry of the Environment said Monday that there have been "no major changes to radiation levels" in the region, according to the newspaper, but added that they will "continue to closely watch changes in radiation doses in the surrounding areas."

In a blog post last year, Anton Beneslavsky, a member of Greenpeace Russia's firefighting group who has been deployed to fight blazes in nuclear Chernobyl, outlined the specific dangers of wildfires in contaminated areas.

"During a fire, radionuclides like caesium-137, strontium-90 and plutonium rise into the air and travel with the wind," Beneslavsky wrote. "This is a health concern because when these unstable atoms are inhaled, people become internally exposed to radiation."

Contaminated forests such as those outside fallout sites like Fukushima and Chernobyl "are ticking time bombs," scientist and former regional government official Ludmila Komogortseva told Beneslavsky.

"Woods and peat accumulate radiation," she explained, "and every moment, every grass burning, every dropped cigarette or camp fire can spark a new disaster."

May 2, 2017

## **Fire near Fukushima nuclear site could spread radiation further**

<http://www.beyondnuclear.org/home/2017/5/2/fire-near-fukushima-nuclear-site-could-spread-radiation-furt.html>

### **BEYOND NUCLEAR PRESS RELEASE**

#### **Efforts to quench on-going fire in Fukushima zone hampered by high radiation levels from 2011 nuclear disaster**

##### **Never over nuclear accident continues to spread radiation**

TAKOMA PARK, MD, --A raging wildfire in the Fukushima radiation zone not far from the March 2011 Japan nuclear power plant disaster, demonstrates that a nuclear accident has long-term and on-going effects that can worsen over time, says Beyond Nuclear, a leading national anti-nuclear advocacy group. The fire, which began on April 21 in the mountains outside Namie in Fukushima Prefecture, Japan, is in an area where human entry is barred "on principle" because of high radiation levels resulting from the Fukushima nuclear triple meltdowns and explosions. The fire is being fought from the air with helicopters spraying water.

"Just as high radiation levels barred rescuers from retrieving many earthquake and tsunami victims five years ago, today firefighters are being hampered from battling the blaze in the still contaminated area," said Paul Gunter, Director of Reactor Oversight at Beyond Nuclear. "This makes extinguishing these radioactive fires more difficult which can have far reaching effects," he said.

The geographical range of radioactive contamination from the Fukushima disaster could be expanded as smoke from the forest fire lofts radioactivity into the air and spreads it to regions that were not contaminated by the nuclear accident.

"The Chernobyl forest fire experience shows that forest fires in radioactively contaminated areas re-suspend contamination in the area, making it more available to natural processes like absorption by plants, but also spreading contamination to areas of lower or no contamination," said Cindy Folkers, Radiation and Health Specialist at Beyond Nuclear.

The fire could be the first of many. A startling discovery made by Dr. Timothy Mousseau, a professor of Biological Sciences at the University of South Carolina, when studying the ecosystems in the Chernobyl Exclusion Zone, revealed that fallen trees and leaf matter were not decaying at the proper rate, creating a build-up of "tinder" on the forest floor.

"In higher areas of contamination, forest matter fails to decay because creatures responsible for decay like bacteria and fungi, do not function properly in the radioactive environment," Folkers explained. "This 'zombie' forest litter presents an increased forest fire hazard in the radioactive landscape—exactly the place where you don't want fire kindling."

There have already been a number of serious forest fires around Chernobyl in recent years, spreading radioactivity into wider areas. However, there have not been adequate studies to monitor exactly where the radiation goes.

1. fires are dangerous enough, but radioactive forest fires raise the stakes for human health and safety because of the added difficulty to reliably monitor where radioactivity is traveling in the smoke," said Gunter.

The Fukushima fire is a reminder that a major nuclear accident is never really over or confined.

“The long-term implications of on-again-off-again fires in radioactive forests are stark including re-contamination of so-called “decontaminated” areas, and re-suspension of radioactive particles thought to be out of the reach of natural processes,” said Folkers.

“This all points to the impossibility of containing man-made radioactivity from catastrophes like Chernobyl and Fukushima, once it is released. Resettlement in such areas would be unstable at best, with the constant threat of increased exposures and resulting health impacts,” Folkers concluded.

Download the press release in PDF.

For additional information see:

The Mainichi link <http://mainichi.jp/english/articles/20170501/p2a/00m/0na/003000c>

Common Dreams link <https://www.commondreams.org/news/2017/05/01/sparking-fears-airborne-radiation-wildfire-burns-fukushima-no-go-zone>

## Blowing its top again



Mount Sakurajima in Kagoshima erupts at 3:41 a.m. on May 2. (The Asahi Shimbun)

### **Mt. Sakurajima erupts, raining ash down on Kagoshima city**

<http://www.asahi.com/ajw/articles/AJ201705020036.html>

By SHO ITO/ Staff Writer

KAGOSHIMA--Mount Sakurajima blew its top again at 3:20 a.m. on May 2 in spectacular fashion, spewing a massive column of smoke rising 4,000 meters from the crater.

With more eruptions following, residents in the prefectural capital of Kagoshima, whose center is about 4 kilometers from the volcano across the bay, awoke to find their outside surroundings covered in ash.

Some pedestrians wore surgical masks or opened an umbrella to avoid the falling volcanic particles. Ash on the ground was stirred up when a car sped by.

According to the Kagoshima Local Meteorological Observatory, five explosions were observed by noon on May 2.

They were the latest of a flurry of eruptions on the volcano observed in recent years. The most recent one was recorded April 28, for the first time since July 26 last year.

The latest eruption comes as the Japan Meteorological Agency continues to keep Sakurajima on an alert Level 3, which closes off the entire mountain.

May 4, 2017

## Still battling fire in radioactive area

### Wildfire spreads in Fukushima no-go zone

[https://www3.nhk.or.jp/nhkworld/en/news/20170505\\_04/](https://www3.nhk.or.jp/nhkworld/en/news/20170505_04/)

Firefighters are battling a forest fire in a no-go zone in a town near the crippled Fukushima Daiichi nuclear plant.

The area has relatively high radiation levels as a result of the 2011 nuclear accident.

Fukushima's prefectural government says monitoring posts near the site have so far shown no significant change in radiation levels.

The blaze started last Saturday in the town of Namie. More than 20 hectares of forest on a mountain have burned so far. **The fire is gradually spreading due to southerly winds.**

Firefighters and Self-Defense Force members tried to put out the flames using helicopters on Thursday. **About 240 personnel in hazmat suits also battled the fire on the ground.**

The firefighting efforts were suspended at sunset and will resume on Friday.

May 8, 2017

## Fukushima food "no immediate problem", says FAO

### U.N. food agency 'convinced' that Fukushima food is safe to eat

<http://www.asahi.com/ajw/articles/AJ201705080043.html>

By YUKIE YAMAOKA/ Correspondent

ROME--Food produced in Fukushima Prefecture is safe, but continued monitoring will be needed to ensure that remains the case, according to the U.N. Food and Agricultural Organization's top official. "We've been following this issue very closely," said FAO Director-General Jose Graziano da Silva in a recent interview with The Asahi Shimbun, referring to the safety of agricultural products and other food items grown and manufactured in the prefecture.

"We are also periodically testing samples to certify that the food presents no danger to human beings. For the moment we are convinced that there is no immediate problem with the food coming from that area." He added that maintaining control over the situation is crucial.

The Rome-based FAO began conducting checks on food products from Fukushima **in collaboration with the International Atomic Energy Agency in Vienna** after the triple meltdown at the Fukushima No. 1 nuclear power plant in March 2011.

Da Silva said he is happy with measures that the Japanese government has implemented as precautions for consumers and assistance to local farmers as they comply with international regulations.

His comments came ahead of his first visit to Japan in four years, scheduled from May 9.

In addition to meetings with Japanese government officials, Da Silva is expected to participate in an event organized by the Japanese Foreign Ministry in which attendees will sample desserts made with fruits grown in the prefecture.

Da Silva also said he expects to learn more about the Japanese diet to address the global issue of obesity, which he described as the "most important problem" in advanced countries.

"Japan is our best example," he said of the nation's lowest obesity rate among the developed world. "We want to learn more about what the Japanese do to avoid obesity. This is part of the culture; your traditional diet is even recognized by UNESCO as a healthy diet."

Japan's contribution to the FAO is the second largest after the United States, and its funds have been used to install an irrigation system in Afghanistan.

**The FAO, working with Tokyo, is set to increase its number of Japanese staff over a five-year program as the country is under-represented at the organization.**

May 10, 2017

## Safety of Fukushima food "assured", says FAO Chief

### FAO chief pitches safety of Fukushima foods in tasting event

<http://www.japantimes.co.jp/news/2017/05/10/national/fao-chief-pitches-safety-fukushima-foods-tasting-event/>

Kyodo

The head of the U.N. Food and Agriculture Organization said Wednesday the safety of food produced in Fukushima is “assured,” despite the import bans still imposed by some countries in the wake of the 2011 nuclear disaster.

“At the moment, we don’t see any reason to raise concern about the safety of food,” FAO Director General Jose Graziano da Silva told a tasting event in Tokyo where he ate sweets made from pears and apples grown in the northeastern prefecture.

“Six years after the accident, we continue to monitor all the foods from the area affected. ... We have to say that the Japanese government has been supportive and very transparent despite the difficult situation,” said the director general, who is in Japan from Tuesday to Friday.

Following the nuclear accident at the Fukushima No. 1 nuclear power plant on March 11, 2011, which led to environmental contamination, many countries introduced import restrictions on Japanese foods. According to the Foreign Ministry, more than 30 countries and regions, including China, South Korea and Taiwan, still impose such restrictions, while some 20 countries have eased or lifted the measures. At the event, Kentaro Sonoura, a senior vice foreign minister, also noted that “while reconstruction and recovery work is steadily making progress, the reputation damage from the nuclear accident still remains even after six years.”

He stressed that the Japanese ministries, including foreign and agriculture, as well as its embassies and consulates overseas are working as one to pitch the safety of Japan-made products while urging other governments to remove their import bans.

Fukushima Mayor Kaoru Kobayashi also hoped that the negative reputation would become a thing of the past. He said that **the products made in the prefecture are safe due to the advanced technology used in decontamination measures and to the monitoring and inspection system, which he said is the “best in the world.”**

## Rice planting for commercial sales starts again in Fukushima

### Fukushima village begins sowing rice for first time since nuclear crisis

<http://www.japantimes.co.jp/news/2017/05/10/national/fukushima-village-begins-sowing-rice-first-time-since-nuclear-crisis/#.WRNo69ykKic>

Kyodo

FUKUSHIMA – Rice planting for commercial sales began on Wednesday in a village in Fukushima Prefecture for the first time since the 2011 disaster at the Fukushima No. 1 nuclear power plant.

A total of eight farms in Iitate plan to resume growing rice this year in a combined area of about 7 hectares after evacuation orders were lifted at the end of March for large parts of the village.

With much of the area contaminated by radiation following the nuclear crisis, the total arable area has shrunk from around 690 hectares before the disaster, according to the village.

The farmers will conduct radiation tests before shipping their rice. No rice grown in the village has shown levels of radioactivity exceeding the safety standard since experimental rice planting began in 2012.



“(I feel) comfortable. We want to get back even a step closer to the village of six years ago,” said Shoichi Takahashi, 64, while working a rice planting machine.

The municipality has supported farming efforts, including installing electric fences around the area to protect the rice fields from wild boar and working the soil after decontamination.

Measures to encourage evacuees to return to Fukushima are also slowly underway.

On Wednesday, an Upper House committee passed a bill aimed at boosting government support so evacuees can return to their homes earlier in areas which are off-limits in principle in the wake of the March 2011 nuclear meltdowns.

The Upper House plenary session is expected to clear the bill soon, allowing the government to fund more infrastructure rebuilding such as roads and get rid of radioactive substances in the area.

The bill already cleared the House of Representatives on April 14 but deliberations in the upper chamber stalled after Masahiro Imamura, who served as reconstruction minister, sparked outrage following a series of gaffes and ultimately resigned on April 26.

Minamisoma Mayor Katsunobu Sakurai called on Prime Minister Shinzo Abe on Wednesday to help introduce an advanced medical care system in the city north of the crippled Fukushima No. 1 nuclear plant.

Sakurai made the plea during his meeting with Abe at the Prime Minister’s Office.

The evacuation order was lifted last July in one part of the city but medical institutions and clinics had been on the decline even before the natural disasters and nuclear crisis.

In a bid to ease residents’ health concerns, the city office is developing a system where residents have access to doctors online.

Goichiro Toyoda, head of Medley Inc., which provides the remote medical care system, asked the government to revise regulations to allow a broader reach for the program.

Abe said he will do his best.

May 11, 2017

## Wildfires in no-go zone finally mastered

### Fire crews finally extinguish Fukushima blaze in no-go zone as officials battle radiation rumors

<http://www.japantimes.co.jp/news/2017/05/11/national/fire-crews-finally-extinguish-fukushima-blaze-no-go-zone-officials-battle-radiation-rumors/#.WRW9tNykKpo>

FUKUSHIMA – A wildfire near the Fukushima No. 1 nuclear plant has finally been extinguished **after a 12-day battle** waged by firefighters and Self-Defense Force troops in special protective gear left 75 hectares of tainted forest scorched, and **local officials scrambling to quash radiation rumors**.

The wildfire, which was started by lightning, broke out in the town of Namie on April 29 and spread to the adjacent town of Futaba, which co-hosts the meltdown-hit power plant. It was declared extinguished on Wednesday.

Since the area has been a no-go zone since the March 2011 nuclear crisis, residents are basically banned from returning to large portions of the two irradiated towns.

A local task force said that no one was injured by the wildfire and that there has been no significant change in radiation readings.

Because a large swath of the area scorched hadn't been decontaminated yet, firefighters donned protective gear in addition to goggles, masks and water tanks. They took turns battling the blaze in two-hour shifts to avoid heatstroke.

Ground Self-Defense Force troops and fire authorities mobilized close to 5,000 people while nine municipalities, including the Tokyo Metropolitan Government, provided helicopters.

The Fukushima Prefectural Government denied online rumors saying the fire was releasing radioactive material into the air from trees and other plant life that absorbed fallout from the power plant, which also lies partly in the town of Okuma. It published data on its website showing no significant change in radiation readings.

"We will let people not only in the prefecture, but also in other parts of Japan know about the accurate information," a prefectural official said.

The Kii Minpo, a newspaper based in Wakayama Prefecture, said in its May 2 edition that once a fire occurs in a highly contaminated forest, "radioactive substances are said to spread the way pollen scatters," explaining how radiation can get blown into the air.

The publisher said it received around 30 complaints, including one from a farmer in Fukushima, who criticized the evening daily for allegedly spreading an unsubstantiated rumor.

The daily issued an apology a week later in its Tuesday edition.

"We caused trouble by making a large number of people worried," it said.

Atsushi Kawamoto, head of the news division, said that while story may have caused some people anxiety, the newspaper will continue to report on matters of interest to its readers.

"That there's public concern about the spread of radiation is true," Kawamoto said.

On Tuesday, reconstruction minister Masayoshi Yoshino emphasized that unspecified radiation readings have been unchanged since before the fire.

"We will provide accurate and objective information," he said.

Commenting on the fact that there are no fire crews in the no-go zone, Yoshino said the Reconstruction Agency will consider what kind of support it can offer there the next time a major fire breaks out.

May 13, 2017

## Who wants to restart Hamaoka?

### Mayors near Hamaoka nuclear plant say wider consensus needed for reactor restarts

<https://mainichi.jp/english/articles/20170513/p2a/00m/0na/013000c>

The Hamaoka Nuclear Power Plant, idled for five years and now guarded by a 22-meter-tall tsunami wall, is seen on May 12, 2016. Omaezaki, Shizuoka Prefecture, is seen in the background. (Mainichi)

Seven heads of 11 Shizuoka Prefecture municipalities located within a 30-kilometer radius of Chubu Electric Power Co.'s Hamaoka Nuclear Power Plant said in a recent Mainichi Shimbun survey that they believe restarting the currently idled nuclear reactors requires agreement from not only the host prefecture and host city but also other municipalities around the plant.

As May 14 marks the sixth year after the Hamaoka nuclear plant suspended operations upon a request from the then government of Prime Minister Naoto Kan, the Mainichi Shimbun surveyed the Shizuoka Prefecture governor and mayors of 11 prefectural municipalities in the "Urgent Protective Action Planning Zone" (UPZ) around the plant. UPZs cover areas within a radius of 30 kilometers of a nuclear plant. While no legal framework has been set up regarding the scope of municipal consensus necessary to restart operations at a nuclear station, requests have been growing for a broader agreement among municipalities -- not just the host prefecture and host municipality -- in the wake of the Fukushima nuclear disaster.

Shizuoka Gov. Heita Kawakatsu, who is running for re-election in the gubernatorial race scheduled for June, has argued for the need to hold a referendum over the restart of the Hamaoka plant and has expressed a positive view of involving the 11 mayors in decisions regarding the matter. Consequently, the issue could become a key point in the upcoming gubernatorial election.

The Mainichi asked Gov. Kawakatsu and 11 municipal mayors in a multiple-choice form about the scope of local consensus over the Hamaoka plant restart. Five mayors said agreement from all 11 municipalities in the UPZ was necessary, one favored gaining consensus from four municipalities located within a 10-kilometer radius of the plant and another mayor wanted agreement from all municipalities in Shizuoka Prefecture. The mayor of Omaezaki, the host city of the Hamaoka plant, said restarting the idled nuclear plant only required the city's agreement.

Shigeki Nishihara, the mayor of Makinohara, neighboring Omaezaki, said consensus from municipalities in the UPZ was necessary. He commented that local governments (in that area) "have a responsibility to secure their residents' safety." Meanwhile, Yasuo Ota, the mayor of the town of Mori, who picked "agreement from all municipalities in Shizuoka Prefecture" to restart the Hamaoka plant, told the Mainichi, "It is necessary to hear broad opinions when it comes to gaining consensus over nuclear power as a national energy policy."

While the remaining four mayors checked "other" in the survey, most of them expressed their view of involving the national government in deciding the scope of local consensus.

Gov. Kawakatsu stressed that it is not an appropriate time to make a decision over the scope of local consensus and repeated that **a referendum over the issue of the Hamaoka plant is necessary from the standpoint of popular sovereignty.**

**No local government heads surveyed were actually in favor of restarting the Hamaoka nuclear plant, even under right conditions such as with approved safety measures.** Three city mayors said they were against restarting the plant. Seven local government chiefs chose "other" in the question, while the remaining two said they "cannot judge at the moment."

The Nuclear Regulation Authority's screening process of the Hamaoka nuclear plant has been prolonged as the No. 3 and No. 4 reactors being screened are the same "boiling-water type" reactors as the ones at the devastated Fukushima No. 1 Nuclear Power Plant. Furthermore, the estimated maximum ground motion at the Hamaoka nuclear station is likely to be raised because it is located directly above the hypocenter of a potential Nankai Trough megaquake.

## Fukushima: Where are the people?



## The evacuation orders for most of the village of Iitate have been lifted. But where are the people?

<http://www.fukushima-is-still-news.com/2017/05/fukushima-where-are-the-people.html>

by David McNeill and Chie Matsumoto

Special To The Japan Times

IITATE, FUKUSHIMA PREF. – **Some day when I have done what I set out to do, I'll return home one of these days, where the mountains are green, my old country home, where the waters are clear, my old country home.**

— *"Furusato," Tatsuyuki Takano*

A cherry tree is blooming in the spring sunshine outside the home of Masaaki Sakai but there is nobody to see it. The house is empty and boarded up. Weeds poke through the ground. All around are telltale signs of wild boar, which descend from the mountains to root and forage in the fields. Soon, the 60-year-old farmhouse Sakai shared with his mother and grandmother will be demolished.

"I don't feel especially sad," Sakai says. "We have rebuilt our lives elsewhere. I can come back and look around — just not live here."

A few hundred meters away the road is blocked and a beeping dosimeter begins nagging at the bucolic peace. The reading here is a shade over 1 microsievert per hour — a fraction of what it was when Sakai's family fled in 2011.



A radiation monitoring post is installed in the village of Iitate on March 27, ahead of the lifting of an evacuation order for most areas of the village. The post bears the message 'Welcome home.' | KYODO

The radiation goes up and down, depending on the weather, Sakai says. In gullies and cracks in the road, and up in the trees, it soars. With almost everyone gone, the monkeys who live in the forests have grown bolder, stopping to stare at the odd car that appears instead of fleeing, as they used to.

A cluster of 20 small hamlets spread over 230 square kilometers, Iitate was undone by a quirk of the weather in the days that followed the nuclear accident in March 2011. Wind carried radioactive particles from the Fukushima No. 1 nuclear power plant, which is located about 45 kilometers away, that fell in rain and snow on the night of March 15, 2011. After more than a month of indecision, during which the villagers lived with some of the highest radiation recorded in the disaster (the reading outside the village office on the evening of March 15 was a startling 44.7 microsieverts per hour), the government ordered them to leave.

Now, the government says it is safe to go back. With great fanfare, all but the still heavily contaminated south of Iitate, Nagadoro, was reopened on March 31.

The reopening fulfills a pledge made by Mayor Norio Kanno: Iitate was the first local authority in Fukushima Prefecture to set a date for ending evacuation in 2012, when the mayor promised to reboot the

village in five years. The village has a new sports ground, convenience store and udon restaurant. A clinic sees patients twice a week. All that's missing is people.

Waiting to meet Kanno in the government offices of Iitate, the eye falls on a book displayed in the reception: "The Most Beautiful Villages in Japan." Listed at No. 12 is the beloved rolling patchwork of forests, hills and fields the mayor has governed for more than two decades — population 6,300, famous for its neat terraces of rice and vegetables, its industrious organic farmers, its wild mushrooms and the black *wagyu* cow that has taken the name of the area.

The description in the book is mocked by reality outside. The fields are mostly bald, shorn of vegetation in a Promethean attempt to decontaminate it of the radiation that fell six years ago. There is not a cow or a farmer in sight. Tractors sit idle in the fields. The local schools are empty. As for the population, the only part of the village that looks busy is the home for the elderly across the road from Kanno's office.



A school sits deserted in Iitate, Fukushima Prefecture, in April. | DAVID MCNEILL

"The village will never return to how it used to be before the disaster," Kanno says, "but it may develop in a different way."

Recovery has started, Kanno says, wondering whether returnees will be able to start building a village they like.

"Who knows? Maybe one day that may help bring back evacuees or newcomers," Kanno says. "Life doesn't improve if you remain pessimistic."

Even for those who have permanently left, he adds, "it doesn't mean that their *furusato* can just disappear."

The pull of the *furusato* (hometown) is exceptionally strong in Japan, says Tom Gill, a British anthropologist who has written extensively about Iitate.

Yearning for it "is expressed in countless sentimental ballads," Gill says. "One particular song, simply titled 'Furusato,' has been sung by children attending state schools in Japan since 1914."

The appeal has persisted despite — or perhaps because of — the fact that the rural/urban imbalance in Japan is more skewed than in any other developed nation, Gill says; just 10 percent of the nation's population live in the country.

This may partly explain the extraordinary efforts to bring east Fukushima back to life. By one study, more than ¥2.34 trillion has been spent decontaminating an area roughly half the size of Rhode Island.

There has been no official talk of abandoning it. Indeed, any suggestion otherwise could be controversial: When industry minister Yoshio Hachiro called the abandoned communities “towns of death” in September 2011, the subsequent outrage forced him to quit a week later.

Instead, the area was divided into three zones with awkward euphemisms to suggest just the opposite: Communities with annual radiation measuring 20 millisieverts or less (the typical worldwide limit for workers in nuclear plants) are “being prepared for lifting of evacuation order,” districts of 20-50 millisieverts per year are “no-residence zones” and the most heavily contaminated areas of 50 millisieverts or more per year, such as Nagadoro, are “difficult-to-return.”

In September 2015, Naraha, which is located 15 kilometers south of the Fukushima No. 1 nuclear plant, became the first town in the prefecture to completely lift the evacuation order imposed after the triple meltdown. Naraha has a publicly built shopping street, a new factory making lithium batteries, a kindergarten and a secondary school.

A team of decontamination workers has been sent to every house — in some cases several times. Of the pre-disaster 7,400 residents, about 1,500 mainly elderly people have returned, the local government says, although that figure is likely inflated.

In Iitate, the cost of decontamination works out at about ¥200 million per household. That, and the passage of time, has dramatically reduced radiation in many areas to below 20 millisieverts a year. However, Kanno says, the cleanup extends to only 20 meters around each house, and three-quarters of the village is forested mountains. In windy weather, radioactive elements are blown back onto the fields and homes.

“All that money, and for what?” asks Nobuyoshi Itoh, a farmer and critic of the mayor. “Would you bring children here and let them roam in the fields and forests?”

Itoh opted to stay in one of the more heavily toxic parts of the village after everyone fled, with little apparent ill effect, although he says his immune system has weakened.

One of the reasons why Iitate was such a pleasant place to live before the nuclear crisis, he recalls, was its unofficial barter system. “Most people here never bought vegetables; they grew them,” he says. “I would bring someone potatoes and they would give me eggs. That's gone now.”

At most, he says, a few hundred people are back — but they're invariably older or retired.

“They alone will not sustain the village,” Itoh says. “Who will drive them around or look after them when they are sick?”

As the depth of the disaster facing Iitate became clear, local people began to squabble among themselves. Some were barely scraping a living and wanted to leave, although saying so out loud — abandoning the furusato — was often difficult. Many joined lawsuits against the government.

Even before disaster struck, the village had lost a third of its population since 1970 as its young folk relocated to the cities, mirroring the hollowing-out of rural areas across the country. Some wanted to shift the entire village elsewhere, but Kanno wouldn't hear of it.

Compensation could be a considerable incentive. In addition to ¥100,000 a month to cover the “mental anguish” of being torn from their old lives, there was extra money for people with houses or farms. A five-year lump sum was worth ¥6 million per person — twice that for Nagadoro. One researcher estimates a rough figure of ¥50 million for the average household, sufficient to leave behind the uncertainties and

worries of Iitate and buy a house a few dozen miles away, close enough to return for work or to the village's cool, tranquil summers.

Many have already done so. Though nobody knows the true figure, the local talk is that perhaps half of the villagers have permanently left. Surveys suggest fewer than 30 percent want to return, and even less in the case of Nagadoro.

Yoshitomo Shigihara, head of the Nagadoro hamlet, says many families made their decision some time ago. His grandchildren, he says, should not have to live in such a place.

"It's our job to protect them," Shigihara says. He lives in the city of Fukushima but returns roughly every 10 days to inspect his house and weed the land.

Even with so much money spent, Shigihara doubts whether it will bring many of his friends or relatives back. At 70 years of age, he is not sure that he even wants to return, he says.

"I sometimes get upset thinking about it, but I can't talk with anyone in Fukushima, even my family, because we often end up quarreling," he says. "People try to feel out whether the others are receiving benefits, what they are getting or how much they received in compensation. It's very stressful to talk to anyone in Iitate. I'm starting to hate myself because I end up treating others badly out of frustration."

Kanno has won six elections since 1996 and has overseen every step of Iitate's painful rehabilitation, navigating between the anger and despair of his constituents and the official response to the disaster from the government and Tokyo Electric Power Company Holdings (Tepco), operator of the crippled nuclear plant.





Ground Self-Defense Force members decontaminate areas tainted with radioactive substances in Iitate, Fukushima Prefecture, in December 2011. | KYODO

He wants more money to complete decontamination work (the government claims it is finished), repair roads and infrastructure. Returnees need financial support, he says. However, it is time, he believes, to end the monthly compensation, which, in his view, induces dependency.

“If people keep saying that life is hard, they will not be able to recover,” he says. “What we need is support for livelihoods.”

A new system gives seed money to people who voluntarily come back to start businesses or farms. “We don’t want to give the impression that we are influencing people’s decisions or forcing them to return,” the mayor says, using the phrase “*kokoro ni fumikomu*,” which literally means “to step into hearts.”

Yet, next year, thousands of Iitate evacuees will face a choice: Go back or lose the money that has helped sustain them elsewhere for six years. Evacuation from areas exposed to less than 20 millisieverts per year will be regarded as “voluntary” under the official compensation scheme.

This dilemma was expressed with unusual starkness last month by Masahiro Imamura, the now sacked minister in charge of reconstructing Tohoku. Pressed by a freelance reporter, Imamura tetchily said it was up to the evacuees themselves — their “own responsibility, their own choice” — whether or not to return. The comment touched a nerve. The government is forcing people to go back, some argued, employing a form of economic blackmail, or worse, *kimin seisaku* — abandoning them to their fate. Itoh is angry at the resettlement. For him, politics drives the haste to put the disaster behind. “It’s inhuman to make people go back to this,” he says. Like the physical damage of radiation, he says, the psychological damage is also invisible: “A lot of people are suffering in silence.” Itoh believes the government wants to show that the problems of nuclear power can be overcome so it can switch the nation’s idling nuclear reactors back on. Just four are in operation while the fate of 42 others remains in political and legal limbo. Public opinion remains opposed to their restart. Many people began with high hopes in Iitate but have gradually grown distrustful of the village government, says Kenichi Hasegawa, a farmer who wrote a book titled “Genpatsu ni Furusato o Ubawarete” (“Fukushima’s Stolen Lives”) in 2012. Right from the start, he says, the mayor desperately tried to hide the shocking radiation outside his office. “Villagers have started losing interest,” Hasegawa says. Meetings called by the mayor are poorly attended. “But they hold meetings anyway,” Hasegawa says, “just to say they did.” Kanno rejects talk of defeatism. A tourist shop is expected to open in August that will attract people to the area, he says. Some villagers are paving entrances to their houses, using money from the reconstruction budget. As for radiation, everyone “has their own idea” about its effects. The lifting of the evacuation is only the start. Itoh says he once trusted public officials but those days are long gone. By trying to save the village, he says, the mayor may in fact be killing it.



Bags filled with contaminated waste sit in a field in the village of Iitate, Fukushima Prefecture, in March 2016. | KYODO

May 15, 2017

## Playing on fears

### **Rising demand for air purifiers, nuclear shelters as threat looms**

<http://www.asahi.com/ajw/articles/AJ201705150036.html>

By MOTOFUMI WATANABE/ Staff Writer

HABIKINO, Osaka Prefecture--Sales of nuclear shelters and radiation-blocking air purifiers have surged in Japan in recent months as fears grow over North Korea's development of its nuclear missile capabilities. Osaka-based Shelter Co., which sells shelters and provides housing reinforcements against natural disasters including earthquakes, sold 10 Swiss-made air purifiers in March and April alone, compared with the 55 years it took to sell the previous 10 units, starting in 1962.

"It is bad that the threat from our neighbor country is rising. I hope the world will become a place where those kinds of emergency preparations are not needed," said Shelter President Seiichiro Nishimoto, 80.

The niche industry company has been overwhelmed with customer demand to set up the systems immediately, especially since Prime Minister Shinzo Abe on April 13 in the Diet warned of the dangers of North Korea's capability to fire a sarin nerve gas-loaded missile toward Japan.

A Swiss-made air purifier can easily be installed in an apartment costing from 1.8 million yen (\$15,900) to 2.8 million yen. The units boast of their capability to remove chemical substances and radioactive materials contained in the air coming from outside, according to a Shelter spokesperson.

Meanwhile, it takes several months to set up an underground shelter with steel-reinforced concrete, which costs 1.5 million yen or more for a space of 3.3 square meters. A shelter large enough to comfortably accommodate about a dozen people requires about 10 million yen.

Oribe Seiki Seisakusho Co. (Oribe accurate instrument producing company), which markets nuclear shelters in a variety of sizes, has also experienced soaring sales.

The Kobe-based company used to receive only about 10 orders for underground concrete-made nuclear shelters equipped with an air purifying function annually, but received 12 orders within a single month, April, for a shelter package that costs about 25 million yen, according to Nobuko Oribe, 73, company director.

May 17, 2017

## 2 weeks of fire in high-radiation zone

### **Radiation Checks After Fire**

<https://www3.nhk.or.jp/nhkworld/nhknewslines/nuclearwatch/radiationchecksafterfire/>

Japan's Forestry Agency is checking for the possible spread of radioactive contamination following a forest fire near the crippled Fukushima Daiichi nuclear plant.

The fire started at the end of April and **raged for almost 2 weeks. It destroyed 75 hectares in the area designated a no-go zone due to high radiation.**

Officials and forest fire experts are inspecting the site looking for changes in radiation levels and the potential for landslides that could spread radioactive substances.

Fukushima Prefecture officials say they have not detected any major changes in radiation levels so far.

Inspections will continue for another day. **The agency will publicize the results by the end of next month.**

## Public works with radioactive soil

### Test to recycle some screened soil from Fukushima

[https://www3.nhk.or.jp/nhkworld/en/news/20170517\\_23/](https://www3.nhk.or.jp/nhkworld/en/news/20170517_23/)

Japan's Environment Ministry is studying the possibility of using some screened soil cleared from Fukushima Prefecture after the 2011 nuclear power plant accident **in public works projects.**

The Japanese government says, within the next 30 years, it plans to dispose of some 22 million cubic meters of soil and other waste that will be removed from the prefecture as part of the decontamination effort.

To make the job easier, the Ministry hopes to use soil with acceptable levels of radioactive material to build roads, embankments and parks.

The ministry began testing the feasibility of such projects last month at a temporary storage site in Minami Soma, Fukushima Prefecture. The process was shown to the media on Wednesday.

The experiment involves sifting the soil to remove rocks, leaves and branches, then entering it into a machine that measures the level of radioactive substances. The soil is then piled into mounds.

Ministry officials will monitor radiation levels in the air and groundwater around the mounds.

They plan to draw up guidelines for local governments and construction workers by the end of March 2019.

**The ministry says it aims to use soil with up to 6,000 becquerels per kilogram of radioactive substances in roads and embankments, and up to 4,000 becquerels in parks.**

But residents in Minami Soma have requested that for the experiment, the Ministry only use soil with up to 3,000 becquerels per kilogram.

As a result, the officials are unable to test whether soil with higher levels of contamination is safe for recycling.

The project also raises **questions about the long-term monitoring of public works built with contaminated soil**, and how the Ministry will win the support of people who live nearby.

May 19, 2017

## Kansai Electric restart "grossly irresponsible"

### EDITORIAL: Kansai Electric restarts reactor as lights dim on nuclear power

<http://www.asahi.com/ajw/articles/AJ201705190014.html>

Kansai Electric Power Co. restarted the No. 4 reactor at its Takahama nuclear power plant in Fukui Prefecture on May 17, producing electricity through atomic energy for the first time since March 2016. The Osaka-based utility also plans to bring the No. 3 reactor at the plant back online in early June. The Osaka High Court has paved the way for the move by overturning an injunction banning the operations of the two reactors issued by the Otsu District Court in Shiga Prefecture.

Furthermore, Kansai Electric intends to start operating the No. 3 and No. 4 reactors at its Oi nuclear plant, also in Fukui Prefecture, in autumn. These two reactors have effectively passed the regulatory inspections by the Nuclear Regulation Authority.

But **none of the fundamental problems concerning these reactors has been resolved, including how to secure the safety of local residents during serious accidents or how to dispose of spent nuclear fuel.**

We feel compelled to express our opposition anew to any reactor restart before clearing up these problems.

Some 180,000 people live within 30 kilometers of the Takahama plant. The local governments concerned as well as the central government have worked out plans for widespread evacuations in the event of a serious accident at the plant.

But an evacuation drill conducted last summer exposed some serious shortcomings in these plans. It revealed, for instance, the possibility that certain areas could become isolated if an emergency occurs under poor weather conditions that make it impossible to use helicopters and ships.

There are also concerns that many people may try to flee in cars when a serious accident occurs, and getting caught in traffic jams and failing to escape the disaster.

Of the facilities to provide shelter for evacuees from areas around the Takahama plant during nuclear accidents, a total of 126 are located in areas deemed vulnerable to such natural disasters as landslides, according to a survey by The Asahi Shimbun.

**As many as 15 nuclear reactors are located in Fukui Prefecture, including those that are set to be decommissioned.**

**No effective action has been taken to prepare for simultaneous accidents at more than one of these reactors.**

There is no reliable plan, either, for tackling complicated challenges related to spent nuclear fuel.

The pools to store spent nuclear fuel within the nuclear plants are fast approaching their capacity.

Kansai Electric has pledged to the Fukui prefectural government to decide on the location of an interim storage facility for spent nuclear fuel by around 2020. When it made the promise to choose the location of

the storage facility, the utility had in mind the Kansai region around Osaka, which consumes most of the power generated at the nuclear plants in the prefecture.

But strong local concerns about the safety of the envisioned facility in the Kansai region have totally blocked the progress of the selection process.

The reactors at the Takahama plant will burn mixed-oxide (MOX) fuel, a mixture of uranium and plutonium oxide, in so-called pluthermal (plutonium thermal) operations.

Since spent MOX fuel cannot be handled even at the fuel reprocessing plant being built in Rokkasho, Aomori Prefecture, it has to be stored in the spent fuel pools for the time being.

Kansai Electric has stuck to its plan to continue operating its nine reactors, including three units that have been in service for more than four decades.

But it is behaving in a grossly irresponsible manner by restarting reactors without solving the raft of serious problems.

Six years have passed since the devastating accident occurred at the Fukushima No. 1 nuclear power plant.

The power supply in this nation has become stable despite nationwide reactor shutdowns thanks to broad power-saving efforts across the country and the effects of the liberalization of the power market.

Kansai Electric claims that restarting reactors will improve its earnings performance, enabling it to lower electricity rates.

Besides such economic benefits, however, there are few strong reasons for rushing to bring offline reactors back online again.

**The municipal governments of Osaka and Kyoto, which are among the leading shareholders of the utility, plan to again submit proposals calling on the company to end its dependence on nuclear power to the scheduled shareholders' meeting in June.**

Customers of the utility still have critical views about its plan to resume operations at its nuclear plants.

The outlook of its nuclear power-dependent business structure is dismal. The company should make serious efforts to find a way to wean itself from atomic energy.

May 21, 2017

## South Korean nuke accident would contaminate Japan too

### South Korean nuclear power plant accident would heavily taint western Japan: simulation

<http://www.japantimes.co.jp/news/2017/05/21/national/science-health/nuclear-accident-south-korean-plant-leave-western-japan-massively-contaminated-study/#.WSGxaNykKic>

Kyodo

A nuclear accident at a power plant in South Korea could cause wider radiation contamination in western Japan than on its home soil, a study by a South Korean scientist has shown.

If a cooling system fails at the spent-fuel storage pools at the Kori power plant's No. 3 reactor in Busan, massive amounts of cesium-137 would be released that could potentially reach western Japan, according to a simulation by Jungmin Kang of the Natural Resources Defense Council, a U.S. think tank.

In the worst-case scenario, up to 67,000 sq. km of Japanese soil would be contaminated and 28.3 million people would be forced to evacuate, the study said, though the fallout's spread would depend on the season.

As for South Korea, an accident at the plant could taint more than half of the nation by contaminating up to 54,000 sq. km, it said.

A total of 818 tons of spent nuclear fuel were stored in pools at the site as of the end of 2015, Kang said. He said an accident could be triggered not only by natural disasters but by terrorism or a missile from North Korea.

May 23, 2017

## Rice farming in Fukushima

### Trial rice farming begins in a Fukushima town

[https://www3.nhk.or.jp/nhkworld/en/news/20170523\\_36/](https://www3.nhk.or.jp/nhkworld/en/news/20170523_36/)

Rice farming resumed on Tuesday in a town near the damaged Fukushima Daiichi nuclear power plant, for the first time since the 2011 accident.

**The trial farm in Tomioka Town** is aimed at confirming the safety of rice grown in the area and resuming sales. Rice shipments from the town are currently restricted. Evacuation orders for most areas of the town were lifted last month.

Farmer Noboru Watanabe is planning to grow rice in a small paddy as part of the trial. The 56-year-old farmer now lives in Iwaki City in the prefecture.

On Tuesday, he returned briefly to Tomioka with his wife Satomi to plant seedlings.

**The surface of the paddy had been removed for decontamination and re-filled with sand. Chemicals have been applied to improve the soil.**

Watanabe said he is happy to feel like a farmer again, but that he is anxious about whether the rice will grow favorably. He pledged to manage his paddy well.

## Radioactive wildlife

Background:

Cesium, iodine, and strontium are naturally occurring elements. Like dozens of other elements in nature, they are not radioactive. Not usually.

But every nuclear reactor mass-produces radioactive versions of these normally stable elements. And so we have radioactive caesium (caesium-137), radioactive iodine (iodine-131), radioactive strontium (strontium-90), and literally hundreds of other human-made radioactive elements, never before encountered by living things prior to mankind's harnessing of nuclear energy — to produce atomic weapons and to fuel nuclear reactors.

When radioactive materials are spewed into the environment by fallout from nuclear explosions and nuclear meltdowns, they enter into the biosphere. They contaminate the food we eat, the air we breathe, and the water we drink. Many of these unstable atoms become incorporated into the innermost parts of our bodies.

Radioactive materials are dangerous to any nearby living cells. Some of the radiation-damaged cells develop into cancerous growths years later. Damages reproductive cells can lead to damaged offspring. Thus radioactive iodine, like regular iodine, goes to the thyroid gland, where it causes thyroid disorders including thyroid cancer. Radioactive strontium, like regular strontium, resembles calcium and is stored in the skeleton where it causes bone cancers and blood diseases including leukaemia. Radioactive cesium, like regular caesium, is chemically similar to potassium which has an affinity for the blood and soft tissues. So radioactive caesium tends to concentrate in the meaty parts of animals.

Pigs use their snouts to dig up and eat underground mushrooms, especially truffles and false truffles, which are rich in potassium. These plants are avid collectors of caesium along with potassium, and when the caesium is radioactive, the mushrooms become concentrated radioactive food for the pigs. Thus the bodies of wild boars become highly contaminated with radioactivity, to the point where their meat is unfit for human consumption. In Germany, the government has for many years paid cash to hunters who kill wild boars, to compensate them for the fact that they cannot eat the meat.

All because of the Chernobyl nuclear accident more than three decades ago. The same effects could result from a leaking radioactive waste repository.

Gordon Edwards.

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***31 years after Chernobyl***  
**Half of all wild boars in southwest**  
**Czech Republic are still radioactive —**

*Associated Press, via Business Insider, January 17, 2017*  
<http://tinyurl.com/hqquj4t>



PRAGUE (AP) — An agency in the Czech Republic says about a half of all wild boars in the country's southwest are radioactive and considered unsafe for consumption due to the 1986 Chernobyl nuclear disaster.

The State Veterinary Administration said Tuesday that radioactive boars still roam the Sumava mountain range on the Czech border with Germany.

It says the animals remain contaminated nearly 31 years after the Chernobyl disaster because they feed on an underground mushroom that absorbs radioactivity from the soil.

The nuclear reactor's explosion sent a radioactive cloud over Europe.

Cesium, the key radioactive material released, has a half-life of some 30 years. It can build up in the body, and high levels are thought to be a risk.

Similar problems with radioactive wild animals were reported in Austria and Germany.

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***Caught On Video:***

**Radioactive Wild Boar Roam Fukushima**

*By Tyler Durden, Zero Hedge, March 10, 2017*

<http://tinyurl.com/z5h2byp>

With humans long gone, and robots dying off amid the radiation, *Fukushima has become home to 'something else'*. When the exclusion zone was set up almost exactly 6 years ago this week - with the surrounding towns population evacuated to a safe distance - ***The Mirror*** reports that hundreds of wild boars, which have been known to attack people when enraged, descended from surrounding hills and forests into the deserted streets.

Now they roam the empty streets and overgrown garden's of Japan's deserted seaside town of Namie, foraging for food. However, the people of Namie are scheduled to return to the town at the end of the month, which means the bloody-toothed interlopers have to be cleared.

*"It is not really clear now which is the master of the town, people or wild boars,"* said Tamotsu Baba, mayor of the town.

*"If we don't get rid of them and turn this into a human-led town, the situation will get even wilder and uninhabitable."*

Reuters reports that more than half of Namie's former 21,500 residents have decided not to return and face the wild boars, however, a government survey showed last year, citing concerns over radiation and the safety of the nuclear plant, which is being decommissioned. Wild boar meat is a delicacy in northern Japan, but animals slaughtered since the disaster are too contaminated to eat. According to tests conducted by the Japanese government, some of the boars have shown levels of radioactive element caesium-137 that are 300 times higher than safety standards.

Authorities in the town of Tomioka say they've killed 800 so far, but officials there say that's not enough, according to Japanese media. The latest statistics show that in the three years since 2011, the number of

boars killed in hunts has grown to 13,000 from 3,000. But at town meetings earlier this year to prepare for the homecoming, residents had voiced worries about the wild boars. "I'm sure officials at all levels are giving some thought to this," said Hidezo Sato, a former seed merchant in Namie. *"Something must be done."*

May 24, 2017

## Two more: Safe enough to be restarted

### **Nuclear regulator adopts Ohi plant assessment**

[https://www3.nhk.or.jp/nhkworld/en/news/20170524\\_19/](https://www3.nhk.or.jp/nhkworld/en/news/20170524_19/)

Japan's nuclear regulator has paved the way for the restart of 2 nuclear reactors at the Ohi power plant on the Sea of Japan coast.

The Nuclear Regulation Authority has adopted a report stating that safety measures at the plant in Fukui Prefecture meet new requirements set after the 2011 Fukushima Daiichi nuclear crisis.

The NRA had been receiving public comment in February and March on the draft assessment of the plant's No.3 and No.4 reactors.

It says it has amended some expressions in the final document as a result.

The plant in Ohi Town is the 6th nuclear plant to gain regulatory approval for new safety measures.

Operator Kansai Electric Power Company says it will complete safety-related work by July. But the utility still needs regulatory approval for equipment design. It also needs local consent to restart.

Observers say a restart before winter is unlikely.

The Fukui District Court had ruled against restarting the Ohi plant reactors 3 years ago. The utility is appealing the ruling.

However, the town and prefectural governments could decide whether to agree to a restart before the matter is resolved in court.

A former regulator has told the appeal court that the utility could have underestimated the maximum potential size of an earthquake.

Kansai Electric rejected this statement, saying its examinations were detailed and its assessments conservative.

## **2 more nuclear reactors in Japan clear regulator's safety review**

<https://mainichi.jp/english/articles/20170524/p2g/00m/0dm/072000c>

TOKYO (Kyodo) -- The Nuclear Regulation Authority formally confirmed Wednesday that two reactors on the Sea of Japan have met the country's post-Fukushima safety standards, paving the way for their restart possibly this fall.

The authority gave its final approval to a screening report submitted by Kansai Electric Power Co. on the Nos. 3 and 4 reactors at Oi plant in Fukui Prefecture, bringing the number of reactors that have met the standards introduced after the 2011 nuclear accident at the Fukushima Daiichi plant to 12 at six power stations.

For the restart, Kansai Electric still has to pass on-site pre-operational checks by the authority and obtain approval from the Fukui prefectural government.

The utility said in a statement it will "make utmost effort for the early restart of nuclear plants whose safety has been confirmed by gaining the understanding of local residents."

Although the government of Prime Minister Shinzo Abe has been promoting the restart of nuclear reactors, most of them remain offline amid safety concerns among local residents following the Fukushima disaster triggered by a massive earthquake and tsunami.

The nuclear safety watchdog gave the green light to the restart of the reactors despite a pending lawsuit filed by local residents seeking to block the resumption of operations. Kansai Electric has appealed a Fukui District Court ruling in 2014 which banned it from running the two reactors due to safety concerns.

Seismologist Kunihiro Shimazaki, a former commissioner of the NRA, has warned that the authority may have underestimated quake hazards at the Oi plant.

Kansai Electric applied for the screening of the two reactors at the Oi plant in July 2013. With Wednesday's approval, all of its seven nuclear reactors at three power stations for which the utility has sought screening have cleared the safety standards.

Of the seven, the No. 4 reactor at Takahama plant in Fukui restarted operation on May 17, while the No. 3 reactor of the same plant is expected to get back online in early June.

June 6, 2017

## **5 workers exposed to radiation at JAEA's research facility in Ibaraki Pref**

### **Radioactive substance exposure at JAEA facility**

[https://www3.nhk.or.jp/nhkworld/en/news/20170606\\_31/](https://www3.nhk.or.jp/nhkworld/en/news/20170606_31/)

Japan's nuclear regulator says **5 workers** at a nuclear research facility have accidentally been exposed to a radioactive substance.

Officials at the Nuclear Regulation Authority secretariat say the incident happened at the **Japan Atomic Energy Agency's O-arai Research and Development Center in Ibaraki Prefecture**, shortly after 11 AM on Tuesday.

5 workers were inspecting fuel storage containers when a bag of powdered radioactive substance ripped and the contents spilled out.

The workers were wearing protective clothing and their faces were half-covered with masks, as they were in an area at risk of radioactive contamination.

Their hats and clothing were reportedly contaminated.

A maximum 24 becquerels of radioactive material was reportedly detected inside the noses of 3 of the 5 workers.

**The facility tests and develops new-type fuel for fast-breeder reactors that run on plutonium.**

Regulators say the material has not leaked outside the room where the spill occurred, and there has been no effect on the environment.

June 8, 2017

## "Sloppy" safety management

### **EDITORIAL: Radiation exposure reveals lax safety at nuclear agency**

<http://www.asahi.com/ajw/articles/AJ201706080031.html>

An exhaustive investigation should be made into an accident on June 6 that exposed workers to radiation at a nuclear energy research center in Oarai, Ibaraki Prefecture.

The probe should answer questions as to why the accident occurred and whether it was possible to prevent the internal radiation exposure.

Workers were exposed to radiation at the Japan Atomic Energy Agency's Oarai Research and Development Center after radioactive materials escaped from a nuclear fuel container.

One worker in his 50s was found to have 22,000 becquerels of plutonium in his lungs. A rough calculation of the 22,000-becquerel figure translates to internal radiation exposure of 1.2 sieverts over one year and 12 sieverts over 50 years.

The level of the worker's internal radiation exposure is certain to surpass the safety standards for workers at nuclear plants.

There have been no past examples of such a high level of internal radiation exposure in Japan.

So far, none of the workers has complained of health problems, according to the operator, but it is necessary to monitor their health conditions over the long term.

The accident occurred when the workers were inspecting the storage conditions of the nuclear fuel, such as uranium and plutonium.

When one of the workers opened the lid of the container, the plastic wrapping of the fuel was ripped, and radioactive materials were spewed into the air.

There are a raft of questions that need to be answered. Why was the wrapping ripped, for instance? Were there any problems with the work procedures?

What is disturbing is that the agency said it never assumed the plastic might rip.

Plutonium, when absorbed into a human body, stays inside for a long time, continuing to emit radiation and possibly causing cancer and other health problems.

If it leaks outside the facility, local residents in surrounding areas also face the risk of developing health problems.

In dealing with plutonium, maximum care is required for any type of work. The accident inevitably raises the suspicion that the agency failed to take sufficient care in dealing with potential safety risks.

According to the agency, the research center has a facility for handling radioactive materials in a tightly sealed environment. But the facility was not used for the work. The workers, although they wore protective clothing, wore face masks that only covered their mouths and noses instead of full-face masks to cover their entire faces.

Usually, workers at places where they can be exposed to radiation wear full-face masks.

The agency said it did not expect that the workers could be exposed to radiation, but they wore the half-face masks just in case.

It is doubtful whether the safety management system for the workplace was adequate. Thorough efforts should be made to delve into this issue.

In 2015, the Nuclear Regulation Authority said the Japan Atomic Energy Agency was not sufficiently equipped to safely operate the Monju prototype fast-breeder reactor.

It was also revealed that the agency's management of radioactive materials at its spent-fuel reprocessing plant in the village of Tokai, Ibaraki Prefecture, was grossly lax.

The agency has already announced a plan to scrap the research center that has been hit by the latest accident. It is now working to confirm the types and conditions of radioactive materials at the center for its closure.

Isn't it that the agency's attention to safety issues at the center has declined as its research and development functions have stopped?

The agency should make a fresh and rigorous review of its awareness of the safety risks involved in dealing with radioactive materials.

June 9, 2017

## **Editorial: Radiation exposure accident a result of JAEA's sloppy safety management**

<https://mainichi.jp/english/articles/20170609/p2a/00m/0na/014000c>

An accident that exposed five workers to radiation at the Oarai Research & Development Center of the Japan Atomic Energy Agency (JAEA) during a check of radioactive materials has raised serious suspicions of sloppy safety management at the facility.

- **【Related】** Ibaraki nuclear research facility under scrutiny after accident; gas suspected in rupture
- **【Related】** High level of radiation found in lungs of nuclear facility worker

Of the five who were exposed to radiation during the June 6 incident, a worker in his 50s was found with 22,000 becquerels of plutonium-239 in his lungs. He is expected to suffer internal radiation exposure of 1.2 sieverts over a period of one year and 12 sieverts over the course of 50 years. This exposure is certain to greatly exceed the annual limit of 0.05 sieverts for workers involved in handling radiation, making the JAEA incident the worst internal radiation exposure accident in Japan.

Plutonium emits alpha rays that can attack and damage nearby cells. While medication to help discharge radioactive materials from the body has been administered to the five workers, concerns have been raised over the increased risk of cancer. Long-term treatment, including psychological care, is essential for these workers.

The incident occurred at the fuel research building where research and development of fuel for fast nuclear reactors and other materials had been carried out. The facility was set to close down, and the five workers were examining the radioactive material inside a storage container that had not been opened for 26 years. A plastic bag holding the radioactive material burst open when they were about to remove the bag from the container, and the material was discharged.

It is a known fact that internal plutonium exposure seriously affects people's health. Despite this common knowledge, the work to inspect the container was done on an open workbench. Furthermore, the five workers were wearing half-face masks that covered only the lower half of their faces.

The internal exposure could possibly have been avoided if a sealed workbench and full-face masks had been used.

There is an understanding -- taken for granted in the nuclear business -- that safety management deserves extreme care. But it appears this was lacking.

Nuclear structures operated by the JAEA are aging, and the organization plans to decommission 44 of the 89 facilities it owns. But it is unacceptable to proceed with decommission projects without a sense of caution just because they are designated post-research cleanup work.

After it was learned that the JAEA failed to inspect a number of devices at its Monju prototype fast-breeder reactor in Fukui Prefecture, the Nuclear Regulation Authority two years ago recommended that the JAEA be replaced as the operator of the trouble-plagued reactor. The latest incident reveals that the reactor operator has not learned a lesson from that time.

The JAEA needs to take this accident seriously as the organization is responsible for taking measures against potential accidents.

June 13, 2017

## Radiation safety limits exceeded in several schools



## Radiation levels exceeding state-set limit found on grounds of five Chiba schools

<http://www.japantimes.co.jp/news/2017/06/13/national/science-health/radiation-levels-exceeding-state-set-safety-limit-found-grounds-five-chiba-schools/#.WUA4ndykJLM>

Kyodo, Staff Report

Radiation levels exceeding the government-set safety limit of 0.23 microsieverts per hour have been detected on the grounds of five schools in the city of Kashiwa, Chiba Prefecture, the prefectural board of education said Monday.

Between late April and mid-May, the board officials detected **radiation levels of up to 0.72 microsieverts per hour in certain areas of the schools, including Kashiwa High School and Kashiwa Chuo High School.**

The areas — including soil near a school swimming pool and drainage gutters — are not frequented by students, but the board closed them off and will work to quickly decontaminate them, the officials said.

**Kashiwa has been one of the areas with high radiation readings since the 2011 nuclear disaster** at Tokyo Electric Power Company Holdings Inc.'s Fukushima No. 1 power plant.

According to NHK, the board of education had been checking the soil on the school premises in Kashiwa after radiation levels beyond the state limit were detected in shrubbery near the city's public gymnasium. The board will announce the results of radiation tests at other schools in the prefecture around the end of July, NHK reported.

June 18, 2017

**Another accident...**

## Another radiation exposure accident

<http://www.japantimes.co.jp/opinion/2017/06/18/editorials/another-radiation-exposure-accident/#.WUZjjFFpyos>

A radiation accident earlier this month at the Japan Atomic Energy Agency's facility in Oarai, Ibaraki Prefecture, underlines the need for operators of facilities handling radioactive substances to make sure there are no flaws in their safety systems and procedures. **Such caution is all the more important since Japan will have to manage large amounts of radioactive substances in decommissioning nuclear power reactors, including the agency's fast-breeder reactor Monju, which the government decided last December to take out of service.**

The accident occurred when five workers were taking stock of 300 grams of uranium oxide and plutonium oxide put in a cylindrical stainless steel container at the Plutonium Fuel Research Facility in the agency's Oarai Research and Development Center. The powdery substances had been encased in a double-wrapped plastic bag placed inside the container, whose lid was fastened with six bolts. When one of the workers opened the lid, the black powder sprayed out under pressure, exposing the men to radiation. The five workers were admitted to the National Institute of Radiological Sciences's hospital in Chiba for treatment. The fiasco brings to mind the 1999 criticality accident at a nuclear fuel processing facility operated by JCO Co. in Tokai, Ibaraki Prefecture, which killed two workers — the worst nuclear radiation accident in Japan prior to the 2011 meltdowns at the Fukushima No. 1 power plant. The fatal accident occurred when three workers were preparing a small batch of nuclear fuel using uranium enriched to 18.8 percent. They were handling the nuclear fuel in stainless steel buckets. The company apparently failed to give workers proper safety training, and sloppiness was the clear cause of the accident.

Sloppiness cannot be ruled out in the Oarai facility accident either. It must be noted that **the incident occurred when the agency initiated work to examine the radioactive substances following an order by the Nuclear Regulation Authority to improve its operations. The NRA issued the order to the Oarai facility and six other facilities handling radioactive substances after it found that they had kept spent uranium and plutonium over an extended period in equipment not designed for long-term storage, in violation of the regulations. In one case, radioactive substances had been stored this way for more than 35 years. The container at the Oarai facility had not been opened for 26 years.** Plutonium emits alpha particles, which are helium nuclei, and it decays or transforms into a different type of radioactive substance. It is suspected that the extended storage caused helium, which was formed as a result of the plutonium's alpha decay, to fill the container and pressurize the contents. The agency had no guidelines on how frequently the substances inside the container should be examined. In this connection, it must be pointed out that Japan has no official rules on the final disposal of radioactive substances used for research purposes like those at the Oarai facility.

In the room where the radiation exposure accident occurred, 55 becquerels of radioactive substances were detected — roughly 14 times the allowed limit of 4 becquerels. It was also found that the five workers were kept in the room for three hours following the accident until preparations for decontamination work were completed. One wonders whether the agency could not have acted more quickly. The five workers had been wearing masks, gloves and other protective gear when the accident occurred. It must be determined whether the agency had trained them in the proper use of the gear as they may have inhaled radioactive substances through small gaps between the masks and their faces. At first, the agency reported that up to an unprecedented 22,000 becquerels of plutonium was detected in the lungs of the worker who opened the container — which translates into 1.2 sieverts over a year, far above the maximum of 0.05 sievert per year allowed by the government for designated nuclear workers.



But later the agency corrected the report by saying that the plutonium may have been on his skin, not in his lungs. **This raises the possibility that the agency failed to adequately decontaminate the worker's skin.**

A series of troubles at the Monju reactor since the leakage of sodium coolant in 1995 highlighted the lack of safety consciousness on the part of the agency and its predecessor. The Oarai accident points again to the same problem. **The agency should fully disclose all information pertaining to the accident.** To ensure safety, its operations should also be thoroughly examined, including the condition of stored radioactive substances and the work procedures for handling such materials. All the facilities in Japan using radioactive substances should follow suit. The NRA's responsibility to oversee these facilities is heavy.

June 21, 2017

## NRA in Ibaraki Research Center

### Nuclear regulator inspects accident site

[https://www3.nhk.or.jp/nhkworld/en/news/20170621\\_29/](https://www3.nhk.or.jp/nhkworld/en/news/20170621_29/)

Japan's nuclear regulator has conducted an urgent inspection of a research facility north of Tokyo where workers this month were exposed to radioactive substances.

Officials from the Nuclear Regulation Authority visited the Oarai Research and Development Center in Ibaraki Prefecture on Wednesday. The facility is operated by the Japan Atomic Energy Agency, the country's major nuclear research organization.

On June 6th, workers at the facility inhaled radioactive materials after a bag of the substances burst open when they were checking a nuclear fuel container.

Officials from the regulator want to know whether the processes to handle hazardous materials were proper. Workers failed to use a sealed worktable.

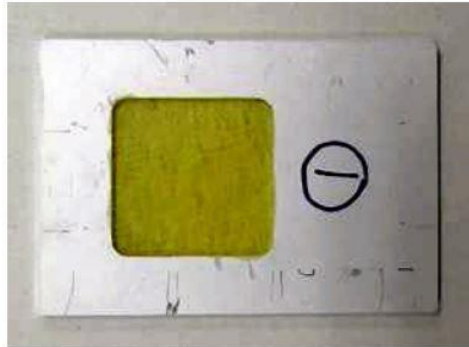
Officials are also looking into why the workers needed more than 3 hours after the accident to evacuate the contaminated space.

The nuclear regulator has only once before carried out another urgent inspection. That was in 2013, at Fukui Prefecture's Monju prototype fast-breeder reactor. The inspection came after revelations of missed safety checkups. Monju is also run by the Japan Atomic Energy Agency.

The regulator's chairman Shunichi Tanaka told reporters that the JAEA should serve as a model for using nuclear power, but that it is actually the opposite. He added that a thorough analysis is needed to identify the root cause of the accident.

June 23, 2017

## Explanation?



A prepared test sample that is the same type as what the JAEA used to use in experiments. Plutonium powder was set in the center of an aluminum sheet using epoxy resin. The resin piece was removed from the sheet and placed in a polyethylene container. (Provided by the Japan Atomic Energy Agency)

### **Resin stuck on plutonium could be to blame for Ibaraki accident**

<http://www.asahi.com/ajw/articles/AJ201706230052.html>

Gas produced when radiation caused an adhesive to decompose is believed to have led to the leak of a container holding plutonium that contaminated five workers, the Japan Atomic Energy Agency (JAEA) has announced.

The five workers at JAEA's Oarai Research and Development Center in Oarai, Ibaraki Prefecture, were accidentally exposed to radioactive plutonium on June 6 when they were handling 26-year-old radioactive waste stored at the facility.

The tightly sealed polyethylene container wrapped in plastic bags contained radioactive substances including plutonium powder set in epoxy resin, JAEA staff said at a June 22 meeting with the special investigation team from the science and technology ministry set up to determine the cause of the accident. JAEA said it is now investigating further the possibility that radiation may have decomposed the epoxy resin to produce gas that seeped out of the container and caused its plastic coverings to tear and contaminate the workers.

The agency found out about the resin by interviewing employees who were involved in experiments using radioactive substances and disposal of used test samples in 1991, when the container that caused the accident was first sealed.

According to the JAEA report, researchers at the facility conducted experiments to analyze the atomic structure of plutonium using X-rays in 1991. To do that, plutonium powder was mounted on a sheet of aluminum using the epoxy resin as adhesive.

After experiments, the piece of resin was removed from the aluminum sheet and placed in the polyethylene container. Then, it was wrapped in the plastic bags and placed in a stainless steel storage container.

JAEA did not inspect the state of the contents of the stainless steel container for the next 26 years.

The agency plans to submit a detailed report on the cause of the accident to the Nuclear Regulation Authority (NRA) and other parties as early as late July.

## About the US sailors

### **Court: Sailors can sue in U.S. over 3/11 Fukushima nuclear disaster**

<http://www.asahi.com/ajw/articles/AJ201706230015.html>

THE ASSOCIATED PRESS

SAN FRANCISCO--A federal appeals court says members of the U.S. Navy can pursue their lawsuit in a U.S. court alleging radiation exposure from Japan's Fukushima No. 1 nuclear power plant.

The 9th U.S. Circuit Court of Appeals in San Francisco ruled Thursday that the sailors for now don't have to make their legal claims in Japan.

Their lawsuit accuses Tokyo Electric Power Co. and the Japanese government of conspiring to keep secret the extent of the radiation leak following a 2011 earthquake and tsunami that killed thousands of people. The plaintiffs arrived off the coast of Fukushima aboard the U.S.S. Ronald Reagan and other vessels to provide humanitarian aid a day after the quake.

They filed their lawsuit in 2012 in federal court in San Diego.

An email to an attorney for Tokyo Electric was not immediately returned.

See also:

<http://www.japantimes.co.jp/news/2017/06/23/national/crime-legal/9th-circuit-court-navy-sailors-can-sue-u-s-fukushima-disaster-radiation-exposure/#.WVEILIFpyos>

July 5, 2017

## JAEA may have violated safety rules

### **JAEA may have violated safety rules**

[https://www3.nhk.or.jp/nhkworld/en/news/20170705\\_39/](https://www3.nhk.or.jp/nhkworld/en/news/20170705_39/)

Japan's nuclear regulator says the operator of a nuclear energy research facility north of Tokyo may have violated safety regulations. Workers at the facility were accidentally exposed to radioactive materials last month.

The Nuclear Regulation Authority has conducted an on-site investigation into the Oarai Research and Development Center in Ibaraki Prefecture, which is operated by the Japan Atomic Energy Agency.

A bag containing plutonium and other radioactive materials was ripped open in early June while workers at the facility were checking fuel storage containers.

NRA officials met on Wednesday to share their findings.

They noted that JAEA officials did not consider the possibility that a bag containing nuclear fuel materials may burst open.

They also said that the operator did not draw up the required work plan documents despite the fact that they had not checked the inside of the nuclear fuel containers for a long period.

NRA Chairman Shunichi Tanaka criticized JAEA for its lack of knowledge and preparedness on safety. He said decisions should not be made on baseless confidence when handling plutonium.

The NRA expects to receive a final report on the incident from JAEA toward the end of August.

## Dumping nuclear waste directly into Pacific Ocean

### Japan To Dump Deadly Fukushima Nuclear Waste Into Pacific Ocean

<http://yournewswire.com/japan-fukushima-nuclear-waste-dump-ocean/>

**Japan has announced plans to dump 920,000 tons of deadly Fukushima nuclear waste into the Pacific ocean, saying that they can no longer contain the waste on land.**

Following the major tsunami in 2011 that resulted the reactors at the Fukushima Daiichi Nuclear Power Plant shutting down, the constant leaking of radiation that has occurred in the aftermath has been dubbed one of the worst nuclear disasters since Chernobyl.

Newstarget.com reports: Six years after the disaster, the three crippled reactors are still leaking water with high levels of radiation into the Pacific Ocean. Though the Pacific Ocean is a vast stretch of water, Fukushima's radiation is reaching the coast of the United States, Canada, and Mexico, contaminating the fish we eat and the water we swim in.

While these findings were first considered "fake news" and laughed away, researchers can no longer deny that Cesium-134, the so-called fingerprint of Fukushima, has been found in seawater and fish along the Western Coast of the Americas.

In TRT's daily news show "Insight," hosted by former Sky News presenter Martin Stanford, the head of international atomic energy agency has called on the world to help with the cleanup of the Fukushima site.

**Japan fails to clean up the mess, plotting to discharge nuclear waste into the ocean**

Ever since the tsunami put the Fukushima plant out of business, one of the ongoing core tasks has been to cool the reactors and prevent the release of highly contaminated water leaking from the three units. Though it has been six years since the disaster, the cleanup is making slow progress.

Mark Whitby, chairman and design director of the engineering and consultancy firm WME Consultants, explained that today about 400 tons of water go into each reactor to cool it. Part of the highly radioactive water is recycled to re-cool the reactors, and the rest goes into big tanks, which are stacking up at a fast rate. As reported by TRT, Japan is running out of storage space. There are currently about a 1,000 storage tanks holding 920,000 tons of contaminated water.

As if the marine life isn't struggling enough already by the vast amounts of plastic in the oceans, the Japanese are now talking about dumping these tanks with nuclear wastewater directly into the sea because they cannot keep building and storing these reservoirs, Whitby told TRT.

Also, to this day researchers are uncertain whether the melted cores are still within the containment structures or if they have burrowed through the vessels, contaminating the groundwater that ends up in the Pacific Ocean. Since many robots, sent out to assess the damage, have been destroyed due to the high levels of radiation that melts their electronics, it is tough to get this information.

Recently, however, one camera lasted long enough to show that molten core debris has burned through the bottom of the inner reactor wall. The radioactive debris is now burrowed deep into the foundations of the reactor, causing the highest radiation levels measured around the reactor since the triple core meltdown six years ago. Until these cores can be retrieved, the reactors will keep leaking radioactive material into the groundwater.

According to Japan's former prime minister, the current Prime Minister Shinzo Abe is lying about the situation being under control. Abe has also been criticized for forcing more than 6,000 people to return to their home in areas that are still highly contaminated zones.

According to the Japanese government, Japan will be safe by 2020. Therefore, it will hold the Olympic baseball and softball in the Fukushima area to show "Japan is cool," even if their reactors are still posing a serious threat.

For more info watch the full Insight episode below.

<https://youtu.be/hMr3pBAPgLg?t=8>

<https://youtu.be/hMr3pBAPgLg>

## MOX shipment leaves France

### MOX fuel to be shipped from France to Japan

[https://www3.nhk.or.jp/nhkworld/en/news/20170705\\_34/](https://www3.nhk.or.jp/nhkworld/en/news/20170705_34/)

Preparations for shipping MOX, or mixed oxide, fuel to be used in a recently restarted nuclear reactor in Fukui Prefecture, central Japan, is underway in northwestern France.

Two vessels designed for shipping nuclear materials are expected to leave the port of Cherbourg on Wednesday.

French nuclear energy firm Areva manufactured the recycled fuel, which is a mixture of plutonium extracted from spent nuclear fuel and uranium.

The MOX fuel is to be used in the No.4 reactor at the Takahama nuclear plant, which Kansai Electric Power Company restarted in May.

Two specially designed casks containing MOX fuel assemblies were mounted on the vessels by a crane after they were transported to the port on a trailer.

Security was tight as anti-nuclear activists rallied near the port.

According to Areva, this is the sixth time the company is shipping MOX fuel to Japan and the second time since the 2011 nuclear accident in Fukushima Daiichi nuclear plant.

The company says the shipment will take about two to three months, but that the route will be announced in two weeks as a precaution.

Areva is facing worsening business conditions as more countries aim to phase out nuclear power plants. The company's spokesman said it hopes to continuously provide MOX fuel to Japan.

July 6, 2017

### **MOX fuel shipment leaves France for Japan**

[https://www3.nhk.or.jp/nhkworld/en/news/20170706\\_17/](https://www3.nhk.or.jp/nhkworld/en/news/20170706_17/)

A shipment of reprocessed nuclear fuel destined for a Japanese power plant has left France.

Two specially fitted vessels left the port of Cherbourg, northwestern France, on Wednesday.

French nuclear energy firm Areva manufactured the MOX, or mixed oxide, fuel, a mixture of uranium and plutonium reprocessed from spent nuclear fuel.

The fuel is to be used in the No. 4 reactor at the Takahama nuclear plant, which Kansai Electric Power Company restarted in May.

Areva says it is the sixth time the company has shipped MOX fuel to Japan, and the second since the 2011 nuclear accident at the Fukushima Daiichi nuclear plant.

The company says the route of the shipment, which will take about 2 to 3 months to arrive in Japan, will be withheld for two weeks for security reasons.

Areva's nuclear business is struggling. Tough post-Fukushima safety requirements have hit construction of nuclear power plants worldwide.

A company official said they hope to continue supplying MOX fuel to Japan.

July 8, 2017

## Cyber intrusion into US nuke system

### **FBI and DHS detect cyberattack on US nuclear power station**

<http://www.beyondnuclear.org/security/2017/7/8/fbi-and-dhs-detect-cyberattack-on-us-nuclear-power-station.html>

The Federal Bureau of Investigation and the United States Department of Homeland Security are alerting US electric power generators, including nuclear power plant operators, of cyberattacks on the nation's energy infrastructure by foreign-based hackers.

In a joint statement issued July 7, 2017, the nation's top security agencies said that they "are aware of potential cyber intrusion affecting entities in the energy sector."

The statement said that the cyberattack appears to be "limited to administrative and business networks," but it is very likely part of an ongoing probe and broader research effort to identify vulnerabilities in cybersecurity for the electric power system including generators and the power grid. The North American Electric Reliability Corp. (NERC), an industry regulatory group organized to assure the reliability and security of the nation's bulk power system, is reported to be aware of the intrusion and communicating through its secure network. Unnamed government authorities have identified the Wolf Creek nuclear power station in Burlington, Kansas as one of the facilities that was probed by malware embedded in Microsoft Word documents sent as fake resumes to onsite administrators. While no safety systems at the nuclear power station are believed to have been threatened by this cyberattack, it remains a growing concern that this intrusion was a test run for reconnaissance conducted by an adversary.

Bloomberg News and other sources are reporting that Russian hackers are among the suspects responsible for probing the US energy facilities.

While nuclear power station safety systems by design are more or less isolated from an external cyberattack through the internet, the vulnerability of the electric grid that initially provides 100% of all electrical power to those same safety systems is no longer a theoretical concern. The electric grid is now potentially a cyber target potentially for broader military operations or punitive measures in retaliation for some U.S. action. Nuclear power stations are designed to respond to the loss of offsite power from the grid with the automatic startup of redundant onsite emergency power systems such as diesel generators. However, prolonged or recurring offsite power outages can challenge the durability and reliability of emergency power systems. Moreover, every table top and mock security training exercise for defending a nuclear power plant from an armed assault begins with first knocking out the electric grid. Without offsite

power, the backup emergency power systems become part of an onsite target set for sabotage to cause a nuclear meltdown with widespread radioactive consequences.

US Senator Edward Markey (D-MA), top Democrat on the International Cybersecurity subcommittee, has now initiated an investigation. The subcommittee sent letters to the heads of the Department of Defense, Department of Energy, Department of Homeland Security, Federal Bureau of Investigation and the Nuclear Regulatory Commission about how the US is defending its nuclear power plants from foreign attacks and threats. The subcommittee is seeking answers on the number of nuclear plants that suffered attacks, who coordinates cybersecurity for nuclear power and recommendations for improving security. Markey has requested answers by Aug. 10.

Clearly, more needs to be done to fortify the electric grid system that nuclear power station safety systems and other power generators rely upon. Pre-attack measures could include building in more manual control of the grid and post-cyber attack measures include more sophisticated computer forensics. However, the priority must be to phase out these inherently dangerous and radiologically-enhanced targets and replace them with benign, sustainable and renewable solar and wind power generators.

July 10, 2017

## Pledge to continue nuke ban campaign

### Hiroshima peace activist vows to continue nuke ban campaign after UN treaty adoption

<https://mainichi.jp/english/articles/20170710/p2a/00m/0na/014000c>

HIROSHIMA -- The daughter of a prominent peace activist celebrated the historic nuclear weapons ban treaty, which was adopted at a United Nations conference in New York on July 7, as even disarmament campaigners had long believed such a pact to be "unrealistic."

- **【Related】** A-bomb survivor gives powerful speech after anti-nuke treaty adopted at UN
- **【Related】** Over 120 nations adopt first treaty banning nuclear weapons
- **【Hibakusha Series】**

"We pledge to carry on in unison until nuclear weapons are eradicated from this world," said Haruko Moritaki, the 78-year-old co-director of the Hiroshima Alliance for Nuclear Weapons Abolition, as she read a joint statement from the group out loud during a rally in front of the Atomic Bomb Dome in Hiroshima on July 8. As a peace advocate who has long called for an anti-nuclear weapons agreement, Moritaki saw the deal at the U.N. as a result of "hibakusha" (A-bomb survivors) and citizens working together to convince the world that nuclear weapons are inhumane, and that countries with good intentions accepted their claim.

Moritaki is the second daughter of late peace activist and hibakusha Ichiro Moritaki. She got involved in nuclear disarmament movement after she retired from teaching. After seeing the destruction caused by



depleted uranium munitions used in the Iraq War firsthand, Moritaki felt keenly the true meaning of her father's words: "Human beings and nuclear technology cannot coexist."

In March 2010, Moritaki sent a letter emphasizing the need for a nuclear weapons ban treaty to the International Committee of the Red Cross (ICRC) and received a reply agreeing with her claims. The ICRC's then president Jakob Kellenberger subsequently became the first committee head to appeal for the establishment of a ban, saying that nuclear weapons were a threat to human existence.

However, parties involved in anti-nuclear weapons activities responded coldly to this move. When Moritaki distributed flyers at the U.N. Review Conference for the Treaty on the Non-Proliferation of Nuclear Weapons, she was showered with harsh criticism by a British disarmament activist that she was putting the cause in a disadvantageous position by making unrealistic demands, and that her action was premature.

Nevertheless, Moritaki persisted, and continued participating in anti-nuclear weapons activities with international nongovernmental organizations.

What motivated the latest U.N. adoption was a series of Humanitarian Impact of Nuclear Weapons conferences first held in Norway in 2013, with participants from international NGOs and representatives from over 100 countries. The movement for the adoption of the ban treaty was gaining momentum, while the U.N. review conference was struggling to achieve results.

Moritaki was unable to join the latest conference in New York as her cancer had worsened, but says she was too excited to sleep on the night the treaty was adopted. She said she told her father, "We did it," in her heart.

"I have continued working (for the anti-nuclear weapons movement) while carrying on the hearts of A-bomb victims and those who have passed away before accomplishing their goals," said Moritaki. She is determined to continue calling for ratification of the treaty by non-signatory countries including Japan.

July 11, 2017

## Powerful earthquake shakes Kagoshima

### **Magnitude-5.2 quake strikes off Kagoshima at lunchtime**

<http://www.asahi.com/ajw/articles/AJ201707110035.html>

KAGOSHIMA--A powerful earthquake centering on Kagoshima Bay here in the southern island of Kyushu struck at about 11:55 a.m. on July 11, but no tsunami warning was issued or abnormalities reported at a nuclear power plant in the prefecture.

The earthquake, which registered an upper 5 on the Japanese seismic intensity scale of 7, struck Kagoshima, while Ibusuki and Minami-Kyushu, both Kagoshima Prefecture, were shaken by a lower 5 temblor.

Quakes with an intensity scale of 4 were felt in Kanoya, Makurazaki, Satsuma-Sendai, Hioki and other municipalities in the prefecture.

According to the Japan Meteorological Agency, the focus of the earthquake was at a depth of about 10 kilometers. The magnitude was estimated at 5.2.

Kyushu Electric Power Co. reported no abnormalities in the **Sendai nuclear power plant's No. 1 and No. 2 reactors**, located in Satsuma-Sendai, which were operating as usual. In addition, dosimeters around the reactors have not recorded a spike in radiation levels. **Genkai nuclear plant's No. 3 and No. 4 reactors** in Saga Prefecture in northern Kyushu remain off-line and no problems were reported there due to the quake, Kyushu Electric said.

## **Strong quake hits Kagoshima prefecture**

[https://www3.nhk.or.jp/nhkworld/en/news/20170711\\_18/](https://www3.nhk.or.jp/nhkworld/en/news/20170711_18/)

A strong earthquake has struck Kagoshima prefecture in southwestern Japan.

Japan's Meteorological Agency says a quake with an estimated magnitude of 5.3 occurred just before noon on Tuesday. It says there is no risk of a tsunami.

Officials say the quake was focused in Kagoshima Bay, 10 kilometers below the seabed.

Tremors with an intensity level of 5-plus on the Japanese scale of 0 to 7 were recorded in the Satsuma region of Kagoshima prefecture. An intensity level of 4 was observed in the Osumi region.

July 14, 2017

## **Cleanup requires release of (contaminated) water into sea**

### **TEPCO chair: Treated water must be released into sea**

<http://www.asahi.com/ajw/articles/AJ201707140020.html>

THE ASSOCIATED PRESS

The new chairman of Tokyo Electric Power Co. says the utility needs to stop dragging its feet on plans to dump massive amounts of treated but contaminated water into the sea and to make more money if it's ever going to succeed in cleaning up the mess left by meltdowns more than six years ago at the tsunami-hit Fukushima No. 1 nuclear power plant.

Takashi Kawamura, an engineer-turned-business leader who previously headed Hitachi's transformation into a global conglomerate, is in charge of reviving TEPCO and leading the cleanup at the Fukushima No. 1 plant. In an interview Thursday with selected media, Kawamura said despite the massive costs of the cleanup and meeting tighter safety requirements, nuclear power is still vital for Japan's national security. Below are highlights from the interview, where Kawamura spoke in Japanese:

### **CLEANUP REQUIRES RELEASE OF WATER**

Massive amounts of radiation-contaminated water that has been processed and stored in hundreds of tanks at the plant are hindering decommissioning work and pose a safety risk in case another massive

quake or tsunami strikes. TEPCO needs to release the water--which contains radioactive tritium that is not removable but considered not harmful in small amounts--into the Pacific Ocean, Kawamura said. The method is favored by experts at the International Atomic Energy Agency and Japan's Nuclear Regulation Authority as the only realistic option. Earlier, TEPCO had balked at calls by NRA chairman Shunichi Tanaka for controlled release of the water, now exceeding 770,000 metric tons, into the sea, fearing a public backlash. "Technically, we fully support the chairman's proposal," he said, adding that there is still strong resistance from local residents, especially fishermen. "I think we should have acted sooner. ... We should start moving faster."

## **PROFITS NEEDED**

Kawamura says TEPCO must become more profitable to manage to cover the gargantuan costs of cleaning up Fukushima No. 1 after it suffered multiple meltdowns due to the massive March 11, 2011, earthquake and tsunami. TEPCO'S longtime status as a regional monopoly undermined its profit-making incentive, hobbling its ability to cover most of the 21.5 trillion yen (about \$190 billion) price tag for decommissioning the plant and compensating dislocated residents. "To reconstruct Fukushima, we must make more profit, and I know we should not be taking about just money, but I think that is important," he said.

## **DECOMMISSIONING IS THE FUTURE**

**TEPCO'S main mission now is decommissioning Fukushima No. 1, an unprecedented challenge that experts say could take decades and will take still more research and development. "That's our main activity and gaining new expertise in the decommissioning is far more important. But I believe there will be a time when decommissioning becomes an important business," Kawamura said. "Decommissioning is a process which takes time, not only for accident-hit reactors but ordinary retired reactors," he said. "I plan to coordinate with those who are studying the possibility of properly turning decommissioning of ordinary reactors into a viable business."**

## **JAPAN NEEDS NUKES**

**Kawamura says he believes nuclear power is still a viable business and one that will continue to be vital for Japan's energy security, despite the extra costs from stricter post-Fukushima safety requirements and the cost of processing spent fuel and waste. TEPCO is reviewing its business strategy, but based on rough estimates, "I still believe that nuclear is still superior for Japan, which is really a resource-poor country," he said. "Even if we take severe accident measures and factor in spent fuel processing and other costs, I think there are some reactors that can still be profitable." He said nuclear power includes a wide range of technologies that Japan should not abandon, for national security reasons, as China continues to build nuclear plants.**

## **TEPCO'S OTHER REACTORS**

**Kawamura said TEPCO hopes to restart the utility's Kashiwazaki-Kariwa nuclear plant in northern Japan, even while the decommissioning at Fukushima No. 1 is under way, so the operable plant can be a major source of revenue for the company. He said a decision on whether to resume operation**

of the Fukushima No. 2 plant, near Fukushima No. 1, will depend on a financial review. He said he regrets TEPCO's slowness in making a decision and acknowledged calls from local authorities and residents to decommission the second Fukushima plant, which was also hit by the tsunami but avoided a meltdown.

July 15, 2017

## 777 000 tons of contaminated water stored on Fukushima Daiichi site



The Fukushima No. 1 plant and hundreds of tanks containing tritiated water are viewed from the air in February. | KYODO

## Tepco backpedals after disaster reconstruction chief knocks plan to dump tritiated water into sea

<http://www.japantimes.co.jp/news/2017/07/15/national/tepc-backpedals-disaster-reconstruction-chief-knocks-plan-dump-tritiated-water-sea/#.WWo0qlFpyos>

Kyodo

**Tokyo Electric backed off its tritium-dumping decision Friday after disaster reconstruction minister Masayoshi Yoshino said it would cause problems for struggling fishermen trying to recover in Fukushima Prefecture.**

The remarks made Friday by the Fukushima native came shortly after the chairman of Tokyo Electric Power Company Holdings Inc. was quoted as saying that the decision to discharge tritium-tainted water from the Fukushima No. 1 power plant into the sea had “already been made.”

After Tepco Chairman Takashi Kawamura’s remarks were widely reported, the utility scrambled to make a clarification the same day.

According to Tepco’s clarification, Kawamura meant to say that there was “no problem” with the dumping plan, based on government guidelines and “scientific and technological standards.” The statement also said that **no final decision had been made.**

A government panel is still debating how to deal with the massive amount of tainted water stored in tanks at the atomic plant, where three reactor cores melted after a huge earthquake in March 2011 spawned tsunami that devastated the region and knocked out all power at the plant.

Tritium typically poses little risk to human health unless ingested in high amounts. It remains in filtered water as it is difficult to extract on an industrial basis. Ocean discharges of diluted volumes of tritium-tainted water are a routine part of nuclear power plant operations.

At a news conference, Yoshino said there would “certainly be damage due to unfounded rumors” if the tainted water were dumped into the sea. He urged those pushing for the release “not to create fresh concerns for fishermen and those running fishing operations in Fukushima Prefecture.” He also asked them to take care not to drive fishermen “further toward the edge.”

Yoshino, who is not directly involved in the decision-making process for handling the water, was alluding to local concerns about how people’s livelihoods will be affected if people think marine products from Fukushima are contaminated with radiation. He added that **while he is aware that many in the scientific community say the diluted water can be safely released, he remains opposed.**

“As I am also a native of Fukushima Prefecture, I fully understand the sentiment of the people,” the minister said.

Water injected to perpetually cool the damaged reactors becomes tainted in the process. **A high-tech filtering apparatus set up at the plant can remove 62 types of radioactive material but not tritium. As a result, tritiated water is building up continuously at the plant. As of July 6, about 777,000 tons were stored in about 580 tanks on the premises.**

On March 11, 2011, tsunami inundated the six-reactor plant, which is situated 10 meters above sea level, and crippled its power supply, causing a station-wide blackout. The failure of the cooling systems in reactors 1, 2 and 3 then led to a triple core meltdown that became the world’s worst nuclear disaster since Chernobyl in 1986.

**Ten years after Niigata's close call... the nuclear village is alive and well in Japan**

## A decade after Niigata's nuclear close call

<http://www.japantimes.co.jp/opinion/2017/07/15/commentary/decade-niigatas-nuclear-close-call/#.WWo1h1Fpyos>

by Jeff Kingston

On July 16, 2007, a 6.8 magnitude earthquake rattled the world's largest nuclear power complex at Kashiwazaki-Kariwa in Niigata Prefecture. This was on a site that the government and Tokyo Electric Power Co. had insisted was seismically safe.

Two years earlier, the Tokyo High Court had ruled against local plaintiffs backed by scientists who insisted the authorities were wrong and that there was an active fault line adjacent to the site. In 2007, Mother Nature overruled the judge, raising questions about relying on old evaluations by institutions favoring nuclear energy in assessing site safety, particularly given subsequent advancements in seismic science.

The good news is that the reactors shut down automatically and the plant withstood tectonic shocks way beyond what anyone had anticipated when designing the structures. The bad news trickled slowly out of Tepco, but an NHK special shortly afterwards aired a startling revelation. The plant manager told NHK that it was very lucky that everything worked as planned and that there was no serious accident — especially considering that the door of the control center had been jammed and nobody could get in. This meant that if there had been a crisis, nobody would have been able to manage it because the emergency controls were inaccessible.

The door was stuck because the land subsided due to the earthquake. It is hard to anticipate every contingency, and that is precisely why accidents happen. If the safety systems had not functioned as planned, Kashiwazaki might have spun out of control, but luckily it was just a close call.

Also worrisome was the transformer fire that took an age to put out because the water pipes had ruptured due to the earthquake. And why was there a nine-hour delay in informing local authorities about the situation, including some radiation leaks? Apparently the plant workers were preoccupied with setting up whiteboards in the parking lot as an improvised control center and using their mobile phones to communicate with each other. Tepco also downplayed how much radioactive water had leaked, a spill that Asahi reporters spotted workers mopping up with paper towels.

At Kashiwazaki-Kariwa there are seven reactors with an 8,200 megawatt capacity, enough for 16 million households. This clustering of reactors means that if there was an accident, it could cascade into a major disaster.

The reactors went online between 1985 and 1997 and generated \$2 billion in subsidies for the hosting towns, on top of tax revenues and many high-paying jobs. But local enthusiasm has dimmed considerably since then. Back in 2001 Tepco was caught falsifying repair and maintenance data at all of its 17 reactors, suggesting that management did not nurture a culture of safety. Then, in 2005, the International Atomic Energy Agency warned that fire prevention measures at the Niigata plant were inadequate.

Niigata voters have since elected nuclear skeptics for mayor and prefectural governor. In a nationwide poll conducted by the Asahi Shimbun last October, 57 percent of the public opposed restarting nuclear reactors while only 29 percent were in favor. Earlier in 2016, a poll conducted by the pro-nuclear Japan Atomic Energy Relations Organization found that 12 percent of respondents favored maintaining or increasing Japan's nuclear energy output while nearly 63 percent wanted to end nuclear power in Japan, either by phasing it out (48 percent) or immediately pulling the plug (15 percent).

Public opposition to nuclear power is not only driven by safety concerns and the tragic fate of tens of thousands of nuclear refugees displaced from ancestral homes in Tohoku. The Fukushima disaster is also a financial black hole that will burden taxpayers and ratepayers for decades to come. And there are the high costs of decommissioning many aging reactors and the expense involved in building a site to permanently store radioactive waste.

Niigata Gov. Ryuichi Yoneyama has slowed plans to restart any reactors, calling for a comprehensive safety review, development of an evacuation plan and an assessment of the Fukushima disaster's public health impact, all of which could take three years. Tepco's latest rehabilitation plan includes restarting two of the reactors by March 2020, saying the profits would help it pay off the staggering ¥21.5 trillion (\$190 billion) bill for Fukushima, an estimate that is likely to keep rising over the next few decades. The mayor of Kashiwazaki has also weighed in, requesting that Tepco begin decommissioning one reactor before agreeing to restart the two reactors Tepco wants to bring back online. The Nuclear Regulation Authority is currently conducting safety inspections at two of the reactors. The mayor thinks that seven reactors is too much and is worried about the safety of the control center, wondering if it is sufficiently strong to withstand a powerful quake, possibly because Tepco admitted to misleading the NRA in February about just how strong the structure is. He is hopeful that decommissioning will generate jobs and revitalize the local community.

The mayor also expressed concern about the threat of nuclear missiles from North Korea, prompting NRA Chairman Shunichi Tanaka to joke that Tokyo would make a better target. Funny guy.

The Fukushima debacle has already cost in excess of \$100 billion and the government estimates that total will skyrocket in coming years. If only Tepco had heeded internal warnings in 2009 about the possibility of a monster tsunami striking the Fukushima No. 1 plant and built a bigger tsunami wall. That would have cost \$1 billion, a bargain in retrospect. Will the ongoing trial of three Tepco executives find them responsible for this and other instances of negligence? Probably not.

And now there are five nuclear reactors operating in Japan, and soon two more in Kyushu, due to court rulings favorable to the utilities. The fate of an additional 35 operable reactors is uncertain, but the staggering costs of decommissioning many of these — so far the NRA has approved five decommissioning proposals that will cost about \$10 billion — raise questions about the viability of nuclear energy in Japan. Toshiba, which is selling off its key assets to pay for its purchase of Westinghouse Electric, knows just how risky the nuclear business is, and hopefully Tepco now understands that cutting corners to save money was abysmal risk management.

Many Japanese must envy South Korea, where newly elected Prime Minister Moon Jae-in has vowed to phase out nuclear energy and cancel plans to build new plants and extend the operating life of its 25 aging reactors. In contrast, Prime Minister Shinzo Abe has reinstated nuclear power into the national energy strategy, targeting 20 to 22 percent of the overall mix, demonstrating the **resilient influence of Japan's "nuclear village."**

Jeff Kingston is the director of Asian Studies, Temple University Japan.

July 20, 2017

## 5.6 quake hits Fukushima

## **Magnitude 5.6 quake hits Fukushima, felt in eastern Japan but no tsunami threats**

<http://www.japantimes.co.jp/news/2017/07/20/national/magnitude-5-6-quake-hits-fukushima-felt-eastern-japan-no-tsunami-threats/#.WXBmtlFpyot>

Kyodo

An earthquake of preliminary magnitude 5.6 struck Fukushima Prefecture and surrounding areas on Thursday morning but posed no tsunami threats, the Meteorological Agency said.

The operator of the damaged Fukushima No. 1 nuclear power plant said it detected nothing out of the ordinary as a result of the 9:11 a.m. temblor, which occurred in the Pacific Ocean off the Fukushima coast at a depth of around 40 km.

The quake registered up to 4 on the Japanese seismic scale of 1 to 7 in parts of Fukushima and Miyagi prefectures, and was felt in a wide swath of eastern Japan, including Tokyo.

July 19, 2017

## **Trying to "foil nuclear terrorism"**

### **Japan taps tech to foil nuclear terrorism ahead of Tokyo Olympics**

<http://www.japantimes.co.jp/news/2017/07/19/national/japan-taps-tech-foil-nuclear-terrorism-ahead-tokyo-olympics/#.WW8f7FFpyou>

Kyodo

With the 2020 Olympics and Paralympics in Tokyo just three years away, the government is stepping up efforts to prevent terrorist attacks using nuclear and other radioactive materials.

The Japan Atomic Energy Agency has developed a device capable of detecting nuclear materials during airport baggage screening and is enhancing its nuclear forensics analytical technology.

"We want to improve deterrence against nuclear terrorism," an agency official said.

At a meeting of the Education, Culture, Sports, Science and Technology Ministry in December, Mitsuru Uesaka, president of the Atomic Energy Society of Japan and a professor at the University of Tokyo, said it was important to "enhance nuclear security" ahead of the games.

There have been numerous incidents overseas involving attempts to smuggle nuclear materials.

In 1994, investigative authorities intercepted and seized illegally transferred nuclear material at Munich Airport in Germany. The material — mixed oxide fuel containing weapons-grade plutonium — was found on a Lufthansa flight from Moscow. Smugglers were arrested and the MOX fuel was later identified as having been used at a nuclear reactor in the former Soviet Union.

There are also fears that the radical militant group Islamic State might have made a "dirty bomb" capable of scattering radioactive materials. Unlike nuclear weapons, such devices can be made relatively cheaply without advanced skills.

To stop nuclear materials from entering Japan through airports, the agency developed a device to detect very small amounts of uranium concealed in luggage by irradiating luggage with a beam of neutrons. The result is available in less than a second.



Baggage screening at domestic airports usually uses X-rays, but an expert at the agency said conventional screening is not effective in detecting nuclear materials.

“X-rays can detect suspicious metal objects, but cannot tell whether objects are nuclear materials or not,” said Yosuke To, leader of the research group behind the project at the agency.

The agency has also been developing nuclear forensics capabilities through analyzing “nuclear fingerprints,” such as particles and isotopic compositions, of materials stored at facilities related to nuclear power generation in the country. The agency has been working on registering the data in a database as well.

These efforts are aimed at determining the point of origin and routes of transit involving nuclear or radioactive materials when such materials are illicitly removed, lost or stolen.

As of the end of 2015, there were 454 confirmed incidents around the world involving unauthorized possession of nuclear materials and related criminal activities, 762 incidents involving reported theft or loss of such materials, and 1,622 incidents involving other unauthorized activities and events related to such materials, according to an International Atomic Energy Agency report.

In one high profile incident in Japan, a former employee of an inspection company in Ichihara, Chiba Prefecture, stole iridium-192 and dumped it into a river in 2008.

July 21, 2017

## Workers' contamination (Ibaraki)

### Gas may have ruptured bag at nuclear facility

[https://www3.nhk.or.jp/nhkworld/en/news/20170721\\_01/](https://www3.nhk.or.jp/nhkworld/en/news/20170721_01/)

NHK has learned the operator of a nuclear research facility northeast of Tokyo believes a bag containing nuclear fuel materials ruptured last month due to a buildup of gas in it.

The rupture occurred on June 6th at the facility run by the Japan Atomic Energy Agency in Ibaraki Prefecture. Five workers were exposed to plutonium and other radioactive materials.

In the bag was a plastic container that stored nuclear fuel materials. The materials were held together by an adhesive agent to make it easier to use in experiments.

A report compiled by the agency says gas is believed to have been generated when radioactive rays disintegrated the adhesive agent, the polyethylene container, and the molecules of water in the bag.

The agency plans to submit a report to the Nuclear Regulation Authority as early as Friday. It will also conduct further analyses to determine the amount of the adhesive agent and the condition of the nuclear fuel materials when they were inside the container.

July 24, 2017

## **NRA to put radiation posts on Tsushima, Yonaguni to monitor atomic plants in South Korea and Taiwan**

<http://www.japantimes.co.jp/news/2017/07/24/national/japan-plans-two-remote-isle-radiation-monitors-targeting-nuke-plants-south-korea-taiwan/#.WXYGIFFPyos>

Kyodo

The Nuclear Regulation Authority will open new radiation monitoring posts Tsushima Island in Nagasaki Prefecture and Yonaguni Island in Okinawa to broaden its ability to detect power plant accidents overseas, sources say.

The new outposts will be closer to South Korea and Taiwan, respectively, which both host multiple atomic plants. The NRA looks to have the outposts up and running by March, sources close to the NRA said Sunday.

The installation on Tsushima will be about 70 km from the Kori nuclear power plant in southern South Korea, while the Yonaguni installation will be roughly 130 km away from a nuclear power plant in northern Taiwan.

Both South Korea and Taiwan have several nuclear power plants, and nuclear accidents there could produce radioactive fallout that lands in Japan.

Japan reinforced nuclear safety measures in the wake of the triple core meltdown at the Fukushima No. 1 plant in Fukushima Prefecture in March 2011.

July 26, 2017

## **Radiation posts to be set up in Western Japan**

### **Radiation monitoring posts to be set up in Japan**

[https://www3.nhk.or.jp/nhkworld/en/news/20170725\\_27/](https://www3.nhk.or.jp/nhkworld/en/news/20170725_27/)

Japan's nuclear regulator plans to set up 2 monitoring posts in western Japan **to detect radioactive fallout from abroad.**

The Nuclear Regulation Authority will set up both posts inside Self-Defense Force bases. One will be on the island of Unijima, which lies about 70 kilometers from the Korean Peninsula and is part of the city of Tsushima in Nagasaki Prefecture. The other will be on Okinawa's Yonaguni Island.

The authority plans to install them by the end of this year and put them into operation by March next year.

The monitoring posts will be the first set up to prepare for the possibility of a nuclear test by North Korea or a nuclear plant accident in South Korea or Taiwan.

The NRA secretariat says the aim is to detect airborne radioactive fallout quickly and accurately, so appropriate response measures can be taken.

August 2, 2017

## Tokyo region hit by M5.5 quake

### M5.5 quake hits Tokyo region

[https://www3.nhk.or.jp/nhkworld/en/news/20170802\\_06/](https://www3.nhk.or.jp/nhkworld/en/news/20170802_06/)

A magnitude 5.5 earthquake has struck north of Tokyo.

The tremor occurred at 2:02 AM on Wednesday.

**The epicenter was in northern Ibaraki Prefecture at a depth of 10 kilometers.**

The quake registered an intensity of 4 on the Japanese seismic scale of zero to 7 in parts of Fukushima, Ibaraki, Tochigi, Gunma, Saitama, and Chiba prefectures. An intensity of 3 was registered in some areas of Tokyo.

The Japan Meteorological Agency says there is no tsunami threat.

Local authorities are checking for possible damage. There are no reports of any serious injuries so far.

**Tokyo Electric Power Company says there are no irregularities at the crippled nuclear facility in Fukushima.**

August 3, 2017

## Futaba to reopen in 2022?



Bags of contaminated soil are lined up in a neighborhood near JR Futaba Station in Futaba, Fukushima Prefecture. (Asahi Shimbun file photo)

## 2022 return for evacuees eyed by Fukushima plant co-host town

<http://www.asahi.com/ajw/articles/AJ201708030040.html>

By KAZUMASA SUGIMURA/ Staff Writer

Futaba, which co-hosts the crippled Fukushima No. 1 nuclear plant, hopes to lose its "ghost town" status in spring 2022 when some residents may be allowed to return after more than a decade living as evacuees. However, it is envisaged that only about 10 percent of the town will be habitable by then. The timeline for the return of some evacuees was agreed to by town authorities at a special meeting Aug. 2.

Futaba was the first to present a road map for the return of its residents of the seven municipalities in the prefecture whose access to their jurisdictions is still restricted under the designation of difficult-to-return-to zone by the central government. High levels of radiation still exist there.

Ninety-six percent of Futaba's land falls under the same designation.

The Futaba government has been operating out of Iwaki, also in the prefecture, since residents were ordered to flee after the triple meltdown unfolded at the nuclear plant in March 2011.

Futaba town hall expects to apply soon for state funds for the rebuilding hub project. If it gets the green light, decontamination and construction work will be financed by the central government.

A 555-hectare plot of land around JR Futaba Station will be set aside to build housing and infrastructure for the program.

The area was selected since radiation levels there are comparatively lower than in other parts of the town.

Futaba officials are hoping that 2,000 inhabitants will return to live in the town five years after the lifting of the evacuation order around spring 2022.

## **Fukushima town aims to partially lift evacuation order by 2022**

<https://mainichi.jp/english/articles/20170803/p2a/00m/0na/012000c>

FUTABA, Fukushima -- Town authorities here look to partially lift the evacuation order for the town's so-called "difficult-to-return" zone with high radiation levels emanating from the Fukushima nuclear disaster by sometime around the spring of 2022, town officials disclosed on Aug. 2.

- **【Related】** Japan rates severity of June nuclear exposure accident as level 2
- **【Related】** New proposal suggests removing Fukushima plant's melted nuclear fuel from side

The move by the Futaba Municipal Government marks the first time for a municipality in difficult-to-return zones to have presented a plan to lift an evacuation order. The town of Futaba has been entirely evacuated since the 2011 meltdowns at the Fukushima No. 1 Nuclear Power Plant. Six other municipalities in Fukushima Prefecture still have areas designated as difficult-to-return zones.

According to Futaba town officials, the town office has included the plan in an application to be submitted to the central government for recognition of the areas subject to the lifting of the evacuation order as a special hub for disaster recovery, in hopes that local residents can return to their hometowns currently designated as difficult-to-return zones.

A special hub for disaster recovery is stipulated in the revised Act on Special Measures for the Reconstruction and Revitalization of Fukushima. After the central government approves a plan worked out by a local municipality, the state will move ahead with decontamination work and infrastructure development in areas designated as a hub for disaster reconstruction, before lifting the evacuation order for the areas in five years.

Under the Futaba town's plan, the town will call for the development of a 555-hectare area including JR Futaba Station, which accounts for 11 percent of the town's total land area. The town plans to designate the recovery hub mainly in areas where many residents used to live before the onset of the Fukushima nuclear crisis, and to build housing complexes and other facilities there.

In addition, the town is also seeking to lift the no-entry order for the so-called "area preparing for the lifting of an evacuation order" in the northeastern part of the town, where radiation doses are relatively low, by sometime around the end of March 2020. The town plans to invite companies including those engaged in reactor decommissioning at the crippled Fukushima No. 1 nuclear plant to be based there, but does not envisage the return of residents.

Currently, 96 percent of the town of Futaba is designated as a difficult-to-return zone.

## **Hot particles from Fukushima: Accurate risk assessment needed**

# Radioactively-hot particles detected in dusts and soils from Northern Japan by combination of gamma spectrometry, autoradiography, and SEM/EDS analysis and implications in radiation risk assessment

<http://www.sciencedirect.com/science/article/pii/S0048969717317953>

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## Highlights

- Radioactive particles from Fukushima are tracked via dusts, soils, and sediments.
- Radioactive dust impacts are tracked in both Japan and the United States/Canada.
- Atypically-radioactive particles from reactor cores are identified in house dusts.
- Scanning electron microscopy with X-ray analysis is used for forensic examinations.

## Abstract

After the March 11, 2011, nuclear reactor meltdowns at Fukushima Dai-ichi, 180 samples of Japanese particulate matter (dusts and surface soils) and 235 similar U.S. and Canadian samples were collected and analyzed sequentially by gamma spectrometry, autoradiography, and scanning electron microscopy with energy dispersive X-ray analysis. Samples were collected and analyzed over a five-year period, from 2011 to 2016. Detectable levels of  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$  were found in 142 of 180 (80%) Japanese particulate matter samples. The median radio-cesium specific activity of Japanese particulate samples was  $3.2 \text{ kBq kg}^{-1} \pm 1.8 \text{ kBq kg}^{-1}$ , and the mean was  $25.7 \text{ kBq kg}^{-1}$  ( $\sigma = 72 \text{ kBq kg}^{-1}$ ). The U.S. and Canadian mean and median radio-cesium activity levels were  $< 0.03 \text{ kBq kg}^{-1}$ . U.S. and Canadian samples had detectable  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$  in one dust sample out of 32 collected, and four soils out of 74. The maximum US/Canada radio-cesium particulate matter activity was  $0.30 \pm 0.10 \text{ kBq kg}^{-1}$ . The mean in Japan was skewed upward due to nine of the 180 (5%) samples with activities  $> 250 \text{ kBq kg}^{-1}$ . This skewness was present in both the 2011 and 2016 sample sets.

$> 300$  individual radioactively-hot particles were identified in samples from Japan; composed of 1% or more of the elements cesium, americium, radium, polonium, thorium, tellurium, or strontium. Some particles reached specific activities in the  $\text{MBq } \mu\text{g}^{-1}$  level and higher. No cesium-containing hot particles were found in the U.S. sample set. Only naturally-occurring radionuclides were found in particles from the U.S. background samples. Some of the hot particles detected in this study could cause significant radiation exposures to individuals if inhaled. Exposure models ignoring these isolated hot particles would potentially understate human radiation dose.

[...]

#### 4. Conclusions

The combination of gamma spectroscopy, autoradiography and SEM/EDS analysis was effective in isolating and analyzing hot particles. Many of these particles would have gone unidentified if only one of these techniques has been employed.

Samples have provided evidence that local hot spots of contamination existed at the time of the Fukushima Dai-ichi meltdowns in 2011. Local hot spots still persisted in 2016, five years after the containment failures in 2011.

Radioactively-hot dust and soil particles were routinely detected in samples from Northern Japan in both the 2011 and 2016 sample sets, with autoradiographic and SEM/EDS data showing that isolated particles could have substantially-higher specific activities than the bulk samples from which they were isolated. Radioactive  $^{131}\text{I}$  (April 2011 samples only),  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$  were the most commonly encountered nuclides in Japan. Primordial nuclides unrelated to events in Japan were the dominant source of radioactivity in U.S. and Canadian environmental samples collected at the same times. Thorium was detected in radioactive particles from Japan, but this radioactive element has both natural and Fukushima Dai-ichi-related sources.

Fukushima Dai-ichi-related radioactive contamination was found in 80% of the particulate matter samples from Fukushima Prefecture and surrounding areas in Northern Japan. This was true for both the 2011 and 2016 sample sets. Relative variability among dust samples from Japan was very high. The highest activity levels ( $3\sigma$  or more above the mean) are representative of the specific collection locations at the time of sampling, and are not representative of average Japanese radiation exposures. Most of the activity detected in Japanese samples came from  $^{137}\text{Cs}$  and  $^{134}\text{Cs}$  (and in the first post-accident weeks, from  $^{131}\text{I}$ ), although there were isolated detections of  $^{60}\text{Co}$  and  $^{241}\text{Am}$ .

Individuals in the contaminated zone, and potentially well outside of the mapped contaminated zone, may receive a dose that is higher than the mean dose calculated from average environmental data, due to inhalation or ingestion of radioactively-hot dust and soil particles. Accurate radiation risk assessments therefore require data for hot particle exposure as well as for exposure to more uniform environmental radioactivity levels.

August 9, 2017

### Contaminated vehicles left the plant unchecked for 12 days after 3/11

#### Tainted cars left Fukushima compound unchecked

[https://www3.nhk.or.jp/nhkworld/en/news/20170809\\_01/](https://www3.nhk.or.jp/nhkworld/en/news/20170809_01/)

The operator of the Fukushima Daiichi nuclear power plant says **hundreds of vehicles contaminated with radioactive substances left the compound unchecked in the immediate aftermath of the 2011 accident.**

Tokyo Electric Power Company says that in 2012 it began investigating what had happened to privately owned vehicles at the plant, and found that about 460 had left the compound.

TEPCO officials located most of them by 2015. **About 190 registered radiation levels that were higher than the government standards.** They managed to track down all 190, but some of them had been sold to new owners.

**Some of the cars were so contaminated that the radiation couldn't be measured by equipment capable of detecting levels nearly 10 times greater than the official limits.**

Two vehicles remain unaccounted for.

TEPCO says it did not conduct radiation checks of cars leaving the compound for 12 days after the accident started on March 11th, 2011.

The company has apologized for causing concern and says it will keep trying to locate the 2 vehicles.

#### **Excessive radiation detected in vehicles removed from Fukushima nuke plant**

<https://mainichi.jp/english/articles/20170809/p2a/00m/0na/013000c>

Radiation topping the government-set limit has been detected in about 190 vehicles removed from the premises of the Fukushima No. 1 Nuclear Power Plant after the outbreak of the nuclear crisis, it has been learned.

- **【Related】** Fukushima town aims to have evacuation order partially lifted by 2022
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Some of the cars were sold on the used-car market while two others remain unaccounted for, according to plant operator Tokyo Electric Power Co. (TEPCO).

Approximately 1,700 vehicles were parked on the premises of the power station when the nuclear crisis broke out after it was hit by the powerful earthquake and tsunami on March 11, 2011, TEPCO officials said. Of those, about 600 were owned by employees of TEPCO or companies contracted by the utility. **Over a 12-day period until radiation screenings began on March 23 of that year, people could drive the vehicles out of the premises of the plant without checks.**

The Economy, Trade and Industry Ministry instructed TEPCO in February 2012 to conduct a follow-up probe into the use of these vehicles for fear that next owners of those cars could be exposed to radiation without knowing that the vehicles were contaminated.

The power company conducted a survey on employees and contracted companies that parked their cars on the plant's premises at the time of the accident, and confirmed that about 460 vehicles were brought out of the plant by April 2015. It was learned that radiation levels for around 190 of the vehicles exceeded government-set safety standards, and some of them were found contaminated with radiation nearly 10 times over the limit. **All the vehicles whose radiation levels exceeded the limit were collected from their**



owners and are now stored on TEPCO's premises situated in a Fukushima Prefecture area designated as a highly contaminated "difficult-to-return zone."

TEPCO is considering how to dispose of these heavily contaminated vehicles, with an official saying, "We'd like to continue searching for two vehicles that remain unaccounted for and respond to the situation in an appropriate manner."

August 10, 2017

## Unexploded device found near Fukushima plant

### Unexploded bomb found near Fukushima plant

[https://www3.nhk.or.jp/nhkworld/en/news/20170810\\_28/](https://www3.nhk.or.jp/nhkworld/en/news/20170810_28/)

Police are checking what appears to be an unexploded bomb found near the crippled Fukushima Daiichi nuclear power plant.

Construction workers found the object on Thursday morning while drilling at a parking lot to expand the site, about 300 meters from the power plant in Fukushima Prefecture.

Police say the object is about 85 centimeters long and 15 centimeters in diameter.

Police were sending the pictures of the object to the Self-Defense Forces to determine whether it could explode, and will consider measures to remove it.

The operator of the power plant, Tokyo Electric Power Company, says **an airfield of the now-defunct Imperial Japanese military used to be at the site, and the facility was air raided during World War Two.**

TEPCO says an area within 200 meters from the site is cordoned off, but that decommission work for the crippled reactors on the plant premises is underway as usual.

### Suspected bomb found on premises of Fukushima power plant: TEPCO

<https://mainichi.jp/english/articles/20170810/p2a/00m/0na/008000c>

OKUMA, Fukushima -- What appears to be an undetonated bomb has been discovered on the premises of the Fukushima No. 1 Nuclear Power Plant, Tokyo Electric Power Co. (TEPCO) announced on Aug. 10.

- **【Related】** Excessive radiation detected in vehicles removed from Fukushima nuke plant
- **【Related】** Fukushima & Nuclear Power

The device was discovered buried in the ground at a parking lot currently undergoing maintenance in the western corner of the premises at 7:30 a.m. by an excavation worker. With a length of approximately 85 centimeters and a diameter of about 15 centimeters, the cylindrical apparatus has what appears to be a stabilizer tail. It was located roughly a kilometer from the damaged No. 1 to No. 4 reactors. The Fukushima Prefectural Police are working to confirm if the device is indeed a bomb and are considering disposal methods if it is confirmed to be an explosive. Police have cordoned off the surrounding area, but the situation has not caused any effects on the decommissioning of the plant. U.S. forces launched an airstrike in an area around the power plant during World War II, according to the Fukushima Prefectural Archives.

August 18, 2017

## Highly radioactive water leaks from ALPS facility

### Highly radioactive water leak at Fukushima No. 1 nuke plant

<https://mainichi.jp/english/articles/20170818/p2a/00m/0na/001000c>

Highly radioactive water has leaked from the disaster-crippled Fukushima No. 1 nuclear plant, Tokyo Electric Power Co. (TEPCO) announced on Aug. 17.

- 【Fukushima & Nuclear Power】

The estimated 50 milliliters of contaminated water remained inside the station dike, and there was no leakage to the outer environment, plant operator TEPCO said. An analysis found that **the tainted water contained 22 million becquerels per liter of beta-ray-emitting radioactive materials.**

According to the utility, a worker from a company cooperating with TEPCO spotted water dripping from multi-nuclide removal equipment at the facility at around 2:15 p.m. on Aug. 16. After the worker **mended the part with tape**, the leakage stopped.

## Dahr Jamail: Fukushima is "an ongoing disaster"

### Dahr Jamail | Fukushima Plant Is Releasing 770,000 Tons of Radioactive Water Into the Pacific Ocean

<http://www.truth-out.org/news/item/41564-fukushima-plant-is-releasing-tons-of-radioactive-water-into-the-pacific-ocean>

By Dahr Jamail, Truthout \*| Report



When Japan's Fukushima Daiichi nuclear plant suffered a triple-core meltdown in March 2011 as the result of devastating earthquake, most people had no idea this was only the beginning of a nuclear disaster that has arguably become the single worst industrial accident in human history.

Keeping the three core meltdowns cool has been an ongoing challenge that has yet to be met. As fresh water is pumped over the cores, it is then stored on site in massive tanks. The Tokyo Electric Power company (TEPCO), the operator of the plant, then has to figure out what to do with that water.

Recently, TEPCO announced that it would dump 770,000 tons of radioactive tritium water into the Pacific Ocean.

The announcement infuriated local fishermen and environmental groups across Japan. According to Mozghan Savabieasfahani, an environmental toxicologist and winner of the 2015 Rachel Carson prize, their outrage and alarm is not without merit.

"The release of thousands of tons of radioactive tritium by a giant utility company into our aquatic and natural environments is a blood-chilling prospect," Savabieasfahani told Truthout.

She questions why there is not more outrage from those in the Japanese government who are responsible for safeguarding the health and wellbeing of the general public.

"Where are the defenders of our public's health?" she asked. "If they could pull the plug out of their mouth, they could tell us that tritium is a toxic radioactive isotope of hydrogen, and that, once released, tritium cannot be removed from the environment. Let that sink in."

### **"The Decision Has Already Been Made"**

Takashi Kawamura, TEPCO's chairman, when asked about the decision to introduce this vast amount of radioactive water into the ocean, initially responded, "The decision has already been made."

While he quickly softened the statement, he has not stated that the action will not occur.

Meanwhile, the chairman of the Japanese Nuclear Regulation Authority (NRA), Shunichi Tanaka, has claimed that tritium is of little danger to humans and supports TEPCO's plans to dump the water into the ocean.

This claim, however, is vehemently disputed by toxicologists and nuclear experts with more background in toxicology than Tanaka.

M.V. Ramana is the Simons Chair in Disarmament, Global and Human Security at the Liu Institute for Global Issues at the University of British Columbia in Canada, and is also a contributing author to the World Nuclear Industry Status Report for 2016. He is critical of Prime Minister Shinzō Abe's administration's mishandling of Fukushima.

"The proposed release of radioactive, contaminated water from Fukushima against the wishes of the local residents, especially fishermen, represents yet another violation of people's rights to a clean environment and a decent livelihood so as to protect the financial interests of TEPCO," Ramana told Truthout.

Tanaka argued that dumping the radioactive water is safe because that level of tritium is unable to penetrate plastic wrapping. However, Ramana said that justification misses the point.

"NRA Chairman Tanaka is correct when he says that tritium is 'so weak in its radioactivity it won't penetrate plastic wrapping,' but that is irrelevant if the material is ingested," Ramana said. "Because the tritium that is released will be in the form of tritiated water, it can be easily absorbed by the body as it is chemically identical to water."

According to Ramana, a special concern with tritiated water is that, when ingested by pregnant women, it can pass through the placenta and affect the fetus.

"During this stage, the developing organism (the embryo and the fetus) is highly radiosensitive," he added. And this is only one of the many ways in which tritium is dangerous for humans, at even the lowest levels.

### **Fukushima Is an "Ongoing Disaster"**

Dr. Bruno Chareyron, an expert in radiation effects, won The Nuclear-Free Future Award in 2016. He is the director of the CRIIRAD lab (Commission de Recherche et d'Information Indépendantes sur la RADioactivité), founded in 1986, which not only monitors the environment for radiation contamination, but trains people to investigate radioactivity as well.

Chareyron was blunt with Truthout about what is happening at Fukushima.

"It is important to understand that the Fukushima disaster is actually an ongoing disaster," he said. "The radioactive particles deposited on the ground in March 2011 are still there, and in Japan, millions of people are living on territories that received significant contamination."

According to Chareyron, even territories located more than 200 kilometers away from the damaged nuclear reactors received significant fallout depending on wind direction, rainfall and/or snow.

And it's not just Fukushima prefecture that is affected by radioactive contamination.

"The Japanese authorities have launched a huge program of decontamination on a territory of about 2,400 square kilometers," Chareyron explained. "It is estimated that every day about 15,000 people are involved in this program. The ground and most contaminated tree leaves are removed only in the immediate vicinity of the houses, but a comprehensive decontamination is impossible."

Cesium 137 is a radioactive isotope that is one of the more common byproducts from the formation of Uranium-235 in nuclear reactors.

"Six years later, the radioactive Cesium 137 has decreased by only 14 percent," Chareyron said.

Chareyron said the powerful gamma rays emitted by Cesium 137 could travel dozens of meters in the air. Therefore, the contaminated soil and trees located around the houses, which have not been removed, are still irradiating the inhabitants.

To underscore these points, his lab produced a video that shows the power of gamma radiation emitted from outside a building in Fukushima city in May 2011. That video can be viewed [here](#), as can another clip showing the contamination inside Fukushima city in June 2012.

"In the contaminated territories, people are also exposed to an internal contamination through the ingestion of food and inhalation of radioactive dust suspended by the wind," Chareyron said. "For example the forest fire that lasted several days in April and May 2017 in the contaminated forest of Mont Jûman has dispersed radioactive dust all around."

He also reminded us not to forget the workers in the nuclear plant who were exposed to radiation. This occurred even while managing the radioactive waste that continues to be generated by the disaster, as well as the management of the Fukushima Daiichi damaged reactors.

Chareyron said that, according to TEPCO, in May 2017, 8,862 workers were monitored for radiation exposure at the nuclear plant (of which 7,899 are contractors).

The most elevated individual external dose was 7.36 milliSievert in one month.

By comparison, the annual dose limit for a member of the public is 1 milliSievert per year.

### **"A Carcinogen, a Teratogen and a Mutagen All Rolled Into One"**

Hydrogen is the most abundant element in living cells.

"Once toxic tritium makes it into the environment, it will bind anywhere hydrogen binds," Savabieasfahani said. "Imagine a toxic particle that can freely travel through our cells and bind to every molecule of life in our bodies and cause damage. Tritium is a carcinogen, a teratogen and a mutagen all rolled into one."

According to Savabieasfahani, there is no safe threshold level for tritium, as it can harm living organisms no matter how low its concentrations.

"Tritium can cause tumors, cancer, genetic defects, developmental abnormalities and adverse reproductive effects," she explained. "Tritiated water is associated with significantly decreased weight of brain and genital tract organs in mice and can cause irreversible loss of female germ cells -- eggs -- in both mice and monkeys even at low concentrations. This we know."

Even at very low concentrations, tritium causes cell death, mutations and chromosome breaks. Per dose, it is twice as damaging to our genetic makeup as x-rays and gamma rays

"Once tritium travels up the food chain it becomes even more dangerous to life," Savabieasfahani said.

"When incorporated into animal or plant tissue and digested by humans, tritium can stay in the body for 10 years or more. Internally exposed individuals can expect to be chronically exposed to the toxic impacts of this carcinogen for years to come."

And for infants and growing children, tritium exposure is even more dangerous.

Savabieasfahani explained that qualitative, quantitative, physiological and epidemiological evidence show that the internal uptake of tritium is 10 times more likely to cause cancer and neurological deficit in infants and children than in adults.

"Infants' and children's higher vulnerability to tritium is attributed to their increased gut absorption and their smaller body mass, as well as their heightened sensitivity to radioactive exposures," she added. "We have already observed that childhood cancers and leukemia are 22 percent higher near nuclear reactors, and where tritium has leaked into the environment."

Citing numerous studies -- including research from the University of Florida and the journal Radiation Protection Dosimetry -- Savabieasfahani stated emphatically that it is not enough to store that knowledge in "dusty library stacks."

"That knowledge must be taken down from the shelf and broadcast now, before 777,000 tons of radioactive water hit us in the face," she said.

### **Surfing in Tritium?**

Truthout recently reported on how the Japanese government, by allowing TEPCO to dump tritium and then encouraging people who fled the Fukushima contamination zone to return to their homes, is essentially planning to expose both its own people and 2020 Tokyo Olympians to Fukushima radiation. Furthermore, the International Olympic Commission is also working to paint conditions as "normal" -- it even has plans for the 2020 Tokyo Olympics to hold baseball and softball games at Fukushima.

Why are so many powerful entities engaging in this bizarre and harmful attempt at normalization? Chareyron believes that a nuclear disaster like the one affecting the TEPCO nuclear reactors at the Fukushima Daiichi site simply cannot be "handled properly," because highly radioactive material that should usually be kept confined inside the core of nuclear reactors has been dispersed in the environment. "Therefore, the Japanese government authorities and TEPCO both try to influence the general public and the workers so that a situation of exposure to radiation that would usually be considered as unacceptable becomes progressively 'accepted,'" he said. "For example, the annual dose limit of 1 milliSievert for the public has been changed into 20 milliSievert, the annual dose limit for the workers has been increased to 100 milliSievert for those exposed to 'especially high radiation,' contaminated water is still leaking into the sea, and the authorities are planning to re-use contaminated material for road construction in order to lower the cost of radioactive solid waste management."

Chareyron also said that corium, a highly radioactive material, accumulated at the bottom of reactors one and three and is still to this day has not been precisely located, and nobody yet knows when it will even be possible to dismantle the reactors.

Chareyron believes both the Japanese government and TEPCO face enormous difficulties, because of the fact that it is impossible to properly decontaminate the affected territories. Furthermore, Fukushima prefecture residents are more or less "forced" to come back to their houses while the radiation is still high, since the government announced it will cut housing subsidies that were being provided to any of them not under mandatory evacuation orders.

He also shed light on how this massive dumping of radioactive tritium water is not likely to be the last time this occurs. Chareyron said that TEPCO still must pump out on a daily basis massive amounts of heavily contaminated water that is used to cool the reactor cores, and this water is also already contaminating the water table with radiation. He also expressed concerns around the lack of monitoring of how the general population in the region is being affected by the contaminated water.

Chareyron emphasizes that both the Japanese government and TEPCO have been fundamentally dishonest with the public.

"Since the beginning of the crisis, the Japanese authorities and TEPCO have been lying to the people about the adverse impact of radiation on health and the extension of the disaster," he said.

Savabieasfahani noted that TEPCO has been rewarded with trillions of yen in government subsidies since the 2011 nuclear disaster began. That disaster was preceded by TEPCO's false reporting of technical data to authorities on hundreds of occasions, and by the 2008 shutdown of one of its nuclear power plants following an earthquake.

Instead of doling out future subsidies, Savabieasfahani said, the government should be holding the company accountable.

"A far better outcome would be to force TEPCO's shareholders, starting with the largest, to pay for cleaning up the damage their company has caused," she said. "Let it be a warning to everyone trying to make similar profits, worldwide, from similar nuclear power ventures. The insane alternative of dumping all that radiation into the seas, and letting TEPCO shareholders keep the trillions of yen they have made from poisoning and lying to the public, is simply unspeakable."

Savabieasfahani wonders why so many academics and universities are silent on these matters.

"From Los Angeles to Tokyo, the universities are loaded with environmental scientists, public health researchers, epidemiologists, medical school professors, and soon they will be drinking tritium along with everyone else," she said.

On July 27, the journal *Science of the Total Environment* published a peer-reviewed article about radioactively hot particles being detected in soil and dust across northern Japan.

The article details the analysis of radioactively hot particles collected in Japan following the Fukushima Daiichi meltdowns.

Based on 415 samples of radioactive dust from Japan, the USA and Canada, the study identified a statistically meaningful number of samples that were considerably more radioactive than current radiation models anticipated. If ingested, these more radioactive particles increase the risk of suffering a future health problem.

However, despite substantial scientific research that demonstrates the ongoing radioactive danger created by the Fukushima disaster, Savabieasfahani notes that -- much like the government and the industry -- most academics have chosen not to speak out about the contamination.

"Don't these academics have anything to teach us, before their fish, seaweed, plants, crops and children are poisoned with 770,000 tons of radioactive water?" Savabieasfahani asked. "The silence of the entire academic world, as these proposals to dump tritium in our laps are being favorably discussed in the media, teaches a very different lesson: to just drink it up and let the shareholders make another buck."

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Dahr Jamail

Dahr Jamail, a Truthout staff reporter, is the author of *The Will to Resist: Soldiers Who Refuse to Fight in Iraq and Afghanistan* (Haymarket Books, 2009), and *Beyond the Green Zone: Dispatches From an Unembedded Journalist in Occupied Iraq* (Haymarket Books, 2007). Jamail reported from Iraq for more than a year, as well as from Lebanon, Syria, Jordan and Turkey over the last 10 years, and has won the Martha Gellhorn Award for Investigative Journalism, among other awards.

His third book, *The Mass Destruction of Iraq: Why It Is Happening, and Who Is Responsible*, co-written with William Rivers Pitt, is available now on Amazon.

Dahr Jamail is also the author of the book, *The End of Ice*, forthcoming from The New Press. He lives and works in Washington State.

### **\*About Truthout:**

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Truthout is a 501(c)3 nonprofit organization dedicated to providing independent news and commentary on a daily basis. Truthout works to spark action by revealing systemic injustice and providing a platform for transformative ideas, through in-depth investigative reporting and critical analysis. With a powerful, independent voice, we will spur the revolution in consciousness and inspire the direct action that is necessary to save the planet and humanity.

August 28, 2017

## **Cyberattack drill**

## **Cyberattack drill held at Ikata nuclear plant**

[https://www3.nhk.or.jp/nhkworld/en/news/20170828\\_24/](https://www3.nhk.or.jp/nhkworld/en/news/20170828_24/)

A cyberattack response drill has been conducted at the Ikata nuclear plant in Ehime Prefecture, western Japan.

About 60 people from Shikoku Electric Power Company, local police and the Nuclear Regulation Authority took part in the exercise on Monday.

It was based on a scenario that trouble has occurred in the control system of the No.3 reactor, which resumed operation a year ago.

Utility and regulatory officials gathered at an emergency command center and studied live footage of the reactor's control room shown on monitors.

The drill required them to acknowledge that security had probably been breached and the system hacked.

A special police cyberattack unit arrived at the plant by helicopter from neighboring Kagawa Prefecture. The officers worked with the plant team to resolve the system trouble.

The drill was held in the wake of a series of major cyberattacks targeting power plants and companies around the world.

Due to security concerns, Shikoku Electric refrained from disclosing further details of the drill. The utility says key systems at the Ikata plant have been set up to shut out access from outside sources.

September 1, 2017

## **Contaminated vehicles stored in Fukushima**

### **190 vehicles left Fukushima plant with high levels of radiation**

<http://www.asahi.com/ajw/articles/AJ201709010005.html>

By TERU OKUMURA/ Staff Writer

Nearly 200 unchecked vehicles that left the Fukushima No. 1 nuclear plant in the days after the disaster struck had radiation levels exceeding the government safety standard, a survey showed.

Two vehicles that were not tested for contamination before they were driven from the plant remain unaccounted for, and their radiation levels are unknown.

Tokyo Electric Power Co., operator of the crippled plant, began looking for the contaminated vehicles and measuring their radiation levels in 2012 at the government's request.



According to the survey, 600 cars used by workers and 1,100 vehicles for business purposes were parked on the site of the nuclear plant when the Great East Japan Earthquake and tsunami struck on March 11, 2011.

Of them, 460 vehicles were driven from the plant site by March 22.

“Inspections and decontamination work for the cars started on March 23,” a TEPCO official said. “Until then, we were too busy dealing with the accident to check the vehicles for radiation before they left.”

The readings for 190 vehicles exceeded the government safety standard of 13,000 counts per minute (cpm). At least one vehicle recorded more than 100,000 cpm, according to TEPCO.

Some of them had been sold to used car dealerships, according to the survey.

The contaminated vehicles are being stored at a TEPCO facility in the no-entry zone near the plant.

“We will continue the survey,” a TEPCO official said.

September 3, 2017

## More irregularities at Rokkasho Village

### Nuclear plant operator halts uranium production

[https://www3.nhk.or.jp/nhkworld/en/news/20170903\\_04/](https://www3.nhk.or.jp/nhkworld/en/news/20170903_04/)

The operator of a uranium enrichment plant in northern Japan has suspended uranium production to see if there are problems with its quality control system.

The plant in Rokkasho Village, Aomori Prefecture, is **the only commercial facility in Japan to enrich uranium for nuclear power generation.**

A division of Japan Nuclear Fuel Limited that operates the plant was ordered to improve its quality control system last year.

It reported to the president that steps were taken, which turned out not to be true.

The Nuclear Regulation Authority then approved measures to prevent similar irregularities.

The operator met the government requirements for producing uranium in May.

In one of a series of safety mishaps, a fire started at an emergency power generator. The operator had failed to replace parts for 28 years, more than 10 years longer than recommended by the manufacturer.

Officials at the authority said they wonder if the operator has the ability to determine problems and challenges.

Japan Nuclear Fuel decided to take uranium out from enrichment facilities and once again check quality control problems.

## But is there such a thing as "acceptable" levels of radiation?

### Fukushima 311 Voices refutes this article on September 6, 2017

<https://fukushima311voices.wordpress.com/2017/09/06/new-study-says-minami-soma-as-safe-as-western-japan-cities-do-they-really-expect-us-to-believe-this/>

<http://www.fukushima-is-still-news.com/2017/09/fukushima-311voices-do-they-really-expect-us-to-believe-this.html>

September 5, 2017

### Fukushima city shows radiation level is same as in west Japan

<http://www.asahi.com/ajw/articles/AJ201709050042.html>

By SHINTARO EGAWA/ Staff Writer

MINAMI-SOMA, Fukushima Prefecture--Radiation readings here on the Pacific coast north of the crippled Fukushima No. 1 nuclear power plant are almost identical to those of sample cities on the other side of Japan.

The Minami-Soma government initiated the survey and **hopes the results of the dosimeter readings, released Sept. 4, will encourage more evacuees to return to their home areas** after they fled in the aftermath of the 2011 nuclear disaster.

A total of 100 portable dosimeters were handed out to 25 city employees from each of four cities--Minami-Soma, Tajimi in Gifu Prefecture, Fukuyama in Hiroshima Prefecture and Nanto in Toyama Prefecture. They were asked to take them wherever they went from May 29 through June 11.

The staff members were evenly dispersed with their homes in all corners of the cities they represented. In addition, only those living in wooden houses were selected as different materials, concrete walls, for example, are more effective in blocking radiation.

In July 2016, evacuation orders for most parts of Minami-Soma were lifted, but not many residents have so far returned.

**The city's committee for health measures against radiation, which is made up of medical experts, analyzed the data.**

The median value of the external radiation dosage of the 25 staff of Minami-Soma was 0.80 millisieverts per annum, while the average value was 0.82 mSv per annum, according to **Masaharu Tsubokura**, the head of the committee and a physician at Minami-Soma general hospital.

No significant difference was found in the three western cities.

**Both figures were adjusted to include the natural radiation dose, and are below the 1-mSv per annum mark set by the national government as the acceptable amount of long-term additional radiation dosage, which is apart from natural radiation and medical radiation dosages.**

The radiation doses in all cities were at levels that would not cause any health problems, according to Tsubokura.

“Making comparisons with other municipalities is important,” Tsubokura said. “I am intending to leave the survey results as an academic paper.”

September 6, 2017

## Restart TEPCO reactors?

### **Nuclear regulator prepares to OK TEPCO reactors**

[https://www3.nhk.or.jp/nhkworld/en/news/20170906\\_25/](https://www3.nhk.or.jp/nhkworld/en/news/20170906_25/)

Japan's nuclear regulators will decide next week whether to certify the safety of reactors at a nuclear plant in Niigata Prefecture. This would bring the plant, run by the Tokyo Electric Power Company, one step closer to restarting the reactors.

The Nuclear Regulation Authority has been interviewing TEPCO managers about safety measures for the No.6 and No.7 reactors at the Kashiwazaki-Kariwa plant.

One of the regulators at a meeting on Wednesday agreed with TEPCO that putting the plant back into regular operation is a way of taking responsibility for the 2011 nuclear accident in Fukushima.

Another asserted that the Fukushima accident had helped improve TEPCO's safety awareness.

But other members of the regulating authority were skeptical. One asked whether TEPCO's promise alone was sufficient for deciding that the plant is ready to restart.

The regulators meet again next Wednesday to decide whether to draft documents that would effectively certify that the reactors have cleared safety screening procedures.

They would be the first of TEPCO's reactors to get the go-ahead for a restart since the Fukushima meltdown. They would also be the first boiling water reactors -- the same as those in the crippled Fukushima plant -- to pass screening.

Niigata Governor Ryuichi Yoneyama has indicated he will not permit a restart of the reactors until the investigation into the Fukushima accident is completed.

September 7, 2017

## Trust TEPCO again?

## **NRA doubts TEPCO's safety vow in Niigata, plans legal move**

<http://www.asahi.com/ajw/articles/AJ201709070026.html>

By MASANOBU HIGASHIYAMA/ Staff Writer

The Nuclear Regulation Authority, skeptical of Tokyo Electric Power Co.'s promise to put safety ahead of profits, plans to gain legal assurances before allowing the embattled utility to start operating nuclear reactors again.

TEPCO has applied to restart two reactors at its Kashiwazaki-Kariwa plant in Niigata Prefecture, which would be the first run by the company since the disaster unfolded at its Fukushima No. 1 nuclear plant in March 2011.

Although NRA members agreed that the No. 6 and No. 7 reactors at the Kashiwazaki-Kariwa plant passed new regulations on technological aspects, they could not agree on whether the company has learned its lessons about safety management since the triple meltdown at the Fukushima plant.

To ensure TEPCO will put safety at the forefront of its operations, the NRA is considering holding the utility legally responsible for completing the entire decommissioning process of the Fukushima No. 1 nuclear plant.

The regulator expects to draft a checklist to verify the Kashiwazaki-Kariwa plant's safety and other steps before it makes a final decision on whether to allow TEPCO to restart the reactors. The next meeting is scheduled for Sept. 13.

The NRA had previously determined that 12 reactors at six nuclear plants met new nuclear reactor regulations shortly after completion of their technological examinations.

The NRA also finished its technological examinations of the No. 6 and No. 7 reactors, the newest ones at the Kashiwazaki-Kariwa plant.

The plant has seven reactors, making it one of the largest nuclear power stations in the world. The two reactors that TEPCO wants to put online each has a capacity of 1.36 gigawatts.

TEPCO has said the resumption of the reactors are needed to turn around its business fortunes.

But NRA commissioners are reluctant to allow TEPCO to bring the plant online based solely on the results of the technological screening.

After the chairman and president of the utility were replaced in June, the NRA summoned the new top executives in July.

The watchdog demanded that they give a written response to the regulator's position that TEPCO "is not qualified to operate the Kashiwazaki-Kariwa plant, given the seeming lack of determination and spotty track record to take the initiative in decommissioning (the Fukushima No. 1 plant)."

In August, the company submitted a paper to the NRA promising to "take the initiative in addressing the problem of victims of the nuclear disaster and to fulfill the task to decommission the plant."

The paper also said the company "has no intention whatsoever to place economic performance over safety at the (Kashiwazaki-Kariwa) plant."

Tomoaki Kobayakawa, the new president of TEPCO, called the paper a "promise to the public."

Although the NRA commissioners on Sept. 6 recognized TEPCO's commitment to safety to a certain degree, doubts remained.

Nobuhiko Ban, an NRA member who is a specialist on radiological protection, called for a system that would keep TEPCO committed to safety management in the future.

“Is it all right for us to take TEPCO’s vow at face value?” he said.

The NRA then decided to consider legal ways to hold TEPCO accountable for safety issues.

## **TEPCO's Niigata nuclear plant set to clear screening to restart reactors**

<https://mainichi.jp/english/articles/20170906/p2a/00m/0na/016000c>

The Nuclear Regulation Authority (NRA) looks set to grant permission for Tokyo Electric Power Co. (TEPCO) to restart the No. 6 and No. 7 reactors at its Kashiwazaki-Kariwa Nuclear Power Plant in Niigata Prefecture, it has been learned.

- **【Related】** Mayor to link reactor decommissioning to restarting 2 others at same TEPCO plant

At a meeting on Sept. 6, the NRA discussed whether or not TEPCO is fit to restart the plant -- with none of the meeting attendees ruling out the firm's eligibility. The technical screening process has almost finished, and the nuclear watchdog is set to compile a report stating that TEPCO has met the new safety standards. This is the first time that TEPCO, which was behind the accident at the Fukushima No. 1 Nuclear Power Plant in 2011, has been forecasted to clear the new standards for nuclear power plants. In addition, it is set to be the first time for boiling water reactors, like the ones at Fukushima, to meet the necessary criteria.

For TEPCO, the restarting of the Kashiwazaki-Kariwa plant is a key way to recover earnings. However, Niigata Gov. Ryuichi Yoneyama wants to put priority on verifying the cause of the Fukushima disaster first, before giving a green light to the restart of the Kashiwazaki-Kariwa plant. According to Yoneyama, the verification process will take "three to four years," and therefore, the utility cannot expect an early restart, even if the reactors clear the NRA screening process.

In September 2013, TEPCO applied to have No. 6 and No. 7 reactors at its Kashiwazaki-Kariwa plant screened under the new standards. Consequently, the NRA set about checking the application intensively - recognizing this as the model for boiling water reactor screenings.

During the screening process, multiple changes were made to given conditions such as the possibility of ground liquefaction in costal levees at the plant. Furthermore, it emerged in February this year that TEPCO had submitted false reports to the NRA about a quake-proof building, which would be used as the command and control hub in case of an accident, even though company officials knew that the building was insufficiently earthquake resistant. As a result, the NRA summoned then TEPCO President Naomi Hirose, and asked him to overhaul the screening application form. Hirose complied and TEPCO resubmitted the form in June.

While conducting the screening, the NRA focused on the fact that TEPCO had caused a major accident (in 2011), and demanded that TEPCO submit its thoughts regarding plant safety, as well as its approach toward decommissioning the Fukushima plant.

The NRA also interviewed senior TEPCO executives including President Tomoaki Kobayakawa, twice, in what can be regarded as a much more stringent screening process than for any other nuclear plant.

September 9, 2017

## Koizumi: Nuke plants could become "missile targets"

### Nuke plants could be 'missile targets': ex-PM Koizumi

<https://mainichi.jp/english/articles/20170909/p2a/00m/0na/012000c>

OBAMA, Fukui -- Former Prime Minister Junichiro Koizumi warned that nuclear power plants in Japan could become targets of missiles in reference to the recent spate of North Korea's missile launches.

- **【Related】** Japan Political Pulse: Embrace the peaceful message of 'The Analects of Confucius'
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"Having nuclear plants is tantamount to possessing atomic bombs directed at the people of Japan," Koizumi said during a speech in Obama, Fukui Prefecture, on Sept. 8.

Referring to his historic visit to North Korea in 2002, which led to the return of some Japanese nationals abducted by North Korea, Koizumi noted that Pyongyang at the time had a contact point that enabled behind-the-scenes negotiations with Tokyo.

"The current leader (of North Korea) doesn't lend an ear to the international community. I feel sorry about a situation where the abduction issue hasn't been resolved," Koizumi said.

Prior to his speech, Koizumi met with Yasushi Chimura, 62, a former abductee by North Korea who returned to Japan in 2002 -- for the first time since Chimura's children were also brought back to Japan in 2004.

After the meeting, Chimura, a resident of Obama, said, "I want attention to be paid to the abduction issue, aside from the North's nuclear and missile programs. It would be difficult to resolve the abduction issue unless the prime minister is ready to visit North Korea."

September 11, 2017

## Rumors about deaths from N.K. nuclear test

### Source: Rumors spread in North about deaths from nuclear test

<http://www.asahi.com/ajw/articles/AJ201709110022.html>

By YOSHIHIRO MAKINO/ Correspondent

SEOUL--Rumors are spreading among North Korean citizens that people involved in or living near Pyongyang's latest nuclear test are dying or coming down with a strange illness, a source familiar with the country said.

“(Such rumors are circulating) because the (North Korean) government has not provided appropriate explanations about the nuclear test,” the source said.

The rumors are spreading by word of mouth among citizens, including those working in markets, the source said. According to some unconfirmed reports, a worker involved in preparations for the testing of a hydrogen bomb has died.

“The Sept. 3 test caused a big earthquake, which shocked people,” the source said. “That has also apparently led (to the spread of the rumors).”

The nuclear test, North Korea’s sixth, was held in Punggyeri in Kilju county in North Hamgyong province. Following the test, North Korea announced: “Although the nuclear test was conducted with more power than those of the previous ones, it did not leak radioactive substances and had no influence on the surrounding ecological environments.”

The South Korean government, citing its own analysis, said a tunnel used in the test might have caved in. On Sept. 8, Seoul also announced that it detected a minute amount of xenon, a radioactive substance.

North Korea is maintaining a strict system to keep details of the nuclear test secret. For example, it has prohibited foreigners from exiting railway stations in Kilju county.

In addition, Pyongyang has not provided explanations to its citizens about the possible effects of radioactive substances on the human body.

September 15, 2017

## First rebuilding hub



Bags of contaminated soil are stored near JR Futaba Station in Futaba, Fukushima Prefecture. The area has become part of the government-designated rebuilding hub. (Asahi Shimbun file photo)

## First 'hub' set up in Fukushima no-entry zone to speed rebuilding

<http://www.asahi.com/ajw/articles/AJ201709150058.html>

By NORIYOSHI OTSUKI/ Senior Staff Writer

An area in the no-entry zone of Futaba, a town that co-hosts the crippled Fukushima No. 1 nuclear power plant, became the first government-designated "rebuilding hub" after the 3/11 disaster.

The designation on Sept. 15 means decontamination will speed up and infrastructure restored so the evacuation order in the town center can be lifted by spring 2022.

Most of Futaba is currently located in a difficult-to-return zone because of high radiation levels.

Rebuilding efforts have not started there yet, even six-and-a-half years since the nuclear accident unfolded.

The rebuilding hub covers about 560 hectares of land around Futaba Station, accounting for about 10 percent of the town's total area. It is almost the same size as an interim storage facility for contaminated soil and other waste that will be built within the town.

The central government will start full-scale decontamination efforts in the hub zone, and plans to initially lift the evacuation order for the area around the station by the end of fiscal 2019 to allow an open thoroughfare and short stays by members of the public.

By spring 2022, the government plans to lift the evacuation order for the entire hub zone. It hopes to bring back 1,400 former residents to the zone by 2027, and also provide homes for about 600 people from outside the town, such as workers at the Fukushima plant.

In the difficult-to-return zone, radiation readings surpassed 50 millisieverts per annum right after the triple meltdown occurred at the plant in 2011. An evacuation order was issued to about 25,000 people in seven municipalities in Fukushima Prefecture, covering 33,700 hectares in total.

The difficult-to-return zones have been excluded from the government's rebuilding efforts. But a related law was amended in May, and the government is now responsible for rebuilding areas that could be made habitable in the near future after decontamination, meaning a radiation reading of 20 millisieverts per year or less.

In late August, Futaba applied to the government to host a designated rebuilding hub. Other municipalities with difficult-to-return zones are now preparing applications for the program.

September 19, 2017

## Revise safety screenings again





## Cooling systems at five NRA-cleared nuke plants could fail if nearby volcanoes erupt

Kyodo, JJI

**Five nuclear power plants that have passed safety clearances may be at risk of having their cooling systems crippled during huge eruptions of nearby volcanoes**, the nation's nuclear safety watchdog said Monday.

The five plants are **Kyushu Electric Power Co.'s Sendai and Genkai plants in Kagoshima and Saga prefectures, respectively, the Mihama and Oi plants, both in Fukui Prefecture and run by Kansai Electric Power Co., and the Ikata plant in Ehime Prefecture run by Shikoku Electric Power Co.**

Additional research and data have revealed that the possible concentration of volcanic ash from huge eruptions could soar up to around 100 times that previously estimated. The findings emerged only after screenings of the plants by the Nuclear Regulation Authority.

According to the Federation of Electric Power Companies of Japan, the concentration of volcanic ash that would be spewed could exceed the limit of the plants' air filters.

In the event that volcanoes nearby erupt, the five plants and eight of their reactors could lose their external power supply and their emergency diesel generators would be rendered useless, according to the nuclear authority.

It now aims to raise the density level of volcanic ash that can affect nuclear plants by 100 times the current level, while pressing utilities to upgrade their air filters.

Reactor No. 3 at the Ikata plant and reactors Nos. 3 and 4 at the Genkai plant top the list of those most likely to be affected by clogged filters.

News of the findings by the NRA followed Kyushu Electric Power's move Friday requesting that the regulatory agency perform inspections on the No. 4 reactor at the Genkai plant because it aims to put the reactor back online in early March. Pre-operational checks are the last procedure on the list to be carried out before a nuclear reactor can restart.

Kyushu Electric plans to load 193 fuel assemblies into the reactor in February. After reactivating it in early March, commercial operations scheduled to start in April. If things work out as planned, the No. 4 reactor will be active for the first time since December 2011, when it was halted for routine checkups.

On March 11 of that year, reactor cooling systems at the Fukushima No. 1 power plant were crippled following a powerful earthquake and massive tsunami, resulting in the world's worst nuclear disaster since Chernobyl. The tsunami inundated the six-reactor plant, located 10 meters above sea level, and flooded power supply facilities there.

Reactor cooling systems were crippled. Reactors Nos. 1 to 3 suffered fuel meltdowns, while hydrogen explosions damaged the buildings housing reactors No. 1, No. 3 and No. 4.

The five nuclear plants passed the tougher safety requirements introduced after the Fukushima meltdowns.

September 20, 2017

## Retrieval of spent fuel at 1 & 2 reactors delayed three years

### Spent fuel retrieval at Fukushima to be delayed

[https://www3.nhk.or.jp/nhkworld/en/news/20170920\\_04/](https://www3.nhk.or.jp/nhkworld/en/news/20170920_04/)

Japan's government and Tokyo Electric Power Company plan to delay the retrieval of spent nuclear fuel from the reactor buildings at the Fukushima Daiichi plant.

The government is revising the roadmap for scrapping the plant for the first time in 2 years. The reactors were disabled in the 2011 earthquake and tsunami.

Officials plan to postpone the retrieval of spent fuel rods from the storage pools at the Number 1 and

Number 2 reactors until fiscal 2023. That's 3 years later than the current schedule.

They cite the need for more time to remove rubble and radioactive substances from the site.

The retrieval of spent fuel from the Number 3 reactor is due to start as planned in the fiscal year that begins next April.

The government will reflect the opinions of local authorities in the revision. It aims to finalize the new roadmap later this month.

### **Nuclear Watch: Nuclear Fuel Retrieval Delayed**

<https://www3.nhk.or.jp/nhkworld/nhknewsline/nuclearwatch/nuclearfuelretrievaldelayed/>

## **TEPCO to make legal safety pledge...**

### **Tepco to make legal safety vow as it seeks restart of reactors at Kashiwazaki-Kariwa plant**

<https://www.japantimes.co.jp/news/2017/09/20/national/tepco-make-legal-safety-vow-seeks-restart-reactors-kashiwazaki-kariwa-plant/#.WclzVcZpGos>

Kyodo

The head of Tepco said Wednesday that the company will make a legal safety pledge — in response to a request by the nation's nuclear watchdog — as it seeks approval to restart reactors at its Kashiwazaki-Kariwa plant in Niigata Prefecture.

Tomoaki Kobayakawa, president of Tokyo Electric Power Company Holdings Inc., told the Nuclear Regulation Authority that the firm will work to build a culture of safety as it seeks the restart of undamaged but idled reactors 6 and 7 at the plant on the Sea of Japan coast.

The nuclear watchdog called for the pledge as part of the firm's legally binding reactor safety program because it operates the Fukushima No. 1 nuclear power plant, the site of a major nuclear disaster in the aftermath of the massive March 2011 earthquake and tsunami.

Tepco's promise will pave the way for the regulator's safety clearance for the two boiling-water reactors — the same type as the ones that suffered meltdowns in the 2011 disaster.

The regulator will soon compile a draft document for the two units which will serve as certification that the utility has satisfied new stricter safety requirements implemented since the nuclear disaster.

It will then consult the economy, trade and industry minister, who oversees the nuclear industry, to confirm that Tepco is fit to be an operator. It will also solicit comments from the public before formally giving clearance.

Even if the reactors clear the safety checks, local governments near the plant remain cautious. Niigata Gov. Ryuichi Yoneyama, for example, has said it will take “around three to four years” for the utility to win the required local consent for a restart.

The Nuclear Regulation Authority said last week that Tepco was qualified” as a nuclear plant operator, but that it wanted the utility to express its resolve to ensure safety in a legal document, not just in words. Safety programs drawn up for reactors need to be approved by the regulator, which can demand a halt to nuclear power operations if it finds a grave violation.

“We intend to tackle the unending mission of improving the safety of nuclear power and to complete the decommissioning and compensation of the Fukushima No. 1 complex,” Tepco’s Kobayakawa said at the regulator’s meeting on Wednesday. “We will also make efforts to maintain qualification” as an operator of nuclear reactors, he said.

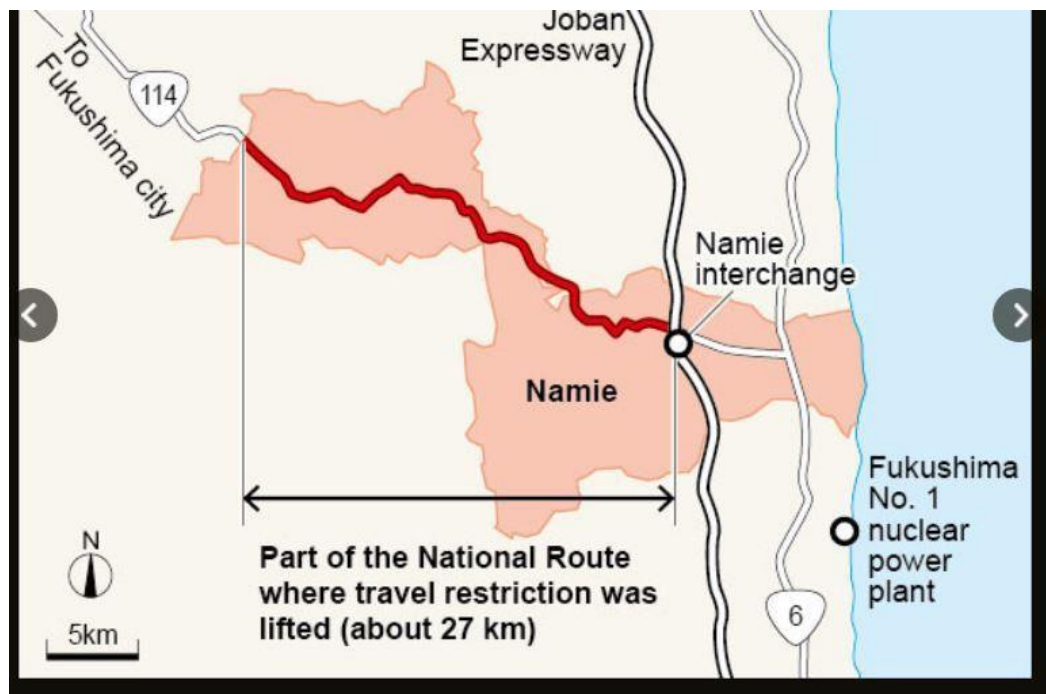
Reactors 6 and 7 at the Kashiwazaki-Kariwa plant are the newest among the seven units at the plant. The complex is one of the world’s largest nuclear power plants, with a combined output capacity of 8.2 million kilowatts.

For a reactor to be restarted, it first needs to clear the safety requirements introduced in the wake of the Fukushima nuclear crisis. Tepco filed for safety assessments of the two units in September 2013.

Tepco, which is facing massive compensation payments and other costs in the aftermath of one of the world’s worst nuclear crises, has been desperate to resume operations of its idled reactors so it can reduce spending on costly fossil fuel imports for thermal power generation.

While some reactors run by other utilities have resumed operations by satisfying the new regulations, Tepco has been under close scrutiny by regulators over whether it is qualified to once again operate a nuclear power plant.

## Travel ban on Road 114 lifted: "Much more convenient"



## Travel ban lifted on route leading to town near Fukushima plant

<http://www.asahi.com/ajw/articles/AJ201709200053.html>

NAMIE, Fukushima Prefecture--Motorists lined up early in the morning on Sept. 20 in front of a barrier on National Route 114 here, anticipating an event they had waited nearly six-and-a-half years to see.

And then it happened at 6 a.m. The barrier was removed, and a 27-kilometer section was finally reopened to the public, giving evacuated residents direct access to the eastern part of Namie, a town that lies just north of the crippled Fukushima No. 1 nuclear power plant.

Hisashi Suzuki, an 85-year-old Namie resident who now lives in Nihonmatsu, an inland city in Fukushima Prefecture, used the section to check on his home and family grave.

"Until now, we had to arrange for a thoroughfare pass beforehand, and we sometimes had to wait at checkpoints," Suzuki said. "This is much more convenient."

**National Route 114, one of main arteries that connects the center of the prefecture with the Pacific coast, runs through much of Namie.**

**The 27-km section is still within the "difficult-to-return" zone because of high radiation levels, meaning the evacuees can visit their homes in the zone but not return on a permanent basis.**

Houses along the road in the no-go zone are now covered in weeds and tangled in vines.

Access to the road section is limited to automobiles. Bicycles, motorcycles and pedestrians are not allowed to enter.

But with the road now reopened, municipalities in the area are hoping for an increasing flow in people, including evacuees visiting their homes and workers involved in reconstruction projects.

All 21,000 or so residents of Namie were ordered to evacuate the town after the nuclear disaster unfolded in March 2011. Many of those living on the coast fled west on National Route 114.

The route was closed in April 2011 because it lies within a 20-km radius of the nuclear plant.

Residents seeking to visit eastern Namie needed to obtain permission from the town government or had to take a cumbersome detour.

The evacuation order was lifted in March this year for the eastern part of the town, which was less contaminated because of the wind direction at the time of the triple meltdown at the plant.

Much of the mountainous western part of Namie is still designated as a difficult-to-return zone.

**After receiving requests from the public and municipalities, authorities conditionally lifted the travel ban on the road to allow for convenient access from central Fukushima to eastern Namie.**

The central government has set up barriers at 88 intersections on Route 114 to prevent thieves and other unapproved people from using side roads.

**In August, a survey showed the radiation dosage on the surface of Route 114 was a maximum 5.53 microsieverts per hour, more than 20 times higher than the threshold level of 0.23 microsievert per hour that many municipalities consider would require decontamination work.**

(This article was written by Kenji Izawa and Osamu Uchiyama.)

September 27, 2017

**EU to relax import restrictions on Fukushima rice**

## EU to lift import curbs on rice from Fukushima, more deals likely

<http://www.asahi.com/ajw/articles/AJ201709270035.html>

The European Commission is set to relax import restrictions on rice from Fukushima Prefecture that were imposed after the 2011 nuclear disaster, sources said.

The import curbs could be eased as early as this year and prompt other countries, including major markets like China, to follow suit, the sources added.

In addition to rice from Fukushima Prefecture, the EU is expected to remove restrictions on some seafood products from Iwate, Miyagi and other prefectures.

All restrictions on products from Akita Prefecture will likely also be lifted, thereby abolishing all curbs on rice grown in Japan.

The United States on Sept. 22 decided to allow imports of milk and dairy products from Fukushima, Iwate, Miyagi, Tochigi and Gunma prefectures without inspection certificates stating they are free of radioactive materials.

The EU move follows a general agreement on an economic partnership in July, during which EU officials informed Japan of plans to relax import restrictions on agricultural products. The two sides have been discussing the issue since then.

(This article was written by Naoki Tsuzaka in Brussels and Tetsushi Yamamura in Tokyo.)

September 29, 2017

## Faulty equipment may have masked leaks

### Fukushima plant may have leaked radioactive water

[https://www3.nhk.or.jp/nhkworld/en/news/20170929\\_19/](https://www3.nhk.or.jp/nhkworld/en/news/20170929_19/)

The operator of the Fukushima Daiichi nuclear plant says the groundwater level fell below the level of contaminated water inside the No.1 reactor building **in May**. This means that radioactive water may have leaked from the building.

Officials with the Tokyo Electric Power Company say there were errors in the settings of 6 indicators installed since April to monitor the groundwater levels around the No.1 to No.4 reactor buildings. They say **the actual levels were about 70 centimeters lower than the readings taken with the equipment.**

Contaminated water could leak out if groundwater levels are lower than the level of contaminated water inside a reactor building.

The officials say **the groundwater level of a well outside the No.1 reactor building was up to 2 centimeters lower than the contaminated water level, and this occurred at least 8 times between May 17th and the 21st.**

They say they cannot tell how long this situation lasted, and are continuing their investigation.

The utility says there are no reports of any irregularities in the density of radioactive substances in the groundwater around the reactor buildings.

### Preparing for Worst Case Scenario (NHK video)

<https://www3.nhk.or.jp/nhkworld/en/news/videos/20170929164808246/>

September 30, 2017

### How long does it take to revise a (safety) quiz?



A facility in Ikata uses a touch-panel screen to inform visitors about nuclear power plant safety using a quiz format. (Video footage by Chiaki Ogihara)

### No joke: Despite the evidence, nuclear power declared safe

<http://www.asahi.com/ajw/articles/AJ201709300035.html>

By CHIAKI OGIHARA/ Staff Writer

A facility in Ikata uses a touch-panel screen to inform visitors about nuclear power plant safety using a quiz format. (Video footage by Chiaki Ogihara)

A touch-panel screen at a facility in Ikata explains that the nuclear power plant in the town was built to withstand strong earthquakes. (Chiaki Ogihara)

A public relations facility here that was set up to publicize the safety of the Ikata nuclear power plant operated by Shikoku Electric Power Co. **still insists that nuclear plants can withstand a tsunami of any height.**

Like the Fukushima No. 1 nuclear power plant that went into triple meltdown, the Ikata facility faces the coast. A magnitude-9.0 earthquake on March 11, 2011, triggered tsunami that put the Fukushima facility out of action.

More than six years after that catastrophic event, the Ehime prefectural government is finally moving to revise the information designed to ease fears about a nuclear accident.

The contents on display will be updated before the end of the fiscal year because, as one prefectural government official put it, "Some of the information does not square with the current situation."

The facility is located in the Minatoura district of Ikata about four kilometers east of the Ikata nuclear plant. It was established in 1982 by Ehime prefectural authorities to remove concerns the public may have about nuclear power generation.

It is operated by an organization that survives on funding from Shikoku Electric, the Ehime prefectural government and the Ikata town government.

In the last fiscal year, the facility had 1,761 visitors, including elementary school students who live nearby. Near the entrance to the facility is a touch-panel screen where visitors can learn about nuclear power plants in a quiz format.

One question asks, "What would happen to a nuclear power plant if a large earthquake should strike?"

The three alternatives to choose from are: 1) Continue to generate power; 2) The reactor automatically stops to prevent any form of accident; and 3) It would be destroyed if a large earthquake struck.

The second choice is considered the correct answer.

The monitor also offers this reassurance: **"(The nuclear plant) is a sturdy building that would not budge an inch in an earthquake, typhoon or tsunami."**

Another entry states that "it was designed with the largest possible quake in mind."

Another question asks, "Would a nuclear power plant explode like a nuclear bomb?"

Again, there are three choices: 1) It would explode if used in a wrong way; 2) It would never explode; and 3) Nuclear reactors might explode once it ages.

The correct answer is again the second choice.

In fact, after the Great East Japan Earthquake and tsunami of March 2011, reactors at the Fukushima No. 1 plant were severely damaged by hydrogen explosions caused by core meltdowns after cooling functions were lost when power to the plant was lost.

About a year ago, facility operators have attached a sign to the touch-panel screen that says, **"We are in the process of preparing a revision because some of the wording differs from the current situation."**

However, **no explanation is offered to show what sections differ from reality.**

A prefectural government official in charge of nuclear power safety measures said, "There is some accurate information so we decided it was preferable that some of it was viewed."

But, the official added that the display would be revised along with improvements in other equipment.

The cost of about 500,000 yen (\$4,400) would be paid for from tax subsidies obtained through laws covering power generation.



After the Fukushima nuclear accident, a new display was added to show the safety measures being taken at the Ikata plant. There is also a video shown at the facility which explains there has been no noticeable spike in cancer rates or hereditary illness caused by radiation levels under 100 millisieverts.

October 2, 2017

## First rice harvest in 7 years

### Rice harvest near damaged Fukushima plant

[https://www3.nhk.or.jp/nhkworld/en/news/20171002\\_19/](https://www3.nhk.or.jp/nhkworld/en/news/20171002_19/)

Farmers have harvested rice for the first time in 7 years in an area near the damaged Fukushima Daiichi nuclear power plant.

After the nuclear accident in 2011, residents in the district of Odaka in Minamisoma City, Fukushima Prefecture were ordered to evacuate.

The government lifted the evacuation order in July last year. Farmers resumed growing rice this year as safety was confirmed in experimental cultivation.

Rice cropping began on Monday using big combines in paddies with a total area of about 9 hectares.

A rice variety specially produced in Fukushima Prefecture was cultivated by an agricultural corporation established by local farming organizations.

According to the Tohoku Regional Agricultural Administration Office, this year's harvest is about average for Fukushima Prefecture.

The corporation will select the harvested rice based on its quality. The rice will be shipped after it is put to radiation tests.

The agriculture corporation president, Ryoichi Sato, said he is very happy with the first harvest in 7 years. He said the corporation will do its best to encourage more people to resume rice farming in the area.

## NRA approves draft safety reports for Kashiwazaki Kariwa

## Japan's Regulator Approves Draft Safety Reports On Kashiwazaki Kariwa-6 And -7

<http://www.nucnet.org/all-the-news/2017/10/02/japan-s-regulator-approves-draft-safety-reports-on-kashiwazaki-kariwa-6-and-7>

Japan's Nuclear Regulation Authority has approved draft reports which conclude that the Kashiwazaki Kariwa-6 and -7 nuclear plants in Niigata Prefecture, western Japan, meet revised safety standards introduced after the March 2011 Fukushima-Daiichi accident. The NRA approved the reports at a scheduled meeting on 27 September 2017, industry group the Japan Atomic Industrial Forum (Jaif) said. The final reports are expected to be approved at the NRA's next meeting on 4 October 2017. The units will be the first Tokyo Electric Power Company (Tepco) plants to be approved, Jaif said. Tepco owns and operates Fukushima-Daiichi. **Jaif said the Kashiwazaki Kariwa units will also be the first boiling-water reactors – the same type as those at Fukushima Daiichi – to meet the new standards.** Jaif said permission to restart the reactors will probably be given officially early next year, following public reviews and a verdict from the Ministry of Economy, Trade and Industry on Tepco's eligibility to operate the units. **The agreement of Niigata Prefecture is another matter,** Jaif told NucNet. "The position of the governor, Ryuichi Yoneyama, is that the cause of the Fukushima-Daiichi accident has not been verified, and that it will take three or four years before it can be verified. It could therefore be several years before Tepco can restart the units." Kashiwazaki Kariwa-6 and -7 are both 1,315-MW BWRs. They began commercial operation in 1996 and 1997 respectively, but like all reactors in Japan were shut down following Fukushima-Daiichi.

October 4, 2017

### NRA should explain its decision

#### NRA questioned TEPCO's fitness to run plant

[https://www3.nhk.or.jp/nhkworld/en/news/20171004\\_29/](https://www3.nhk.or.jp/nhkworld/en/news/20171004_29/)

Japan's nuclear regulator interviewed executives of Tokyo Electric Power Company in July after the utility's corporate culture was called into question.

The Nuclear Regulation Authority took the unusual step of looking into whether TEPCO was qualified to restart another nuclear plant.

The operator kept quiet about the meltdowns at its Fukushima Daiichi plant for more than 2 months after the accident in March 2011. It has also been criticized for giving misleading information about the ability of emergency facilities at its Kashiwazaki-Kariwa plant in Niigata Prefecture to resist earthquakes.

During the interview of executives, Shunichi Tanaka, the NRA's chairman at the time, criticized TEPCO. He said it wouldn't be qualified to operate a nuclear plant unless it showed its determination to decommission the Fukushima reactors and to produce results. He also asked TEPCO to respond in writing.

In a statement submitted in August, TEPCO said it was tackling the matter and expressed its resolve to

complete the decommissioning.

But the document failed to outline any concrete plans. Despite that, the NRA decided to recognize TEPCO as a qualified nuclear plant operator. But it was on condition that TEPCO make clear in its safety code that it was resolved to decommission the Fukushima plant and prioritize safety over economic efficiency in its operation.

Now that the regulator has effectively judged that TEPCO's Kashiwazaki-Kariwa plant has met the new safety requirements, observers say the regulator should give the public an understandable explanation of its screening process.

October 5, 2017

## Can TEPCO be trusted?

### **VOX POPULI: Can TEPCO still be trusted after past disasters and attitudes?**

<http://www.asahi.com/ajw/articles/AJ201710050018.html>

The other day, Tokyo Electric Power Co. President Tomoaki Kobayakawa pledged to ensure that the utility will place a higher priority on safety than on profitability in its operations.

Kobayakawa's pledge boils down to a simple and obvious truism. "I promise to cause no trouble to people when I try to make money."

It would probably be an insult to elementary school students to say his vow is like a line of repentance written by elementary school students.

But his pledge seems to have been somewhat helpful for his embattled company.

On Oct. 4, the Nuclear Regulation Authority gave the green light to the utility's plan to restart two boiling-water reactors at its Kashiwazaki-Kariwa nuclear power plant in Niigata Prefecture.

The nuclear safety regulator has concluded that the company is fit to operate nuclear reactors despite the catastrophic accident that occurred at its Fukushima No. 1 nuclear plant in 2011.

TEPCO is in the process of paying compensation for damage caused by the accident and decommissioning the reactors at the plant.

The company claims it needs to generate profits by bringing offline reactors back online to secure funds needed for these steps.

In other words, the firm is trying to restart other reactors to cover the costs of cleaning up the mess left by the Fukushima disaster. It is doing so even though there is no place available to dispose of nuclear waste. TEPCO's Kashiwazaki-Kariwa nuclear plant was hit by the powerful earthquake that occurred off Niigata Prefecture in 2007.

The earthquake caused a fire at the plant, and the operator failed to extinguish it quickly.

According to an Asahi Shimbun report, the TEPCO president at that time promised the Niigata governor it would learn valuable lessons from the experience and rebuild the facility as the safest nuclear power plant in the world.

Less than four years later, the reactors at the Fukushima plant, the same type as those at the Niigata plant, were struck by a severe accident.

Sadly, the company actually didn't learn any important lessons from the accident at the Niigata plant. Both the central government and the Diet have terminated their efforts to clarify all the factors that contributed to the Fukushima accident. Only the Niigata prefectural government is still working to delve deeper into the causes of the Fukushima accident.

The central government is showing no interest in mapping out a way for Japan to wean itself from its heavy dependence on nuclear power generation.

The attitudes of the government and nuclear power plant operators appear to suggest that they are simply pretending to have tamed the technology when they actually haven't.

## "TEPCO's nature of covering up the truth remains unchanged"

### **Environmental economics expert questions clearing of TEPCO reactors in safety review**

[https://mainichi.jp/english/articles/20171005/p2a/00m/0na/005000c#cxrecs\\_s](https://mainichi.jp/english/articles/20171005/p2a/00m/0na/005000c#cxrecs_s)

The Nuclear Regulation Authority (NRA) has endorsed a draft document certifying that the No. 6 and 7 reactors at the Kashiwazaki-Kariwa power station in Niigata Prefecture operated by Tokyo Electric Power Company Holdings Inc. (TEPCO) have met new safety standards introduced after the Fukushima disaster - paving the way for the reactors to be restarted.

This move, however, has been questioned by Kenichi Oshima, a professor in environmental economics at Ryukoku University. Below is a summary of his comments.

- **【Related】** TEPCO reactors clear safety review for 1st time after Fukushima

In an assessment of whether the No. 6 and 7 reactors at the Kashiwazaki-Kariwa Nuclear Power Plant meet new safety criteria, TEPCO, which was responsible for the Fukushima nuclear disaster, was also screened over whether it was qualified to resume nuclear power plant operations. The NRA gave TEPCO a "passing grade" in the assessment, but **TEPCO's nature of covering up the truth remains unchanged**, and I have serious misgivings about the NRA certifying reactivation.

During screening by the NRA, it emerged that TEPCO had exaggerated the quake resistance of a quake-proof building that would be used as the command and control hub in case of an accident at the Kashiwazaki-Kariwa Nuclear Power Plant. In addition, the company has continued to take an irresponsible attitude in a lawsuit residents filed over the disaster at the Fukushima No. 1 Nuclear Power Plant, saying that it was not possible to predict the Great East Japan Earthquake and tsunami (that triggered the plant meltdowns). In the assessment, TEPCO basically just declared, "We'll do things properly." How does that enable the NRA to judge that the company is qualified as a nuclear power operator? I'm left doubtful.

Under its rehabilitation plan, TEPCO says that it will be able to cover the costs of handling the Fukushima nuclear disaster if the Kashiwazaki-Kariwa plant goes back into operation. But two successive governors of Niigata have taken a cautious approach toward reactivation, and if the feelings of prefectural residents

are taken into consideration, there's probably no way this (reactivation) can be permitted. I imagine that unless TEPCO faces the reality that reactivation of the Kashiwazaki-Kariwa Nuclear Power Plant is difficult, it will find its management in disarray.

October 7, 2017

## Quake off Fukushima

### Quake off Fukushima, no tsunami

[https://www3.nhk.or.jp/nhkworld/en/news/20171007\\_06/](https://www3.nhk.or.jp/nhkworld/en/news/20171007_06/)

A magnitude 5-point-9 earthquake has struck northeastern Japan.

It occurred at 11:56 PM Friday Japan time, or 02:56 PM UTC.

The quake was focused off the coast of Fukushima Prefecture at a depth of 53 kilometers.

The quake registered an intensity of 5-minus in coastal areas of Fukushima Prefecture on the Japanese scale of zero to 7. The Japan Meteorological Agency says there is no tsunami threat.

The Nuclear Regulation Authority says there are no reports of abnormalities at 2 nuclear plants in Fukushima, including the crippled Daiichi plant.

October 8, 2017

## Restart: Are we talking about safety?

### NRA's nod for a Tepco nuclear plant restart

<https://www.japantimes.co.jp/opinion/2017/10/08/editorials/nras-nod-tepco-nuclear-plant-restart/#.WdyRpDtpGos>

The Nuclear Regulation Authority's effective go-ahead last week for restarting two reactors in Niigata Prefecture came just a few months after the departing NRA chief, Shunichi Tanaka, called Tokyo Electric Power Holdings Co. unfit to run a nuclear power station. He said Tepco lacks the will to take the initiative in decommissioning the crippled Fukushima No. 1 plant, where three reactors suffered core meltdowns in the mega-disaster of March 2011.

While restarting reactors 6 and 7 at the giant Kashiwazaki-Kariwa plant on the Sea of Japan coast is not expected to take place anytime soon — due to opposition from the local governor, whose consent will be

needed — it must be scrutinized whether the nuclear watchdog carefully assessed Tepco's qualifications as a nuclear plant operator after seeming to question its fitness so severely as recently as July. Exposed to a tightening business environment due to liberalization of the power retail market, Tepco sees the restart of the Kashiwazaki-Kariwa plant as crucial to rebuilding the company's finances, which were battered by the massive cost of decommissioning the Fukushima No. 1 plant and paying damages to residents affected by the disaster — which will reach an estimated ¥16 trillion. The government believes that reopening the Niigata plant will help Tepco in its compensation efforts and measures to cope with severe accidents. But that should not factor in the safety screening before bringing the idled reactors back online.

The NRA's approval for reactivating the Kashiwazaki-Kariwa reactors was the first given to a plant run by Tepco, which continues to struggle in the fight to clean up the mess from the triple meltdowns at Fukushima No. 1 after the plant was flooded in a giant tsunami and lost emergency power supply to cool the reactors. It was also the first NRA nod — under a revamped safety standard following the 2011 crisis — for restarting a boiling-water reactor, the same type as used at Fukushima No. 1.

In screening Tepco's bid to restart the Kashiwazaki-Kariwa plant, the NRA focused on whether the power company responsible for the Fukushima debacle was fit to run a nuclear power plant. During a session in July, then-NRA chief Tanaka appeared to doubt that, telling Tepco executives that a company which cannot demonstrate its resolve and achievement to decommission the Fukushima No. 1 plant was not qualified to restart another nuclear plant.

That changed after Tepco told the nuclear watchdog in August that it was determined to follow through on the decommissioning of Fukushima No. 1. During NRA's sessions held in September, Tanaka said the experience of the Fukushima No. 1 disaster will be a plus for Tepco in its nuclear power plant operation and that the watchdog had reached a consensus that Tepco is qualified to restart the Kashiwazaki-Kariwa plant, setting the stage for the approval given last Wednesday. Toyoshi Fuketa, who took over as NRA chief after Tanaka stepped down Sept. 18, said the NRA ultimately made its judgment solely on the basis of whether Tepco is technologically capable of restarting a nuclear plant. **It would be unfortunate if the NRA's apparent turnaround was driven by its desire to reach a conclusion on the sensitive matter in time for Tanaka's exit.**

**It is questionable whether the NRA's decision properly addresses people's concern over the safety of nuclear power** — as indicated by media surveys that show a major portion of respondents are still opposed to restarting the reactors idled in the wake of the 2011 disaster. Six years later, nuclear energy remains a politically contested issue. While the administration of Prime Minister Shinzo Abe has pushed for the restart of idled reactors once they have cleared the NRA's screening, the new party launched by Tokyo Gov. Yuriko Koike — which is poised to be the main contender to Abe's ruling coalition in the upcoming Lower House snap election — is calling in its campaign platform for a phaseout of nuclear power by 2030.

Power companies seek to reactivate their idled nuclear reactors to save on the huge cost of fuel imported to operate their thermal power plants. Tepco reportedly stands to gain up to ¥200 billion in annual profit by restarting the two reactors at the Kashiwazaki-Kariwa plant.

It's not clear, however, whether continued reliance on nuclear power will be a sustainable model for the power industry. In many other countries, nuclear power is becoming a costly business due to surging

construction and maintenance costs. Power companies in Japan, now exposed to greater competition through electricity retail deregulation, will not be immune to this change.

October 9, 2017

## Fukushima rice

### Rice harvested near Fukushima accident site

[https://www3.nhk.or.jp/nhkworld/en/news/20171009\\_11/](https://www3.nhk.or.jp/nhkworld/en/news/20171009_11/)

A farmer in a town near the crippled Fukushima Daiichi nuclear power plant has harvested rice for the 1st time since the 2011 accident.

Noboru Watanabe harvested the crop from his paddy in the town of Tomioka on Monday, with local officials looking on.

Following the nuclear accident, the central government issued evacuation orders to all parts of the town. The orders were lifted for most areas in April.

**Watanabe is taking part in a project to grow rice on a trial basis to confirm the safety of local produce.**

He says he has removed topsoil from his paddy for decontamination and installed electric fences to keep wild boars and other animals away so that he could restart growing.

Watanabe says that although this is his 1st time in 7 years to harvest the paddy, he still remembers the satisfaction of growing a successful crop. He says he also wants to plant seedlings in his paddy next year and later.

October 10, 2017

## Aim is to make nuclear weapons unacceptable in people's minds

### Nobel winner says award will help mobilize for ultimate goal: ridding the world of nukes

<https://www.japantimes.co.jp/news/2017/10/10/world/nobel-winner-says-award-will-help-mobilize-ultimate-goal-ridding-world-nukes/#.WdyRLTtpGov>

AP, JIJI

UNITED NATIONS – The head of the anti-nuclear campaign that won this year’s Nobel Peace Prize said Monday **its goal is to make atomic weapons unacceptable in the minds of people in every country — and have all nuclear-armed nations listen to their citizens and give up their arsenals.**

Beatrice Fihn, executive director of the International Campaign to Abolish Nuclear Weapons (ICAN), told a news conference that for a long time nuclear weapons have been seen as “an issue of the past” that isn’t relevant.

But she said a potential nuclear arms race with nuclear nations modernizing their weapons and threats by U.S. President Donald Trump and North Korean leader Kim Jong Un to use atomic weapons “makes this an urgent issue again.”

“I think that this Nobel Peace Prize can really bring about a much bigger movement against nuclear weapons,” Fihn said. “This gives us an enormous opportunity to reach out to new audiences, and to mobilize people once again.”

ICAN, currently a coalition of 468 organizations in 101 countries, is expecting to expand.

Ray Acheson, an ICAN steering committee member from the Women’s International League for Peace and Freedom, told reporters that since the Nobel Prize announcement on Friday the campaign has received “a lot of new partnership requests.”

The Nobel committee cited Geneva-based ICAN for its work that led to the first-ever Treaty on the Prohibition of Nuclear Weapons that was agreed to by 122 countries at the United Nations in July. It opened for signature on Sept. 20 and already 53 countries have signed and three have ratified.

Fihn said ICAN’s “ambitious goal” is to get the 50 ratifications needed for the treaty to enter into force before the end of 2018.

The United States, which boycotted negotiations along with other nuclear powers, reacted to ICAN’s award saying the treaty “will not make the world more peaceful, will not result in the elimination of a single nuclear weapon, and will not enhance any state’s security.”

Fihn said the U.S. reaction was “quite expected,” but it shows the treaty is having “an impact on them.”

She stressed, however, that the Nobel Peace Prize isn’t going to make Trump give up nuclear weapons.

“But I don’t think that’s really what we’re doing here,” she said. “What we’re trying to do here is to make nuclear weapons unacceptable in the minds of the people, and that’s where civil society has the power.

That’s really what is changing things. And in the end, governments have to do what their people say.”

ICAN also lambasted the Japanese government for not signing the nuclear weapons ban treaty, calling on Tokyo, the only nation to have been attacked with nuclear weapons, to sign and ratify the pact.

Japan’s failure to join the treaty is “a betrayal of the hibakusha, who for more than 70 years have worked tirelessly to eliminate nuclear weapons,” Tim Wright, director for ICAN’s activities in the Asia-Pacific region, said at a the news conference.

“We must listen to their testimony and heed their call,” he said.

As for North Korea, Fihn said, Pyongyang won’t disarm as long as it thinks nuclear weapons are acceptable, legitimate and justified.

The nuclear weapon states and those countries under their nuclear umbrella — including Japan — currently maintain they are necessary for security, she said.

“I think that is what this treaty is about — stop allowing them to justify having weapons of mass destruction that are only meant to indiscriminately slaughter hundreds of thousands of civilians,” Fihn said.

She said it’s been during previous times of big crises that “the most progress” has been made toward nuclear disarmament.



Five years after the Cuban missile crisis in 1962, the Treaty of Tlatelolco was signed prohibiting nuclear weapons in Latin America and the Caribbean, and later the Nuclear Nonproliferation Treaty, she said. And during heightened Cold War tensions talks in Reykjavik between then U.S. President Ronald Reagan and Soviet leader Mikhail Gorbachev in 1986 resulted in the treaty to eliminate intermediate and shorter-range nuclear and conventional missiles the following year.

Fihn said these crises, and the current escalating U.S.-North Korean tensions, “also bring about public mobilization.”

“I think that that’s where this peace prize is extremely timely, and very urgently needed attention on this issue,” she said.

October 11, 2017

## **Volcano in southwestern Japan erupts for 1st time in 6 years**

[https://mainichi.jp/english/articles/20171011/p2g/00m/0dm/016000c#cxrecs\\_s](https://mainichi.jp/english/articles/20171011/p2g/00m/0dm/016000c#cxrecs_s)

MIYAZAKI, Japan (Kyodo) -- A volcano on the southwestern main island of Kyushu erupted early Wednesday for the first time in six years, prompting the Japan Meteorological Agency to raise its volcanic alert level.

Mt. Shinmoe, straddling the borders of Kagoshima and Miyazaki prefectures, had been showing intensifying volcanic activity, such as an increasing number of volcanic earthquakes, since late last month, the agency said.

The eruption occurred at around 5:34 a.m., with the plume rising about 300 meters above the crater. A small amount of ash fell in three cities and the town of Takaharu in Miyazaki but no injuries or damage have been reported so far, according to local police.

The agency warned at a press conference that volcanic activities can further intensify as swelling of the mountain was observed.

It raised its volcanic alert on a scale of five from level 2, involving restrictions around the crater, to level 3, instructing people not to approach the mountain, warning that areas within 2 kilometers of the crater can be exposed to large flying rocks and pyroclastic flows caused by eruptions.

The alert level stood at 3 for the first time since October 2013. The agency had upgraded last Thursday its alert from level 1, which means the public needs to keep in mind that a mountain is an active volcano, to level 2.

Glass windows can be shattered by explosive eruptions, while downwind regions can also encounter ash and small flying rocks, the agency said.

In Takaharu, some people walked while holding an umbrella as volcanic ash fell on roads. Yoshinari Imanishi, 66, a senior official of a local tourism association, expressed concern about possible negative impact from the eruption, saying, "We were hit by accommodation cancellations six years ago. I hope (the eruption) will not affect the autumn outing season."

The last major eruption of the volcano, which is part of the Kirishima mountain range, occurred on Sept. 7, 2011.

The government set up a liaison unit to gather information at the prime minister's office. The Kagoshima and Miyazaki meteorological offices will dispatch personnel to the area to assess the situation.

October 12, 2017

## **Shinmoedake eruption continues**



Mount Shinmoe in the Kirishima mountain range on the border of Miyazaki and Kagoshima prefectures erupts for the first time in roughly six years in this photo taken from a Mainichi Shimbun helicopter on a main island



## **Shinmoedake eruptions continue**

[https://www3.nhk.or.jp/nhkworld/en/news/20171012\\_34/](https://www3.nhk.or.jp/nhkworld/en/news/20171012_34/)

Volcanic eruptions continue at Shinmoedake in southwestern Japan, sending plumes of smoke high into the sky.

The mountain in Kyushu straddles Kagoshima and Miyazaki prefectures.

The Meteorological Agency is keeping its alert level at 3 on a scale of 1 to 5, restricting approaches to the volcano.

It also says larger eruptions are possible and is advising people to be careful of falling cinder and pyroclastic flows within about 2 kilometers of the crater.

The volcano started to erupt on Wednesday for the first time since 2011.

On Thursday, a column of smoke from the volcano's mouth rose some 2,000 meters at one point in the morning, but later subsided to about 400 meters.

A local gas station was crowded with drivers who wanted to wash ash off their cars.

Children wore helmets and masks on their way to a school about 10 kilometers from the volcano.

The agency forecast that ash would fall in the region on Thursday.

This prompted 4 local elementary schools to ask students to put on protective gear before going outside.

Agency officials expect large amounts of ash to fall in parts of Miyazaki and Kagoshima prefectures. They're calling on residents to stay indoors.

October 13, 2017

## **Kobe Steel in Japanese nuke plants**

### **Kobe Steel major supplier to Japanese Nuclear industry –as embattled company admits supplying Tepco's Fukushima daini reactors**

GREENPEACE DEMANDS IMMEDIATE DISCLOSURE

**Tokyo, 13 October 2017** - Kobe Steel products are widely used inside nuclear reactors in Japan with major safety implications for operating reactors and those due to restart, Greenpeace warned today. Kobe

Steel is currently embroiled in a scandal involving the supply of aluminium, copper and steel products. However, for decades Kobe Steel and its subsidiaries have supplied components to the Japanese (and worldwide) nuclear industry. Kobe Steel confirmed late on 13th October, that suspect aluminium and copper tubes had been supplied to TEPCO's Fukushima Daini nuclear power plant, but had not been installed.(1)

***"This is an urgent matter. Four reactors are operating in Japan most likely with Kobe Steel supplied components. These include some of the most critical inside a nuclear plant and for which failure is not permitted under regulation – the reason being the consequences would be so severe,"*** said Shaun Burnie, senior nuclear specialist at Greenpeace Germany in Tokyo. ***"Quality assurance and the nuclear industry is a contradiction in terms – but at least Kobe Steel and all of Japan's utilities must disclose their supply chain and which components are at risk. Japan's Nuclear Regulation Authority must also immediately act in the interests of public safety – not those of the nuclear industry,"*** said Burnie. Greenpeace is particularly concerned with the supply by Kobelco Steel Tube (a subsidiary of Kobe Steel) of steel tubing which is used in pressurized components inside nuclear reactors. These include steam generators and condensers inside Pressurized Water Reactors (PWRs). Four PWR's at Takahama and Sendai nuclear power plants are currently operating. Each steam generator contains 3-5000 tubes. Equally worrying is that Kobelco has supplied steel tubing for feed water systems in both PWR's and Boiling Water Reactors (BWRs). The reliability of feed water systems is essential both in routine operation but also in the event of emergency shutdown.

All of these components operate under enormous temperature and physical pressures with the risk that if they fail it could lead to the loss of essential cooling function to the reactor core and risking a severe accident, including reactor meltdown. Zirco Products Co., Ltd, a joint owned subsidiary of Kobe Special Tube Company and Sumitomo Metal Industries Ltd. and based in Shimonoseki, also supplies zirconium alloy fuel cladding tubes which are used in Japan and globally to contain fuel rods inside nuclear reactor cores.

**The revelations of deliberate falsification at Kobe Steel follows a major scandal involving two other steel suppliers to the nuclear industry, Japan Steel Works and JCFC. Steel manufactured by these two companies was under investigation in France and Japan, following revelations of falsified quality control supplied to French nuclear reactors.** The underlying manufacturing problems were not resolved following Greenpeace investigations despite assurances in that the components were safe by the French regulator.(2)

Kobe Steel also supplies aluminium for the baskets inside spent fuel casks. The integrity of these is essential to prevent damage to the fuel which under certain conditions could lead to a criticality.

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Notes to editors:

1 – See NHK - Tampering with piping of Kobe Steel Fukushima Dai-ni Nuclear Power Plant, 13 October 2017

- <http://www3.nhk.or.jp/news/html/20171013/k10011177061000.html>

2 – see Japanese Reactor Steel at Risk of Catastrophic Failure - JCFC, JSW and JFE Holdings under Suspicion, <http://www.greenpeace.org/japan/ja/news/press/2016/pr201612131/>

## **Kobe Steel announces more cases of faked inspections data**

By elaine kurtenbach and mari yamaguchi, Associated Press

<http://abcnews.go.com/Business/wireStory/kobe-steel-announces-cases-faked-inspections-data-50456022>

The scandal over product inspections data faked by Japanese materials and machinery giant Kobe Steel expanded Friday to include products shipped to more than 500 customers.

Kobe Steel's president, Hiroya Kawasaki, told reporters the company had uncovered nine more types of products whose inspections had been faked or manipulated, including copper alloy pipes and molds and steel wire rods used in vehicle tires and engines.

The problems disclosed by Japan's third-largest steel maker are just the latest in a slew of product quality, accounting and corruption scandals that have dented Japan's image of superior manufacturing prowess. The latest problems were discovered with shipments of more than 11,000 tons of steel, copper, and aluminum products made by Kobe Steel and its affiliates in Japan, China, Malaysia and Thailand, the company said.

Kawasaki at times appeared close to tears while explaining how it was that the company had chosen not to disclose some of the cases that had been discovered much earlier and discussed at past board meetings. "Right now, our top priority is to find out the cause and take preventive measures, and to determine if our inadequate products affected our customers," he said. "I plan to put all my energy into that effort."

"I'm most troubled by the magnitude and the extent to which this problem has spread," Kawasaki said.

Kawasaki said he did not expect any product recalls due to the misconduct.

Earlier, the 112-year-old company reported it had discovered bogus inspections or faked data for steel powder, aluminum flat-rolled products and castings, copper strips and tubes and forgings.

The exact extent of the problem remains unclear since Kobe Steel has not identified the customers affected. But it is a major supplier to many manufacturers, including railways, automakers, aircraft manufacturers, semiconductor factories and nuclear power plants.

According to the company's website, Kobe Steel has a 50 percent world market share for wire rod products, a 40 percent world market share for built-up and solid crankshafts used in ship propulsion systems and half the Japan market share for aluminum panels used in engine hoods for vehicles.

**The company also makes casks for nuclear waste and other equipment used in both conventional and atomic power plants.**

Tokyo Electric Power Co., said Friday it had bought a backup duct for a heat exchanger for one of four reactors at one of two nuclear power reactors in northeastern Japan's Fukushima that narrowly survived the 2011 tsunami despite some damage.

TEPCO said in a statement that a Kobe Steel subsidiary, Shinko Metal Products Co., informed it the product came with inappropriate measurement data.

There is no concern over safety because the duct was bought as a backup and was not used.

TEPCO said it has requested further investigations by Kobe Steel of products shipped to the utility and its subsidiaries. TEPCO is also investigating.

Kobe Steel has recorded net losses in the past two fiscal years, but Kawasaki said he did not believe the corner-cutting resulted from excess pressure from top management. He acknowledged the company may have to compensate some customers for any damages. "Naturally, we are prepared for it," he said.

October 14 2017

## **As Kobe Steel crisis deepens, cheating engulfs 500 firms**

<http://www.gulf-times.com/story/567315/As-Kobe-Steel-crisis-deepens-cheating-engulfs-500->

The cheating crisis engulfing Kobe Steel Ltd just got bigger.

Chief executive Hiroya Kawasaki yesterday revealed that about 500 companies had received its falsely certified products, more than double its earlier count, confirming widespread wrongdoing at the steelmaker that has sent a chill along global supply chains.

The scale of the misconduct at Japan's third-largest steelmaker pummeled its shares as investors, worried about the financial impact and legal fallout, wiped about \$1.8bn off its market value this week.

As the company revealed tampering of more products, the crisis has rippled through supply chains across the world in a body blow to Japan's reputation as a high-quality manufacturing destination.

A contrite Kawasaki told a briefing the firm plans to pay customers' costs for any affected products.

"There has been no specific requests, but we are prepared to shoulder such costs after consultations," he said, adding the products with tampered documentation account for about 4% of the sales in the affected businesses.

Yoshihiko Katsukawa, a managing executive officer, told reporters that 500 companies were now known to be affected by the tampering.

Kobe Steel initially said 200 firms were affected when it admitted at the weekend it had falsified data about the quality of aluminium and copper products used in cars, aircraft, space rockets and defence equipment.

Asked if he plans to step down, Kawasaki said: "My biggest task right now is to help our customers make safety checks and to craft prevention measures."

Boeing Co, has some of the falsely certified products, a source with knowledge of the matter told Reuters, while stressing that the world's biggest maker of passenger jets does not consider the issue a safety problem.

More than 30 non-Japanese customers had been affected by the firm's data fabrication, the Nikkei newspaper reported yesterday.

A Kobe Steel spokesman said the companies received its products but would not confirm they had any of the falsely certified components.

Nuclear power plant parts are the latest to join the list of affected equipment as Fukushima nuclear operator Tokyo Electric Power (Tepco) said yesterday it had taken delivery of pipes from Kobe Steel that were not checked properly.

The pipes were delivered to its Fukushima Daini station, located near the destroyed Fukushima Daiichi plant, but have not been used, Tepco said, adding it was checking all its facilities.

Faulty parts have also been found in Japan's famous bullet trains that run at speeds as high as around 300 kilometres (180 miles) per hour and a space rocket that was launched in Japan earlier this week.

One bullet train operator has already said it will seek compensation from Kobe Steel. The government has ordered Kobe Steel to address safety concerns within about two weeks and report on how the misconduct occurred in a month.

No safety issues have yet been identified in the unfolding imbroglio.

Kobe Steel shares fell nearly 9% yesterday and have fallen more than 40% since the scandal broke.

The steelmaker faces a range of legal risks, including compensation sought by clients or their customers, penalties for violating unfair competition laws for false representation, shareholder lawsuits for the fall in the company's stock price and class lawsuits from overseas customers seeking punitive damages, a lawyer, specialising in corporate laws and risk management, said.

"It is hard to predict the extent of legal costs," said Motokazu Endo, a lawyer at Tokyo Kasumigaseki law office.

"We cannot rule out the possibility that this will shake Kobe Steel to its foundation." The company has forecast a profit for the year through March 2018 after two successive annual losses.

Kobe Steel was founded in 1905 and has been a pillar of Japan's manufacturing sector.

Such are its establishment bona fides that Shinzo Abe, the prime minister and scion of a political dynasty, worked at the company decades ago, before entering politics.

But those credentials have been shattered, a point amplified by CEO Kawasaki who earlier said the credibility of the firm "has plunged to zero."

Kobe Steel said it was examining possible data falsification going back 10 years – a familiar echo of a



string of other cheating scandals involving Japan Inc.

The corrosive business practices have raised broader questions over corporate governance in Japan, and cast doubt on the integrity of a manufacturing industry once the envy of the world.

Previous cases in Japan involving falsified data included Nissan Motor, Mitsubishi Motors and Takata Corp, which filed for bankruptcy this year over faulty airbags that were blamed for 17 deaths and scores of injuries.

In 2015, it was revealed that Toyo Tire & Rubber fabricated data to secure government approval for materials to absorb shocks from earthquakes.

Conglomerate Toshiba Corp is still battling the fallout of a scandal over reporting inflated profits.

SMBC Nikko Securities said in a note to clients that investors in Kobe Steel face a prolonged period of uncertainty.

“It will likely continue to be extremely difficult to make judgements on creditworthiness and investment until the safety of the products and the extent of damages are clarified.”

## **AREVA and its Japanese partner Kobe Steel deliver the first dry storage casks for spent fuels of Fukushima Daiichi nuclear power plant**

<http://www.new.aveva.com/EN/news-9720/areva-and-its-japanese-partner-kobe-steel-deliver-the-first-dry-storage-casks-for-spent-fuels-of-fukushima-daiichi-nuclear-power-plant.html>

### **Press Release**

Storage casks / Fukushima Daiichi

March 04, 2013

TransNuclear Ltd., a joint-venture between AREVA and Kobe Steel Ltd., has just delivered to Tokyo Electric Power Co., Ltd (TEPCO) the first three metallic casks for the dry storage of spent fuels stored in the common pool of Fukushima Daiichi nuclear power plant.

TEPCO plans to transfer the spent fuels currently stored in the spent fuel pools of damaged units 1 to 4 to the common pool which did not suffer damages after March 11<sup>th</sup> events. This transfer will be made possible thanks to the loading of a number of spent fuels from the common pool into the dry storage casks delivered by TransNuclear Ltd. These casks will then be stored by TEPCO in the cask temporary storage facilities under construction on the site of Fukushima Daiichi nuclear power plant.

The order from TEPCO consists of 11 casks in which a total of 452 spent fuels can be stored. Eight other casks will be delivered to TEPCO in the coming weeks. These deliveries are an important step in the decommissioning process of the Fukushima Daiichi nuclear power plant.

These casks can withstand major natural disasters as proven by the nine similar casks used by TEPCO on the Fukushima Daiichi nuclear power plant site at the time of the March 11<sup>th</sup> events. This is a new illustration of the very high safety level of the solutions proposed by AREVA to its customers. With an experience of nearly 50 years, AREVA provides high-performance solutions for interim storage of nuclear materials while guaranteeing the highest level of safety. AREVA is the worldwide reference and the leader of the interim storage market.

**About TransNuclear Tokyo Ltd.:**

TransNuclear Tokyo Ltd., a joint venture between TN International (AREVA) and Kobe Steel Ltd., is specialized in the supply of casks and transport services for nuclear material and has become a reference in Japan for spent fuel transport and interim storage.

**About Kobe Steel Ltd.:**

The Kobe Steel Group is one of Japan's leading manufacturers of materials and machinery. Its machinery businesses include industrial and construction machinery, engineering and environmental solutions. Kobe Steel is putting its manufacturing expertise to work in the nuclear power field by developing "Only One" high-end, original products that make a positive contribution to global society.

October 15, 2017

## Strontium in helicopter's rotors?

### Radiation levels unchanged after Okinawa accident

[https://www3.nhk.or.jp/nhkworld/en/news/20171015\\_13/](https://www3.nhk.or.jp/nhkworld/en/news/20171015_13/)

The Defense Ministry's Okinawa Bureau says radiation levels are normal near the site where a Marine Corps helicopter made an emergency landing on Wednesday after one of its engines caught fire.

The CH-53 transport helicopter burst into flames in a privately owned field in Higashi Village in the northern part of Okinawa's main island. The helicopter had been on a training flight from the Futenma Air Station.

The US military told NHK that the aircraft's rotors contain radioactive strontium, but the amount is not significant enough to pose a health risk.

The US military added that the radioactive substances were quickly and safely removed by its team.

Defense bureau officials checked the soil and water near the site on Friday and Saturday, and detected normal levels of radiation.

October 16, 2017

## Is a nuclear weapon-free world compatible with nuclear power?

### **Received from Gordon Edwards (President of the Canadian Coalition for Nuclear Responsibility)**

To Friends and colleagues:

I am just back from a 2-day conference in Winnipeg entitled “Human Dimensions and Perspective in a Nuclear World: Legal Issues of Non-Proliferation, Disarmament and the Right to Nuclear Energy”. The conference was hosted by Dr. Jonathan Black-Branch, Dean of the Law School of the University of Manitoba, and sponsored by David Newman, who at one time was the Minister of Energy for Manitoba, using a legacy left by his father.

Below is a link to the extended PowerPoint that I prepared for the event.

My presentation was entitled “Can We Have a Nuclear Weapons Free World and Still Have Nuclear Power?” My answer is, “probably not”. The argument is based on the fact that commercial nuclear power requires the use of nuclear fuel. That means either uranium or plutonium. Most reactors require enriched uranium, and that means the existence of enrichment plants. Plutonium fuel requires the use of a reprocessing facility to extract plutonium from irradiated nuclear fuel.

But any country possessing a stock of Highly Enriched Uranium (HEU) could build an atomic bomb very quickly, so possessing HEU is a deal-breaker in a world without nuclear weapons — as no neighbouring country could have sufficient confidence that A-Bombs are not being built clandestinely. The same can be said for stockpiles of separated plutonium. So in a nuclear weapons free world, you probably cannot allow stocks of highly enriched uranium or of plutonium. That being the case, can you allow all countries to have operating enrichment plants and/or reprocessing plants if they wish? Under such circumstances, how could there be sufficient trust as there would be no “timely warning” of a country’s efforts to “break out” from the “no nuclear weapons” club? Nuclear explosive materials would be just around the corner.

Contrariwise, if there were no enrichment plants or reprocessing plants in existence, having been all dismantled, AND if existing stocks of HEU were “down-blended” to a low enrichment level that makes the uranium unusable as a nuclear explosive, AND if existing stocks of separated plutonium were blended back in with the highly radioactive fission products from which they were originally extracted, THEN a certain amount of stability could be achieved.

In such a world, no-one could build an A-Bomb or an H-Bomb without first building and operating either an enrichment plant or a reprocessing plant, and these activities could be detected by neighbouring countries and provide a degree of timely warning that would allow other political or military measures to be taken.

In the case of HEU, this would be a formidable obstacle to a would-be proliferator because enrichment technology is slow, vast, and highly energy intensive, so HEU simply cannot be acquired quickly. We're talking at least a year to 18 months.

In the case of plutonium the obstacle is less formidable, because in principle chemical separation can be achieved in a matter of weeks, despite the extremely high radiation fields from the fission products. But the heat generated by the spent fuel would make the operation detectable by infrared cameras and the entire operation could not be carried out "overnight" — nor could the spent fuel be transported across roads, bridges, or borders, without detection. The heat and radiation from the fission products provides not only a barrier but also a means of detection, neither of which would apply if the plutonium were already separated ahead of time. Separated plutonium can be assembled into warheads and transported over roads, bridges and borders without detection. No warning.

See [www.ccnr.org/non\\_prolif.html](http://www.ccnr.org/non_prolif.html) .

But most knowledgeable observers say that we MUST have nuclear power if we want to limit, reduce and eventually eliminate nuclear weapons, because the Non-Proliferation Treaty (NPT) distinguishes between Nuclear Weapons States (NWS = USA, Russia, China, UK, and France) and non-Nuclear Weapons States (NNWS = everybody else), and the NNWS agree not to develop nuclear weapons as long as they are provided access to the benefits of nuclear power. In fact, the NPT declares that everyone has an "inalienable right" to the peaceful use of nuclear energy. So what can you do within the existing Treaty legal limitations?

I argue that the NPT has already been reinterpreted voluntarily by those signing the treaty, and that further reinterpretation may be entertained without necessarily rewriting the treaty (which everyone is afraid to do for fear that the entire NPT might all unravel very quickly).

Case in point: Article V of the NPT promises that every country signing the treaty has the right to use "peaceful nuclear explosives". But everyone now realizes that this is a crazy idea, because the only fundamental difference between a peaceful nuclear explosive and a non-peaceful nuclear explosive is the intention behind its use. You cannot have a world without nuclear weapons if peaceful nuclear explosives are kept at the ready. Similarly, in a nuclear weapons free world, people can't keep their own stash of HEU or of plutonium, or they can assemble nuclear weapons very quickly and without warning.

In a world without nuclear weapons, can everyone have their own enrichment plants or their own reprocessing plants? Probably not, as these facilities can make nuclear explosive materials and they are operating 24/7. So access to "peaceful" nuclear technology cannot be unlimited if you expect a non-nuclear weapons world to be sustainable.

Now back to the NPT. Just because countries are entitled to have the benefits of nuclear energy doesn't mean they have to have nuclear reactors. So what are the benefits of nuclear energy? There's nuclear electricity, and nuclear medicine, and radioactive isotopes. That's about it. Do those benefits need nuclear reactors? and do they require the use of uranium? and must they entail the creation of plutonium?

(1) Electricity. There are many ways of generating electricity! So if a country wants nuclear energy for electricity production, let's provide the electricity — but not the reactors. They get the benefit of electricity without the curse of high-level nuclear waste and the catastrophe potential of a nuclear power reactor. As Amory Lovins pointed out in a different context, nobody wants a barrel of petroleum in their living room, what they want is light, heat, mobility — the benefits that oil can provide. If those benefits can be obtained in other ways, they will not miss the oil. Similarly, if the benefits of nuclear energy can be provided in other ways, will the beneficiaries miss the fact that they don't have a nuclear reactor in their back yard?

(2) Radioactive isotopes for cancer therapy and other uses. There are ways of producing isotopes that do not require uranium or reactors -- so let's provide the isotopes and alternative radiotherapy devices that do not depend on uranium or reactors.

(3) Peaceful nuclear explosives to create harbours etc. Let's provide the earth-moving capability without nuclear explosions that produce contaminated soil and radioactive fallout.

Indeed, we can keep uranium in the ground and still meet all the legitimate benefits of nuclear energy. It isn't all easy going, there are many challenges along the way, but it is ultimately do-able. And it is already happening in a big way. For in reality, the only thing that absolutely needs uranium is . . . the building of nuclear weapons. Without uranium there would be no nuclear weapons of any description. Is that such a bad thing?

Gordon Edwards.

Here is the link to my Winnipeg PowerPoint (October 2017):  
[http://ccnr.org/GE\\_winnipeg\\_2017.pdf](http://ccnr.org/GE_winnipeg_2017.pdf)

RCI Interview on the Nuclear Weapons Ban Treaty (Edwards, 2017)  
<http://www.rcinet.ca/en/2017/10/06/nobel-peace-prize-acknowledges-anti-nuclear-movement/>

Sobering British TV discussion on nuclear weapons and nuclear energy (1976)  
[http://ccnr.org/Peaceful\\_Atom.html](http://ccnr.org/Peaceful_Atom.html)

Article written for Project Ploughshares (Edwards, 1985)  
[http://ccnr.org/non\\_prolif.html](http://ccnr.org/non_prolif.html)

October 17, 2017

**Kobe Steel**

## **Kobe Steel Scandal May Hit Fukushima Daiichi Fuel Casks, Incinerator**

<http://www.fukuleaks.org/web/?p=16469>

Nancy Foust

A data falsification scandal hit Japan's Kobe Steel in recent weeks. The company admitted widespread falsification of data related to quality control in metals products provided to various customers. Kobe cited a set of copper pipes provided to TEPCO for Fukushima Daiichi as being among of the questionable parts. TEPCO claimed the parts were never actually used. Another report cited the non-used pipes were actually delivered to Fukushima Daini.

Back in 2013 Kobe Steel provided 19 spent fuel storage casks to Fukushima Daiichi. These were used to remove spent fuel from the common pool and then store it in temporary storage facilities up on the hill at the disaster site. While Kobe hasn't come out to the press and explicitly admitted these casks were part of the data falsification scandal, the company is now admitting it was commonplace and went back decades. We currently do not know the total number of casks Kobe Steel has provided to Fukushima Daiichi.

If these casks potentially have sub standard steel in them or flawed production practices this could be a considerable problem at the disaster site. If the casks are found now or later on to have structural integrity problems that could lead to cracking or leaks. This would be a very serious risk to safety anywhere near the casks. The concept of dry cask fuel storage is inherently dependent on the integrity of the cask to keep anyone nearby safe and to prevent a dangerous deadly high radiation field.

We are continuing to look to see how many more casks Kobe Steel may have provided to Fukushima Daiichi before or after the disaster. If even the 19 casks already identified need to be pulled out of storage, brought to the common pool, inspected and potentially replaced, this could significantly delay spent fuel removal from the reactors.

Workers and work space related to the spent fuel management are limited. Space in the common pool was expanded in recent years by moving some of the stored fuel in that facility to dry cask storage up on the hill. Requiring that fuel to be brought back to the common pool would cause more storage space to be used. The cask handling area for the common pool is somewhat limited. This area is where each cask would need to be unloaded then inspected in detail to determine any problems with the cask or to facilitate moving the fuel to new storage casks.

Kobe Steel's construction & fabrication company built the radioactive waste incinerator now in operation at Fukushima Daiichi. So far no admission of the incinerator being involved in the scandal has been explicitly admitted. The facility was recently constructed and went online last year.

If these products provided to Fukushima Daiichi are found to be involved in the falsification scandal it would create problems for the safety oversight of these systems and potential delays as equipment is inspected and possibly replaced. Other safety related systems could potentially be impacted. As of now we do not have other systems at the site that have been identified as being provided by Kobe Steel but they are a key supplier to the nuclear industry in Japan.

This article would not be possible without the extensive efforts of the SimplyInfo research team  
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October 18, 2017

## Boiling water reactors will need new cooling system

### New requirement added to boiling-water reactors

[https://www3.nhk.or.jp/nhkworld/en/news/20171018\\_31/](https://www3.nhk.or.jp/nhkworld/en/news/20171018_31/)

Japan's nuclear regulator is requiring a new cooling system to make boiling water-type reactors more secure in the event of a severe accident.

This follows an earlier move at the Kashiwazaki-Kariwa nuclear plant, which Tokyo Electric Power Company plans to restart in Niigata Prefecture on the Sea of Japan coast.

Earlier this month, the Nuclear Regulation Authority commissioners unanimously endorsed the plant's No.6 and No.7 reactors in their draft assessment report.

The pair are the first boiling water-type reactors in Japan to be virtually given the green light for a restart under the stricter requirements introduced after the 2011 Fukushima Daiichi crisis.

The new measure TEPCO is introducing is an alternative water circulating system. In the event of a serious accident, seawater will be used to cool the water inside a reactor's containment vessel, thus lessening the force inside.

The authority noted that this is a better option than venting systems, which release radioactive gases into the air in order to lower pressure.

The system will be also adopted at the Tokai No.2 power plant north of Tokyo.

The regulator plans to invite public opinion on the new requirement before finalizing it by year-end.

### Japan to require new cooling system for boiling water reactors

[https://mainichi.jp/english/articles/20171018/p2g/00m/0dm/083000c#cxrecs\\_s](https://mainichi.jp/english/articles/20171018/p2g/00m/0dm/083000c#cxrecs_s)

TOKYO (Kyodo) -- Japan's nuclear watchdog decided Wednesday to require operators of boiling water reactors -- the same type as those at the crisis-hit Fukushima Daiichi nuclear complex -- to install new emergency cooling systems that would activate in the event of serious accidents.

The Nuclear Regulation Authority approved at a regular meeting the revision of safety regulations to make mandatory the installation of cooling systems to circulate water inside reactor containers.

Such systems are designed to prevent temperature rises that could damage containers in the event of serious accidents. Boiling water reactors are housed in containers that are smaller than those for pressurized water reactors, making it easier for internal temperatures and pressure to rise when conventional cooling systems are damaged.

Due to the rule change, emergency cooling systems will need to be installed for a number of boiling water reactors that have been undergoing checks required for the resumption of operation. Tohoku Electric Power Co.'s Higashidori nuclear power plant in Aomori Prefecture and Onagawa complex in Miyagi Prefecture, and Chubu Electric Power Co.'s Hamaoka plant in Shizuoka Prefecture are among those affected.

The new cooling systems will be activated when severe accidents occur at nuclear plants, with water that has accumulated inside reactor containers flowing outside for cooling before returning.

If a reactor still cannot be brought under control, the operator will be allowed to release steam through a filtered venting system. Under safety requirements implemented following the 2011 Fukushima nuclear crisis, reactors must be equipped with such systems.

While several pressurized water reactors have cleared the stricter safety standards introduced after the Fukushima disaster, two boiling water reactors at Tokyo Electric Power Company Holdings Inc.'s Kashiwazaki-Kariwa power station in Niigata Prefecture became the first such reactors to be approved earlier this month.

Tokyo Electric, which runs the Fukushima complex, had already planned to install the new emergency cooling system for the Nos. 6 and 7 reactors at the Kashiwazaki-Kariwa plant and the nuclear watchdog has decided to make installation of the emergency system a requirement. It will formalize the decision after soliciting public comment on the rule change.

See also : <https://www.japantimes.co.jp/news/2017/10/18/national/japans-nuclear-watchdog-require-new-cooling-system-boiling-water-reactors/#.Wec50jtpGos>

October 22, 2017

## **US Govt. admits cyberattacks on nukes**

### **U.S. says cyberattacks have targeted nuclear, energy, aviation, water and critical manufacturing industries**

<https://www.japantimes.co.jp/news/2017/10/22/world/u-s-says-cyberattacks-targeted-nuclear-energy-aviation-water-critical-manufacturing-industries/#.Weyxq3ZpGov>



Reuters

TORONTO/HOUSTON – The U.S. government issued a rare public warning that sophisticated hackers are targeting energy and industrial firms, the latest sign that cyberattacks present an increasing threat to the power industry and other public infrastructure.

The Department of Homeland Security and Federal Bureau of Investigation warned in a report distributed by email late on Friday that the nuclear, energy, aviation, water and critical manufacturing industries have been targeted along with government entities in attacks dating back to at least May.

The agencies warned that hackers had succeeded in compromising some targeted networks, but did not identify specific victims or describe any cases of sabotage.

The objective of the attackers is to compromise organizational networks with malicious emails and tainted websites to obtain credentials for accessing computer networks of their targets, the report said.

U.S. authorities have been monitoring the activity for months, which they initially detailed in a confidential June report first reported by Reuters. That document, which was privately distributed to firms at risk of attacks, described a narrower set of activity focusing on the nuclear, energy and critical manufacturing sectors.

Department of Homeland Security spokesman Scott McConnell declined to elaborate on the information in the report or say what prompted the government to go public with the information at this time.

“The technical alert provides recommendations to prevent and mitigate malicious cyberactivity targeting multiple sectors and reiterated our commitment to remain vigilant for new threats,” he said.

The FBI declined to comment on the report, which security researchers said described an escalation in targeting of infrastructure in Europe and the United States that had been described in recent reports from private firms, including Symantec Corp.

“This is very aggressive activity,” said Robert Lee, an expert in securing industrial networks. Lee, Chief executive of cybersecurity firm Dragos, said the report appears to describe hackers working in the interests of the Russian government, though he declined to elaborate. Dragos is also monitoring other groups targeting infrastructure that appear to be aligned with China, Iran, North Korea, he said. The hacking described in the government report is unlikely to result in dramatic attacks in the near term, Lee said, but he added that it is still troubling: “We don’t want our adversaries learning enough to be able to do things that are disruptive later.”

The report said that hackers have succeeded in infiltrating some targets, including at least one energy generator, and conducting reconnaissance on their networks. It was accompanied by six technical documents describing malware used in the attacks.

Homeland Security “has confidence that this campaign is still ongoing and threat actors are actively pursuing their objectives over a long-term campaign,” the report said.

The report said the attacker was the same as one described by Symantec in a September report that warned advanced hackers had penetrated the systems controlling operations of some U.S. and European energy companies.

Symantec researcher Vikram Thakur said in an email that much of the contents of Friday's report were previously known within the security community.

Cybersecurity firm CrowdStrike said the technical indicators described in the report suggested the attacks were the work of a hacking group it calls Berserk Bear, which is affiliated with the Russian Federation and has targeted the energy, financial and transportation industries.

"We have not observed any destructive action by this actor," CrowdStrike Vice President Adam Meyers said in an email.

October 28, 2017

## All vehicles contaminated by nuke disaster will be scrapped by 2020

### TEPCO to scrap all 1,010 vehicles contaminated in nuclear disaster

<http://www.asahi.com/ajw/articles/AJ201710280001.html>

By HIROSHI ISHIZUKA/ Staff Writer



The red sticker shows that this vehicle was contaminated during the Fukushima nuclear disaster. It is designated for use only on the site of the crippled Fukushima No. 1 nuclear power plant. (Provided by Tokyo Electric Power Co.)

All 1,010 vehicles contaminated by the 2011 Fukushima nuclear disaster that are currently designated for use at the crippled plant will be scrapped by the end of fiscal 2020, the plant operator said.

Tokyo Electric Power Co. officials said it is now undesirable for automobiles tainted with radioactive substances to continue operating at the site of the Fukushima No. 1 nuclear power plant, which is becoming cleaner thanks to decontamination and other efforts.

The officials said Oct. 12 that all contaminated vehicles will be replaced with clean automobiles.

The decision was announced when members of the Fukushima prefectural government's panel on occupational safety and health measures inspected facilities at the plant, including one for dismantling contaminated vehicles.

The panel includes experts in nuclear power technology and local government officials.

TEPCO officials said about 1,100 vehicles for business use and 600 automobiles of workers were at the plant site when the disaster unfolded.

Currently, 1,010 contaminated automobiles have red stickers showing that they were contaminated in the disaster.

However, 181 of them have fallen into disuse and others have long remained idle. That has caused problems, including a shortage of parking spaces.

October 30, 2017

## "Kobe Steel's nuclear tentacles"

### **The steelmaker is embroiled in the early days of disclosing it falsified steel manufacturing data for a vast range of products, and nuclear power plants were among its customers**

<http://www.atimes.com/article/nuclear-tentacles-kobe-steel/>

By Shaun Burnie

The global nuclear industry developed over the past fifty years dependent upon vast quantities of steel components supplied by a relatively small number of specialized manufacturers. One of them is Kobe Steel Ltd.

The steelmaker, a pillar of corporate Japan, is embroiled in the early days of disclosure of falsification of steel manufacturing data that extends to products used in planes and trains, to motor vehicles and spacecraft. And nuclear power plants.

Kobe Steel and its broad collection of subsidiaries have supplied products to the nuclear industry both in Japan and around the world since the 1960's.

It's a fair bet that every one of the 60 nuclear reactors operated in Japan since 1966 had some component supplied by Kobe Steel.

(Please click here for a report showing the Kobe Steel Group's supply chain to the nuclear power industry.)

Steel is used in the nuclear reactor core, lining and pressure vessel, cooling systems, steam generators and condensers, thousands of meters of pipe work and prestressed steel concrete containment tendons.

Obviously, because of the public health risk from radiation leaks, the steel was supposedly manufactured to specific, high standards.

Over the decades, a trickle of stories have appeared in the media disclosing that the steel supplied to nuclear plants did not quite match up to standards claimed by the industry.

On occasion there were accidents that were linked to faulty manufacturing and inspection (or no inspection).

In 2004 in the Mihama-3 reactor in western Japan a major pipe failure in the steam condensate system killed five workers. The pipe work had not been inspected since it was installed 28 years earlier.

The brewing Kobe Steel scandal has introduced the world to the Japanese term *tokusai*, which translates as shipping products that did not meet customer specifications.

Apparently, this practise of *tokusai* had become so institutionalized over decades at Kobe Steel companies that it became “essentially a tacit fraud manual,” according to the Nikkei business newspaper.

Of course, faulty parts in a car, train or aircraft could have severe consequences on safety, so for good reason Toyota Motor, Japan Railways, Boeing and the other 500 major customers of Kobe Steel are reviewing the steel they received.

Even if there are no major safety issues, they are likely to replace those parts. That will not be the approach of the nuclear industry.

The components we are talking about inside Japan’s nuclear reactors include steel and copper pipework that guarantees the cooling of the reactor core, including in emergencies.

Failure or rupture of these components could cause a severe accident and lead to a reactor meltdown.

It has been disclosed that Shinko Metal Products (owned by Kobe Steel) supplied tubing for Tokyo Electric Power Co.’s Fukushima Daini nuclear plant that failed had not gone through the correct quality inspection. (Note: the Fukushima Daini facility is the sister plant to Fukushima Daichi that suffered three reactor meltdowns in the March 2011 earthquake and tsunami in Japan.)

As a result, Japan’s Nuclear Regulation Authority (NRA) and Ministry of Economy Trade and Industry has jumped into action – sort of.

Nuclear power companies across the nation were asked to provide details of Kobe Steel products supplied to their reactors within two weeks, and a meeting will take place 9th November between the NRA and the nuclear industry.

Kobe Steel production also extends to joint ventures with Areva of France for the global supply of casks to contain nuclear spent fuel (they have the contract for Tokyo Electric’s destroyed Fukushima Daiichi plant), as well as the nuclear fuel industry.

This steel supply includes the Rokkasho-mura plutonium reprocessing plant in Aomori prefecture, in northern Japan.

Just this month, the Rokkasho plant’s owner, Japan Nuclear Fuel Ltd. (JNFL), admitted that it had violated safety rules at its site by fabricating records to say safety checks had been carried out when in reality none had been conducted since construction was completed over a decade ago.

On October 26th it was announced by JNFL that machine parts for its large uranium enrichment plant at Rokkasho had not been correctly inspected by the supplier – Kobe Steel.

We have been here before.

### **French reactor steel scandal**

In 2015 it was disclosed that major components in reactor steam generators manufactured by Areva’s le Creusot plant were under investigation by the French regulator due to evidence of below specification toughness caused by high carbon content in the forged steel.

Initially downplayed by the national regulator and Areva, critics continued to push for a more stringent investigation.

In September 2015, the release of an independent evaluation conducted by Large and Associates – a UK-based engineering firm – at the request of Greenpeace really blew the doors open.

“The nature of the flaw in the steel, an excess of carbon, reduces steel toughness and renders the components vulnerable to fast fracture,” said the report’s author, John Large.

Further investigations extended to steam generator parts supplied by Japan Casting and Forging Company (JCFC) and Japan Steel Works (JSW) and installed in thirteen French nuclear reactors.

Centering in particular on JCFC supply, where failure to meet regulatory requirements even exceeded those at the Areva plant, 12 reactors in France with JCFC steel components in the steam generators were ordered shut down for physical inspections.

The regulator was not willing to rely only on manufacturing records from the French steel supplier to demonstrate safety. Not least because those records showed multiple cases of data manipulation and fraud.

While those criminal investigations are working their way through the courts in Paris, Areva, the owner of the le Creusot steel plant, is ploughing through millions of pages of production documentation stretching back fifty years.

Hundreds of staff have been employed to review the data and it’s practically guaranteed they will find multiple examples of falsification and safety violations.

Meanwhile in Japan, the parallel investigation overseen by a handful of technicians at the NRA lasted a matter of weeks.

The Japanese utilities were ordered to supply a list of the suppliers of steam generator and pressure vessel components.

JSW, JCFC and JFE Holdings (which also has joint ventures with Kobe Steel) provided brief explanations as to why their components could not have the same reduced toughness as the very same components supplied to France.

Despite clear evidence of flaws in the steel forging process of JCFC, JSW and JFE, the NRA accepted their assurances and that was that.

No explanation as to how products that were below specification passed certification and were shipped from Japan to France, no review of the raw data and certainly no physical inspections at Japanese reactors. The supply chain of the Japanese and global nuclear industry has many opaque tentacles, but they all lead back to a relatively few large companies. The nuclear industry operates in a global atomic supermarket with weak or non-existent regulatory oversight.

The five reactors now permitted to operate in Japan all have components supplied by one or more of these companies, as do reactors scheduled to resume operation in the next six months.

If we are to avoid a repetition of the carbon steel scandal in France, the NRA will have to decide that this is so serious that business as usual is not an option.

There is however no prospect of this. The NRA has neither the will nor the human resources or skill set to thoroughly investigate the supply chain of Kobe Steel – even if it were possible.

The chances that detailed production data for components installed in reactors in the 1970’s and 1980’s even exist or can be relied upon are near zero.

Instead the NRA will rely on the customers to provide lists of components and for Kobe Steel to provide analysis that the products are safe.

Unlike the aviation and car industries, which are likely to replace the suspect Kobe Steel components, the nuclear industry will decide that it’s not in their interests to provide credible assurance of safety to the public by replacement.

Further, whereas replacing suspension springs in a car or landing gear on an aircraft is relatively easy, no such option exists for nuclear reactors.

Many of the tens of thousands of components supplied by Kobe Steel are embedded deep in the heart of the nuclear reactors, even inspecting them is challenging and in some cases impossible.

Dismantling the nuclear reactors to get access would effectively terminate the plant given the scale of the undertaking and costs involved.

While the blame for this latest scandal lies at Kobe Steel, the root causes of poor production standards and oversight within the nuclear industry are to be found within the utilities themselves and the national regulators.

Complacency over standards and disregard for safety, endemic since this birth of the industry, have not evaporated as a result of nuclear disasters such as Chernobyl or Fukushima.

If anything the industry is more entrenched in its ways than ever before, not least because it is fighting for its very survival.

Regulators, under political pressure to bend to industry demands, and equally complicit in decades of applying weak and inadequate oversight while looking the other way, are rarely interested to probe too deeply, no doubt wishing to avoid confirming what they suspect or know already.

The Kobe Steel scandal is an enormous blow to the embattled reputation of corporate Japan with justified calls for fundamental reform. But it could be a lot worse with not just car and aircraft passengers at risk, but entire regions of Japan under the increased threat of nuclear reactor accident.

Not to mention the hazards from reactors worldwide using potentially suspect Kobe Steel components.

The supply chain of the Japanese and global nuclear industry has many opaque tentacles, but they all lead back to a relatively few large companies. The nuclear industry operates in global atomic supermarket with weak or non-existent regulatory oversight.

Opening up the industry to robust and transparent investigation would threaten to completely derail the already slim prospects of Japanese government plans to restart more nuclear power plants and further damage the embattled nuclear power industry globally.

The industry and regulators will do all they can to prevent that from happening. The only practical and safe alternative solution is for a Japanese zero nuclear policy and a rapid transition to renewables.

*Shaun Burnie, sburnie@greenpeace.org is a senior nuclear specialist, Greenpeace Germany. In 2015-2016 he coordinated investigations into steel manufacturing failures at le Creusot, JCFE and JSW in Japan, and has worked on Japanese nuclear policy for nearly thirty years.*

## **Unexpected observation must be borne in mind with all coastal nuke plants**

### **Unexpected source of Fukushima-derived radiocesium to the coastal ocean of Japan**

2. Virginie Saniala,1,
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6. Edited by David M. Karl, University of Hawaii, Honolulu, HI, and approved August 28, 2017 (received for review May 24, 2017)

### Significance

Five years after the Fukushima Dai-ichi Nuclear Power Plant accident, the highest radiocesium ( $^{137}\text{Cs}$ ) activities outside of the power plant site were observed in brackish groundwater underneath sand beaches. We hypothesize that the radiocesium was deposited on mineral surfaces in the days and weeks after the accident through wave- and tide-driven exchange of seawater through the beach face. As seawater radiocesium concentrations decreased, this radiocesium reentered the ocean via submarine groundwater discharge, at a rate on par with direct discharge from the power plant and river runoff. **This new unanticipated pathway for the storage and release of radionuclides to ocean should be taken into account in the management of coastal areas where nuclear power plants are situated.**

### Abstract

There are 440 operational nuclear reactors in the world, with approximately one-half situated along the coastline. This includes the Fukushima Dai-ichi Nuclear Power Plant (FDNPP), which experienced multiple reactor meltdowns in March 2011 followed by the release of radioactivity to the marine environment. While surface inputs to the ocean via atmospheric deposition and rivers are usually well monitored after a nuclear accident, no study has focused on subterranean pathways. During our study period, we found the highest cesium-137 ( $^{137}\text{Cs}$ ) levels (up to  $23,000 \text{ Bq}\cdot\text{m}^{-3}$ ) outside of the FDNPP site not in the ocean, rivers, or potable groundwater, but in groundwater beneath sand beaches over tens of kilometers away from the FDNPP. Here, we present evidence of a previously unknown, ongoing source of Fukushima-derived  $^{137}\text{Cs}$  to the coastal ocean. We postulate that these beach sands were contaminated in 2011 through wave- and tide-driven exchange and sorption of highly radioactive Cs from seawater. Subsequent desorption of  $^{137}\text{Cs}$  and fluid exchange from the beach sands was quantified using naturally occurring radium isotopes. This estimated ocean  $^{137}\text{Cs}$  source ( $0.6 \text{ TBq}\cdot\text{y}^{-1}$ ) is of similar magnitude as the ongoing releases of  $^{137}\text{Cs}$  from the FDNPP site for 2013–2016, as well as the input of Fukushima-derived dissolved  $^{137}\text{Cs}$  via rivers. Although this ongoing source is not at present a public health issue for Japan, the release of Cs of this type and scale needs to be considered in nuclear power plant monitoring and scenarios involving future accidents.

- Fukushima Dai-ichi Nuclear Power Plant accident
- cesium
- submarine groundwater discharge
- radioactivity
- radium

### Footnotes

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- Author contributions: K.O.B. and M.A.C. designed research; V.S., K.O.B., M.A.C., and S.N. performed research; V.S., K.O.B., M.A.C., and S.N. analyzed data; and V.S., K.O.B., M.A.C., and S.N. wrote the paper.
- Conflict of interest statement: K.O.B. has served in a consulting capacity related to radionuclides in Japanese fisheries products.
- This article is a PNAS Direct Submission.
- This article contains supporting information online at [www.pnas.org/lookup/suppl/doi:10.1073/pnas.1708659114/-/DCSupplemental](http://www.pnas.org/lookup/suppl/doi:10.1073/pnas.1708659114/-/DCSupplemental).

Freely available online through the PNAS open access option.

## Fukushima monkeys & radiation

### Three Ways Radiation Has Changed The Monkeys Of Fukushima

<https://www.forbes.com/sites/jeffmcmahon/2017/10/30/three-ways-radiation-has-changed-the-monkeys-of-fukushima-a-warning-for-humans/#4398332a65ea>

Jeff McMahon , Contributor

I cover green technology, energy and the environment from Chicago.

This year the evacuated residents of Japan's Fukushima Prefecture began returning home, and as they resume their lives, the monkeys who have lived there all along have some cautions for them—in the form of medical records.

The Japanese macaques show effects associated with radiation exposure—especially youngsters born since the March 2011 meltdowns at the Fukushima-Daiichi Nuclear Power Plant, according to a wildlife veterinarian who has studied the population since 2008.

Dr. Shin-ichi Hayama detailed his findings Saturday in Chicago as part of the University of Chicago's commemoration of the 75th Anniversary of the first man-made controlled nuclear reaction, which took place under the university's football stadium in 1942 and birthed the technologies of nuclear power and nuclear weapons.

Hayama appeared alongside documentary filmmaker Masanori Iwasaki, who has featured Hayama's work in a series of annual documentaries exploring the impact of fallout from the reactor meltdowns on wildlife. The fallout led the Japanese government to evacuate residents from a highly contaminated area surrounding the plant and extending to the northwest. The plume crossed the Pacific Ocean and left much diluted quantities of fallout across the United States, an event closely monitored on this page.

Since 2008, Hayama has studied the bodies of monkeys killed in Fukushima City's effort to control the monkey population and protect agricultural crops (about 20,000 monkeys are "culled" annually in Japan). Because he was already studying the monkeys, he was ideally positioned to notice changes affected by radiation exposure.

"I'm not a radiation specialist," Hayama said Saturday in Chicago, "but because I've been gathering data since 2008—remember, the disaster took place in 2011—it seems obvious to me that this is very important research. I've asked radiation specialists to take on this research, but they have never been willing to take this on because they say we don't have any resources or time to spare because humans are much more important.

"So I had to conclude that there was no choice but for me to take this on, even though I'm not a specialist in radiation," Hayama said, his remarks translated by University of Chicago Professor Norma Field. "If we don't keep records, there will be no evidence and it will be as if nothing happened. That's why I'm hoping to continue this research and create a record."

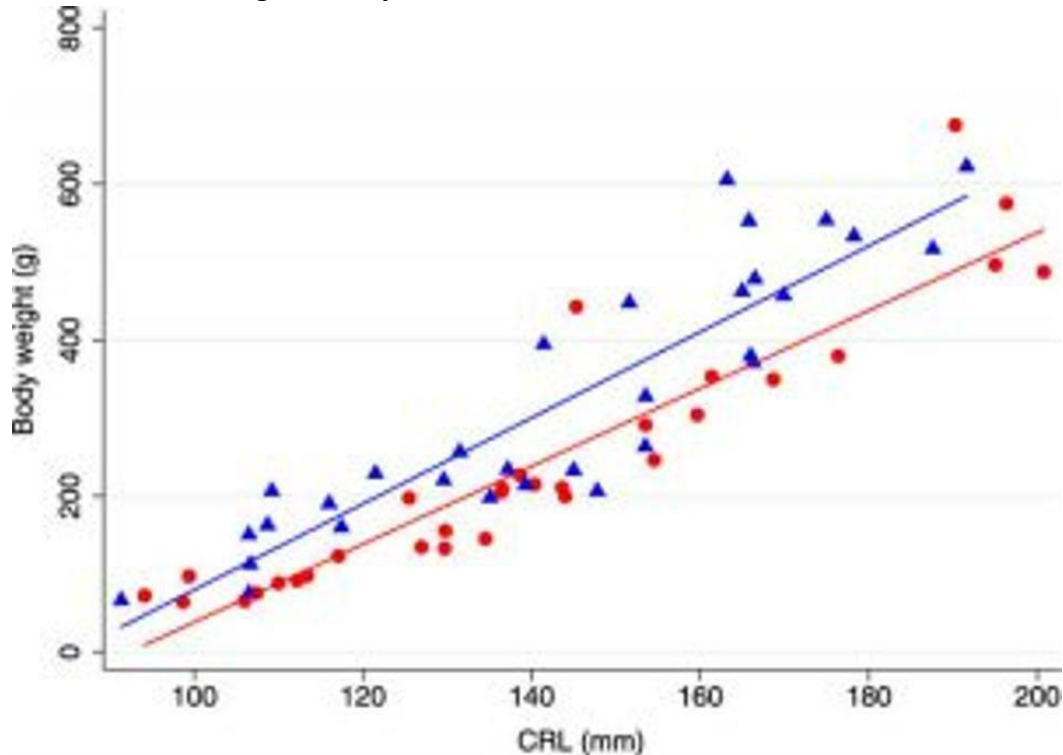
Fukushima City is 50 miles northeast of the Fukushima-Daiichi Power Plant, so the radiation levels have been lower there than in the restricted areas, now reopening, that are closer to the plant. Hayama was unable to test monkeys in the most-contaminated areas, but even 50 miles from the plant, he has



documented effects in monkeys that are associated with radiation. He compared his findings to monkeys in the same area before 2011 and to a control population of monkeys in Shimokita Peninsula, 500 miles to the north.

Hayama's findings have been published in the peer-reviewed journal *Scientific Reports*, published by *Nature*. Among his findings:

**Smaller Bodies** — Japanese monkeys born in the path of fallout from the Fukushima meltdown weigh less for their height than monkeys born in the same area before the March, 2011 disaster, Hayama said. "We can see that the monkeys born from mothers who were exposed are showing low body weight in relation to their height, so they are smaller," he said.



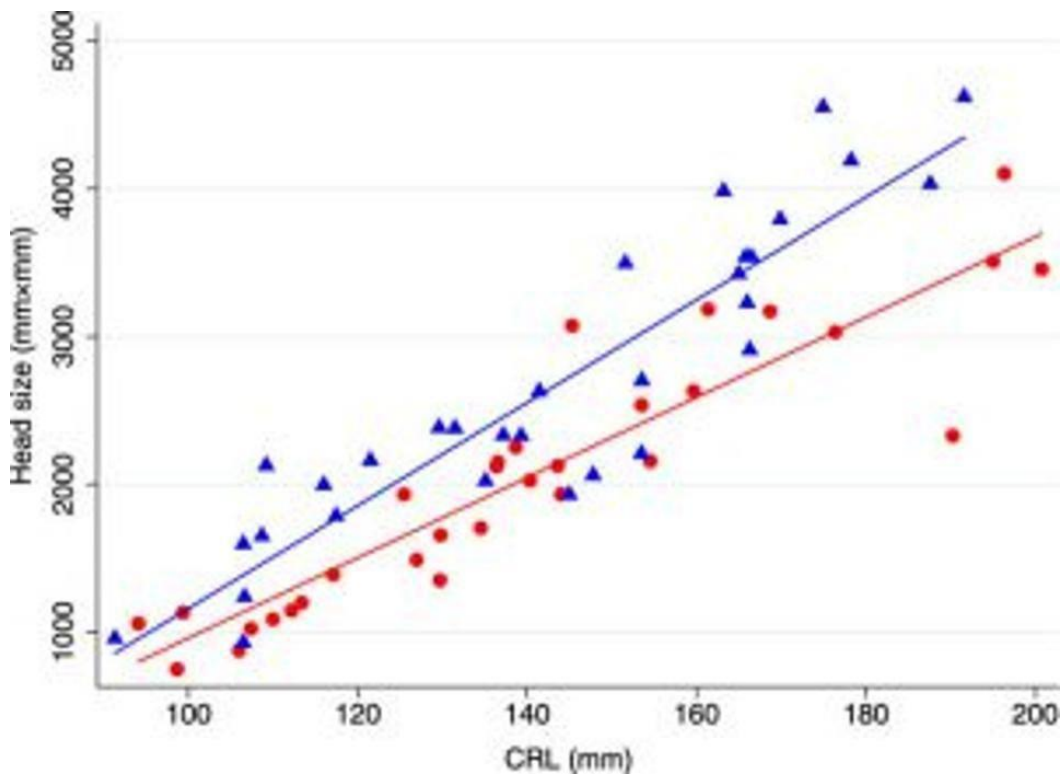
Nature: *Scientific Reports*

Red circles represent the body weight and height (CRL=crown-to-rump length) of monkeys born post-Fukushima. Blue triangles represent monkeys born before.

**Smaller Heads And Brains** — The exposed monkeys have smaller bodies overall, and their heads and brains are smaller still.

"We know from the example of Hiroshima and Nagasaki that embryos and fetuses exposed in utero resulted in low birth weight and also in microcephaly, where the brain failed to develop adequately and head size was small, so we are trying to confirm whether this also is happening with the monkeys in Fukushima," Hayama said.

And it appears that it is:

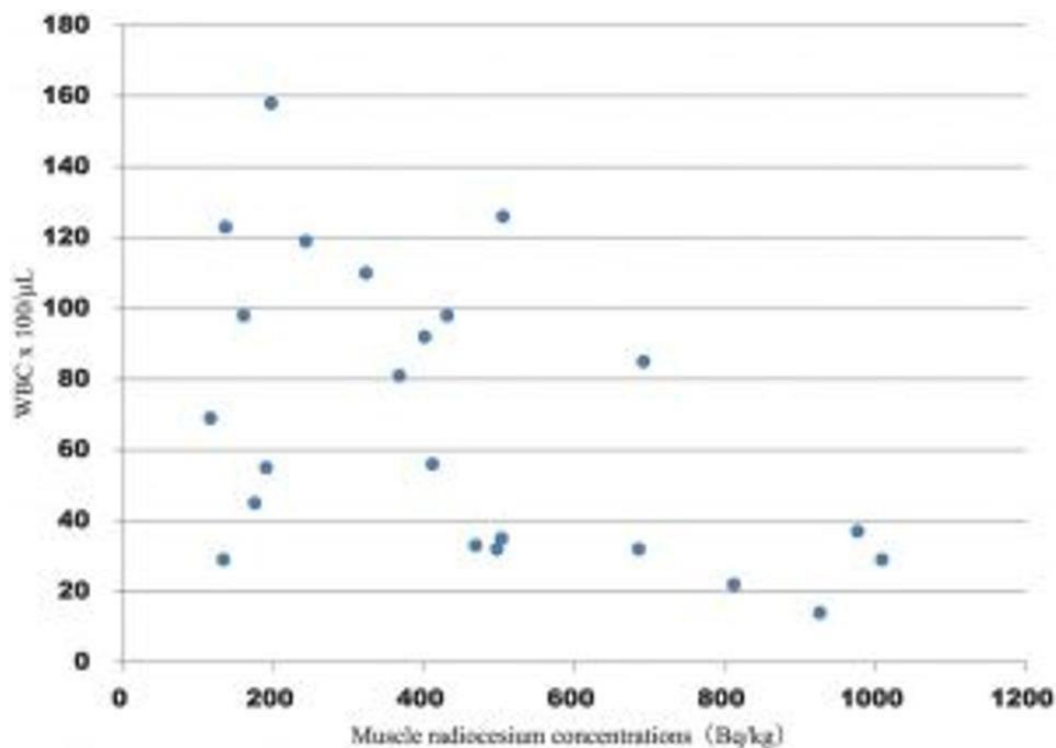


Nature: Scientific Reports

Blue triangles represent the head size of pre-disaster monkey fetuses relative to their height (CRL=crown-to-rump length). Red circles represent post-disaster monkey fetuses.

**Anemia** — The monkeys show a reduction in all blood components: red blood cells, white blood cells, hemoglobin, and the cells in bone marrow that produce blood components.

"There's clearly a depression of blood components in the Fukushima monkeys," said Hayama. "We can see that in these monkeys, that there is a correlation between white blood cell counts and the radio-caesium concentrations in their muscles. This actually is comparable to what's been reported with children of Chernobyl."



Nature: Scientific Reports

Monkeys with higher concentrations of radioactive cesium in their muscles, to the right on the graph, have lower white blood cell counts.

"We have taken these tests from 2012 through 2017, and the levels have not recovered. So we have to say this is not an acute phenomenon. It has become chronic, and we would have to consider radiation exposure as a possible cause," Hayama said.

Hayama has appeared in several documentaries by Masanori Iwasaki, who was 70 years old in 2011 and ready to retire from a thirty-year career making wildlife documentaries—he is best known for his portrait of "Mozu: The Snow Monkey"—when the Fukushima reactors melted down.

"Having turned 70 I thought, I've done enough, I can sit back. And then the nuclear disaster struck," he said, his remarks also translated by Field. "I watched TV shows and read the newspaper for a year and kept asking myself, is there something left in me that I can do? A year later in 2012, with a cameraman and a sound engineer, the three of us just decided: In any case let's just go to Fukushima, see what's there." Since then he has made five films, one each year, documenting radiation impacts on wildlife, grouping them under the title "Fukushima: A Record of Living Things." Two episodes were screened Saturday in Chicago, their first screenings in the United States.

At first Iwasaki documented white spots and deformed tails on the reduced number of barn swallows who survived after the disaster.

"It's something we haven't seen anywhere else but Chernobyl and Fukushima," says the narrator of Iwasaki's 2013 film, "so it's clearly related to radiation. It probably doesn't hurt the bird to have some white feathers, but it's a marker of exposure to radiation.

"The barn swallows in Fukushima are responding in the same way as what we've seen in Chernobyl. The young birds are not surviving. They are not fledging very well."

The white spots also turned up on black cows. Some types of marine snails vanished, then gradually returned. Fir trees stemmed differently, and the flower stalks of some dandelions grew thick and

deformed. Dandelion stalks are a favorite food of Japanese monkeys, but the monkeys showed no obvious deformities, so Isawaki turned to Hayama to find out how radiation was affecting them.

Iwasaki's 2017 film, just completed, is his first to investigate effects in the monkeys' primate cousins, the humans: an unusually large number of children with thyroid cancer.

*By Jeff McMahon, based in Chicago. Follow Jeff McMahon on Facebook, Google Plus, Twitter, or email him here.*

October 31, 2017

## NRA's responsibilities

### EDITORIAL: NRA needs to keep 'dialogue' with utilities for nuclear safety

<http://www.asahi.com/ajw/articles/AJ201710310021.html>

One month has passed since Toyoshi Fuketa became the second person to chair the government's Nuclear Regulation Authority.

Fuketa served as NRA commissioner and deputy chairman under Shunichi Tanaka, his predecessor, who led the nuclear watchdog for the first five years of its existence. **He is now facing the test of addressing unfinished tasks on the basis of a foundation that he built with Tanaka.**

The NRA, which was set up and tasked with renovating nuclear safety administration in the aftermath of the 2011 Fukushima nuclear disaster, has set the goals of transparency and independence.

The NRA has made great strides in ensuring transparency.

Most of the NRA's meetings are open to the public, except when they concern anti-terrorism measures and other topics. Its meeting documents and the content of discussions can be checked out on the NRA website. Videos and transcripts are available of the chairman's weekly news conferences. All that sets an example of such a level that other government offices should emulate.

It could also be said that independence has been improved over the previous state of things, wherein regulators were criticized for their cozy relationship with electric utilities.

There are lingering problems, however, in the NRA's "conformity" screenings, whereby the watchdog decides whether a nuclear reactor should be allowed to go back online in light of the new regulation standards.

**Too much weight is given to the equipment and other aspects during the evaluation process, and there is insufficient screening of organizational management and worker awareness at electric utilities.**

The task of setting up control over restarted nuclear reactors that are up and running also allows no time to be wasted.

**While primary responsibility for preventing accidents lies with electric utilities, it is up to the NRA and the NRA secretariat, which is its work unit, to keep a sharp watch on any problems such as slighting safety and a lack of training.**

Key to that mission will be engaging in "dialogue" with electric power operators.

The nuclear watchdog should stay in contact with electric utilities through on-site visits and other means while remaining alert to signs of any deterioration in the culture of safety. That makes it indispensable for the watchdog to brush up its skills in **seeing through any attempts to pull the wool over their eyes**. All that is a global trend, but Japan has been left out. The NRA should combine dialogue with snap inspections and other methods for maintaining a sense of tension to enhance safety.

Fuketa is sending NRA secretariat officials to be trained in the United States. He is also hoping to hire a U.S. consultant firm that is well-versed in inspection duties.

Fuketa should make the most of the wisdom acquired by pioneers.

**The NRA's potential for dialogue will also be tested in areas where humans have less than sufficient knowledge, such as studies on earthquakes and volcanic eruptions. The watchdog should maintain extensive interactions with expert scientists and aim for regulation that is based on state-of-the-art insight.**

Ryuichi Yoneyama, governor of Niigata Prefecture, has asked the NRA for explanations on its recent decision that two reactors at the Kashiwazaki-Kariwa nuclear power plant in the prefecture "conform" to more stringent reactor regulations for being restarted.

More than a few local governments in areas hosting nuclear plants are feeling they are distanced from the NRA.

NRA officials should think about having more opportunities to visit the front lines, **listen to the public's views** and thereby reflect on their own duties.

While it is important to keep pursuing independence, everything would be lost if that were to lead to isolation or self-complacency.

There should be extensive dialogue on various levels to help improve on safety.

November 5, 2017

## **Do away with blanket radiation checks on rice?**

### **Recent lack of tainted Fukushima rice raises doubts about blanket radiation checks**

<https://www.japantimes.co.jp/news/2017/11/05/national/blanket-radiation-checks-fukushima-rice-debate/#.WgC6EnaDOos>

JJI

FUKUSHIMA – The blanket radiation checks conducted on rice grown in meltdown-hit Fukushima Prefecture have recently come under debate because none with radiation levels exceeding the safety limit has been found in recent years.

Some residents, including rice producers, want to continue the current system because there are consumers who still shun Fukushima produce. But conducting the checks is costly and requires a lot of manpower.

The Fukushima Prefectural Government hopes to make a decision by year-end on whether to alter the radiation checks starting with next year's crop, officials said.

The blanket checks were introduced after many parts of the prefecture were tainted by radioactive fallout released by the March 2011 triple core meltdown at the tsunami-hit Fukushima No. 1 power plant, managed by Tokyo Electric Power Company Holdings Inc.

The rice is checked bag by bag before shipment, with the safety threshold set at 100 becquerels per kilogram. Bags that pass inspection get certification labels before entering the distribution channels. According to Fukushima officials, the rice harvested last year and checked for radiation by the end of September came to 10.26 million bags. To cover the inspection expenses, the prefectural government collects ¥5 billion from Tepco each year. Some ¥500 million to ¥600 million in personnel expenses are covered by state subsidies.

The prefecture checked 53.13 million bags of rice for radiation between 2012 and 2016 at a total cost of ¥30.5 billion. The blanket check system began with the 867 bags from the 2012 harvest, which turned up 71 bags with excess radiation.

No tainted bags of rice were found between 2014 and 2016.

As of Oct. 25, radiation levels stood below the minimum detectable level of 25 becquerels for 99.99 percent of the 2016 rice that underwent the checks. The absence of tainted rice has led some people to start questioning the blanket checks. One critic said continuing the system might have the unintended effect of fueling consumer concern about Fukushima rice.

To address the issue, the prefecture organized a group consisting of people from agricultural and consumer groups in July and asked it to study the checks based on the opinions of more than 300 farmers and seven wholesalers in the Tokyo metropolitan area. It will also conduct an online survey of 2,000 consumers nationwide.

Hisao Tomita, a farmer working in the city of Fukushima, called for continuing the blanket check system even though it is burdensome for producers as well.

As long as Fukushima rice is affected by negative rumors, radiation checks should be maintained even if they have to be scaled back, he said.

November 8, 2017

## **Aomori: Cesium traces from previous leak?**

### **Cesium traces found at Aomori nuke site believed from 2010 container leak**

<https://www.japantimes.co.jp/news/2017/11/08/national/cesium-traces-found-aomori-nuke-site-believed-2010-container-leak/#.WgLyOXaDOot>

Kyodo

AOMORI – Small amounts of radioactive cesium were detected on a glove of a worker at a nuclear facility in Aomori Prefecture last month, Japan Nuclear Fuel Ltd. said Thursday.

However, as the worker was not himself exposed to any radiation and none was recorded outside the building, it is believed the cesium was the result of a previous leak.

The company suspects the cesium leaked from a container of high-level radioactive liquid waste in July 2010 at the spent nuclear fuel reprocessing plant, which has yet to start operations. In the previous incident, a facility worker was exposed to radiation.

According to a report submitted to the Nuclear Regulation Authority, a trace of cesium was detected on Oct. 27 on the glove of the worker, who was working on the second floor of the building.

Japan Nuclear Fuel said it found radioactive contamination at three spots on the same floor, adding the spots had since been cleaned up.

The authority instructed the company to conduct a probe into the latest incident, saying it is obvious that it **failed to conduct sufficient decontamination work when the 2010 incident occurred.**

Japan Nuclear Fuel said it is highly possible that remnants of radioactive materials from the previous incident were floating in the air and became attached to the glove.

Nuclear power facility operators in the country have come under criticism in recent years for lacking safety awareness and improper management of radioactive materials.

In June, five workers suffered internal radiation exposure after a plastic bag exploded and scattered radioactive materials during an inspection of a container of fuel materials at Japan Atomic Energy Agency's research facility in Ibaraki Prefecture.

November 22, 2017

## 20-year extension requested for Tokai No.2

### **Nuclear plant operator to request 20-year extension for 'boiling water reactor'**

<https://mainichi.jp/english/articles/20171122/p2a/00m/0na/005000c>

The halted Tokai No. 2 Power Station in Tokai, Ibaraki Prefecture, is seen from a Mainichi helicopter on March 4, 2017. (Mainichi)

The Japan Atomic Power Co. (JAPC) will submit a request to the Nuclear Regulation Authority (NRA) to extend the operating period of a nuclear reactor for another 20 years, it disclosed on Nov. 21.

- **【Related】** Japan to require new cooling system for boiling water reactors
- **【Related】** Nuclear regulator does dizzying U-turn on TEPCO reactor restart plans
- **【Related】** TEPCO's Niigata nuclear plant set to clear screening to restart reactors

As of next year, the company's Tokai No. 2 Power Station in Tokai, Ibaraki Prefecture, will have been in operation for 40 years. While this will make the fourth extension request made to the NRA for reactors following three made by Kansai Electric Power Co., this marks the first time a request has been made for a "boiling water reactor" -- the same type used by Tokyo Electric Power Co.'s ill-fated Fukushima No. 1 Nuclear Power Plant.

JAPC President Mamoru Muramatsu visited the Ibaraki Prefectural Government and the Tokai Municipal Government on Nov. 21, conveying his plan to submit the request to the NRA on Nov. 24 to Ibaraki Gov. Kazuhiko Oigawa and Tokai Mayor Osamu Yamada.

Under the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors revised after the 2011 Fukushima nuclear disaster, the operation period of reactors is set in principle to 40 years from activation, but can be extended a maximum of an additional 20 years with approval from the NRA.

The company has already completed its application for the conformity review on the new regulatory requirements for nuclear power plants needed to restart the reactor, and the NRA is close to completing the review.

## **Twenty-year extension to be sought for aging Tokai No. 2 nuclear plant**

<https://www.japantimes.co.jp/news/2017/11/22/national/20-year-extension-sought-aging-tokai-no-2-nuclear-plant/#.WhVZTHmDOot>

Kyodo, JII

MITO, IBARAKI PREF. – Japan Atomic Power Co. plans to file Friday an application with the Nuclear Regulation Authority seeking approval for a 20-year extension to the operational life of its aging Tokai No. 2 power station in Ibaraki Prefecture, the operator said Tuesday.

gains approval, the single-reactor plant, which is currently offline, will be the fourth nuclear facility in Japan to get a longer life span. In addition, it will be the first extension for a plant with a boiling-water reactor, the same type as the reactors at Tokyo Electric Power Company Holdings Inc.'s disaster-stricken Fukushima No. 1 nuclear plant.

In Japan, the operational limit of nuclear reactors is set at 40 years in principle, but the period can be extended by up to 20 years if the NRA gives its approval. The Tokai No. 2 plant will reach 40 years in operation next November.

While some nuclear plant operators have decided to decommission their aging reactors, Japan Atomic Power, which has no business other than nuclear power generation, cannot afford to retire the Tokai No. 2 for financial reasons.

The firm has already decided to dismantle Tokai Nuclear Power Plant, also in Ibaraki Prefecture, as well as unit No. 1 at the Tsuruga Power Station in Fukui Prefecture. Meanwhile, active faults were recently discovered underneath unit No. 2 at the Tsuruga station, which is also offline, clouding the prospects of its restart.

“Tokai No. 2 is critically important for our management,” Japan Atomic Power President Mamoru Muramatsu said Tuesday after holding separate meetings with Kazuhiko Oigawa, the governor of Ibaraki Prefecture, and Osamu Yamada, the mayor of the Ibaraki village of Tokai, on the same day where he informed them of the application plan.

Both the governor and the mayor stopped short of commenting on the advisability of reactivating the plant.

After meeting with Muramatsu, Oigawa told reporters that the prefectural government plans to conduct its own screening, while calling on the company to give adequate explanations to the people of the prefecture.

Yamada said he has confirmed with the Japan Atomic Power president that the application will not be directly linked to the proposed restart of the plant.



The 1.1-million-kilowatt Tokai No. 2 plant went into operation in November 1978, and was stopped after the March 2011 earthquake and tsunami that crippled the Fukushima No. 1 plant.

The NRA is expected to compile a report that will effectively give a green light for the resumption of the operations at the Tokai No. 2 plant, recognizing that it has met the stricter safety standards introduced after the March 2011 meltdowns.

To seek an extension of the operational period, Japan Atomic Power needs to submit a separate application to the NRA by Nov. 28, a year ahead of the 40-year limit.

With about 1 million people living within a 30-kilometer radius of the plant, however, it would not be easy for the company to gain support for the restart from related local governments, which are tasked with drawing up evacuation plans for the residents.

Raising the ¥174 billion needed for safety measures for the plant is another major challenge for the company.

## Plant lifespan extension : "Equivalent to being irresponsible"

### Concerns raised after utility announces plan for nuclear reactor lifespan extension

[https://mainichi.jp/english/articles/20171122/p2a/00m/0na/020000c#cxrecs\\_s](https://mainichi.jp/english/articles/20171122/p2a/00m/0na/020000c#cxrecs_s)

MITO -- The announcement by the Japan Atomic Power Co. (JAPC) that the embattled nuclear power operator will apply for a 20-year extension of the 40-year operational lifespan for a reactor at its Tokai No. 2 Power Station in Ibaraki Prefecture has raised concerns from local residents.

- **【Related】** Nuclear plant operator to request 20-year extension for 'boiling water reactor'
- **【Related】** Japan to require new cooling system for boiling water reactors
- **【Related】** Nuclear regulator does dizzying U-turn on TEPCO reactor restart plans

The Tokai No. 2 plant hosts a "boiling water reactor," the same type as those at the Fukushima No. 1 Nuclear Power Plant that melted down in the wake of the 2011 disaster. While JAPC President Mamoru Muramatsu stresses that applying for the extension and reactivating the currently idled reactor at the power station are different issues, residents of the Ibaraki Prefecture village of Tokai, where the plant is located, are expressing concerns about the aging nuclear station.

In response to Muramatsu's briefing about the company's plan on Nov. 21, Ibaraki Gov. Kazuhiko Oigawa and Tokai Mayor Osamu Yamada said they would decide whether to give the green light to restarting the reactor after studying the screening results by the Nuclear Regulation Authority.

The JAPC's business is struggling as none of its nuclear plants are currently in operation. Its plan to restart the Tokai No. 2 station has also met with difficulties as the estimated costs to implement safety measures, such as anti-liquefaction work on coastal levees at the plant, have surged from the initial estimate of 78 billion yen to roughly 180 billion yen.

Former Tokai Mayor Tatsuya Murakami doubts the JAPC president's claim, pointing out that there is no way the utility will not restart the reactor while applying for the extension.

Furthermore, work to create **evacuation plans**, required for local governments located within 30 kilometers from a nuclear power plant, is facing serious challenges as some 1 million people live within a 30-kilometer range from the Tokai No. 2 station -- the largest population in the same area size from any nuclear plant in the country.

**"To continue operating the nuclear plant in an abnormal location (with a population of 1 million within 30 kilometers) is disregarding residents. This is equivalent to being irresponsible,"**

Murakami said.

Koshi Abe, a Tokai Village Assemblyman who is opposed to reactivating the Tokai nuclear plant, was wary of the utility's plan, saying that the restart will be carried out while local residents have no means of knowing what goes on behind closed doors.

Mika Tsubata, 46, another Tokai resident, expressed concerns, telling the Mainichi Shimbun, "I still remember the (2011) disaster. **It's scary for the same type of nuclear reactor (as the ones at the Fukushima plant) to be put into operation while the cause (of the meltdown) has not been determined.**"

November 23, 2017

## **60 holes found in firewalls at Kashiwazaki-Kariwa plant**

### **60 holes at Kashiwazaki-Kariwa nuke plant found unfilled in violation of building code**

<https://mainichi.jp/english/articles/20171123/p2a/00m/0na/022000c>

Sixty holes violating the Building Standards Act were found recently in firewalls at the Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture, in addition to two similar holes found in July this year, plant operator Tokyo Electric Power Co. (TEPCO) announced Nov. 22.

Of the 60 holes, 49 date back to the 1980s when the No. 1 reactor building was built, revealing administrative agencies' lack of consideration for proper construction management.

Reactor buildings have several thousand holes in them for pipes. Of these holes, those going through firewalls are required to have any gaps filled in with mortar caulk or other nonflammable material. In July, TEPCO found two holes in a firewall in the No. 2 reactor building that had not been properly filled in. **A subsequent inspection of the entire plant found that 60 holes had not been filled in -- a building code violation -- of which 41 were in radiation-control areas.**

The power company will begin taking countermeasures, such as filling the holes in, as early as the beginning of the New Year. "At the time the reactor buildings were built, our awareness of the risks was insufficient," TEPCO spokesperson Yoshimi Hitosugi said.

November 24, 2017

## **Time to decommission Tokai No.2!**

## **EDITORIAL: Aging Tokai No. 2 nuclear plant should be decommissioned**

<http://www.asahi.com/ajw/articles/AJ201711240017.html>

Japan Atomic Power Co.'s Tokai No. 2 nuclear power plant in Tokai, Ibaraki Prefecture, seems doomed to be decommissioned given the strong doubts and practical difficulties surrounding the company's plan to restart the reactor at the plant.

Japan Atomic Power plans to apply to the Nuclear Regulation Authority to extend the operating life of the idled reactor at the plant beyond the legal life span of 40 years in principle.

The currently offline reactor will reach the end of its legal life span in one year. The operator is seeking to persuade the NRA to make an exception of the reactor for bringing it back on line.

It has been estimated that the required safety measures will cost the company at least 170 billion yen (\$1.52 billion). In an unusual move, the nuclear safety watchdog has told Japan Atomic Power, which is on a fragile financial footing, to come up with a workable plan to raise the funds to finance the measures. With the local communities and governments around the plant struggling to develop required plans for emergency evacuations, there is strong skepticism about the feasibility of the company's plan to restart the reactor.

Since there is little chance of the company's other reactors being restarted, the fate of Japan Atomic Power hinges on whether the Tokai No. 2 plant will be allowed to come on stream again.

But that doesn't justify taking it as a given that the company will get the green light for restarting the reactor.

Japan Atomic Power, the major electric utilities with major stakes in the company and the Ministry of Economy, Trade and Industry, which regulates the power industry, should carefully reassess the future of the company without assuming that the reactor will start running again.

The 40-year legal life for nuclear reactors is an important rule to reduce the risk of accidents involving aging reactors. It was introduced following the disastrous accident at the Fukushima No. 1 nuclear power plant in 2011.

The operational life can be extended by up to 20 years if approved by the NRA.

When the law was revised, however, the government said such extensions would be highly exceptional cases.

But Kansai Electric Power Co.'s applications for life extensions for its three aging reactors have all been approved.

If the Tokai No. 2 plant is added to the list, the rule will move closer to becoming a dead letter.

There are no special reasons for restarting the old reactor, such as a serious risk of a power shortage.

Japan Atomic Power's plan should not be given a go-ahead simply to help the embattled company.

The Tokai No. 2 plant is located at the northern tip of the Tokyo metropolitan area. Some 960,000 people live within 30 kilometers from the plant, more than in any other 30-km radius of a nuclear plant. Local governments located within the zone are required to develop evacuation plans.

It is obviously difficult to secure safe evacuation routes, facilities to accept evacuees and the means to transport them for the entire 30-km zone around the plant.

None of the 14 municipalities that are subject to the requirement has worked out an evacuation plan.

The outlook for local government support for the plan is also dismal.

The government of Ibaraki Prefecture and the mayor of Tokai intend to base their decisions on local public opinion as to whether to give their consent to the plan.

Recent Asahi Shimbun surveys of local voters found that opponents to the plan far outnumbered supporters.

Five other cities around the plant are demanding the consent rights similar to those given to Tokai in order to take part in the decision-making process.

Japan Atomic Power and the major utilities that own the firm should confront these realities.

The utilities that are under contract to buy electricity from Japan Atomic Power continue paying more than 100 billion yen of basic fees in total every year even though the company currently generates no power to sell with all its reactors out of operation.

It should not be forgotten that the money comes from the electricity bills paid by consumers.

It has been proposed that Japan Atomic Power should serve as a vehicle for the consolidation of the power industry driven by the decommissioning of aged nuclear reactors.

Instead of simply shelving the problem, the parties involved should accelerate their efforts to map out a viable future for the company.

## **Utility files application to extend operating period of Tokai nuclear reactor for 20 years**

The Japan Atomic Power Co. (JAPC) filed an application with the Nuclear Regulation Authority (NRA) on Nov. 24 for permission to extend the operating period of a nuclear reactor for 20 years beyond the 40-year limit.

- **【Related】** Nuclear plant operator to request 20-year extension for boiling water reactor
- **【Related】** Japan to require new cooling system for boiling water reactors
- **【Related】** TEPCO's Niigata nuclear plant set to clear screening to restart reactors

The reactor at JAPC's Tokai No. 2 Power Station in Tokai, Ibaraki Prefecture, is the fourth nuclear reactor for which a request for such an extension has been filed with the nuclear power regulator.

Kansai Electric Power Co. earlier applied with the NRA for permission for a 20-year extension of the operating periods for its Mihama nuclear plant's No. 3 reactor and No. 1 and 2 reactors at its Takahama power station, both in Fukui Prefecture, and the nuclear watchdog has approved the extension for all three units.

Moreover, the Tokai No. 2 plant's reactor is the only boiling water reactor -- the same type as those at the tsunami-ravaged Fukushima No. 1 plant -- for which a 20-year extension of the operating period is being sought.

The Tokai No. 2 atomic power station is set to reach the 40-year limit in November 2018.

Under the amended Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, nuclear reactors must be decommissioned after being in operation for 40 years in principle. However, the operating period can be extended by up to 20 years as an exception if certain conditions are met.

November 25, 2017

## **Tokai 2: So many uncertainties**

## Prospect uncertain for Tokai No. 2 nuke plant restart despite extension application

<https://mainichi.jp/english/articles/20171125/p2a/00m/0na/012000>

Even as Tokai No. 2 nuclear plant operator Japan Atomic Power Co. seeks Nuclear Regulation Authority (NRA) permission to extend the life of the station's sole reactor by 20 years, there appears no prospect the plant can be restarted in the foreseeable future.

- **【Related】** Utility files application to extend operating period of Tokai nuclear reactor for 20 years
- **【Related】** Japan to require new cooling system for boiling water reactors

Japan Atomic is seeking to add to the reactor's 40-year operational lifespan in order to restart the plant in Tokai, Ibaraki Prefecture. However, the company has not determined how it can fund the massive cost of necessary safety upgrades, while it also remains to be seen if local governments around the plant will consent to reactivation.

The NRA estimates that safety measures, including the construction of a coastal levee to protect the plant from a massive tsunami, will cost the utility some 180 billion yen.

Additionally, terror countermeasures will cost the operator some 100 billion yen.

All of Japan Atomic's reactors are currently offline, and it is relying heavily on base fees from five major power companies with which the company has electric power sales contracts. Therefore, the firm cannot easily invest large sums in safety measures. The firm believes the Tokai No. 2 plant could be restarted relatively easily, but if it is not, and the firm continues to have no electricity to sell, Japan Atomic's financial future will be in jeopardy.

To prevent this, Japan Atomic needs loan guarantees from other power companies so that it can borrow from banks the enormous amounts of cash needed to implement safety measures at the plant.

However, Japan Atomic's largest customer, Tokyo Electric Power Company (TEPCO) Holdings, Inc., is already on the hook for about 16 trillion yen to decommission the crippled Fukushima No. 1 nuclear plant and pay compensation to those affected by the nuclear disaster. TEPCO Holdings could come under fire from the public if it guaranteed loans for another company at the same time as TEPCO itself must cover the cost of dealing with the nuclear disaster.

Some TEPCO insiders point out that if the restart of the Tokai No. 2 plant was delayed, TEPCO's power purchase contract would not pay, and that any loan guarantees for Japan Atomic would also be highly risky.

Moreover, it remains unclear whether Japan Atomic can gain consent for reactivation from the local communities hosting the plant. The firm is holding talks with a consultative body comprising six municipalities within 30 kilometers of the Tokai No. 2 station to review their nuclear power plant safety agreement.

Japan Atomic offered to sign an agreement on Nov. 22 with all six municipalities, including Tokai, that would effectively give these local bodies the right to approve or disapprove the plant's reactivation.

Nuclear plant restarts since the outbreak of the Fukushima nuclear disaster have managed to gain consent from the local prefectural government as well as municipalities concerned. However, there is a possibility that local bodies in a broader area will require Japan Atomic to seek their approval for a Tokai No. 2 plant reactivation, depending on the content of the new agreement.

About 1 million people live within 30 kilometers of the Tokai No. 2 plant -- making it the most heavily populated such zone in the country. Local bodies in this zone are struggling to work out evacuation plans for local residents in case of a nuclear accident.

## And so the tanks remain



### Still at a stalemate as Fukushima's radioactive water grows by 150 tons a day

[https://www.japantimes.co.jp/news/2017/11/25/national/japan-stalemate-fukushima-radioactive-water-grows-150-tons-day/#.Whl\\_33mDOos](https://www.japantimes.co.jp/news/2017/11/25/national/japan-stalemate-fukushima-radioactive-water-grows-150-tons-day/#.Whl_33mDOos)

by Mari Yamaguchi

AP

ONAHAMA, FUKUSHIMA PREF. – More than six years after a tsunami overwhelmed the Fukushima No. 1 nuclear power plant, Japan has yet to reach consensus on what to do with a million tons of radioactive water, stored on site in around 900 large and densely packed tanks that could spill should another major earthquake or tsunami strike.

The stalemate is rooted in a fundamental conflict between science and human nature.

Experts advising the government have urged a gradual release to the Pacific Ocean.

Treatment has removed all the radioactive elements except tritium, which they say is safe in small amounts. Conversely, if the tanks break, their contents could slosh out in an uncontrolled way.

Local fishermen are balking. The water, no matter how clean, has a dirty image for consumers, they say. Despite repeated tests showing most types of fish caught off Fukushima are safe to eat, diners remain hesitant. The fishermen fear any release would sound the death knell for their nascent and still fragile recovery.

“People would shun Fukushima fish again as soon as the water is released,” said Fumio Haga, a drag-net fisherman from Iwaki, a city about 50 kilometers (30 miles) down the coast from the nuclear plant.

And so the tanks remain.

Fall is high season for saury and flounder, among Fukushima’s signature fish. It was once a busy time of year when coastal fishermen were out every morning.

Then came March 11, 2011. A magnitude 9 offshore earthquake triggered a tsunami that killed more than 18,000 people along the coast. The quake and massive flooding knocked out power for the cooling systems at the Fukushima nuclear plant. Three of the six reactors had partial meltdowns. Radiation spewed into the air, and highly contaminated water ran into the Pacific.

Today, only about half of the region’s 1,000 fishermen go out, and just twice a week because of reduced demand. They participate in a fish testing program.

Lab technicians mince fish samples at Onahama port in Iwaki, pack them in a cup for inspection and record details such as who caught the fish and where. Packaged fish sold at supermarkets carry official “safe” stickers.

Only three kinds of fish passed the test when the experiment began in mid-2012, 15 months after the tsunami. Over time, that number has increased to about 100.

The fish meet what is believed to be the world’s most stringent requirement: less than half the radioactive cesium level allowed under Japan’s national standard and one-twelfth of the U.S. or EU limit, said Yoshiharu Nemoto, a senior researcher at the Onahama testing station.

That message isn’t reaching consumers. A survey by the Consumer Affairs Agency in October found that nearly half of Japanese weren’t aware of the tests, and that consumers are more likely to focus on alarming information about possible health impacts in extreme cases, rather than facts about radiation and safety standards.

Fewer Japanese consumers shun fish and other foods from Fukushima than before, but 1 in 5 still do, according to the survey. The coastal catch of 2,000 tons last year was 8 percent of pre-disaster levels. The deep-sea catch was half of what it used to be, though scientists say there is no contamination risk that far out.

Naoya Sekiya, a University of Tokyo expert on disaster information and social psychology, said that the water from the nuclear plant shouldn’t be released until people are well-informed about the basic facts and psychologically ready.

“A release only based on scientific safety, without addressing the public’s concerns, cannot be tolerated in a democratic society,” he said. “A release when people are unprepared would only make things worse.”

He and consumer advocacy group representative Kikuko Tatsumi sit on a government expert panel that has been wrestling with the social impact of a release and what to do with the water for more than a year, with no sign of resolution.

Tatsumi said the stalemate may be further fueling public misconception: Many people believe the water is stored because it's not safe to release, and they think Fukushima fish is not available because it's not safe to eat.

The amount of radioactive water at Fukushima is still growing, by 150 tons a day.

The reactors are damaged beyond repair, but cooling water must be constantly pumped in to keep them from overheating. That water picks up radioactivity before leaking out of the damaged containment chambers and collecting in the basements.

There, the volume of contaminated water grows, because it mixes with groundwater that has seeped in through cracks in the reactor buildings. After treatment, 210 tons is reused as cooling water, and the remaining 150 tons is sent to tank storage. During heavy rains, the groundwater inflow increases significantly, adding to the volume.

The water is a costly headache for Tokyo Electric Power Company Holdings Inc., the utility that owns the plant. To reduce the flow, it has dug dozens of wells to pump out groundwater before it reaches the reactor buildings and built an underground "ice wall" of questionable effectiveness by partially freezing the ground around the reactors.

Another government panel recommended last year that the utility, known as Tepco, dilute the water up to about 50 times and release about 400 tons daily to the sea — a process that would take almost a decade to complete. Experts note that the release of tritiated water is allowed at other nuclear plants.

Tritiated water from the 1979 Three Mile Island accident in the United States was evaporated, but the amount was much smaller, and still required 10 years of preparation and three more years to complete.

A new chairman at Tepco, Takashi Kawamura, caused an uproar in the fishing community in April when he expressed support for moving ahead with the release of the water.

The company quickly backpedaled, and now says it has no plans for an immediate release and can keep storing water through 2020. Tepco says the decision should be made by the government, because the public doesn't trust the utility.

"Our recovery effort up until now would immediately collapse to zero if the water is released," Iwaki abalone farmer Yuichi Manome said.

Some experts have proposed moving the tanks to an intermediate storage area, or delaying the release until at least 2023, when half the tritium that was present at the time of the disaster will have disappeared naturally.

## **Risky stalemate as science battles human fears at Fukushima**

<http://www.asahi.com/ajw/articles/AJ201711250021.html>

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## Under the facelift

### Fukushima face-lift masks morass inside

<https://www.japantimes.co.jp/news/2017/11/25/national/fukushima-face-lift-masks-morass-inside/#.WhmDAHmDOos>

by Mari Yamaguchi

AP

OKUMA, FUKUSHIMA PREF. – Above ground, the tsunami-hit Fukushima nuclear power plant has had a major face-lift since the 2011 disaster. Inside and underground, a morass remains.

A stylish new office building was the first thing that came into view during a tour for foreign media last month. Another building has a cafeteria and a convenience store. It is easy to forget you are in the official no-go zone, where access is restricted.

We first went through automated security checks and radiation measurement at the new building, where 1,000 employees of Tokyo Electric Power Co.'s decommissioning unit work.

A sign prohibits games such as Pokemon Go.

Visitors no longer must put on hazmat suits and full-face charcoal-filter masks or plastic shoe covers unless they go to the most contaminated areas. We donned the gear for low-dose areas: a helmet, double socks, cotton gloves, surgical mask, goggles and a vest with a personal dosimeter.

There was little reminder of the devastation 6½ years ago. The highly contaminated debris and mangled vehicles are gone. The feeble-looking plastic hoses mended with tape and the outdoor power switchboard that rats got into — once causing a blackout — have been replaced with proper equipment.

A curved cover has been built over the Unit 3 reactor, whose roof was blown off, leaving a mess of girders, concrete and cables. A horizontal smudge high up on a nearby waste-storage building marks the height of the tsunami: 17 meters (56 feet).

The 900 huge tanks built to store a growing volume of radioactive water tower over visitors. A water management team monitored the contaminated water at what was once the crisis command center.

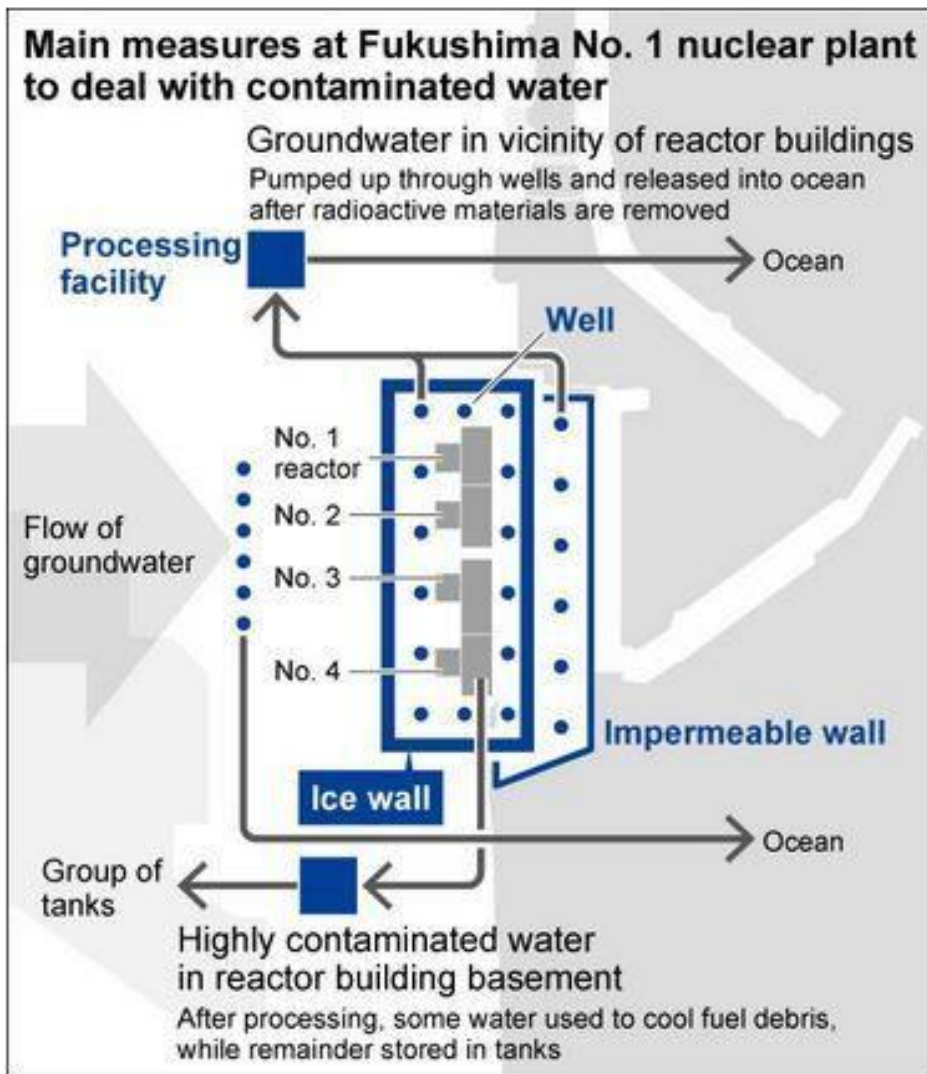
Strings of paper cranes still hang in the hallway to bring good fortune.

The tanks underscore the challenges that remain in the basements of the reactor buildings, where the water collects, and deep inside the three reactors that had meltdowns.

Remote-controlled robots provided a limited view of the melted fuel earlier this year, in areas where it is too dangerous for humans to go. The exact location of the fuel remains largely unknown. It was an early step in the still-uncertain, decadeslong plan to decommission the plant.

November 26, 2017

## Icewall: Disappointing



## Fukushima 'ice wall' linchpin not living up to high hopes

<http://www.asahi.com/ajw/articles/AJ201711260031.html>

Although 34.5 billion yen (\$309 million) in taxpayer money has funded an "ice wall" to keep out groundwater from the Fukushima No. 1 nuclear power plant site, the frozen barrier may not be meeting hopes and expectations.

In particular, the wall has been vulnerable to heavy rain brought by typhoons.

Reducing the volume of radiation-contaminated water is vital to proceeding with the removal of melted fuel from the reactors at the Fukushima No. 1 plant so it can be decommissioned.

But officials of Tokyo Electric Power Co., the operator of the plant, are still not completely sure if the ice wall is performing as designed.

Heavy rain appears to pose a major problem because the ice wall has so far proved incapable of stopping groundwater when typhoons have passed near the plant.

In theory, the ice wall should serve as a dam to prevent groundwater from the mountainside of the plant from flowing into the reactor buildings.

The total length of the wall is about 1,500 meters, and the wall surrounds the reactor and turbine buildings of four reactors at the No. 1 plant. Pipes have been buried about 30 meters deep at one-meter intervals.

Liquid at temperatures of minus 30 degrees have been poured into the pipes to freeze the surrounding ground. Freezing of the final section of the wall began on Aug. 22, but TEPCO officials on Nov. 22 still stopped short of offering an assessment of whether the ice wall was actually working as planned. Utility officials have said that after about two months, ground temperatures where the freezing had begun have fallen below 0 degrees.

The estimated volume of groundwater that has leaked into the reactor and other buildings was 190 tons a day at the start of 2016, but it had decreased to 110 tons a day by early October.

However, **the situation changed dramatically when two typhoons passed by in late October.**

**The groundwater level rose rapidly and the average daily flow of groundwater into the building basements for October was estimated to be 310 tons. That was close to the 400 tons that was flowing into the building basements before any measures were implemented to deal with the contaminated water.**

There was no realistic expectation of building an ice wall that would keep out all groundwater because the pipes had to be buried in a way that would avoid underground piping from the reactors that were already in place. That meant there were underground portions that could not be frozen.

Masashi Kamon, a professor emeritus at Kyoto University who specializes in environmental geotechnics, said TEPCO should have considered a number of measures to stem the flow of groundwater from the long-term perspective of eventually removing the melted fuel from the reactors.

**Another measure that is receiving more attention of late is pumping up groundwater from the 42 wells located around the reactor buildings and releasing it into the ocean.** TEPCO plans to double the number of pumps and processing capacity of decontamination facilities by early 2018.

But other measures will likely have to be considered before work can begin to remove melted fuel from the reactor cores. **The first step would be to remove as much as possible the highly radioactive water that remains in the reactor building basements.** Such water poses a huge risk to the workers who will have to enter the buildings to remove the fuel.

Toyoshi Fuketa, chairman of the Nuclear Regulation Authority, said the ice wall was a measure implemented when the situation was much more serious, but that now is the time for calmer consideration about whether that investment of time and money was the proper one.

November 27, 2017

## Disposing of nuclear waste, but where?

**EDITORIAL: Public hearings on nuclear waste need rethink to dispel distrust**

<http://www.asahi.com/ajw/articles/AJ201711270021.html>

Selecting the site and method for the final disposal of high-level radioactive waste, which is derived from spent fuel from nuclear power reactors, represents a major conundrum.

The government's public hearings on the issue should be fundamentally revamped to enable substantial discussions on a national level.

The Agency for Natural Resources and Energy and the Nuclear Waste Management Organization of Japan (NUMO) have been holding explanatory meetings on the matter, prefecture by prefecture, since October. It was learned recently that students who attended those meetings had been offered remuneration in cash and other items for their attendance.

The finding concerns a total of 39 participants at five venues, including in Tokyo and Saitama Prefecture. Officials said a contractor commissioned with public relations for young audiences made the offer at its own discretion, which had no impact on the course of discussions at the meetings. But such a practice could hurt the fairness and trustworthiness of those public hearings.

NUMO has rightly opened investigations into the past practices and begun weighing measures to prevent a recurrence.

At the same time, the organizers should also face up squarely to other problems that have emerged during the meetings that have been held to date.

Each explanatory meeting is made up of two sessions.

The first session is centered, among other things, on a presentation of the government's Nationwide Map of Scientific Features for Geological Disposal, which shows which parts of Japan are eligible for being candidate final disposal sites.

The participants split into smaller groups to exchange views during the second session.

At most of the venues, the meeting turnout has failed to reach the maximum capacity of 100 participants. The turnout has been particularly poor during the second sessions, with only about 20 to 30 people attending.

The public hearings are being held on weekday afternoons for reasons of availability for the organizers. That is apparently making it difficult for working citizens to attend.

The organizers say they plan to cover all prefectures of Japan, except Fukushima Prefecture, during a six-month period. Holding the meetings in line with that predetermined timetable may have become an end in itself.

The contractor, on its part, mobilized the students perhaps because in surmising the organizers' intent, it believed that small audiences, particularly with youths underrepresented, did not make for a good image. Needless to say, the public hearings are not being held just to denote that they have been held. They are being organized to help the issues of spent nuclear fuel shared on a national level and enable substantial discussions on them.

One participant at the Tokyo venue said that a video screened at the opening of the meeting was "inappropriate" because it presented the nuclear fuel recycling program, which is about extracting and reusing plutonium and uranium from reprocessed spent fuel, in a way that could be taken to imply as if the procedure had been established.

The nuclear fuel recycling program has evidently failed, as symbolized by the recent decision to decommission the Monju fast-breeder reactor. Direct disposal of nuclear waste, in which spent fuel is buried without being reprocessed, has become the mainstream method in countries other than Japan, not the least in Finland, where a final disposal site has been selected.

The government and NUMO should convey information that may be inconvenient to them in lending their ears to a broad spectrum of opinions.

As long as they stick to a stance of only allowing discussions premised on the continuation of the current nuclear power policy, that would only intensify distrust among the public and would do little in the way of gaining broader understanding toward the selection of a final disposal site.

November 28, 2017

## Restarts ignore safety issues

### **EDITORIAL: Oi nuclear plant gets green light despite lingering safety concerns**

<http://www.asahi.com/ajw/articles/AJ201711280019.html>

Fukui Governor Issei Nishikawa has announced his approval of Kansai Electric Power Co.'s plan to restart two reactors at its Oi nuclear power plant in Fukui Prefecture.

Nishikawa's consent has cleared the way for the utility to resume the operation of the idled Nos. 3 and 4 reactors at the plant. The company plans to bring the two reactors back online early next year.

Some 159,000 people live within 30 kilometers from the plant. The local governments involved are legally required to prepare plans for emergency evacuations of these residents.

At Kansai Electric Power's Takahama nuclear plant, which is within the 30-km zone and located 14 km to the west of the Oi plant, the Nos. 3 and 4 reactors have been operating since May and June this year.

But there is no evacuation plan that takes into account the possibility that serious accidents may occur simultaneously at the two plants.

Oi will be another nuclear plant to come on stream with an important safety issue remaining unresolved. We find it impossible to support the utility's plan.

Kansai Electric has decided to seek a 20-year extension of the operational life of three reactors that have been in service for more than 40 years--the Nos. 1 and 2 reactors at the Takahama plant and the No. 3 unit at its Mihama plant, also in Fukui Prefecture.

The company may also opt to continue operating the Nos. 1 and 2 reactors at the Oi plant, which will turn 40 years old next year.

That means the dangerous concentration of nuclear facilities in areas around Wakasa Bay in the prefecture will continue, at least for the time being.

It is assumed that in the event of a serious nuclear accident, most of the local residents living around these plants will flee the areas in their cars.

Evacuation drills that have been conducted so far have raised concerns that the limited evacuation routes can be clogged with fleeing vehicles. It is also feared that some areas could be cut off in harsh weather conditions.

Multiple accidents occurring at neighboring nuclear plants would cause crippling confusion among local residents.

At the very least, it is necessary to work out evacuation plans that can deal with all conceivable situations and make them widely known among local residents.

Kansai Electric and the central government are guilty of behaving in a grossly irresponsible manner by proceeding with the plan to restart the reactors without such plans. But the local governments that have supported the plan should also be accused of irresponsibility.

Local governments close to the region are worried about the implications of the plan. The governor of Shiga Prefecture has said there is “no environment for granting consent” to the plan. But Kansai Electric has refused to grant any local government other than Fukui Prefecture and the municipalities where the plants are located the right to consent to its plan to restart the reactors. The pools to store spent nuclear fuel at the utility’s nuclear power plants are approaching their capacities. Earlier this month, Shigeki Iwane, president of the Osaka-based utility, pledged to offer a proposed alternative site next year for building an interim storage facility for spent nuclear fuel outside the prefecture.

But many of the local governments in areas that consume electricity supplied by the company have already expressed their intentions to refuse to accept such a facility.

It is by no means clear whether Kansai Electric can find a site for building the envisioned storage facility. The firm plans to burn mixed oxide fuel (MOX), made from plutonium recovered from used fuel mixed with depleted uranium, at its Takahama plant under the so-called “plu-thermal” system of power generation.

The company has said it will explore possibilities of also adopting this approach at its Oi plant.

But the government’s plan to reprocess used MOX fuel has yet to get off the drawing board.

In other words, spent MOX fuel needs to be stored at the individual plants, at least for the time being.

All these problems and issues are common to many other nuclear plants in Japan and have been pointed out repeatedly for years.

But the operators of nuclear plants, the central government and most of the local governments of areas that are home to nuclear plants have all remained reluctant to make serious efforts to tackle them.

We are deeply concerned about the situation, where a growing number of reactors are being brought back online while serious safety concerns remain to be addressed.

November 29, 2017

## Diplomacy yes (part 1)

# **INTERVIEW/ William J. Perry: Diplomacy only viable option to deal with North Korean crisis**

<http://www.asahi.com/ajw/articles/AJ201711290016.html>

Former U.S. Secretary of Defense William J. Perry, who helped resolve the 1994 crisis on the Korean Peninsula, says the United States and other countries should stick to diplomacy to address military provocations by North Korean leader Kim Jong Un.

“Discussions and negotiations with North Korea are the only reasonable alternative to what could turn into a disastrous military operation,” Perry told The Asahi Shimbun during an interview on Nov. 14 in Palo Alto, Calif.

Perry, 90, revealed that the Clinton administration drew up a plan to destroy North Korean nuclear facilities with cruise missiles in 1994.

He also said President Bill Clinton was prepared to "approve" his recommendation to send an additional 30,000 U.S. troops to South Korea to defend against a surprise attack from North Korea and safeguard Seoul.

Still, Perry sought a diplomatic solution as a presidential envoy to ease the tensions on the Korean Peninsula.

Perry said he does not believe that a U.S. first strike is a viable option today because North Korea already possesses an "arsenal of perhaps 20 or so nuclear weapons."

Speaking of the consequences of a war, Perry said: "As bad as the first Korean War was, a war in the Korean Peninsula that extends to Japan and that goes nuclear would be 10 times worse."

Perry said he is "convinced" that Defense Secretary James Mattis and Secretary of State Rex Tillerson both understand the consequences of a military action in North Korea, although he is not as sure whether President Donald Trump does.

"While they're not the final decision-makers, they are certainly in a powerful position to recommend to the president, and I think they're recommending diplomatic solutions rather than military solutions," he said.

Perry, who advocated "A World Free of Nuclear Weapons" with three other U.S. statesmen in 2007, also suggested how the world could narrow the gap between the goal and the reality.

Excerpts from the interview follow:

\* \* \*

#### **NORTH KOREAN CRISIS IN 1994**

**Question:** Could you review for us the work you did and what happened during the North Korean crisis when you were secretary of defense in 1994?

**Perry:** I was appointed secretary in February 1994, and the first crisis I faced as secretary was North Korea, which culminated in June but it actually began in March and April. The North Koreans had a nuclear reactor at Yongbyon, for the purpose of generating electrical power. And it was operated--its fuel was plutonium. And, after it operated for so many months, the fuel was spent, and you had to take it out for reprocessing. But the spent fuel from that kind of reactor can be converted into plutonium that can be used for a bomb. It's a dangerous reactor, from that point of view.

Up until that point, the North Koreans were members of the Nuclear Non-Proliferation Treaty, and they had promised, therefore, not to make atomic bombs. But in March or April, they announced they were going to begin reprocessing the fuel to make plutonium out of it. And had they done that, that would have given them enough plutonium for six nuclear bombs. So we were very strongly opposed to that. And in the ensuing discussions over the next few months, they actually sent the U.N. (International Atomic Energy Agency) inspectors home, who were there to see that they didn't do something like

that. And they were talking about withdrawing from the Non-Proliferation Treaty. So this was a very dangerous situation.

My position at the time, which the president shared, was that we would not allow them to make six nuclear bombs and, therefore, we needed to stop them from reprocessing that fuel, which would give them plutonium. Once they had the plutonium, it was relatively easy to make the bomb. So the key action we could take was to stop them from the reprocessing. So I was the secretary at the time and I made the public statement, with the approval of the president, that we would not permit them to make plutonium and that we were prepared to take military action if necessary, to stop it. And this was, I might say, not an empty threat.

Since then, many secretaries and many presidents have made statements somewhat like that, but they were empty threats. But we were prepared to follow through. I actually had a plan, on my desk, for using a cruise missile to destroy Yongbyon (nuclear site), which would have meant they could not make the plutonium. Well, our first priority was to get the military (aspect) carried out. The military, as I said, was very far back on the table, but it was there, and it was a threat. It was the coercion factor of our diplomacy. We hoped, and believed, we would not have to apply it, but we were serious about it there, and we were prepared to apply it, had North Korea rebuffed our diplomatic approach. But they didn't, so we'll never know what would have happened.

But in my view, we were prepared at that time that if they rejected diplomacy and went ahead to start making nuclear bombs, we were prepared, then, as we knew the consequences could be serious, but we also believed the consequences of them getting a nuclear bomb would be serious and probably even more serious, which, in fact, has turned out to be.

But both I, and certainly the president, understood that that was an action we did not want to take, not because it would be any difficult doing it, not because the result wouldn't have been desirable, but the consequence was the possibility that North Korea would respond to that by taking military action against South Korea. Not against the United States, they had no way of doing that against the United States. But they could have taken it against South Korea. And as you know from looking at the map, the DMZ is very close to Seoul. Just imagine having North Korean troops 20 miles from Tokyo. You get an idea of that, of the consequences of this. So the military option was on the table but it was very far back on the table. We were pushing for diplomatic solutions.

**Q:** But was it nearly going to war?

**A:** Yes, because at the time the North Korean response was very aggressive. After I made my public statement, the North Korean press referred to me, personally, as a "war maniac," which is pretty far from the truth. I'm actually a very peaceful person. And, as I said, although I had the plan to destroy them, we did not intend to use it if we didn't have to. I favored, and certainly the president favored, diplomacy as our first option.

**Q:** And then how can you make sure that they would listen to you seriously, that they wouldn't really take it as an empty threat, but this is a serious one?

**A:** Well, once you make two or three empty threats, you lose credibility. We hadn't done that yet. So I think our threat was credible. It was reinforced inadvertently, in that shortly after I made that statement, the man who had been the national security adviser to the previous administration, Brent Scowcroft--he had been the national security adviser for the first President Bush--wrote an op-ed for The Washington



Post, in which he recommended that we use cruise missiles to strike the reactor if the North Koreans did not stop the reprocessing.

He was a good friend of mine, and I have always believed that the North Koreans, who “do their homework” on these issues, believed that I had put him up to writing that article, and that we were serious about this. So we were favoring diplomacy but this is what you would call “coercive diplomacy.” It was diplomacy with a promise, on the one hand, but with a threat. And I believe the threat was credible to the North back in 1994. All of the threats since then have not been credible and they have ignored them. That threat was credible.

So shortly after that, the next day, Kim Il Sung invited (former) President Jimmy Carter to come over, to discuss the crisis, which President Carter was happy to do. And that led, in a few days, to his offering to negotiate. It was a very close-run thing because between the time that Carter was invited over there--in the next few days after Carter was invited over there--we had put together our plan for imposing very, very serious sanctions on North Korea, and I had advised the president we should not impose those sanctions until we had--I said that it’s possible that the sanctions themselves would precipitate a military strike against the South. In fact, that’s what the North was saying they would do. And I thought we had to take them seriously.

So, during that period of a few days there, I met with the president, along with our chairman of the Joint Chiefs of Staff and along with our military commander in Korea, who had come home for that meeting, to present to him a proposal to reinforce our troops in South Korea before we imposed the sanctions, so that if the North conducted a military action, we’d be prepared for it. And I was proposing a really substantial, you know, 30,000 more troops, which is a lot! Today, for example, we only have 30,000 troops in all of South Korea. But we then had 40-some-thousand. I was proposing to add another 30,000. So, this would have been a pretty significant move.

We were actually in the meeting, when I was proposing that, when the telephone call came from Carter, in Pyongyang. He said that Kim Il Sung was ready to negotiate about not processing the plutonium. And I recommended to the president--which he accepted--that we accept his recommendation but only--only--if he agreed to stop the activity at Yongbyon, while the negotiations were going on. I was afraid the negotiations would be interminable and in the meantime they’d go ahead and make their plutonium. So that was the way we responded, and Kim Il Sung accepted that. And that led in just a ... that stopped the crisis and within a few months we had actually negotiated the so-called “Agreed Framework.”

**Q:** Before the meeting at the White House you and Joint Chiefs of Staff Chairman, Gen. Shalikashvili, summoned every active four-star general in the meeting. How many percent thought that you had to take military action that would be going to war at that time?

**A:** I want to be clear on one thing. We were not planning to start a war, but we recognized that the actions we would take and the strong position we were taking, in particular, sending more troops over there and imposing sanctions, might prompt North Korea to start a war. And we wanted to have strong enough forces there that, if they started a war, they could not overrun Seoul, because they would do inconceivable damage if they could actually capture Seoul. So, we wanted to have enough--we knew we would win a war with North Korea, but we wanted to win it before they destroyed Seoul. That’s what the extra troops were there for, and that’s why we were taking these actions.

**Q:** According to the book titled “The Two Koreas,” written by a journalist, in the middle of May 1994, President Clinton was briefed on the estimation that causing a conflict would cost 52,000 U.S. military

casualties, killed or wounded, and 490,000 South Korean military casualties, in the first 90 days. Is that correct?

**A:** I don't remember the numbers. That sounds reasonable.

**Q:** And what was the reaction of President Clinton after the briefing?

**A:** He was prepared to approve the reinforcement that I was proposing. I actually gave him several options. There was a 20,000, a 30,000, a 40,000. Several options. But they were all substantial, and he was quite clear he was going to approve them. He never had to make that decision because the phone call came in, literally minutes before he was going to make that decision. I have always wondered if that was coincidental or I suppose not, because it was publicly known that we were having the meeting, and so the North Koreans would have known that. And they wanted to get--I think they wanted to get their proposal in before the meeting was over. That's what I assumed anyway.

**Q:** While you were preparing military action, what did you coordinate or request to the Japanese government?

**A:** I made a trip over, the week before that meeting, to Japan and to South Korea. In South Korea, I met with both the American and the South Korean generals. I reviewed their plan. I forget the number now. It was a contingency plan for the defense of South Korea, in the event of a North Korean surprise attack. I had to review that, and that was what led me to conclude it would not be sufficient--we couldn't be sure it would stop the North Koreans before they destroyed Seoul. And that led me to conclude we needed to have another 30,000 troops. And so, Gen. Luck was the commander of the Joint Korean Forces at that time, and he was the one that made the recommendation, and then he came back with me to Washington for the briefing to President Clinton. That was the meeting with the South Koreans, both American and South Korean militaries, as well as the South Korean government officials and president.

Then, I also met with the incoming Japanese prime minister (Tsutomu Hata). I don't remember whether it was before or after that meeting, but on the same trip. I told him what we were doing. I said that I believed we were not going to go into a war but we had to be prepared for it, but that if we went into a war, our plans and vision was not Japan entering the war, but envisioned using the air bases in Japan for resupplying our forces in Korea. I wanted him to be aware that our plans called for that, and to get his prior permission for doing that, so I could tell the president we would be able to execute this plan, by using the Japanese air bases.

**Q:** What was Japan's reaction to that?

**A:** His reaction was "Yes, we understand that." But he asked me not to make a public statement about it. Which I didn't. It would unnecessarily worry the Japanese public.

November 30, 2017

**Kobe Steel scandal impacts on restarts**

## **Kobe Steel scandal delays reactor restarts**

[https://www3.nhk.or.jp/nhkworld/en/news/20171130\\_34/](https://www3.nhk.or.jp/nhkworld/en/news/20171130_34/)

Two Japanese utilities say they will delay the planned restarts of 4 nuclear reactors due to the data falsification of Kobe Steel products.

Kyushu Electric Power Company and Kansai Electric Power Company made the announcements on Thursday.

They said they will delay the restarts of the reactors by about 2 months in order to confirm the safety of equipment that use misrepresented Kobe Steel products.

The delays affect the Number 3 and 4 reactors at the Genkai nuclear power plant in Saga Prefecture, managed by Kyushu Electric, and the Number 3 and 4 reactors at the Ohi plant in Fukui Prefecture, run by Kansai Electric.

The operators originally planned to restart the reactors from January to March. They have passed the Nuclear Regulation Authority's screenings and received the consent of local governments.

They are now scheduled to be restarted from March to May.

Kobe Steel announced in mid-October that its misrepresented products had been shipped to 500 firms.

December 2, 2017

## **No more certificates needed to import Fukushima rice and seafood in Europe**

### **EU eases curbs on imports of Fukushima rice and seafood**

<http://www.asahi.com/ajw/articles/AJ201712020035.html>

By TETSUSHI YAMAMURA/ Staff Writer

The European Union on Dec. 1 eased import restrictions on farm and marine products from Japan that it tightened in the aftermath of the 2011 Fukushima nuclear disaster.

After the catastrophe, 54 countries and regions imposed restrictions on imports of farm produce and seafood from Japan. Twenty-five countries have already lifted all restrictions.

The government plans to step up efforts to call on other countries to ease regulations.

The EU decision means that exporters of rice grown in Fukushima Prefecture and some seafood and related products from there and neighboring areas will not be required to present certificates to show that the items have been tested for radioactivity.

With regard to rice from Japan, the final barrier to exports to the EU has now been lifted.

The easing of controls follows Saudi Arabia's decision in November to lift all restrictions of imports of foodstuffs from areas affected by the nuclear disaster.

The United States has also moved to ease restrictions for some seafood and related products from Fukushima Prefecture.

According to Fukushima prefectural authorities, exports of locally grown farm and marine products plunged to 2 tons in fiscal 2012 from 153 tons in fiscal 2010.

But imports have gradually bounced back and are now approaching pre-disaster levels.

Among countries that still maintain restrictions are nine big importers of Japanese agricultural and marine products, such as Hong Kong, the United States, Taiwan, China and South Korea.

They continue to ban imports of foodstuff from Fukushima Prefecture and surrounding areas.

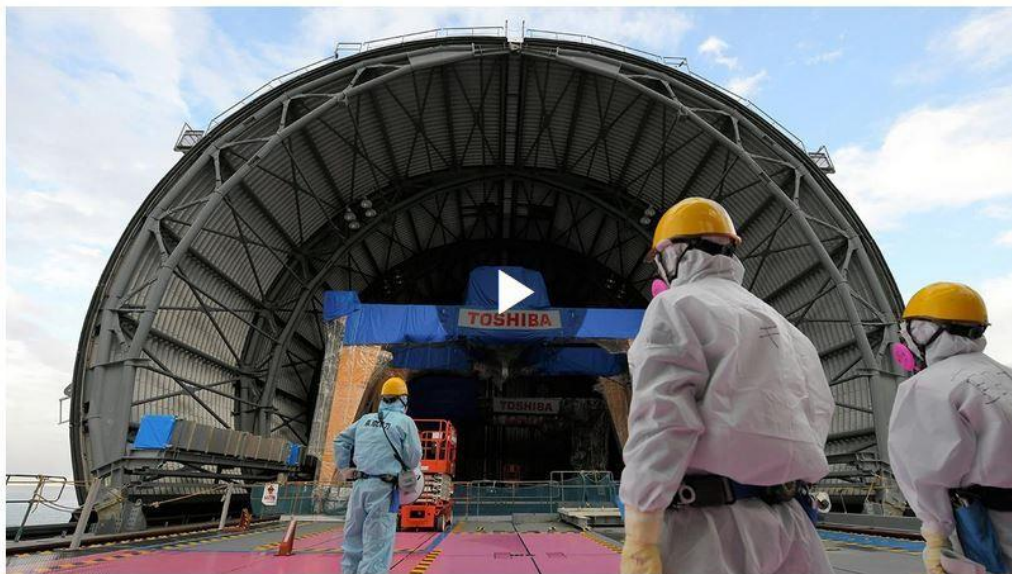
For example, China bans imports of commodities from Fukushima and nine other prefectures.

South Korea has maintained a ban on imports of fisheries products from Fukushima and seven other prefectures, which has dealt a blow to sea squirt farmers.

Before the Fukushima disaster, 70 to 80 percent of farmed sea squirt was exported.

December 4, 2017

## Can't stay more than 20 minutes on the roof



Media representatives walk on top of the No. 3 reactor building at the Fukushima No. 1 nuclear power plant where a huge dome is being constructed over the storage pool for spent nuclear fuel. (Video footage by Shigetaka Kodama)

## Fukushima dome roof takes shape, but radiation remains high

By CHIKAKO KAWAHARA/ Staff Writer

High radiation levels are still limiting recovery work at the Fukushima No. 1 nuclear plant, a stark reality that reporters saw firsthand when they observed efforts to remove risk factors there.

Media representatives were invited into the plant in early December to see construction work, with the building of a domed roof over the No. 3 reactor building as the main focus.

However, they were only allowed to stay on top of the roof for 20 minutes due to high radiation levels.

The roof is being put together directly above the storage pool for spent fuel. The dome is designed to prevent the spewing of radioactive materials when the fuel is actually removed from the pool.

The original roof of the No. 3 reactor building was severely damaged by a hydrogen explosion in the days following the March 11, 2011, Great East Japan Earthquake and tsunami, which led to the crippling of the Fukushima No. 1 plant.

Spent fuel still remains in the storage pools located on the top floors of the No. 1 to No. 3 reactor buildings.

**Plans call for removing the spent fuel first from the No. 3 reactor building.**

Although the dome will help prevent the spread of radioactive materials, building parts and other debris as well as some equipment have still not been completely removed from the storage pool, which holds 566 fuel rods.

The collapsed roof and walls were removed to allow for the construction of the domed roof, which began in the summer. The domed roof is about 17 meters high, and a crane was also installed under it in November.

Plans call for the removal of the spent fuel from the No. 3 building to begin in the middle of the next fiscal year.

Internal radiation exposure levels were measured before media representatives headed to the No. 3 reactor building. They were also required to don protective clothing as well as a partial face mask covering the mouth and nose from about 100 meters from the building.

Radiation levels close to the building were 0.1 millisieverts per hour.

An elevator installed into the scaffolding next to the reactor building took the media representatives to the roof, which had been covered with metal plates.

The so-called operating floor looked like any other newly constructed building roof, a sharp contrast to the twisted metal parts that covered the building shortly after the nuclear accident.

Tokyo Electric Power Co., the plant's operator, captured video footage from within the reactors for the first time in July. Debris that appears to be melted nuclear fuel was found in various parts of the containment vessel.

To the south of the No. 3 reactor building stands the No. 4 reactor building, from where all the spent nuclear fuel has been removed.

To the north is the No. 2 reactor building, which avoided a hydrogen explosion. Beyond the building, cranes and other large equipment are working in preparation for the removal of debris from the No. 1 reactor building.

TEPCO officials cautioned media representatives about standing too long right next to the storage pool, which could be seen located about six meters below the roof. Debris was found within the pool while insulating material floated on the pool surface.

The radiation level near the pool was 0.68 millisieverts per hour. While that was a major improvement from the 800 millisieverts per hour recorded in the immediate aftermath of the nuclear accident close to seven years ago, it was still too high to allow for a stay of longer than 20 minutes.

December 5, 2017

## Perception of Fukushima foods

### Safety of Fukushima food known less overseas

[https://www3.nhk.or.jp/nhkworld/en/news/20171205\\_27/](https://www3.nhk.or.jp/nhkworld/en/news/20171205_27/)

A survey by Japanese researchers shows that many overseas consumers still worry about the safety of food from the disaster-hit region of Fukushima, and are unaware of measures taken to ensure its safety.

The researchers from Fukushima University and the University of Tokyo conducted the online survey of 10 countries and regions. They include China, South Korea, the United States, Britain, Germany and Japan.

About 30 percent of Japanese consumers said they worry about food from Fukushima. This compares to 80 percent in Taiwan, 70 percent in South Korea, and 60 percent in China.

The survey also found that 30 to 50 percent of people in the countries worry about food from all of eastern Japan.

Asked if they know that all rice from Fukushima goes through radiation tests, 30 percent of Chinese consumers said yes. The figure was 10 percent for South Korea, Britain and Germany.

Sample testing for vegetables and fruit from Fukushima and surrounding areas are known to 20 percent of overseas consumers.

An import ban and other restrictions on farm and marine products from Fukushima are still in place mainly in countries and regions in Asia, more than 6 years after the nuclear accident.

University of Tokyo researcher Naoya Sekiya says a lack of knowledge has resulted in the prolonged import restrictions. He said there's a need to publicize that utmost safety checks are being conducted.

December 7, 2017

## All's well...

## **Fukushima to scale down radiation tests on rice**

[https://www3.nhk.or.jp/nhkworld/en/news/20171207\\_32/](https://www3.nhk.or.jp/nhkworld/en/news/20171207_32/)

Authorities in Fukushima plan to scale down radiation tests on rice harvested in the prefecture.

Since the nuclear accident in March 2011, the local government has spent 6 billion yen - or about 53 million dollars - every year to check radiation levels of all rice produced in Fukushima.

The tests require farmers to transport their harvest to a testing facility. Samples with radiation levels higher than the government-set limit have not been detected since 2015.

An expert panel convened in July to review the testing system and survey the opinions of consumers.

Based on the panel's recommendations, local authorities have decided to replace full-scale testing with sample inspections in 47 of the Fukushima's 59 municipalities.

The remaining 12 municipalities are located around the crippled Fukushima Daiichi nuclear plant.

Authorities have yet to decide when they will switch from full-scale to sample testing. Officials say they will take a decision in February.

Rice is the only produce from Fukushima to be tested systematically. All other agricultural and marine products undergo sample testing.

## **Listen to children and families afflicted by thyroid cancer**

### **Many children diagnosed with thyroid cancer after 3.11 disasters, families still worried**

<https://mainichi.jp/english/articles/20171207/p2a/00m/0na/012000c>

Nearly 80 percent of respondents in a survey by a group supporting children diagnosed with thyroid cancer in the wake of the Fukushima nuclear disaster say they remain worried about the cancer, despite the prognosis for those who receive appropriate treatment being good.

- **【Related】** News Navigator: Do young people's cancers progress more quickly?
- **【Related】** 10 more thyroid cancer cases diagnosed in Fukushima
- **【Related】** Families of Fukushima thyroid cancer patients launch support group

The survey was conducted by the **3.11 Fund for Children with Thyroid Cancer, an independent, not-for-profit organization providing support for child patients of thyroid cancer and their families**. It was sent in

August to 67 households of people who were living in Fukushima Prefecture at the time of the outbreak of the disaster at the Fukushima No. 1 Nuclear Power Plant in March 2011 and whose medical expenses the fund has helped to cover. A total of 52 households responded -- a response rate of about 78 percent. Twelve of the respondents had received treatment themselves, while seven were fathers and 33 were mothers of those who had been treated.

A total of 40 respondents, or 77 percent, said they remained worried. When asked specifically what they were worried about, 23 people said "a relapse," nine each cited "metastasis" and "health status in general," while five each said they were worried about "pregnancy and childbirth" and "finding a job and working."

Among children, some worried about cancer testing being scaled back. A total of 28 respondents called for the status quo to be maintained, while another 17 respondents called for the testing system to be enhanced. None said it should be downsized.

"Excessive diagnosis" has been blamed in the past for the large number of thyroid cancer patients in the wake of the nuclear disaster, but when given space to write their own opinions, some respondents were supportive of testing from the perspective of early detection of cancer, saying, "It's better than finding out too late," and "If a person has cancer, they'll feel better if it's removed."

The fund's representative director, Hisako Sakiyama, commented, "**There's a need to listen to what the afflicted people and their families want, and to hear what problems they are facing.**"

## **Diplomacy yes (Part 2)**

**Q:** North Korea has been developing both nuclear weapons and ballistic missiles, which have the ability to reach the United States. Do you regret that you did not destroy the nuclear facilities at that time?

**A:** I regret that we didn't stop them from getting any nuclear weapons. Whether or not it hits the United States, it can hit Japan, it can hit South Korea. Japan and South Korea are our allies. We can't sit back and see the threat to maybe tens of millions of people. You know, if nuclear bombs are going off in Tokyo and Seoul, it would be a catastrophe of the first order. We have to care about that, first of all, whether or not it can hit the United States. But I am convinced they are going to go to that next stage and to get to a weapon capable of hitting the United States. It's sort of a nuclear blackmail approach, and to cause Japan and South Korea to worry about whether we would apply our extended deterrence. That was the logic during the Cold War, when the Soviet Union was threatening the United States and Germany. Germany wondered, "Would the United States come to their aid?" The cliché in those days was "Would the United States sacrifice New York in order to save Berlin, or Bonn?" That same question could be asked today.

The way we solved the problem then, at the German request, was we based our nuclear weapons in Germany, with our troops there. And so, we didn't have an out. We were stuck. We had to defend them. And that gave them the confidence to go ahead. You can imagine the situation perhaps developing today, with either Japan or South Korea. I don't think it's desirable, and I think the extended deterrence carried out by our nuclear submarines, say, are sufficient to the job. But I can imagine, I can understand, why the people in Japan and the people in South Korea might want additional assurance. And that could be done by basing nuclear weapons in their countries. I want to be clear, though; I'm not recommending that. I do not think it's a good idea. I think what we ought to do, what American leaders ought to do, is make it unambiguously clear that we will support the alliance and we will support extended deterrence, we will



do the things we have promised to do, and make any--whatever commitment necessary, that's necessary to assure the Japanese people and the South Korean people that we'll do that. That's far preferable to actually basing nuclear weapons in the two countries.

**Q:** On negotiation with North Korea, what do you think is the role of China and Russia?

**A:** I'm not sure. I know what China--I have my own view of what China "ought" to be thinking. They ought to be very, very concerned that a war is going to get started on the peninsula, and maybe even a nuclear war. That has to be adverse to their own interests. I think they should be very much concerned that South Korea, maybe even Japan, might go nuclear themselves. That has to be adverse to their interests. The North Korean nuclear program is stimulating actions which, if they occur, would be highly detrimental to China's interests. They cannot want that to happen. And so they ought to be taking this, I think, more seriously and working more closely to try to get a resolution to the problem than they have been. But I'm not saying--I'm not pointing to China and saying "You solve this problem," just like they point to us and say "You solve this problem." This is a problem that would be solved much better if the United States and China would work together because together they'd make much more powerful incentives and disincentives on North Korea. And had that happened years ago, we might have been able to avoid a nuclear arsenal. Even today, we can minimize the danger of the nuclear arsenal if China would work cooperatively with the United States, as well as with Japan and with South Korea.

**Q:** President Trump has just finished his first trip to Asia, including meeting with Chinese President Xi Jinping. How do you see his accomplishments or performance during his first visit to Asia?

**A:** On the outstanding issue of the day, which we're talking about right now, which is a nuclear North Korea, I can't see that he accomplished anything based on the public reports in the media. I can hope that in the private discussions, which are not yet published, he had some progress. But what has been published publicly, I see nothing of any value, I'm sorry to say, relative to the North Korean problem. I'm not making a more sweeping statement than that.

**Q:** President Trump tweeted that negotiations are a waste of time. And Japanese Prime Minister Shinzo Abe said since 1994 and 2006, North Korea lied and now is not the time for dialogue. Many pointed out that diplomacy is impossible with North Korea. What's your reaction to that?

**A:** I say maybe this is not the time for dialogue, that's debatable. What's not debatable is this is not the time for a nuclear war. And I'm not sure what the alternative to a military conflict is, except diplomacy. So, I favor diplomacy. I favor talking with North Korea and favor talking with or without preconditions. I'm not at all confident that we'll get a good result from that, but I am confident we'll not get a good result if we don't talk with them, because I am confident that we do not have a viable military option right now.

**Q:** And, from your point of view, how should the Japanese government manipulate this situation or take a position on the North Korean issue? What's your advice to the Japanese government?

**A:** I think that in any consideration on the issue in Japan there ought to be a clear understanding on the part of Japanese leaders of what the consequence of failure of diplomacy is. That while I'm convinced that North Korea is not planning a surprise nuclear attack on Japan, I do believe it's a possible consequence of a

failure of diplomacy, of a failure to talk, and the possibility of an accidental war, a blundering war, happening partly as a result of the reckless rhetoric and the absence of a diplomatic path. That's complicated, as I say. In the absence of diplomacy and in the presence of reckless talk, we have created the conditions which make--which allow us to blunder into a war, a war which could turn nuclear and which would be very catastrophic. So, I get back to the fact that the Japanese government and the Japanese people, as well as the American government and people, should be looking for diplomatic solutions to this problem.

If I thought there were a viable military option, I'd be pushing it. But I don't see one. And I see what many people, to me amazingly, fail to see is the huge consequences of a war. As bad as the first Korean War was, a war in the Korean Peninsula that extends to Japan and that goes nuclear would be 10 times worse. And we're talking about casualties that equal those of World War II! I don't understand why people don't understand that. It's so obvious, so straightforward. And we have to get serious about diplomacy. And the Japanese government should be working to encourage that and to promote it. They can't do it alone, but they can contribute to it. I'd like to see Prime Minister Abe promoting that in his discussion with President Trump.

**Q:** And if North Korea gets a nuclear arsenal, the Asian security environment will be changed dramatically. And that will encourage voices calling for Japan and South Korea to consider the possibility of obtaining their own nuclear weapons. How do you see the reasonability for Japan to have a nuclear capability or change the principles on nuclear policy?

**A:** They do have nuclear weapons. They do have one now and that has changed it. Everything's changed, as a result of that. Yes, it's already happening. And there's already been a dramatic change in the public discussion in South Korea. And to a certain extent in Japan as well, to a lesser extent in Japan but still much greater than in the past. So that now people are considering what would have been unthinkable a decade ago. And it's easy to understand why people feeling under threat of a nuclear attack might want to have their own nuclear arsenal. Certainly all the nuclear powers have set that example, saying that, "Our nuclear weapons are vital to our security," so why should we expect Japan, South Korea, and other countries not to say the same thing?

And yet, I'm convinced that this move would be a wrong move for both Japan and South Korea. I do not agree at all with the president's statement some time ago that it would be "Fine, why not?" I do not agree with that at all. I think [there are] many negative consequences. And the only objective reason for Japan and South Korea to go nuclear themselves is if they did not believe that the U.S. extended deterrence was going to be effective, if they did not trust the United States to protect them. So, it's a crisis in trust, I think, right now. And it's up to the United States to overcome that crisis of trust, to convince both the Japanese and the South Koreans that our extended deterrence is strong and valid and would react to North Korea. I think we should be willing to do what we need to do to make that point absolutely clear.

The downside of Japan, and the people in Japan who argue for a nuclear program you can be sure are not chess players. In chess, the famous concept is what's called "the fallacy of the last move." It's when you make a move in chess which you feel very good about because it puts the other side in a bad position. But you haven't thought two or three moves ahead, to how he might exploit the move you've just taken. So, people in Japan think, "We're going to get a nuclear program and that makes us strong and that protects

us.” That’s the first move that’s made. But they forget about the second move and third move, “You do that, what does North Korea do, what does China do? How does China react to Japan getting that?” They will increase their nuclear arsenal. Then you have to increase yours, and South Korea .... you get going a nuclear arms race in Northeast Asia. The consequence of either South Korea or Japan going nuclear is almost without doubt a nuclear arms race starting in Northeast Asia and it’s hard to believe that’s going to be good for anybody.

### **‘WORLD FREE OF NUCLEAR WEAPONS’**

**Q:** And the final part is about the gap of the world free of nuclear weapons and the real world. In 2006, you joined three other statesmen, including Henry Kissinger, in calling for pursuing a world free of nuclear weapons. In my understanding, given your experience in the Cuban Missile Crisis and nuclear deterrence to Russia, and the North Korean crisis, you understand effectiveness of nuclear deterrence. Why do you think the United States should seek a world free of nuclear weapons?

**A:** Well, I think about that because I have actually looked into the “nuclear abyss” a few times in my life, and I don’t like what I see. I really thought several times in my life we were about to go to a nuclear war. We were very close to it in the Cuban Missile Crisis, very close, closer than most people realize. We almost had an accidental launch. That is, we almost started a nuclear war by mistakenly believing that we were under attack. That’s called “the false alarm problem.” And I experienced personally one of those, and I’ve never forgotten it.

So, the prospect of a nuclear war does not seem far removed or academic to me, and the consequence of a nuclear war I’ve also studied very carefully, and they’re unimaginable. It is possible to imagine it, but you don’t want to imagine it. So that motivated me, along with my comrades, Shultz and Kissinger and (Sen. Sam) Nunn, to write an op-ed arguing that we ought to, ultimately, be seeking an end to nuclear weapons and in the meantime working to, doing the various things that could be done, to reduce the danger that they pose. And, for several years, that proposal had pretty good traction. The high point actually came when President Barack Obama, after being elected, made his famous speech in Prague.

**Q:** And, however, the reality is that Russia reportedly violates the Arms Control Treaty and as you know, the number of countries that possess nuclear weapons, such as India and Pakistan, is increasing, even though the NPT exists. How do we fill the gap between the ideal of “a nuclear-free world” and the real world?

**A:** For a few years after we wrote our first op-ed, if the ideal was out there and we were there we were moving toward it. Slowly, but moving toward it. The peak of that came, as I said, when President Obama made his famous speech in Prague, stating a serious conviction that the United States would seek a world without nuclear weapons, “peace and security of a world without nuclear weapons.” That was the high point of it. Since then, we’re going backward. And today we’re farther away from that goal than we were when we made the op-ed. So, from my point of view, the op-ed was a failure. We not only didn’t succeed in getting--we initially succeeded in getting closer to the goal, but where we stand today is even farther away from it.

And that happened for a number of reasons, but I think the primary reason was that during that period, for reasons unrelated to nuclear weapons, we, the United States and Russia, developed and went from a

period of friendliness and cooperation to a period of hostility. It was already beginning at that time but it took a very dangerous turn about 2008-2009. So today, I would say, that we're recreating many of the conditions of the Cold War. And those conditions don't lend themselves to people wanting to dismantle their nuclear weapons. Between now and then, though, we actually--you know, we've gone from 75,000 nuclear weapons to 15,000 in the world. That's the good news. The bad news we're at 15,000. 15,000 is still enough weapons to destroy the planet several times over.

If the United States and Russia--let's say Russia, with 6,000-7,000 nuclear weapons, used even a third of these to attack the United States, and if by some miracle that will never happen, we were able to shoot down half of them, our country's still destroyed. There are more than enough nuclear weapons today to destroy our country several times over, and vice versa. So, we're not only very far from that goal we were setting then, but we're moving backward. Today, Russia and the United States are both engaged in rebuilding the Cold War nuclear arsenal. So, our effort was a failure, I have to say. It succeeded for a few years but ultimately it then failed.

**Q:** And my final question is Japan is the only country to have suffered an atomic bombing. However, the Japanese government did not sign the U.N. Nuclear Ban Treaty this summer because Japan accepts the nuclear umbrella provided by the United States. That angered the hibakusha. How do you see the Japanese government's role on nuclear non-proliferation or a nuclear-free world?

**A:** Well, the nuclear powers did not sign that agreement or even attend the meetings. And it would have been hypocritical of them to have done so while their security still ultimately depends on nuclear weapons, and while they're in the process of rebuilding their arsenals. So, they still believe that their security ultimately depends on the nuclear weapons. And so, if they were to sign the agreement, they would have to be prepared to take a different course of action than they're now taking, and it's quite clear they're not. They still--it's hard to believe they're going to do that as long as the hostility that exists today continues to exist. And Japan is in sort of the same position. While you don't have nuclear weapons, your security depends on nuclear weapons, as you see it. In this case, the U.S. nuclear weapons. But that's what the extended deterrence is all about. So, it would have been hypocritical of Japan to have signed it, really. Having said that, they might have done more than they did. They might have said some different things, indicating that, in principle, they supported the idea. I mean, there are many things they could have done other than just boycotting the thing. And Japan, of all nations, having suffered Hiroshima and Nagasaki, has some moral stand to take. Actually, the United States, having used the weapons against Hiroshima and Nagasaki, has a moral reason for taking the stand too, but we're not doing it. Having said that, I'm still pleased that the U.N. resolution was passed. I do not expect any direct consequences from that, but it's a statement of moral standing, it's an ethical position, it's saying, "This is what it should be. It's not what is; it's a statement of what should be." And it's worth saying that sometimes, even if you're not able to make it true.

One of my colleagues told me that, back in the day when we were talking about the first op-ed we wrote, and he was saying this was sort of a--"Will be seen as a glorious gesture which has no consequences." He said, "You can't judge consequences by what happens this year or next year. Sometimes a strong position of saying 'This is what is right' will have a long-term effect." And the example he used, which is particularly apt for an American, was a statement in an early document in America more than 200 years ago, that "all men are created equal." At the time our founding fathers made that statement, "all men are

created equal," it was nonsense! We had slaves! They were not equal. Women were not allowed to vote, they were not equal. Even white men who did not own a house were not allowed to vote. So all men are not created equal.

But it was a principle they stated and they believed in the principle. And they're not being hypocritical to state a principle. And over time, sometimes with great hardship, we moved closer and closer to that goal. But having the goal out there was important. It gives the impetus to moving toward the goal. We're not there today yet, but we're a lot closer today than we were in 1776.

And I don't believe we'd be that much closer had our founding fathers not had the wisdom and the courage to make that statement, "All men are created equal." So, no nation should have nuclear weapons. Well, that's not true today. But it's a principle. It's what ought to be. And the more people that say that, the more people who talk about it, the more people who think about it, the sooner we'll get to that position, the closer we'll move to that position. That's what I have to say about the U.N. resolution.

**Q:** Are you an idealist or a realist?

**A:** I'm a very practical person, a very practical person. I think it's important to have ideals, it's important to work toward those ideals. But it's also important to know what you can "do" in the world today. When I was secretary of defense, I thought about what I could "do" in the world today. And when I looked at a North Korea crisis, I looked at practical steps we could take, both in terms of limiting North Korean nuclear weapons with threats we were prepared to carry out, and in terms of looking to North Korea as a way of understanding what problem they were trying to solve and see if you could help them solve that. So when I looked at 1999 and negotiated, I was looking at their problem. I was trying to put myself in their shoes and say, "Why are they being so hard to get along with? It's because they're afraid that they're going to be overthrown, the regime is going to be overthrown." That's what they're trying to preserve. I might not share that belief with them, but I have to understand them if I'm going to negotiate with them, that's their belief, and I'm not going to succeed in negotiations unless I can do something to help them, move them, toward what they want to do.

I was never trained as a diplomat. I don't have the "golden tongue" of a diplomat. But I came to believe that the tongue is the least important aspect of the diplomat. What he needs are ears. He needs to listen to what the other side is saying, what they believe. That's what he has to do.

**Q:** I realized you were a mathematician, I felt still closer to you because I majored in mathematics. How did it make any difference as defense secretary having a mathematics background?

**A:** Not many people do that. We are a rare breed. It's hard to say. I don't remember ever solving any equations when I was secretary of defense. But the training in mathematics, like some of the other secretaries who did physics, training in science, mathematics or physics gives a way of thinking about the problems, a logical way of thinking. And I think that's valuable. The secretaries I know, who were physicists or scientists trained, at least did not have fuzzy thinking. And that doesn't mean they were right, but they reasoned through step by step the problems.

Well, you know, I never considered myself a political figure, even though the secretary of defense has to be confirmed by the Senate. They consider it political but I never did; I considered that I was the secretary of defense for both Republicans and Democrats. That is, I thought of it as a nonpartisan position, from a political point of view.

(This article is based on an interview by Senior National Security Correspondent Taketsugu Sato and Yu Miyaji, correspondent in San Francisco.)

December 13, 2017

## High Court orders shutdown of Ikata No.3

### High court orders first reactor shutdown

[https://www3.nhk.or.jp/nhkworld/en/news/20171213\\_31/](https://www3.nhk.or.jp/nhkworld/en/news/20171213_31/)

For the first time, a Japanese high court has ordered the operator of a nuclear plant not to restart a reactor.

The Hiroshima High Court issued the injunction on Wednesday. It ordered Shikoku Electric Power Company not to restart the No. 3 reactor at its Ikata plant in Ehime Prefecture. It's currently offline for regular inspections.

The decision reverses a lower court order in March. Residents had sued to have the reactor shut down, citing the threat of a serious accident.

The latest lawsuit considered whether Shikoku Electric had properly assessed the risk to the plant posed by the largest possible earthquake and eruptions of nearby volcanoes.

Presiding Judge Tomoyuki Nonoue said the likelihood wasn't small that the nuclear plant would be affected by pyroclastic flows from an eruption of Mount Aso on the neighboring island of Kyushu. He found fault with the plant's location. He added that the operator had underestimated the amount of volcanic cinder and ash that would fall on the plant.

**He concluded that the Nuclear Regulation Authority's judgment that the plant had met the requirements needed for a restart was flawed. He noted that the NRA hadn't properly assessed the risk that residents faced from various dangers such as volcanoes.**

Under the injunction, the reactor will remain shut down until September 30th of next year.

The No.3 reactor was restarted in August 2016. It has been offline since October for regular checks.

The decision is the first of its kind by a high court.

Shikoku Electric called the decision extremely regrettable. It said it had made an honest assessment of quake and volcano threats. It added it will appeal the ruling after careful study.

December 14, 2017

## Recognising the risks of volcanoes for nuclear plants

### In ordering nuclear plant suspension, Hiroshima high court recognizes volcanic risk

<https://mainichi.jp/english/articles/20171214/p2a/00m/0na/014000c>

Lawyers hold up banners with messages such as, "Injunction issued," following a Hiroshima High Court order to suspend operation of the No. 3 reactor at Shikoku Electric Power Co.'s Ikata Nuclear Power Plant, in Hiroshima's Naka Ward, on Dec. 13, 2017. (Mainichi)

HIROSHIMA -- Recognizing the risk of a volcanic eruption, the Hiroshima High Court on Dec. 13 ordered the suspension of a reactor at Shikoku Electric Power Co.'s Ikata Nuclear Power Plant -- a decision that could deal a blow to power companies' finances and the government's energy policy, as there are many nuclear plants located near volcanoes.

- **【Related】** High court orders Shikoku Electric to halt Ehime nuclear reactor
- **【Related】** Editorial: Grave concerns remain over restart of Ikata nuclear plant
- **【Related】** Residents furious over high court decision to revoke Takahama nuclear plant injunction

In its decision, which overturned a lower court ruling, the high court judged that new regulatory standards for nuclear power plants implemented in the wake of the Fukushima nuclear disaster were reasonable, but that the Nuclear Regulation Authority (NRA)'s judgment on the risks of damage from a volcanic eruption were "irrational." The court mentioned the danger of pyroclastic flows from a catastrophic eruption at the Aso Caldera, located about 130 kilometers away from the Ikata plant in Ehime Prefecture, together with the threat of volcanic ash and other falling material.

The court decision to order suspension of the plant's No. 3 reactor was based on an "evaluation guide on the effects from volcanoes" that the NRA had produced to screen nuclear plants' volcanic eruption countermeasures.

Based on the guide, the court in its ruling stated that there was a need to demonstrate that there was a low possibility of a pyroclastic flow reaching the plant even in the event of a massive eruption at the Aso Caldera on the scale of one that is said to have occurred some 90,000 years ago. The court criticized a geological survey by Shikoku Electric Power Co., and judged that the location was not fit for the building of a nuclear power plant. It also judged that the utility had underestimated the effects of a volcanic eruption. The high court acknowledged that it is the social norm to ignore the risks of events whose frequency of occurrence was extremely low. However, it ruled that it was impermissible for the district court to alter the framework for the judgment criteria by saying that there would be no safety deficiencies even if a

catastrophic eruption were not envisaged as a natural disaster -- and overturned the lower court's decision.

A representative of the secretariat of the NRA expressed dissatisfaction with the latest ruling. "It's been 90,000 years since the last catastrophic eruption at the Aso Caldera, and there's no large magma chamber underground. We've already judged that there will be no catastrophic eruption during the operation period," the representative said.

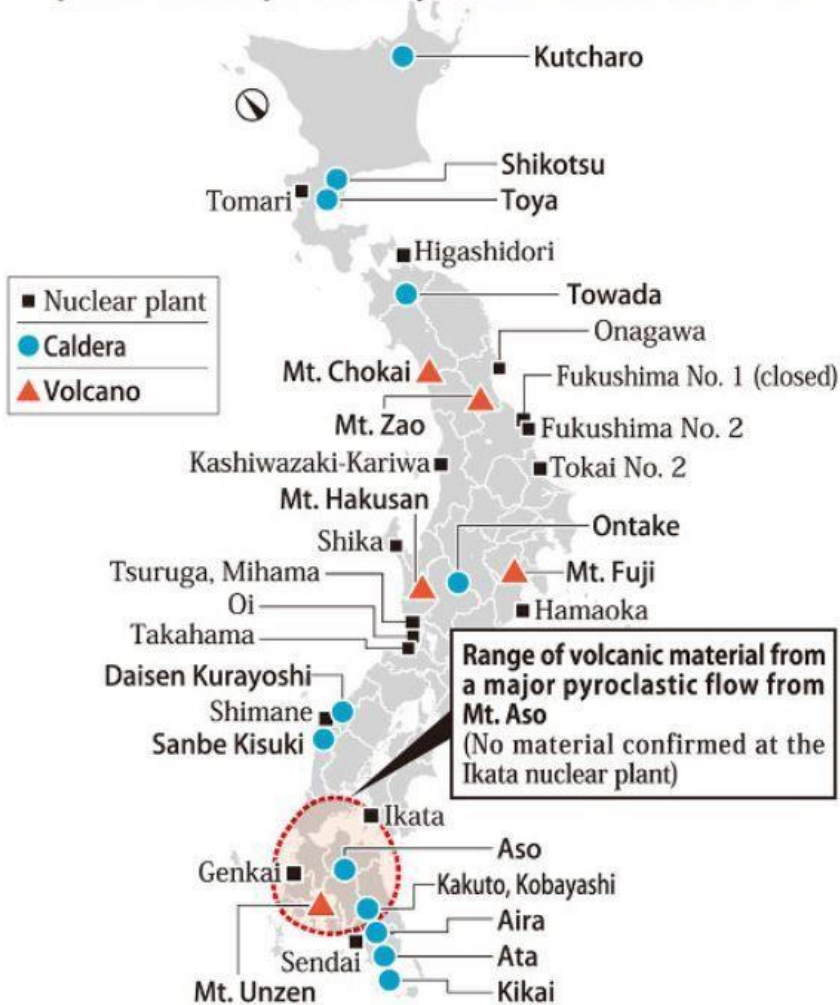
There are cases in which claims of local residents calling for the halt of nuclear reactor operations have been accepted in the past on the grounds that officials' assumptions on the possible level of shaking from earthquakes under new safety standards are too lenient. Such was the case with an injunction issued by the Otsu District Court in March 2016 to halt the No. 3 and 4 reactors at the Takahama Nuclear Power Plant in Fukui Prefecture -- although the injunction was overturned by the Osaka High Court in March 2017.

The latest ruling in the Hiroshima High Court stated that the "new standards (for safety implemented after the Fukushima nuclear disaster), and the decisions by the NRA are reasonable." It also judged that estimates on other points of contention including earthquake ground motion, the maximum tsunami envisaged and countermeasures against serious accidents and terrorist attacks were "reasonable." In response to the court's acknowledgement of the risks of a volcanic eruption, Hiroyuki Kawai, a lawyer representing the plaintiffs, commented, "The risks from volcanic eruptions extend to other nuclear power plants, and the framework of the Hiroshima High Court's decision can be applied laterally (to other nuclear power plant lawsuits)." Kawai predicted that the effects of the ruling would spread to Kyushu Electric Power Co.'s Sendai and Genkai nuclear plants, which are close to the Aso Caldera and Sakurajima in Kagoshima Prefecture, and Chugoku Electric Power Co.'s Shimane Nuclear Power Plant in the city of Matsue, which is near the volcano Mount Daisen.

## Volcanic threats & nukes



## Japan's nuclear plants, major calderas and volcanoes



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### NRA has nuke plant volcano checklist, but experts point to eruptions' unpredictability

<https://mainichi.jp/english/articles/20171214/p2a/00m/0na/010000c>

When it comes to volcanic threats to nuclear power stations, the Nuclear Regulation Authority (NRA) requires utilities to do a lot of digging.

- **【Related】** High court orders Shikoku Electric to halt Ehime nuclear reactor

The NRA demands that utilities evaluate the potential risks presented by any volcanoes within 160 kilometers of a given plant. That evaluation begins with a look through the written record for any mentions of eruptions plus examining the geological features of the area to determine if there is any chance the volcano will be active again in the future. If a future eruption can't be ruled out, then the utility must determine whether pyroclastic flows -- fast moving clouds of hot gas and volcanic matter -- or lava

flows could reach the plant. If there is such a risk, then the plant site is labeled unsuitable and the reactors banned from going on line.

In the case of the Sendai nuclear plant's No. 1 and 2 reactors, it was found that there were five volcanoes with histories of cataclysmic eruptions within the 160-kilometer zone. A "cataclysmic eruption" is one that spews vast amounts of magma, causing large-scale ground subsidence and creating a caldera.

NRA inspectors found that there was "sufficiently little chance" of a cataclysmic eruption that could cause a pyroclastic flow to hit the Sendai plant grounds while the station was in operation. Furthermore, the regulatory body determined that measures to deal with up to 15 centimeters of volcanic ash from the Sakurajima volcano -- about 50 kilometers distant -- would be enough to maintain plant safety.

The NRA also called on utilities to make preparations to shut down reactors and move the nuclear fuel out of their nuclear plants if there was any sign of an impending cataclysmic eruption detected. Sendai plant operator Kyushu Electric Power Co. assured the NRA that the utility would spot signs of such an eruption by keeping a close watch out for changes in the Earth's crust caused by magma accumulation, and the regulator accepted this explanation.

However, some volcanologists have pointed out that it is very difficult to predict the timing or scale of a cataclysmic eruption. Furthermore, there is neither a predetermined spot to move the nuclear fuel to nor a set standard for the NRA to order reactor shutdowns.

Across Japan, the Genkai nuclear station's No. 3 and 4 reactors (which have passed NRA safety inspections ahead of a planned restart), the No. 1 to 3 reactors at Hokkaido Electric Power Co.'s Tomari nuclear plant (where the volcanic risk inspection has nearly been completed), and the No. 2 unit at the Shimane nuclear power station run by Chugoku Electric Power Co. are all close to volcanoes with calderas. However, the NRA has never declared a plant site unfit due to the threat of volcanic activity.

Regarding the Hiroshima High Court's Dec. 13 decision to order Shikoku Electric Power Co. to shut the No. 3 reactor at its Ikata power plant in Ehime Prefecture, NRA chief Toyoshi Fuketa told reporters, "I am not directly concerned (with the case) so I am not in a position to comment." He added that the ruling would have "no effect" on NRA inspections.

Hokkaido University specially appointed professor of nuclear reactor engineering Tadashi Narabayashi, meanwhile, said the court decision was the product of "logical leaps."

"Stopping (reactor) operation based on personal rights requires an imminent danger," Narabayashi wrote in a comment to the Mainichi Shimbun. "It's difficult to say that the chance of a cataclysmic eruption, which is thought to happen only about once in 10,000 years, meets that definition. The Ikata plant's No. 3 unit is protected from falling volcanic material and has an enhanced reactor core cooling system, so there is simply no probability of an incident that would endanger the lives of the people in the city of Matsuyama or Hiroshima."

Meanwhile, Kobe University magma specialist Yoshiyuki Tatsumi praised the court ruling as "based on scientific knowledge grounded in current volcanology."

"There is about a 1 percent chance of a cataclysmic eruption in Japan in the next 100 years, so mathematically speaking, one could happen at any time," he continued. "At present, we do not know what kinds of signs would portend such an eruption. It is also unknown how much magma has built up under Mount Aso (in Kumamoto Prefecture), so the government needs to strengthen its observations there among other measures."

## Fukushima Health Management Survey & thyroid

### Findings of thyroid ultrasound examination within three years after the Fukushima Nuclear Power Plant accident: The Fukushima Health Management Survey

<https://academic.oup.com/jcem/advance-article-abstract/doi/10.1210/jc.2017-01603/4630428?redirectedFrom=fulltext>

Hiroki Shimura Tomotaka Sobue Hideto Takahashi Seiji Yasumura Tetsuya Ohira Akira Ohtsuru Sanae Midorikawa Satoru Suzuki Toshihiko Fukushima Shinichi Suzuki ... Show more  
*The Journal of Clinical Endocrinology & Metabolism*, jc.2017-01603,  
Published:  
14 December 2017

#### Abstract

##### Context

Childhood thyroid cancer is of great concern after the Fukushima Nuclear Power Plant accident. The baseline analytical data on thyroid ultrasound examination in children is quite important for future examination.

##### Objective

We analyzed the age and sex distribution of findings from the thyroid ultrasound examinations of children and adolescents in the Fukushima Health Management Survey (FHMS).

##### Design, Setting, and Participants

From October 2011 through March 2014, 294,905 participants aged 18 years or younger at the earthquake voluntarily had thyroid ultrasound examinations in the first round of the FHMS. A secondary confirmatory examination was performed in 2,032 subjects. Age- and sex-dependent prevalence and size of thyroid cysts, nodules, and cancers were analyzed.

##### Main Outcome Measures

Age, sex, and size distribution of findings were analyzed.

##### Results

Thyroid cysts, nodules, and cytologically suspected cancers were detected in 68,009, 1,415, and 38 subjects in males and 73,014, 2455, and 74 subjects in females, respectively. There was an age-dependent increase in the detection rate of thyroid nodules and cancer, but that of cysts reached a peak at 11–12 years. Sex affected the prevalence of thyroid nodules and cancers after the onset of puberty, but only a small difference was exhibited in that of cysts.

##### Conclusions

The thyroid cancer detection rate in Fukushima was clarified and the proportion of those with thyroid nodules and cysts varied substantially by age. The results of this study will make a valid contribution to future epidemiological researches on nodular thyroid diseases in children and adolescents.

December 15, 2017

## **EDITORIAL: Ruling on Ikata nuclear plant spotlights risk of volcanoes**

<http://www.asahi.com/ajw/articles/AJ201712150020.html>

A recent court ruling on the operation of a nuclear power plant in western Japan has raised fundamental questions about the safety of nuclear power generation in a country sitting on chains of volcanoes. The Hiroshima High Court on Dec. 13 issued an injunction banning the operation of the No. 3 reactor at the Ikata nuclear power plant in Ikata, Ehime Prefecture, operated by Shikoku Electric Power Co. The ruling referred to the possibility that the plant could be hit by a pyroclastic flow of superheated gases and debris produced by a huge eruption of Mount Aso, an active volcano in Kumamoto Prefecture. The court decision is bound to have massive, wide-ranging repercussions since there are many other nuclear plants located close to a volcano in Japan.

The government's Nuclear Regulation Authority (NRA), the nuclear safety watchdog, and utilities operating nuclear power plants should take the ruling seriously.

The NRA has developed internal guidelines for assessing safety risks posed to nuclear plants by volcanoes under the new nuclear safety standards introduced after the 2011 Fukushima nuclear disaster. The guidelines say areas within 160 kilometers from a volcano are not suitable for operating a nuclear power plant unless the risks posed by a possible eruption, such as an avalanche of extremely hot ash reaching the plant, are "sufficiently small."

Many volcanologists argue that it is impossible to predict the timing and scale of large volcanic eruptions. But the NRA has approved plans to operate reactors near volcanoes submitted by utilities on the assumption that there should be telltale signs of a looming major eruption.

The high court based its decision on the view shared by many volcanologists that the possibility of a gigantic eruption of Mount Aso cannot be ruled out.

It is known that a supersized eruption occurred at the volcano some 90,000 years ago. The risk of an Aso eruption of a similar scale causing serious damage to the Ikata nuclear plant, located about 130 km from the mountain, cannot be dismissed as "sufficiently small," the ruling said. The court judged the NRA's conclusion that the plant has fulfilled the safety standards to be "not rational."

In a nutshell, the court decided that the NRA failed to assess the safety of the plant strictly in line with the guidelines.

This is not the first time that a court has questioned the NRA's approval of a plan to operate a nuclear reactor near a volcano.

In April last year, the Fukuoka High Court's Miyazaki branch rejected an appeal against a lower court ruling allowing Kyushu Electric Power Co. to continue operating the Nos. 1 and 2 reactors at its Sendai nuclear power plant in Kagoshima Prefecture. Pointing out that huge volcanic eruptions rarely occur, the court argued that social common sense disregards the risk as negligible.

But the ruling nevertheless said the guidelines' claim that such eruptions are predictable is "irrational." The fact that shortcomings in the way the NRA evaluates the risks posed to nuclear plants by volcanoes have been repeatedly pointed out by courts has significant implications.

The NRA should pay more serious attention to what volcanologists say and remake the guidelines from the ground up.

It is indeed difficult to reasonably assess the safety risks from gargantuan volcanic eruptions that occur only once in every tens of thousands of years.

The Hiroshima High Court's ruling has raised the fundamental question of how society should deal with the threat of natural disasters.

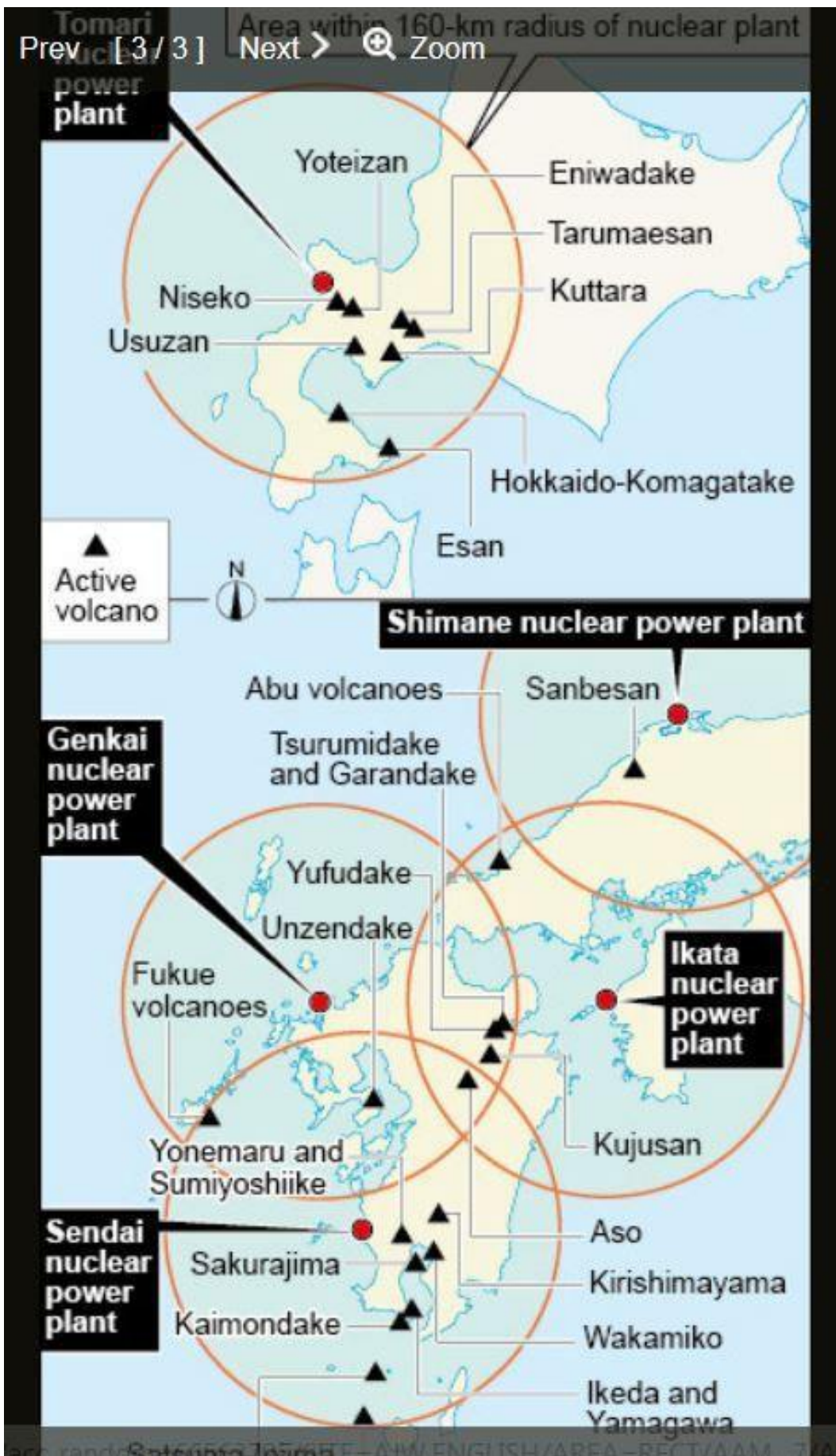
Any catastrophic volcanic eruption would cause enormous damage over a wide swath of the nation.

Some people may say that debate focused on the effects of such an eruption on nuclear plants is of little use.

But the principal lesson we have learned from the catastrophic accident at the Fukushima No. 1 nuclear power plant is that failing to take measures to prepare for disasters that rarely occur could lead to irrecoverable damage.

The government, which has been promoting restarts of offline nuclear reactors, should remember this lesson and seriously consider whether it is really possible to operate nuclear power plants safely in a country dotted with so many volcanoes.

## Japan's nuclear policy: What now?



## Uncertain future for nuclear policy after high court ruling

<http://www.asahi.com/ajw/articles/AJ201712140031.html>

The landmark Hiroshima High Court ruling ordering a suspension of operations at the Ikata nuclear power plant will likely have far-reaching ramifications for Japan's nuclear energy policy.

It zeroed in on an aspect that has long been an issue with the anti-nuclear lobby, the Ehime Prefecture plant's proximity to an active volcano and the prospect of the facility being inundated in a pyroclastic flow if Kyushu's Mount Aso, 130 or so kilometers away, blows its top.

Instead of considering the frequency of major eruptions in the area, the Dec. 13 ruling focused on a massive one 90,000 years ago and the possibility of a nuclear calamity occurring if a similar event occurred today.

The ruling, the first by a high court ordering a suspension of nuclear plant operations, is especially relevant because Japan has 111 active volcanoes that have erupted in the past 10,000 years.

While massive eruptions are rare, occurring in general once every 10,000 years, all it takes is one to trigger destruction on an unimaginable scale.

Aso has had four massive eruptions in the last 300,000 years, the most recent occurring 90,000 years ago that triggered a pyroclastic flow that tossed magma and volcanic rocks over the Kanmon Straits separating Kyushu and Honshu into Yamaguchi Prefecture.

The last major volcanic eruption in Japan occurred roughly 7,300 years ago on the seabed south of Kyushu, devastating the southernmost main island where Jomon Pottery Culture (c. 8,000 B.C.-300 B.C.) was thriving.

The government, which was caught off-guard by the Hiroshima ruling, no doubt will pay close attention to future court rulings at that level because other nuclear power plants are situated at distances similar to that between the Ikata plant and Aso.

For example, the No. 1 and No. 2 reactors of the Sendai nuclear plant in Kagoshima Prefecture that are currently operating are located within a 160-kilometer radius of the Aso caldera, as are the No. 3 and No. 4 reactors of the Genkai nuclear plant in Saga Prefecture that Kyushu Electric Power Co. hopes to bring back online next spring.

Kyushu Electric said it maintains close monitoring of seismic movements in the area caused by the rumblings of five volcanoes and is confident it will detect any signs of a possible huge eruption.

However, experts scoff at the notion on grounds that it is almost impossible to accurately predict the timing and scale of such an event. They also note that Japan has no practical experience in dealing with a massive eruption.

That said, the Japan Meteorological Agency monitors 50 active volcanoes around the clock.

Yoshiyuki Tatsumi, a professor of planetology at Kobe University, said, "Under the current setup of observing (volcanic) quakes and crustal movement, it is impossible to predict the scale of any eruption."

**The groundbreaking Hiroshima court ruling took the government by surprise.**

Hiroshige Seko, the economy minister and a champion of nuclear power generation, asserts that the safety standards implemented by the Nuclear Regulation Agency in the aftermath of the 2011 nuclear disaster are "the highest in the world."

Five reactors that passed the NRA's more stringent screening have resumed operations since the Fukushima accident.

But the Hiroshima High Court said the NRA's decision to allow the Ikata plant to resume operations was "not rational" in light of the facility's location and the danger of a catastrophe occurring if Mount Aso erupts like it did 90,000 years ago.

Although Chief Cabinet Secretary Yoshihide Suga made clear at a Dec. 13 news conference that the government would closely abide by future decisions by the NRA, he was painfully rattled by the thought that the court ruling could sow further doubts among the public about the safety of nuclear plants, especially those located near volcanoes.

The government has set a goal of raising the ratio of electricity generated by nuclear power to between 20 and 22 percent of the nation's overall needs by fiscal 2030. That would mean resuming operations at about 30 nuclear power plants.

However, utilities are already facing mind-boggling expenses just to meet the tougher safety standards. If they now have to brace for the possibility of being ordered by courts to halt their nuclear plant operations, the burden on private companies could become too much.

"Nuclear power generation is now impossible for a private-sector company because the risks are just too great," said an executive of an electric power company.

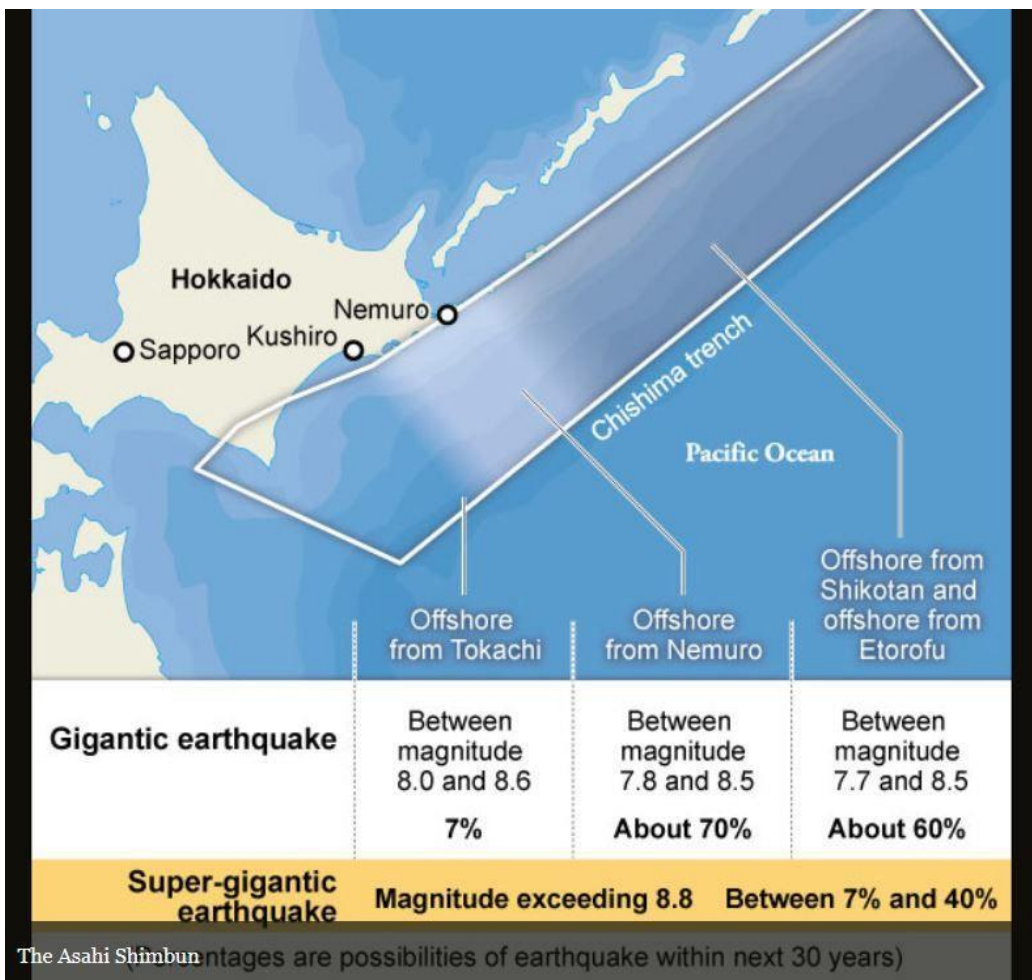
(This article was compiled from reports by Shigeeko Segawa, a senior staff writer, Chikako Kawahara and Tsuneo Sasai.)

December 19, 2017

## **Impending mega quake/tsunami off Hokkaido**

The Asahi Shimbun





A government panel is warning of a “high possibility” that an earthquake the size of the 2011 Great East Japan Earthquake will strike the area south of Hokkaido within the next 30 years. The Headquarters for Earthquake Research Promotion, announcing the first revision in 13 years of quake predictions along the Chishima trench, said Dec. 19 that heightened disaster preparations should be made because the area appears long overdue for a gigantic quake. The panel said the possibility was between 7 and 40 percent of an earthquake with a magnitude exceeding 8.8 occurring in an offshore focus area extending from Tokachi in south-central Hokkaido to Etorofu, one of the four islands making up the disputed Northern Territories. The panel said quakes of that scale have stricken the area at average intervals of 340 to 380 years, with the most recent one believed to have hit about 400 years ago. Panel members said the end of the average cycle had already been exceeded. The March 2011 earthquake in the Tohoku region registered a magnitude of 9.0. The quake and ensuing tsunami wiped out communities on the northeastern coast of Honshu island, leaving nearly 20,000 people dead or missing. “I hope disaster preparations are reviewed based on the possibility that a super-gigantic quake like the one that struck the Tohoku region could also strike Hokkaido,” said Naoshi Hirata, a seismology professor at the University of Tokyo and chairman of the panel’s Earthquake Research Committee.

The panel for the first time calculated the possibility of a quake similar in scale to the 2011 quake striking Japan's northernmost main island.

The Cabinet Office next year is expected to release new damage projections for such a quake off Hokkaido. In 2006, the Central Disaster Management Council estimated that about 700 people in Hokkaido and 200 in Honshu would be killed by tsunami triggered by a Hokkaido quake.

The Headquarters for Earthquake Research Promotion on Dec. 19 also issued possibilities for gigantic earthquakes within more limited areas along the Chishima trench.

For example, there was about a 70-percent possibility of an earthquake with a magnitude between 7.8 and 8.5 striking offshore from Nemuro, while the possibility was 7 percent for an earthquake with a magnitude between 8 and 8.6 hitting offshore from the Tokachi region.

### **BEYOND NANKAI TROUGH**

Much attention has focused on the possibility of a gigantic quake striking along the Nankai Trough and devastating large parts of western Japan, a region much more densely populated than Hokkaido.

But the panel's announcement underscores that a much wider area of Japan is at risk of a killer quake.

Researchers have uncovered details about damage caused by past tsunami in eastern Hokkaido, but such discoveries have only been made in the past few decades.

Studies into past quake damage have made clear that gigantic quakes have rocked Hokkaido 18 times over the past 6,500 years.

The Headquarters for Earthquake Research Promotion used strong language about the high possibility of a super-gigantic earthquake because the average cycle for such quakes ended long ago.

It is unclear how large such a quake would be, considering the panel's conclusions were based on limited historical documents and data from the Northern Territories.

And because the cycles of earthquakes are highly variable, much more time could pass before a gigantic earthquake does strike off Hokkaido.

However, the panel's view was based on the painful lessons from the Great East Japan Earthquake, in which research results were not completely reflected in disaster management plans.

In addition, earthquakes of smaller magnitudes than those listed in the panel's announcement can still generate devastating tsunami.

The public should recognize that the entire Pacific coast of eastern Japan, including Hokkaido, is an area where earthquakes and accompanying tsunami have often occurred in the past.

(This article was compiled from reports by Takahiro Takenouchi and Eisuke Sasaki, a senior staff writer.)

### **Up to 40% chance of M9 quake off Hokkaido within 30 years: researchers**

<https://mainichi.jp/english/articles/20171219/p2a/00m/0na/023000c>

There is between a 7 and 40 percent chance of a magnitude-9 earthquake striking along the Kuril Trench off Hokkaido within the next 30 years, according to a long-term assessment released by the government's Earthquake Research Committee on Dec. 19.

The assessment marks the first time the committee has released the probability of a mega-quake comparable to the March 2011 Great East Japan Earthquake.

The panel did not rule out simultaneous mega-quakes along the Kuril Trench and the Japan Trench off Honshu's northeastern Tohoku region, which could spell disaster for not only various areas in Hokkaido along the Pacific Coast but also Japan's main island.

"The probability is extremely high. There is a good chance that a quake of the similar magnitude to that of the Great East Japan Earthquake is imminent. It is necessary to take thorough precautions," said Naoshi Hirata, chairman of the committee.

In the early 17th century, a magnitude-8.8 quake is believed to have struck the Pacific coastline of eastern Hokkaido, with the epicentral areas off both Tokachi and Nemuro moving in conjunction. A tsunami over 18 meters high and reaching as far as 4 kilometers inland is thought to have hit the area, causing considerable damage. Although damage to the Tohoku region from the temblor has not been confirmed, the area may once again suffer massive tsunami.

The committee's survey of tsunami deposits on land has shown that up to 18 separate mega-quakes in the same range as the 2011 disaster hit Hokkaido's east coast over the past 6,500 years, with an average interval of 340 to 380 years. The most recent such earthquake occurred some 400 years ago, raising the possibility of an imminent temblor of similar magnitude.

The panel assessed a potential mega-quake in three regions based on different epicenter locations: one each off Hokkaido's Tokachi and Nemuro; and one off Shikotan and Etorofu islands -- two of the four Northern Territories isles held by Russia and claimed by Japan.

Regarding magnitude-8 level quakes, the chances of an M8-8.6 temblor off Tokachi is 7 percent, while the chances of a magnitude-7.8 through 8.5 temblor off Nemuro were calculated at about 70 percent. The committee furthermore estimated the chances of an M7-7.5 quake off both Tokachi and Nemuro at around 80 percent.

The panel has previously released similar long-term assessments for maximum possible quake magnitudes along the Nankai Trough off central and western Japan, and the Sagami Trough off central Japan. According to these reports, the likelihood of a magnitude-8 through 9 quake in the Nankai Trough is somewhere around 70 percent, while that of a magnitude-8 temblor jolting the Sagami Trough is approximately 0-5 percent.

In another long-term assessment for active faults in the Shikoku region in western Japan released the same day, the committee put the probability of a magnitude-6.8 or larger quake striking directly beneath the Median Tectonic Line active fault zone and the Nagao fault zone in Shikoku within the next 30 years at 9 to 15 percent. As the epicenters of many past quakes that hit directly beneath certain areas were shallow, these temblors would likely cause tremendous damage.

Also: <https://www.japantimes.co.jp/news/2017/12/19/national/government-report-warns-impending-mega-quake-tsunami-off-hokkaido/>

December 18, 2017

**Leak at research center halted cancer therapy study**

## Leak of heavy water at Japanese research reactor delayed cancer therapy study: NRA

<https://www.japantimes.co.jp/news/2017/12/18/national/leak-heavy-water-japanese-research-reactor-delayed-cancer-therapy-study-nra/#.Wjekf3kiGos>

Kyodo

OSAKA – Nuclear regulators have revealed that a leak of heavy water from a research reactor in September temporarily halted a clinical study into an advanced cancer therapy.

The reactor at the Kyoto University Research Reactor Institute in Kumatori, Osaka Prefecture, **was shut down for a month but has since resumed operation.**

The leak occurred even though the reactor passed the stricter safety guidelines adopted after the 2011 Fukushima nuclear crisis.

The clinical study involved **boron neutron capture therapy**, which uses neutron radiation generated from the reactor. It kills only cancerous cells by injecting patients with boron and then projecting neutrons. Requiring no surgery, it has been called “a therapy of the next generation.”

The institute discovered the reactor was leaking heavy water from a pipe after an alarm went off Sept. 20 in a system that monitors tritium, suspending the clinical study, according to the Nuclear Regulation Authority.

The NRA confirmed there had been no harmful effects on patients or staff, and that no radioactive material escaped from the facility.

The university apologized to the patients involved in the study for the inconvenience caused by the shutdown.

The NRA said the leak involved about 100 milliliters of heavy water, and that the density of radioactive materials was very low and did not violate safety rules.

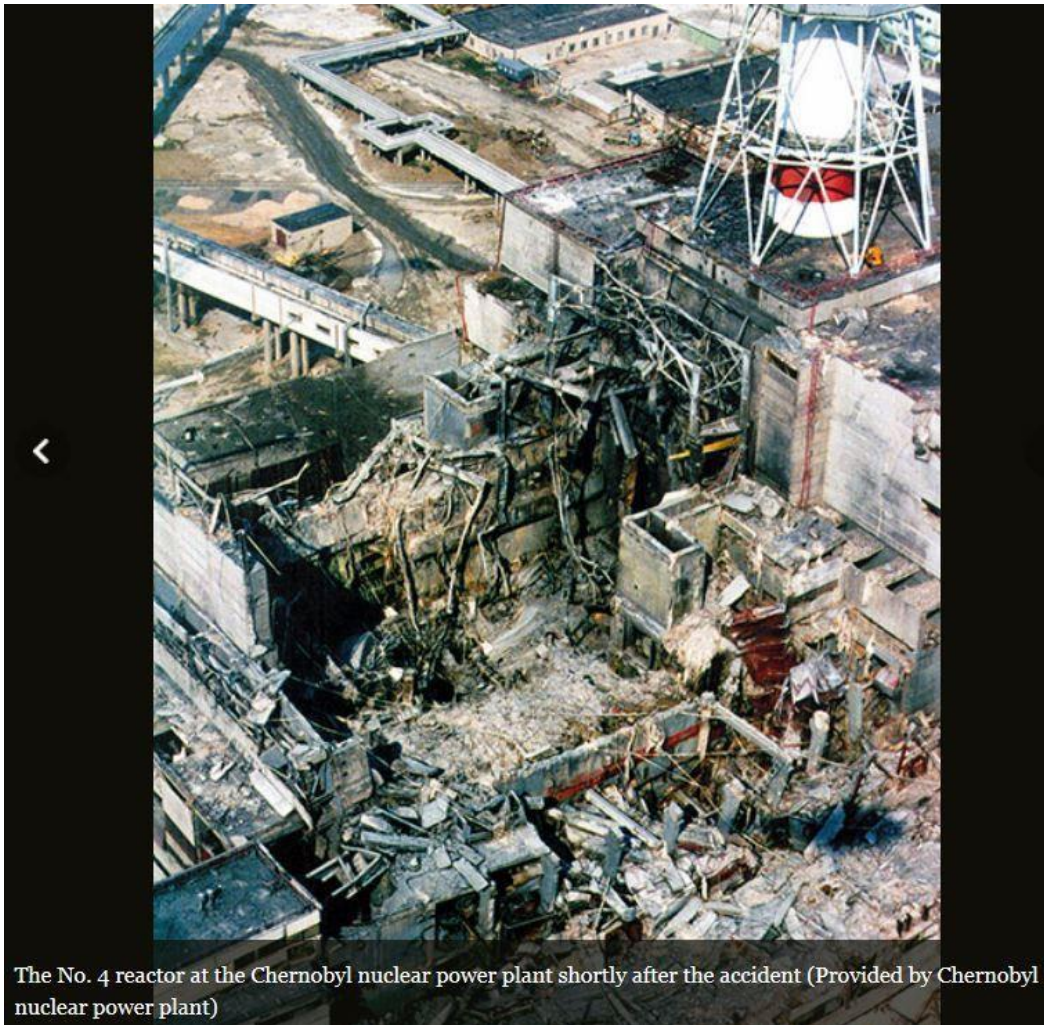
The institute restarted the clinical research on Oct. 24 after fixing the leaky pipe.

The reactor began operating in 1964 with a capacity of 5 megawatts. It has been used for more than 500 case studies involving the therapy in cooperation with medical institutions since the 1970s.

It was deactivated for a regular check in 2014, following the Fukushima disaster. The institute restarted it Aug. 29 and clinical research resumed two days later.

December 21, 2017

## Officials deliberately downplayed Chernobyl disaster



The No. 4 reactor at the Chernobyl nuclear power plant shortly after the accident (Provided by Chernobyl nuclear power plant)

## Papers show ministry played down Chernobyl nuclear disaster

<http://www.asahi.com/ajw/articles/AJ201712210043.html>

Foreign Ministry officials made a concerted effort to downplay the Chernobyl nuclear disaster in 1986 to promote nuclear power and avoid friction at a Group of Seven summit in Japan, ministry documents showed.

The documents released on Dec. 20 also showed a sense of overconfidence in the safety of nuclear power in Japan that may have led in part to the Fukushima nuclear disaster in March 2011.

Soviet officials announced on April 28, 1986, that a nuclear accident had occurred in Ukraine. It would become the worst nuclear plant disaster in history.

According to the documents, Foreign Ministry officials scrambled to gather information about the nuclear accident ahead of the Group of Seven summit in Japan that started on May 4.

The United States was initially passive about issuing a G-7 declaration that criticized the Soviet Union for the accident.

Washington and Moscow at that time were negotiating an agreement to reduce their nuclear arsenals, and U.S. officials did not want to push the Soviet Union into a corner with criticism about Chernobyl.

Although then Prime Minister Yasuhiro Nakasone wanted a G-7 statement that touched upon the nuclear disaster, Japan and other G-7 members were promoting nuclear energy. So the declaration that eventually emerged downplayed the possible dangers to the environment and human health from the Chernobyl disaster.

**The diplomatic documents showed that terms that might disrupt plans to push forward nuclear power generation were gradually deleted from the final statement.**

“The confidence of national leaders about the safety of their own nation’s nuclear plants emerges from the documents,” said Kazuhiko Togo, a former Foreign Ministry official who now heads the Institute for World Affairs at Kyoto Sangyo University. “There was likely a sense of overconfidence that the accident happened because it occurred in the Soviet Union.”

The course taken by Japan veered widely from that of European nations regarding nuclear power. Many European nations were directly hit by radioactive materials from the Chernobyl plant, and public sentiment in those nations quickly turned against nuclear power.

One year after the Chernobyl accident, the Green Party emerged as a political force in West Germany based largely on its anti-nuclear stance. A national referendum in Italy led to a landslide victory for anti-nuclear forces.

However, in Japan, the then Ministry of International Trade and Industry, which was in charge of nuclear power generation, showed a different stance in a statement issued on April 29, 1986, immediately after the Soviet Union announced the accident.

“The accident occurred at a nuclear plant unique to the Soviet Union, and **such an accident would be unthinkable in Japan,**” the ministry’s statement said.

Public debate on the need for greater safety at Japan’s nuclear plants did not deepen despite cover-ups of problems at a nuclear plant operated by Tokyo Electric Power Co. and an accident at a Hokuriku Electric Power Co. nuclear plant.

“Japan did not think seriously or make preparations whenever it was faced with a nuclear incident,” said Tatsujiro Suzuki, a former vice chairman of the Japan Atomic Energy Commission. “As a result, its failure to learn from its past lessons led to the Fukushima No. 1 nuclear plant accident.”

Japan also failed to keep up with international moves to strengthen the safety of nuclear plants.

In 1988, the International Atomic Energy Agency asked member nations to establish measures to deal with severe accidents on the precondition that such events are possible.

However, Japan did not obligate nuclear plant operators to set up these measures.

**The U.N. Convention on Nuclear Safety, which took effect in 1996, carried a provision calling on signatory nations to separate their safety oversight agencies from the agencies that promote nuclear power.**

Japan did not fulfill that obligation.

(This article was compiled from reports by Ryosuke Ishibashi, Masanobu Higashiyama and Toshihide Ueda, a senior staff writer.)

December 20, 2017

**More falsified data?**

## Japan's Kansai Elec used possibly falsified Mitsubishi Materials products at reactors

<http://www.nasdaq.com/article/japans-kansai-elec-used-possibly-falsified-mitsubishi-materials-products-at-reactors-20171220-00031>

By Reuters

TOKYO, Dec 20 (Reuters) - Japan's Kansai Electric Power Co said on Wednesday it has used parts in important safety equipment at two of its nuclear plants that were supplied by a unit of Mitsubishi Materials Corp with possibly falsified data.

The utility has found it is using rubber seals from Mitsubishi Cable Industries with possible falsified specifications in dozens of locations at its Takahama and Ohi nuclear plants, a spokesman said, confirming Japanese media reports.

**The discovery comes after Kansai Electric delayed the restart of one of the nuclear power stations because it needs to make checks on parts supplied by Japan's Kobe Steel Ltd, which, like Mitsubishi Materials, is embroiled in a scandal over product specifications.**

Kansai Electric receives rubber seals from multiple suppliers and is having difficulties identifying which ones come from Mitsubishi Materials, he said. The company does not plan to switch suppliers, the spokesman said.

Rubber seals are used in large numbers in the extensive piping found in nuclear reactors and their cooling systems and can be subject to high temperatures and pressure.

Mitsubishi Materials and Mitsubishi Cable both declined to comment on Wednesday.

Mitsubishi Materials previously said it had discovered that products with falsified specifications had been sent to more than 300 of its customers.

That was the latest in a slew of scandals to rock Japan's manufacturing industry. Apart from Kobe Steel, similar lapses on specifications have been found at Toray Industries Inc and incorrect final inspection procedures were discovered by automakers Nissan Motor Co and Subaru Corp.

Kansai Electric's delays and checks on Ohi reactors are further hitches to the protracted reboot of Japan's nuclear sector, shut down in the wake of the Fukushima disaster in 2011.

Kansai Electric does not plan to close down the Takahama station for checks, or expect any additional delays on the restart of Ohi, the spokesman said.

December 31, 2017

**Baseball against "specter" of radiation**



A children's baseball tournament at a park in Fukushima, Japan, Nov. 5, 2017. Fukushima's residents are hoping that a renewed emphasis on youth sports, as well as new baseball and basketball franchises, will help change perceptions in a region that for many remains defined by the 2011 earthquake, tsunami and nuclear meltdown. (Seth Berkman/ © 2017 The New York Times)

## **In Shadow of Disaster, Fukushima Responds With 'Play Ball'**

<http://www.asahi.com/ajw/articles/SDI201712310554.html>

By SETH BERKMAN/ © 2017 The New York Times

FUKUSHIMA, Japan--A sea of brightly colored banners and advertisements decorated the Fukushima train station in early November to celebrate coming road races and Fukushima United, the local soccer club. There are new professional baseball and basketball franchises in the region, too. They carry inspirational names like the Hopes and the Firebonds, the latter signifying the spirit of a team connecting to the community, said 21-year-old point guard Wataru Igari.

For an area with a growing interest in sports, the biggest boon came in March when the International Olympic Committee approved Fukushima to host baseball and softball games during the 2020 Tokyo Olympics.

Yet Fukushima remains defined by tragedy.

The 2011 Tohoku earthquake and tsunami caused meltdowns and radiation leaks at the Fukushima Daiichi nuclear power plant. Devastation touched every corner of Fukushima prefecture, which is about the size of Connecticut. Among the population of nearly 2 million residents, more than 160,000 near the power plant fled or were evacuated, while an estimated 16,000 people died.



The disaster also damaged the Fukushima name. Tourism declined. The rest of Japan shunned produce or materials from Fukushima.

Almost seven years later, pockets of the prefecture--mainly in its capital city, also called Fukushima--are attempting to change its perception through sports.

"We are looked at like Chernobyl," said Saito Nobuyuki, who was born in Fukushima and now owns Sportsland, a sporting goods store in the city. "It's difficult to change."

Akinori Iwamura is among those hoping to rehabilitate Fukushima's name.

Iwamura was the starting second baseman for the Tampa Bay Rays in the 2008 World Series. He also won two World Baseball Classic championships with Japan and played in the Nippon Professional Baseball League for 13 years.

Today, Iwamura, 38, is toiling at the lowest levels of organized baseball. He is the manager of the Fukushima Hopes, a semipro team whose games are sparsely attended; Iwamura equated the level of play to Class AA baseball in the United States.

"I call myself a missionary," Iwamura said. "Even though it's a negative way many people know the name of Fukushima, we have to change it into a positive way."

Iwamura was preparing to play for the Rakuten Golden Eagles when the earthquake and tsunami struck. Although he is from Ehime prefecture in southern Japan, Iwamura said he felt it had become his "destiny" to help rebuild Fukushima after he retired. Among those who encouraged him, Iwamura said, was Chicago Cubs manager Joe Maddon, who was his coach with the Rays.

Iwamura could have a big stage to help bolster the area's image when Fukushima Azuma Baseball Stadium, the home park of the Hopes, hosts Olympic Games in 2020. Iwamura sees in that another opportunity to inform the world about life beyond the disaster.

"When they go back to their country, they can tell their impression to the local people of their countries so it will bring more people to come for tourism," he said.

The stadium is in the capital, about 90 minutes from Tokyo by high-speed train and 55 miles west of the Fukushima Daiichi plant. The city did not sustain extensive damage as did towns closer to the plant and the coast, which concerns critics who believe the conditions of more seriously affected areas will be ignored because of the Olympics.

Immediately after the announcement in March that Fukushima would host baseball, anti-nuclear activists denounced the move. They argued that it created a false impression that Fukushima had returned to normal and glossed over the remaining hardships faced by an estimated 120,000 residents who still cannot--and may never--return to their homes.

"The Japanese government wants to show the fake side of Fukushima," said Hajime Matsukubo, secretary-general for the Citizens' Nuclear Information Center in Tokyo. In his office, Matsukubo showed a copy of the Fukushima Minpo newspaper, which listed radiation levels of all the towns in Fukushima prefecture like box scores in a daily sports section.

Azby Brown, who works for Safecast, an organization that helps citizens independently measure environmental data like radiation levels, said Olympic visitors staying near the stadium for a week would probably not be exposed to higher-than-normal radiation levels. But he also disagreed with the government's messaging about Fukushima.

"Communities have been destroyed, there has been no real accountability, the environmental contamination will persist for decades and will require vigilance and conscientious monitoring the entire time," Brown wrote in an email. "People who accept the radiation measurements and make a rational decision to return still live with a nagging concern and doubt, as if they're living in a haunted house."

When Japan was awarded the 2020 Olympics in September 2013, Prime Minister Shinzo Abe assured the IOC that “the situation is under control” in Fukushima.

Four years later, Brown said, public infrastructure projects in destroyed areas have been delayed because construction companies became too focused on gaining Olympic-related work around Tokyo.

Gov. Masao Uchibori of Fukushima prefecture contended that the area was showing notable progress in reconstruction. Uchibori cited the continual reopening of tourist sites in the area and the growing influence of sports on civic pride.

He added that the rebuilding of contaminated areas and a declining population cannot be overlooked, calling these contrasting aspects the “light and shadow” of Fukushima.

“At this moment, I cannot find any negative point,” to holding Olympics events in Fukushima, Uchibori said, “but I would like to work in cooperation with the organizing committee and the central government in order to make people think it was good to hold the events in Fukushima.”

Uchibori added that “rumors” of Fukushima’s condition contributed to the shadow over the prefecture.

Large swaths of Fukushima remain uninhabitable, and it has been estimated that cleanup at the plant will take up to 40 years and cost almost \$200 billion.

Still, some residents see hope in the Olympics.

“If the Olympics doesn’t happen in Fukushima now, the image of Fukushima doesn’t change for a long time,” said Aya Watanabe, a student at Fukushima University who interned in Houston during the summer and saw the impact the Astros’ World Series victory had on morale in the hurricane-stricken city. “It’s a very big chance for Fukushima to change the prospects.”

While teams like the Hopes and Firebonds are still relatively new, their players have already seen how sports can be helpful in Fukushima’s recovery.

Deon Jones, who played college basketball at Monmouth University, is in his first year with the Firebonds. His mother initially worried about his living in Fukushima, but he has enjoyed playing here, learning about the backgrounds and hardships of local teammates like point guard Igari and Shota Kanno, who is from the nearby city of Nihonmatsu. Several times a week, players hold clinics at local schools. A team spokeswoman said Firebonds home games draw about 2,000 fans.

“You’re playing for a little bit more than basketball,” Jones said. “You’re playing for everyone in Fukushima.”

And then there’s baseball, Japan’s national pastime. After Tokyo was awarded the 2020 Olympics, a strong push was made to reintroduce baseball specifically for those Games because of its history and popularity among young people in Japan. Participation has fallen in Fukushima since the 2011 tsunami. Atsushi Kobari, director of the Fukushima High School Baseball Federation, has tracked the declining enrollment of high school players over the last six years.

“It’s definitely due to the disaster at the nuclear plant,” Kobari said.

Miwako Kurikama, whose son Ryota plays baseball for Fukushima Commercial High School, was evacuated after the tsunami. Ryota’s elementary school permanently closed. At times, Kurikama drove 90 minutes away just to find fields where her son could practice.

On a recent Sunday morning, Kurikama watched him in a scrimmage with his high school teammates at Shinobugaoka Baseball Stadium in Fukushima. She was joined by six other mothers sitting behind home plate. They shared snacks and kept score on a chalkboard, laughing and cheering in unison during rundowns or run-scoring hits.

Kurikama has known some of the players since first grade, before her son’s school closed. Having them all together again seemed cathartic, familial.

Nearby at the baseball stadium, Little Leaguers from Fukushima were playing on the same field in Azuma Park that Olympians will patrol in 2 1/2 years. At Matsukawaundo Koen Ya Baseball Field, a children's tournament was invigorated by a soundtrack of banging plastic megaphones, resembling a Japanese professional game.

As normal as these scenes may have felt for some residents, the specter from the 2011 disaster remained. In a fenced-off area in Azuma Park, hundreds of giant black trash bags filled with decontaminated waste were being stored, stacked above eye level and still not yet properly discarded. The city government is working with Japan's environment ministry to remove them before the Olympics, but for now the area, which was big enough to hold another baseball field, instead resembled a junkyard.

At the baseball fields around the city, as children ran down the first-base line or chased down fly balls in right field, they passed by ominous signs posting the day's radiation levels--tallies with more serious implications than the runs on the scoreboard.

Although sports are helping some in Fukushima heal, they have not erased all doubts about the future--and perhaps they shouldn't be expected to.

"The government needs to inform us of actual information with scientific proof," said Michiaki Kakudate, who was watching his son, Keigo, 11, pitch at the children's tournament. "They say it's no problem, but that doesn't convince people."

January 5, 2018

## Human Rights, Future Generations and Crimes in the Nuclear Age

### Paracelsus, the Nuclear Age, and Future Generations

<http://akiomatsumura.com/2018/01/paracelsus-the-nuclear-age-and-future-generations.html>

*Emilie Gaillard and Andreas Nidecker*

The famous physician Andreas Paracelsus, who taught at the University of Basel in the early 16th century, wrote: "What sense would it make or what would it benefit a physician, if he discovered the origin of the diseases but could not cure or alleviate them?"

We are a lawyer and a radiologist, reporting from a recent three-day interdisciplinary symposium at the U of Basel. It was attended by physicians, lawyers, nuclear experts and scientists, entitled "**Human Rights, Future Generations and Crimes in the Nuclear Age**" and was sponsored by the Swiss branch of the International Physicians for the Prevention of Nuclear War (IPPNW) and the International Association of Lawyers Against Nuclear Arms (IALANA).

At our symposium we examined what effects policies relating to nuclear weapons have on the health and the environment. In that regard we considered the human rights situation of victims of nuclear tests and nuclear disasters. The recent success of 122 nations, which on July 7th accepted the UN "treaty on the prohibition of nuclear weapons" obliges in Article 6 nations to environmental remediation and to assistance for the victims, at least those of the use and testing of nuclear weapons.

Most of the discussions, however, focused on the implications of the nuclear weapons and civil use of nuclear energy for the future generations. It is they – our children, grandchildren and their descendants –

who will continue to bear the risks of nuclear war and the potential health effects of the ongoing, progressive global nuclear contamination. This started with the first atmospheric nuclear weapons test "Trinity" in July 1945, followed by some 2000 test explosions by nine nuclear states, hundreds of which were above ground thereby contaminating the biosphere. The Chernobyl nuclear reactor explosion led to a regional but also widespread contamination of Europe and today there is the ongoing leakage into the Pacific of high volumes of radioactively contaminated water from the damaged reactors in Fukushima. Financing the legacy of civil use of nuclear power, including the construction of safe waste storage repositories will be a further challenge we mainly leave to our children and grand-children.

Discussions finally questioned possible liabilities of Governments i.e. decision makers in nuclear weapon states, when intended or accidental launch of nuclear arms might eventually have global repercussions and could lead to the extinction of mankind. The very idea of recognizing crimes against future generations becomes now a new reality: any nuclear war should lead to a major response of international law as it closes the horizon of the future for ever.

Indeed, the entry into the nuclear age marks the unprecedented acquisition of power of humankind over the earth and all forms of life; geologists name this new era the Anthropocene. Many believe that in this era a new code of medical and legal ethics is necessary, as the specific challenges of facing nuclear risks and disasters require a paradigm shift in both disciplines. We must now seriously consider the trans-generational impacts of ionizing radiation on all forms of life and take effective measures to prevent serious health effects in today's populations, in particular young women and children. Yet we also must protect our descendants, as ionizing radiation may cause not only cancer and non-cancerous diseases but also may have genetic impacts in humans exposed today. These effects may even occur with long-term chronic exposure to very low doses of ionizing radiation. They will not become manifest in today's victims, but might present as disease in their offspring only decades later.

Thus we must also adapt the current legal framework of basic principles to this new reality and create new laws, designed specifically to protect and take into consideration the human rights of future generations. The Universal Declaration of Human Rights, although not legally binding, comprises some thirty individual rights. Some of them are pertinent to victims of nuclear accidents. Displaced people in the Fukushima prefecture e.g. should have the right to adequate living standards as well as the rights to express their opinion and the right to receive information. In fact, the Japanese constitution does recognize these rights and defends the trans-generational principle of human rights of future generations in Articles 11 and 97. Yet these rights presently are not respected, for in Japan the press is forbidden to report on current events in Fukushima and medical research on the effects of the reactor meltdown is restricted. Most radiation scientists in Japan, with some exceptions, minimize the risks of radiation and the official widely-observed policy is that small amounts of radiation are harmless: scientifically speaking this is untenable. Furthermore, the Japanese Government is trying to increase the public limit for radiation from 1 mSv to 20 mSv per year, a value generally allowed for radiation workers only. Its scientists are trying to force the International Commission of Radiation Protection ICRP to accept this large increase, yet many consider this not only unscientific but also unconscionable. This handling of the aftermath of the nuclear catastrophe of Fukushima therefore could be considered a violation of human rights and even a crime against future generations.

To voice concerns for the human rights of future generations today is not enough. New legal provisions to insure these rights must be created. Additionally concrete steps towards abolishing nuclear weapons in the coming years are urgently needed. Furthermore, due to the high costs for dismantlement of nuclear reactors and the enormous investments for safe nuclear waste storage, our generation should take responsibility and at least shoulder some of these costs and not burden them on our offspring only.

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**International Physicians for the Prevention of Nuclear War (IPPNW) received the Nobel Peace Prize in 1985.** IPPNW has remained a leader in the global movement for a world without nuclear weapons, launching the International Campaign to Abolish Nuclear Weapons (ICAN) in 2007, and campaigning for a treaty to ban these instruments of mass extermination as a basis for their elimination. ICAN received the 2017 Nobel Peace Prize in recognition of its efforts to achieve the Treaty on the Prohibition of Nuclear Weapons, which was adopted at the UN in July 2017.

January 12, 2018

## Return to Futaba by 2022



See this recent article on the blog: <http://www.fukushima-is-still-news.com/2017/12/radiation-cleanup-in-futaba.html>

## **Geplante Wiederbesiedlung von Futaba nach Fukushima**

<https://www.ipnw.de/atomenergie/artikel/de/geplante-wiederbesiedlung-von-futaba.html>

Im Frühjahr 2022 soll die unmittelbar neben der Atomruine von Fukushima Daiichi gelegene japanische Gemeinde Futaba wiederbesiedelt werden. Die rund 6000 Einwohner von Futaba waren am 11. März 2011, nur wenige Stunden nach Beginn der Atomkatastrophe vollständig evakuiert worden. Im Dezember 2017 begannen die Arbeiten zur Dekontaminierung der radioaktiv verstrahlten Gemeinde, meldete die Nachrichtenagentur Kyodo.

In den vergangenen Jahren wurde in einer beispiellosen Säuberungsaktion versucht, die Region um Fukushima zu dekontaminieren. Vereinzelt wurden die Evakuierungsverfügungen wieder aufgehoben. Futaba ist aber immer noch eine Geisterstadt, 96 Prozent des Gebietes sind als Zone ausgewiesen, in die eine „Rückkehr schwierig“ sei.

Gegenwärtig gibt es noch in sieben Orten in der Provinz Fukushima solche Zonen, schreibt das Handelsblatt. „In Futaba jedoch wurden rund 555 Hektar, das sind rund 11 Prozent des Stadtgebietes, zur Sonder-Wiederaufbauzone erklärt.“ Hier soll nun der Boden dekontaminiert werden. Gebäude, die in den vergangenen Jahren langsam verfielen und unbewohnbar geworden sind, sollen abgerissen werden. Es ist unklar, wie viele der früheren Bewohner bereit sein werden, in ihren Heimatort zurückzukehren.

Futaba zählt zu den am stärksten kontaminierten Gebieten in der Präfektur Fukushima. Waldbrände und Überschwemmungen können immer wieder zu Rekontaminierungen führen. In der Gemeinde werden größere Mengen radioaktiven Mülls gelagert wird. 2012 hatte der Bürgermeister, Katsutaka Idogawa, darum gebeten, dass sich die evakuierte Bevölkerung der Gemeinde irgendwo anders auf der Erde niederlassen dürfe.

### **See also in English:**

- Forest fires threaten homes, still spreading in Iwate“. The Asahi Shimbun, 09.05.17.  
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<https://www.youtube.com/watch?v=EqseXWOQLbE>

## Japanese testify on radiation hazards at Human Rights Council in Geneva

<https://independentwho.org/en/2012/11/07/japanese-testify-in-geneva/>



Katsutaka Idogawa (Mayor of Futaba) in front of WHO

An anti-nuclear city like Geneva, what a dream it must be for the Mayor of Futaba, a small Japanese town 3km from the Fukushima Daiichi nuclear power station. Futaba was wiped out by the earthquake and tsunami of 11 March 2011. Because of the radioactivity the population will be unable to return for decades, if ever. The Mayor, Katsutaka Idogawa, came to Geneva at the end of October to testify at the UN Human Rights Council, along with Toshio Yanagihara, lead lawyer of the “Fukushima Collective Evacuation Trial”. Mayor Idogawa was received on 30 October by the Mayor of Geneva, Rémy Pagani, who expressed the sympathy and support of Geneva.

“Are there other mayors who have joined you to protest against the policy of the Japanese government that ignores the health problems of people who must live or even return to contaminated areas?” asked Geneva Mayor Rémy Pagani. “No, I’m the only one!” replied Mayor Idogawa. “How do you explain this?” the Geneva mayor asked. “Because the other mayors believe the lies of the authorities that minimize the danger. The authorities do not give the actual measurements of radioactivity. They have also multiplied by 20 the maximum doses recommended by specialized international organizations: 20 mSv per year in Japan and only 1 mSv in the rest of the world. We are guinea pigs.” Mr. Idogawa pointed out that, after Chernobyl, the Soviet authorities evacuated people from less polluted areas. “We know that the number of sick children currently in non-evacuated areas is estimated at 80% by local pediatricians.” The mayor is seeking support for efforts to put pressure on the Japanese government to have children evacuated to safe areas of the country.

### At the Human Rights Council

After the warm reception at the Geneva City Hall, the Japanese delegation spoke at an information meeting at the UN Geneva headquarters. The meeting preceded the examination on 31 October of the human rights situation in Japan by the Universal Periodic Review (UPR) working group of the Human Rights Council. Mayor Idogawa said the human rights of the population are being violated by the lack of action and distorted information concerning radioactivity provided by the authorities. Immediately following the nuclear accident, the Mayor and 300 residents were exposed to extremely high levels of radiation before they were finally evacuated thanks to his own initiatives. "I am the only mayor in contemporary Japan with personal experience of being covered with nuclear ash," he said. Mayor Idogawa provided detailed information, illustrated with tables and maps, on the situation of radioactivity throughout Fukushima prefecture, information that the authorities refuse to provide to the population. In his turn, lawyer Toshio Yanagihara spoke about the "Fukushima Collective Evacuation Trial." Through this class action suit on behalf of 14 children, the plaintiffs hope to force the authorities to recognize the legal right of hundreds of thousands of children to be evacuated from the contaminated areas. The fact that children are obliged to eat contaminated food and breathe radioactive air is a violation of the rights of the child. The press is either gagged or passes on false information provided by the government, which is a violation of the right to freedom of expression and information.

### **The Right of evacuation for children at risk**

The Mayor and the lawyer urged the Human Rights Council to make recommendations to the Japanese government to give priority to the health of the population, especially the children. Mr Yanagihara pointed out that the government applies the lessons learned from Chernobyl to avoid the costs of compensation and not to interfere with the nuclear industry: increasing maximum tolerable radiation doses, covering up the diseases already apparent, systematically refusing to take into account the effects of internal radiation, and not establishing statistical control information ...

### **Official misinformation**

Lawyer Toshio Yanagihara showed photographs of the new metering equipment installed by the authorities: the machines display 40% less radioactivity than those set to international standards. A young Japanese student, Takafumi Honda, representing the "World network for saving the children from radiation," read children's letters, including one from a girl from the region of Fukushima who is worried and asks if she will be able to have children and if they will be normal.

Dr. Michel Fernex, professor emeritus of the University of Basel (Switzerland) and member of IndependentWHO, who recently visited Japan, spoke of birth defects that occur after ingestion or exposure to radioactivity: the genome is attacked and anomalies appear. These anomalies are transmitted to subsequent generations. Around Fukushima, there is already an increase in miscarriages and perinatal mortality, low weight in new-born babies, children with abnormalities of the thyroid gland, sudden death. Cancers appear later, he said. It is imperative that children and pregnant women be evacuated and that healthy food is available to all residents.

### **Outside WHO for more than five years ...**

The Japanese also visited those who maintain the 'Hippocratic vigil' of the group "IndependentWHO", activists who stand every weekday opposite the WHO's Geneva headquarters and have been doing so for more than five years, demanding that WHO fulfil its mandate to ensure the highest possible level of health for the world's population. WHO no longer has a department that deals with the effect of radiation on



health: it has abdicated its responsibility and endorses the policies of the nuclear lobby, which is itself supported by the nuclear powers.

January 18, 2018

## Airborne radiation still much higher than official maximum

### Airborne radiation near Fukushima nuke plant still far higher than gov't max

[https://mainichi.jp/english/articles/20180118/p2a/00m/0na/020000c#cxrecs\\_s](https://mainichi.jp/english/articles/20180118/p2a/00m/0na/020000c#cxrecs_s)

Airborne radiation in "difficult to return" zones around the Fukushima No. 1 nuclear plant was as high as around 8.48 microsieverts per hour as of summer last year, according to data presented by the government nuclear watchdog on Jan. 17.

- **【Related】** Excessive radiation detected in vehicles removed from Fukushima nuke plant
- **【Related】** Radiation in Fukushima reactor containment vessel at deadly level: TEPCO
- **【Related】** Fukushima Police Perspective: Fighting against radiation (Pt. 6)

The Nuclear Regulation Authority (NRA) released the results of the July-September 2017 measurements at a regular meeting on the day. The highest reading was taken in Futaba, Fukushima Prefecture -- one of the municipalities hosting the Fukushima No. 1 plant.

Following the March 2011 triple meltdown, the government set a long-term radiation exposure limit of 1 millisievert per year, which breaks down to an hourly airborne radiation dose of 0.23 microsieverts.

The NRA took airborne radiation readings in the Fukushima Prefecture towns of Futaba, Okuma, Namie and Tomioka, and the village of Katsurao. The highest reading registered in the previous year's survey was 8.89 microsieverts per hour, in Katsurao.

Some of the NRA members at the Jan. 17 meeting pointed to study results showing that human exposure doses are relatively small compared to airborne doses. Regarding the calculation that an annual dose of 1 millisievert is equivalent to hourly exposure of 0.23 microsieverts, NRA Chairman Toyoshi Fuketa stated, "That was decided right at the start of the nuclear disaster, so it can't be helped that it's a cautious number." He added, "If we don't revise (that calculation) properly, it could hinder evacuees' return home."

January 19, 2018

## What is the GAP standard?

### Fukushima to scale back rice radiation checks

<https://www.japantimes.co.jp/news/2018/01/19/business/fukushima-scale-back-rice-radiation-checks/#.WmMGSHkiGos>

JJI

FUKUSHIMA – Fukushima Prefectural Government plans to scale back radiation checks on rice harvested in the prefecture, officials said Thursday.

The prefectural government is considering switching to sample tests, from blanket checks on all bags, within a few years for rice produced in areas not close to Tokyo Electric Power Company Holdings Inc.'s Fukushima No. 1 nuclear plant, the officials said.

But some farmers have sought to keep the full checks in place. The prefectural government aims to make a final decision by the end of March.

Blanket radiation checks began in 2012 following the triple meltdown at the nuclear plant in March 2011. From the 2012 harvest 71 bags of rice had levels of radiation that exceeded the safety limit, which is set at 100 becquerels per kilogram.

But the number has since declined, and no such bags were found between 2015 and 2017. Taking the results into consideration, the prefectural government has been reviewing the test method to reduce costs and manpower.

Article about JGAP published on December 24, 2017

### **Fukushima farmers looking for authoritative ways to shed nuclear stigma**

[https://www.japantimes.co.jp/news/2017/12/24/national/fukushima-farmers-looking-authoritative-ways-shed-nuclear-stigma/#.Wmn-C4hG1\\_8](https://www.japantimes.co.jp/news/2017/12/24/national/fukushima-farmers-looking-authoritative-ways-shed-nuclear-stigma/#.Wmn-C4hG1_8)

Fukushima Minpo

In light of the 2011 Fukushima nuclear crisis, the Fukushima Prefectural Government is hoping to find a new, faster and easier way to certify the safety of homegrown rice to ease the burden on local farmers.

The blanket radiation-screening method used in Fukushima is not known for being quick and efficient, yet the government and farmers are stuck with it for the time being until an alternative that is equally assuring to consumers can be found.

Struggling to counter misinformation about locally grown produce stemming from the core meltdowns at the Fukushima No. 1 nuclear power plant in 2011, farmers are looking to the globally recognized Good Agricultural Practice system, a third-party standard that certifies adherence to the standards recommended by the U.S. Food and Drug Administration. The farmers hope GAP can help convince consumers that their products are safe, and holders of GAP certification are rising nationwide.

In addition to the GAP auditing system, there is a Japanese version dubbed "JGAP" recommended by the Agriculture, Forestry and Fisheries Ministry to verify that farmers have recorded their production processes and had their products screened and certified by designated firms and groups. As of 2016, about 4,000 JGAP certificates had been issued.

In May, the Fukushima Prefectural Government vowed to make itself the prefecture with the most GAP certificates. As of Nov. 20, Fukushima had acquired 17 GAP and JGAP certificates. The prefecture plans to acquire more than 140 certificates by the 2020 Olympics.

Separately, Fukushima designed its own verification system (dubbed “FGAP”) to reflect its experience with the nuclear crisis. In addition to the list of items inspected under GAP, such as food safety and environmental protection, FGAP adds a category pertaining to countermeasures for radioactive substances.

FGAP calls for the management of rice paddy radiation levels and for voluntary radiation screenings before shipment. To promote this GAP variation, the Fukushima Prefectural Government plans to cover all expenses linked to the acquisition and renewal of FGAP certificates.

An official from the farm ministry’s Agricultural Production Bureau called GAP an “effective method to raise confidence” in food safety.

The Finance Ministry’s Budget Bureau, which assesses cost allocations for the blanket screening method, said the two systems are “different in nature but looking in the same direction.”

In 2012, the Fukushima Prefectural Government began screening all rice grown in the prefecture after excessive levels of radioactive cesium were detected in the previous year’s crop.

The number of samples exceeding 100 becquerels per kilogram — the government’s safety limit for the isotope — has dropped each year, and no samples tested since 2015 have been found over the limit.

Blanket screening costs an estimated ¥6 billion per year, and Tokyo Electric Power Company Holdings Inc, which runs the Fukushima No. 1 plant, shoulders at least ¥5 billion of that. The remainder is covered by state funds.

The prefecture’s environmental protection and farm division said it is keen to speed up efforts to quell false rumors about rice contamination.

But gaining GAP certification is no small feat. For example, farmers have to clear a checklist of 209 items, though there are none pertaining to radiation measures.

JGAP, which has a checklist of 131 items, urges farmers to check the safety of their soil, water and fertilizer, in addition to their rice, via inspections or other means.

As for FGAP, 30 of its 97 categories deal with measures to address radioactive substances. Chuji Kuroe, a 61-year-old rice farmer in Kawamata, is hardly excited when it’s time for the fall harvest.

Every year, Kuroe produces about 30 tons of rice. For the safety checks, he has to pack them into 30-kg bags for storage, which means about 1,000 bags each year. These bags are then inspected by a series of measuring instruments before shipment.

It is time-consuming to label every bag with a bar code for inspection, and carrying and preparing each one for analysis has taken a physical toll on Kuroe.

In addition, the lack of consumer and retailer awareness regarding certification frustrates many farmers.

“Despite all the trouble I went through, if the consumers do not know much about what GAP is, it will not lead to an understanding of the safety of agricultural products,” said a 57-year-old farmer in southern Fukushima.

According to the nonprofit GAP Research Institute’s survey covering about 1,000 people in Japan, 58 percent did not know what GAP is and 33 percent said they had only heard of the name. Only 9 percent said they knew what GAP was.

*This section features topics and issues covered by the Fukushima Minpo, the largest newspaper in Fukushima Prefecture. The original article was published on Dec. 15.*

## Radiation checks to be scaled back

### Fukushima to scale back rice radiation checks

<https://www.japantimes.co.jp/news/2018/01/19/business/fukushima-scale-back-rice-radiation-checks/#.WmMGSHkiGos>

JJI

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But the number has since declined, and no such bags were found between 2015 and 2017. Taking the results into consideration, the prefectural government has been reviewing the test method to reduce costs and manpower.

January 24, 2018

## Gunma mountain was quiet for 3,000 years before sudden eruption

<https://www.japantimes.co.jp/news/2018/01/24/national/gunma-mountain-quiet-3000-years-sudden-eruption/#.Wmh7dnwiGos>

Kyodo, Staff Report

KUSATSU, GUNMA PREF. – Fresh details emerged Wednesday about the volcanic eruption at Mount Moto-Shirane in Gunma Prefecture and how it caught the Meteorological Agency and volcanic experts unaware, prompting the agency to release a delayed volcanic warning.

Commenting on Tuesday morning's sudden eruption, Makoto Saito, director of the agency's volcanology division, told a news conference later in the day that because there had been "no observational data that suggested signs of volcanic activity before the eruption," raising the volcanic alert level beforehand would have been near impossible.

According to the agency, there had been no volcanic activity at the Kagamiike crater, the apparent site of the eruption, for about 3,000 years until Tuesday. Because of this long period of dormancy, it had not been part of the agency's 24/7 volcano-monitoring program.

On the other hand, Mount Moto-Shirane's Yugama crater, located approximately 2 km north of Kagamiike crater, had been under 24-hour surveillance, with volcanic activity being observed as recently as 2011. Currently, 50 out of 111 active volcanoes nationwide are under constant watch by the agency. The 50 are selected by a team of experts in coordination with the agency, and recent activity is a crucial factor in deciding whether they are continuously monitored, agency official Toshihiro Imataki told The Japan Times.

Even so, craters that are not active are surveyed once a year by mobile observation teams, he added. Takahiro Yamamoto, chief researcher at the National Institute of Advanced Industrial Science and Technology, said Tuesday's eruption "happened in a place we didn't expect. We can't be sure of what might happen next."

After analyzing the eruption's aftermath, including the volcanic ash that blanketed a nearby ski resort, Kenji Nogami, a professor at the Tokyo Institute of Technology, confirmed Wednesday that the event appeared to have been "a typical phreatic eruption," or a steam-driven explosion caused when water is heated beneath the ground. Such explosions are more difficult to detect beforehand compared to eruptions caused by the explosion of lava.

Nogami said that in order to detect such eruptions, there was a "need to monitor the craters more thoroughly by installing equipment such as seismometers."

While the number of volcanic earthquakes has fallen significantly since the eruption at 9:59 a.m. Tuesday, the agency warned that the 2,171-meter mountain, which is part of Mount Kusatsu-Shirane, could again erupt, spewing large volcanic rocks, ash deposits and volcanic gases.

On Wednesday, the land ministry sent experts to survey the eruption by helicopter, while local police and firefighters were searching the area to make sure there were no victims left behind. Those operations, however, were later halted after continuing volcanic tremors were detected.

Yasuo Ishizaki, a volcanic geology professor at the University of Toyama, said that although the likelihood of volcanic mud flow, which often accompanies a snowy mountain eruption, occurring at the mountain appears to be low, "if a large-scale eruption accompanying excretion of lava occurs, it would increase the risk."

January 25, 2018

## Foods from Fukushima served at Davos Forum

### Fukushima foods publicized at Davos Forum

[https://www3.nhk.or.jp/nhkworld/en/news/20180125\\_11/](https://www3.nhk.or.jp/nhkworld/en/news/20180125_11/)

An event showcasing Japanese food and culture was held at the Swiss resort town Davos, where the **World Economic Forum** is taking place.

People from Fukushima Prefecture served locally-produced foods to publicize the progress in recovery from the 2011 earthquake, tsunami and nuclear accident that struck the northeastern prefecture.

Foods from Fukushima were served for the first time, along with sushi and tempura.

People at the Forum enjoyed Fukushima's local specialties, such as herring seasoned with Japanese pepper, and a traditional delicacy made with salmon.

**The guests said they tasted very good. Some said they felt food from Fukushima was safe.**

People also got a taste of sake produced in Fukushima and Hiroshima prefectures.

A Fukushima government official said he is happy that many visitors from around the world have shown interest in Fukushima.

He said he wants people to know that Fukushima has made steady recovery in the period of almost 7 years since the disaster.

## Volcanoes don't always give warning

### Editorial: Sudden Mt. Kusatsu-Shirane eruption highlights volcanic dangers

<https://mainichi.jp/english/articles/20180125/p2a/00m/0na/008000c>

One Japanese Self-Defense Force member died and 11 people were injured, including ski resort visitors, following the recent eruption of Mount Motoshirane, part of the Mount Kusatsu-Shirane stratovolcano on the border between Nagano and Gunma prefectures.

- **【Related】** 1 dead, several injured after volcano eruption, avalanche in eastern Japan
- **【Related】** Mt. Kusatsu-Shirane saw repeated eruptions in the past
- **【Related】** Damaged ski resort gondolas tell of the power of Gunma Pref. eruption

There were no warning signs that the eruption could occur, with the threat level remaining at the lowest level of 1 when it struck. The disaster was a stark reminder of the difficulty in predicting volcanic eruptions.

Mount Kusatsu-Shirane is the collective name for Mount Shirane, Mount Motoshirane and Ainomine peak. It is one of 50 volcanoes in Japan that is monitored around the clock by the Japan Meteorological Agency (JMA).

The agency, however, had focused most of its attention on Mount Shirane, as this peak had been active, having seen a phreatic eruption in 1983. Mount Motoshirane, which lies about 2 kilometers south of Mount Shirane, on the other hand, had apparently not erupted for 3,000 years, and there was no monitoring camera on the mountain.

Immediately after the eruption, the Gunma Prefecture town of Kusatsu reported the information to the JMA, but the agency faced difficulties confirming this, and was unable to issue a flash report informing people on the mountain of an eruption.

Officials must take a renewed look at their monitoring and warning system, placing priority on ensuring the safety of people on the mountain. We understand that budgets are limited, but we hope that efforts will be made to boost video monitoring of volcanoes across the Japanese archipelago.

If a larger eruption of Mount Kusatsu-Shirane occurs, then hot ejecta could trigger a snowmelt-type volcanic mudflow. The town of Kusatsu has already produced a hazard map of areas that could be hit by a mudflow, but this is based on an eruption of Mount Shirane alone. Officials should quickly produce a hazard map for Mount Motoshirane as well.

Learning a lesson from the deadly eruption of Mount Ontake in 2014, the Act on Special Measures for Active Volcanoes was revised, and local bodies where 50 volcanoes are constantly monitored were required to form evacuation plans that extended to tourists in those areas. On the whole, however, local bodies have been slow in the formulation of such plans, with Kusatsu yet to formulate one.

The hot spring resort of Kusatsu lies beyond the areas on the alert for falling volcanic rocks, but the town was hit with a stream of inquiries from people with reservations in the area. Providing accurate information on the volcanoes and formulating evacuation plans should help curb damage from harmful rumors.

There are 111 volcanoes in Japan. It is not unthinkable for an emergency situation to occur around any of them in the future. Local bodies and related organizations need to prepare for sudden eruptions and make an effort to boost monitoring systems and formulate evacuation plans.



January 31, 2018

## Ibaraki reactor to resume research

### Japan Atomic Energy Agency approved to operate research reactor under post-Fukushima rules

<https://www.japantimes.co.jp/news/2018/01/31/national/japan-atomic-energy-agency-approved-operate-research-reactor-post-fukushima-rules/#.WnHNunwiGos>

Kyodo

A Japan Atomic Energy Agency research reactor cleared a regulatory safety review on Wednesday, becoming the first facility run by the government-affiliated research institute to pass post-Fukushima regulations.



The reactor, which is located in Ibaraki Prefecture and called the Static Experiment Critical Facility, gained approval from the Nuclear Regulation Authority to resume operations and will be used **to conduct research on the extraction of melted fuel from nuclear plants.**

The facility still needs to go through several final checks under new rules introduced after the Fukushima nuclear disaster in 2011.

The approval came after the JAEA responded to a request made in November by the Japan Atomic Energy Commission, a government nuclear panel, to clarify the purposes of storing plutonium-uranium mixed oxide fuel, known as MOX fuel, at the reactor.

Japan, while upholding a policy of reprocessing spent fuel from nuclear reactors and reusing extracted plutonium and uranium as reactor fuel, adopts a policy of not possessing plutonium — a material that can be used to make nuclear weapons — without a specified purpose.

In a document, the agency said **it will not use MOX fuel “other than for peaceful purposes,”** winning approval from the Japan Atomic Energy Commission.

According to the JAEA, the reactor will be used to conduct research on the removal of melted nuclear fuel in an effort to support the decommissioning of the Fukushima No. 1 nuclear complex, which experienced core meltdowns following the March 2011 earthquake and tsunami disaster.

**The JAEA previously came under heavy criticism for lax safety management** following revelations of a number of equipment inspection failures at its Monju prototype fast-breeder nuclear reactor. The prototype had been envisioned to play a key role in the country’s nuclear fuel recycling policy but is now set to be scrapped.

In June of last year, a nuclear exposure accident occurred at the institution’s Oarai Research and Development Center in Ibaraki, causing internal radiation exposure in five workers, although no harmful consequences were detected in the surrounding environment.

## Is there a "Proper" location for radioactive waste?



Bags of debris contaminated with radiation are seen stored in a field in the town of Okuma, near the Fukushima No. 1 nuclear plant, in this August 2015 photo. | KYODO

## Government to test safety of burying radioactive soil this spring

<https://www.japantimes.co.jp/news/2018/01/31/national/government-test-safety-burying-radioactive-soil-spring/#.WnHNC3wiGos>

Kyodo

The government plans to conduct a demonstration project sometime this spring to test the safety of burying waste generated by decontamination work following the 2011 Fukushima nuclear disaster, the Environment Ministry said Wednesday.

In the project, **soil waste from eastern and northeastern areas of the country other than Fukushima Prefecture will be covered with uncontaminated soil at sites in the village of Tokai, Ibaraki Prefecture, and the town of Nasu, Tochigi Prefecture, with radioactivity levels around the locations being measured.**

The government plans to determine its disposal policy for contaminated soil in the fall or later depending on the outcome of the experiment, according to the ministry.

A total of 56 municipalities in seven prefectures — Iwate, Miyagi, Ibaraki, Tochigi, Gunma, Saitama and Chiba — have completed cleanup work with financial support from the central government.

But **some 330,000 cubic meters of soil waste has been temporarily kept at around 28,000 locations — including public spaces such as schools and parks — in 53 municipalities,** prompting local residents to call for disposal of the waste at the earliest opportunity.

The project will be carried out on the premises of the Tokai Research and Development Center's Nuclear Science Research Institute in Tokai and at a public space in Nasu.

Some 2,500 cubic meters of soil waste temporarily kept at two locations in Tokai and about 350 cubic meters of soil waste kept at the public space in Nasu will be used in the project.

After the waste is buried, **workers' exposure levels to radiation will also be measured.**

"Households in storage locations continue shouldering the burden. I hope (the project) will prove the safety of burying it (soil waste) and lead to the disposal (of contaminated soil)," a Nasu town official said.

"It took time to conduct (the project) but it's good," said an official in Tokai, adding that more and more local residents have been asking for the removal of soil waste from a park.

After being asked by municipalities to demonstrate a way to dispose of soil waste, the ministry had been searching for proper locations to carry out the demonstration project.

## Radioactive soil disposal method to be tested

[https://www3.nhk.or.jp/nhkworld/en/news/20180131\\_30/](https://www3.nhk.or.jp/nhkworld/en/news/20180131_30/)

Japan's Environment Ministry will carry out tests at 2 sites where soil generated in decontamination work following the 2011 Fukushima nuclear accident is buried.

Outside Fukushima Prefecture, where the crippled Fukushima Daiichi nuclear plant is located, some 330,000 cubic meters of soil are stored in 53 cities, towns and villages in 7 prefectures in eastern Japan.

The soil is currently kept at some 28,000 locations, including schoolyards and parks.

Local residents have called on the government to safely dispose of the soil as quickly as possible. The environment ministry will start testing soil disposal methods in the spring.

The sites chosen are a nuclear research institute in Ibaraki Prefecture and a sports ground in Tochigi Prefecture.

Ministry officials say the stored soil will be buried in the ground and then covered over again with clean new earth. They will then measure radiation levels at areas surrounding the sites and the amount of radiation that workers were exposed to.

The ministry will start negotiating with local governments regarding a full-scale disposal after verifying the test method's safety and drawing up an appropriate disposal plan.

February 1, 2018

## Radiation still major challenge

### Lethal radiation detected at Fukushima plant

[https://www3.nhk.or.jp/nhkworld/en/news/20180201\\_40/](https://www3.nhk.or.jp/nhkworld/en/news/20180201_40/)

The operator of the crippled Fukushima Daiichi nuclear power plant has released the results of its latest probe of the site.

A remote-controlled inspection of the Unit 2 reactor containment vessel last month detected a maximum of 8 sieverts per hour of radiation.

Experts say exposure to such radiation for about an hour would be fatal.

Officials from Tokyo Electric Power Company, or TEPCO, released the results on Thursday.

They said the radiation reading was taken near what appeared to be fuel debris, the term used to describe a mixture of molten fuel and broken interior parts.

**The finding shows that nearly 7 years after the meltdowns, radiation levels remain so high that they present a major challenge to decommissioning work.**

**During the probe, 42 sieverts per hour of radiation was also detected outside the foundations of the reactor.**

But officials said they have doubts about the accuracy of the reading because a cover had not been removed from the measuring instrument at the time.

They added that **they don't know why radiation levels were lower near the suspected fuel debris than around the foundations.**

They gave a number of possible reasons, such as that cooling water may have washed radioactive materials off the debris.

TEPCO's Chief Decommissioning Officer, Naohiro Masuda, says the company will develop debris-removal technology based on the outcome of the investigation.

February 11, 2018

## Safe enough

### **No Fukui evac plan needed for simultaneous nuclear accidents: Cabinet documents**

<https://www.japantimes.co.jp/news/2018/02/11/national/no-fukui-evac-plan-needed-simultaneous-nuclear-accidents-cabinet-documents/#.WoGHNXwiGos>

JJI

FUKUI – The central government and the Fukui Prefectural Government have determined there is no need to craft a new evacuation plan in case of a twin nuclear accident there, Cabinet Office documents show. In a meeting last month, state and prefectural officials confirmed that simultaneous accidents at the Takahama and Oi nuclear power plants can be dealt with under the plants' existing evacuation plans, which were compiled separately by each plant, said the documents, which were obtained Sunday. The meeting involved officials from the Cabinet Office, the Fukui, Shiga and Kyoto prefectural governments, and Kansai Electric Power Co., which runs the atomic plants. The consensus at the meeting was that simultaneous nuclear accidents can be dealt with under the existing plans because the evacuation sites don't overlap, a Fukui prefectural official said. The two nuclear plants are about 13.5 km apart. About 160,000 to 180,000 people live within 30 km from each of the plants.

February 14, 2018

## Foreign tourists back in Fukushima

## Number of foreigners who stayed overnight in Fukushima Prefecture

Year	Number of lodging non-Japanese
2010	87,170
2011	23,990
2012	28,840
2013	31,300
2014	37,150
2015	48,090
2016	71,270
2017 (January through October)	78,680

### Foreign lodgers in Fukushima return to pre-disaster level

<http://www.asahi.com/ajw/articles/AJ201802140001.html>

By HIROSHI ISHIZUKA/ Staff Writer  
The Asahi Shimbun

The number of overnight guests in Fukushima Prefecture has recovered to pre-disaster levels, several years after the Great East Japan Earthquake, tsunami and triple nuclear meltdown struck the region in 2011.

A survey by the Japan Tourism Agency showed as many non-Japanese tourists as before the disaster stayed in the prefecture in 2017, mainly because an increasing number of people from Taiwan and Thailand made it over last year.

A total of 78,680 visitors from outside Japan stayed the night in the prefecture between January and October last year, exceeding 77,890 for the same period in 2010, according to preliminary figures.

While the figure for 2010 rose to 87,000 when those who stayed in Fukushima Prefecture in November and December are included, the annual number for 2017 could surpass that for 2010.

An official of the tourism planning section of the tourism ministry's Tohoku District Transport Bureau said behind the growing number of guests to the region is the prefectural government's aggressive efforts to present tourist information to Thailand, Taiwan and Vietnam through Facebook and other social networking websites.

According to the prefecture's tourism and exchange division, those promotion programs, such as providing tourist information for spring in the winter and replying to e-mails from individuals who want to know how to visit certain sightseeing spots, were started in August 2016.

Such efforts have resulted in a rise in the number of visitors from Thailand and Taiwan, from which many individual travelers come to Japan, according to prefectural officials.

While the guest numbers for September rose from 3,580 in 2016 to 6,600 in 2017, most of the people who visited Fukushima Prefecture during the period were Thai and Taiwanese, the officials said.

The number of foreigners who stayed in the prefecture dropped by 70 percent in 2011, compared with a year earlier.

But the guest number for 2016 was only less than 20 percent lower than in 2010.

## Reopening of J-Village

### Japan's national J-Village soccer center in Fukushima to partially reopen in July

<https://www.japantimes.co.jp/news/2018/02/14/national/j-village-soccer-center-fukushima-partially-reopen-july/#.WoP4p3wiGos>

JJI

FUKUSHIMA – The J-Village national soccer training center in Fukushima Prefecture will partially reopen on July 28, more than seven years after the facility was forced to close due to the 2011 earthquake, tsunami and nuclear disaster that devastated parts of the Tohoku region, its operator said Tuesday.

**After the reopening, six soccer grounds — five with natural grass and one with synthetic turf — will be available, as well as a lecture hall with a capacity for some 300 people. The number of rooms dedicated to housing athletes training at the facility will also increase to 200, about twice the pre-disaster level.**

J-Village, located in the towns of Naraha and Hirono, was used by thousands of workers dealing with the reconstruction effort in the area and meltdowns at Tokyo Electric Power Company Holdings Inc.'s Fukushima No. 1 nuclear power plant.

"We'll make every effort to ensure that J-Village becomes a place that attracts many people with the power of sports once again and serves as a symbol of reconstruction in Fukushima," said Eiji Ueda, vice president of the facility's operator, Japan Football Village Co., at a news conference.

The training center is expected to fully reopen in the spring of 2019.

February 15, 2018

## Cleanup to start soon in Namie

### Japan to start nuclear cleanup of Fukushima town around May

<https://mainichi.jp/english/articles/20180215/p2g/00m/0dm/069000c>

TOKYO (Kyodo) -- Nuclear decontamination work using state funds will begin around May in Namie, a town in northeastern Japan hit hard by the 2011 earthquake and tsunami, **to make some of its most-contaminated areas habitable again**, the government said Thursday.

The government is seeking to lift an evacuation order for three areas in the town, covering about 660 hectares, by March 2023.

The order currently covers about 80 percent of Namie in Fukushima Prefecture, and the areas to be decontaminated make up some 3.7 percent of it where entry is prohibited in principle.

On Dec. 22, the government approved a plan submitted by the town to rebuild the areas affected by meltdowns at the Fukushima Daiichi nuclear power plant.

**Similar rebuilding efforts have been underway in the neighboring town of Futaba since December and are also scheduled to begin in the town of Okuma in March.**

For Namie, the first round of work covers some 30 hectares of land.

On March 11, 2011, a tsunami inundated the six-reactor plant located in Okuma, Fukushima Prefecture, and flooded the power supply facilities.

Reactor cooling systems were crippled and the Nos. 1 to 3 reactors suffered fuel meltdowns in the world's worst nuclear catastrophe since the 1986 Chernobyl disaster

February 16, 2018

## Fukushima rice: Drop blanket checks?

### After 3 years of taint-free rice, Fukushima mulls review of checks

<http://www.asahi.com/ajw/articles/AJ201802160053.html>

By KENJI IZAWA/ Staff Writer

FUKUSHIMA--Authorities are weighing random checks instead of blanket radiation testing of rice grown in the prefecture as three years have passed without incident.

There has not been a single case during that time of tainted rice exceeding the national safety standard, officials explained.

Blanket checks were introduced in 2012 in response to the triple meltdown at the Fukushima No. 1 nuclear power plant the year before and consumer concerns about food safety.

Harvested rice is checked bag by bag for certification before shipment. The safety threshold is set by the government at 100 becquerels per kilogram.

But some farmers' groups and other parties remain wary of a switch to random inspections due to lingering suspicions that rice from Fukushima Prefecture remains hazardous.

Since blanket checks began, prefectural officials have inspected 60 million or so bags of rice totaling 2.1 million tons. Not a single instance of tainted rice has emerged since 2015.

Given that exhaustive steps have been taken to reduce the absorption in crops of radioactive substances and that the inspection process places a burden on farmers and related parties, officials are trying to find the best timing to implement a review of the testing method.

Fukushima Prefecture announced plans in January to review the process, but for the time being will keep blanket checks in place.

Discussions are being held to introduce random inspections in as early as three years. A decision will be announced in fiscal 2018.

Authorities also plan a publicity blitz to put lingering safety concerns to rest about grain from Fukushima. Other agricultural products from the prefecture are subject to random testing.

Agricultural experts and others have no qualms about switching to random testing, but the Japan Agricultural Cooperative in Fukushima is calling for discussions to first elaborate on what random inspections will entail to help alleviate safety concerns and restore the reputation of rice grown in the prefecture.

In 2010, before the nuclear disaster unfolded, Fukushima Prefecture ranked fourth in terms of rice production with annual output at around 445,000 tons.

Even after the disaster, it has ranked within the top 10.

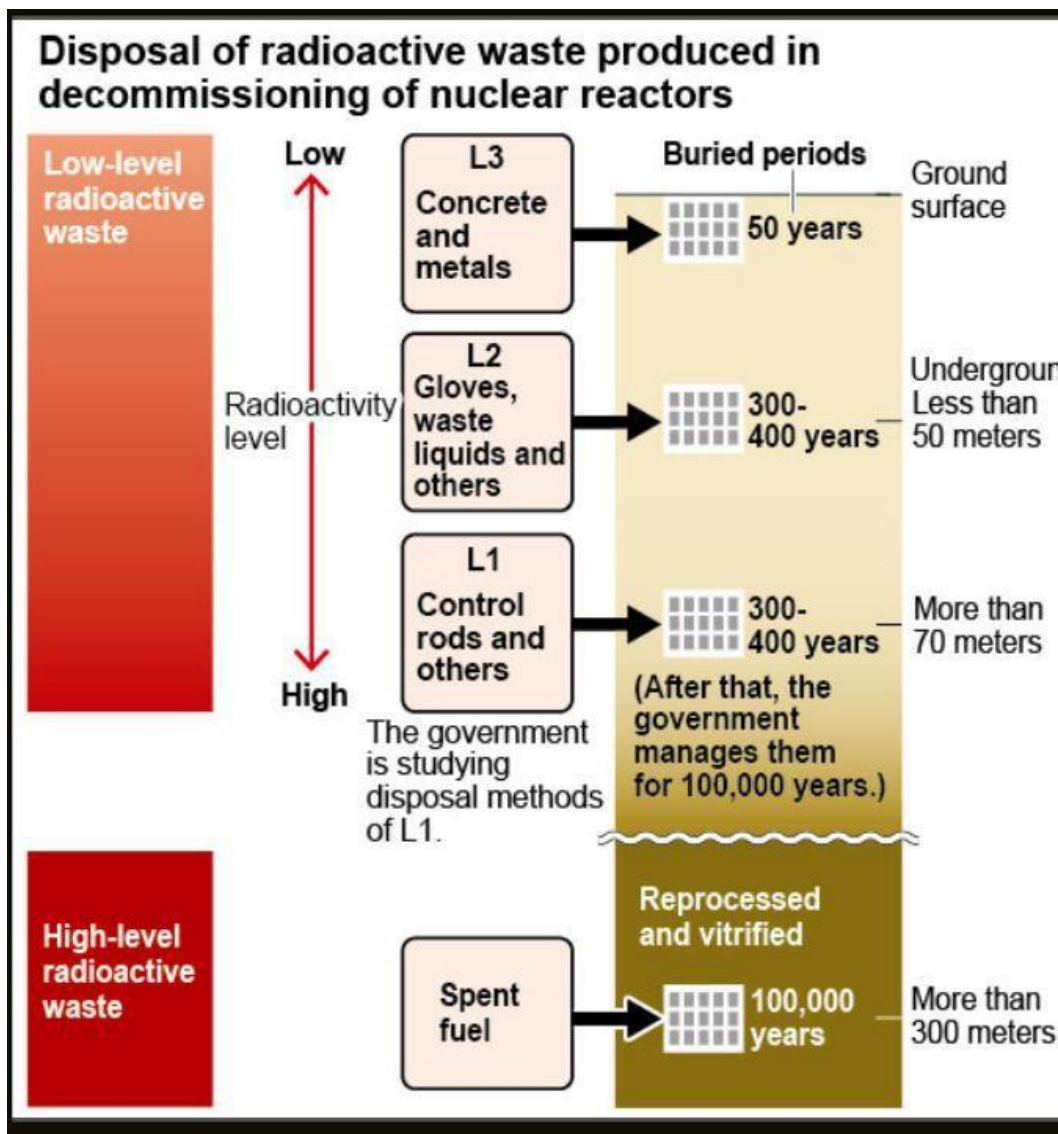
However, the wholesale price of Fukushima rice has not returned to pre-disaster levels in spite of the blanket inspections.

A survey by a consumer affairs group in the prefecture in 2017 found that 66.2 percent of 1,550 respondents favor continued blanket testing.

Although the figure was 6.9 points lower than a survey the previous year, it still shows that **food safety concerns remains a major issue.**

## **No utility has any idea how to safely dispose of low-level waste**





## All utilities lack disposal sites for low-level waste from reactors

By TSUNEO SASAI/ Staff Writer

Seven electric power companies that plan to decommission nuclear reactors have yet to secure disposal sites for the low-level radioactive waste produced in the dismantling process, an Asahi Shimbun survey showed on Feb. 16.

It may take years for the utilities to gain approval from local governments to dispose of the waste, some of which must remain buried for 100,000 years, meaning that the decommissioning work could be suspended.

Low-level radioactive waste generated during conventional operations of nuclear reactors can be buried at a disposal site of Japan Nuclear Fuel Ltd. in Rokkasho, Aomori Prefecture.

However, the electric power companies themselves must dispose of the low-level radioactive waste produced during decommissioning work.

The Asahi Shimbun asked 10 electric power companies, including Japan Atomic Power Co., about whether they have secured disposal sites for low-level radioactive waste.

Seven companies--Tokyo Electric Power Co., Chubu Electric Power Co., Kansai Electric Power Co., Chugoku Electric Power Co., Shikoku Electric Power Co., Kyushu Electric Power Co. and Japan Atomic Power--replied that **they have not secured sites despite their plans to decommission reactors.**

In total, they plan to decommission 17 reactors.

**The demolition of a 1.1 gigawatt-class nuclear reactor produces more than 10,000 tons of low-level radioactive waste.**

The three other companies--Hokkaido Electric Power Co., Tohoku Electric Power Co. and Hokuriku Electric Power Co.--also have not secured disposal sites, but they have no decommissioning plans at the moment.

“We are not considering decommissioning our nuclear reactors,” a Hokuriku Electric Power official said.

“As of now, we have not yet decided on a plan to secure disposal sites.”

There are three categories of nuclear waste--L1, L2 and L3--depending on their radioactivity levels.

L1 waste, which has the highest radioactivity level and includes control rods, must be buried more than 70 meters deep into the ground for 300 to 400 years.

After that, the government manages the waste for 100,000 years.

The government is currently studying regulation standards for such waste.

Electric power companies decided to decommission some of their nuclear reactors after the March 2011 disaster unfolded at the Fukushima No. 1 nuclear power plant.

Full-fledged decommissioning work is expected to start soon, but parts removed from the reactors have high radiation levels and cannot be placed temporarily in the compounds of nuclear power plants.

High-level radioactive waste is also produced as a result of the reprocessing of spent nuclear fuel. The government is looking for a disposal site for such waste.

Electric power companies could heighten their demands that the government get involved in efforts to secure disposal sites for low-level radioactive waste.

February 17, 2018

## **Shimane No.3 reactor may go ahead**

### **Utility eyes NRA screening nod for new nuclear reactor in Shimane**

<http://www.asahi.com/ajw/articles/AJ201802170020.html>

Chugoku Electric Power Co. will initiate procedures to gain approval to start operations of a nuclear reactor whose construction was halted in the aftermath of the 2011 earthquake and tsunami disaster. The utility began construction of the No. 3 reactor at its Shimane nuclear power plant in 2005, and work was close to completion when the Great East Japan Earthquake struck, unleashing tsunami that devastated coastal areas of the northern Tohoku region.

Chugoku Electric Power initially planned to begin operations of the No. 3 reactor in March 2012, but the triple meltdown at the Fukushima No. 1 nuclear power plant prompted the government to review its safety standards.

The review process brought construction work to a halt at the No. 3 reactor of the Shimane plant. Before Chugoku Electric Power can apply to the Nuclear Regulation Authority for a safety screening, it must gain the consent of Shimane prefectural authorities and the Matsue municipal government. Sources close to the utility said the company would seek approval from the two entities as soon as preparations are completed.

A key reason behind the step is action taken by the NRA for the No. 2 reactor located on the same complex as the No. 3 reactor now under construction.

Chugoku Electric Power has applied for a safety screening to resume operations at the No. 2 reactor, and on Feb. 16 the NRA signed off on the utility's basic earthquake ground motion as the likely maximum quake that could strike the No. 2 reactor.

"Now that we have approval for the basic earthquake ground motion for the No. 2 reactor, we will work toward also applying for a safety screening for the No. 3 reactor," said a utility official.

If Chugoku Electric Power does submit an application for the No. 3 reactor it would be the second case of a safety screening application for a reactor under construction.

In December 2014, Electric Power Development Co. (J-Power) submitted an application to the NRA for a safety screening for its Oma nuclear plant in Aomori Prefecture.

The No. 3 reactor being constructed by Chugoku Electric Power is an improved version of the boiling-water type reactor similar to those at the crippled Fukushima No. 1 plant.

Even if the NRA approves the safety screening, operations will not begin immediately as additional work is needed to improve the safety of the reactor.

February 21, 2018

## NRA assesses accident à Oarai as level 2

### NRA rates Oarai nuclear accident as level 2

[https://www3.nhk.or.jp/nhkworld/en/news/20180221\\_26/](https://www3.nhk.or.jp/nhkworld/en/news/20180221_26/)

Japan's nuclear regulation authorities have rated last year's accident at a research facility north of Tokyo as level 2 on an international scale.

In June last year, 5 workers at the Oarai Research and Development Center of the Japan Atomic Energy Agency were exposed to radioactive substances when a bag containing them burst open.

The members of the Nuclear Regulation Authority said at a meeting on Wednesday that the worker with the highest exposure is expected to have been dosed with between 100 to 200 millisieverts over a 50-year period. That exceeds the limit allowed by the government.

They also said there was a problem with the management and protection of nuclear fuel materials at the facility, such as a lack of regular inspections.

The NRA assessed the accident as level 2, or third from bottom, on the nuclear and radiological event scale

of 0 to 7.

The authority also decided to make it a requirement in principle for nuclear fuel substances to be handled in closed facilities.

Some members said at the meeting that the authorities should check whether effective measures are being taken to prevent a recurrence.

February 23, 2018

## What does WTO know about nuke safety?

### WTO backs Japan complaint against South Korea's Fukushima import ban

<https://www.japantimes.co.jp/news/2018/02/23/national/wto-backs-japan-complaint-south-koreas-fukushima-import-ban/#.WpE1C3wiGos>

by Tomohiro Osaki

Staff Writer

Tokyo on Friday welcomed a World Trade Organization panel's ruling that Seoul's continued import ban on seafood from Fukushima Prefecture — home to the 2011 nuclear disaster — and other parts of Japan amounts to the nation taking “arbitrarily and unjustifiably” discriminatory measures.

A dispute settlement panel under the WTO published a report Thursday detailing its ruling in favor of Japan's complaint against a blanket import ban imposed by South Korea on all fishery products from the prefectures of Fukushima, Miyagi, Iwate, Aomori, Ibaraki, Tochigi, Gunma and Chiba.

While acknowledging Seoul's measures against seafood from Fukushima and the other nearby prefectures were justified initially, the WTO report said maintaining the ban to date is “more trade-restrictive than required,” and recommended that the ban on 28 kinds of fish be lifted, as requested by Japan.

South Korea, the report said, failed to comply with a WTO agreement stipulating that sanitary measures by member countries do not “arbitrarily or unjustifiably discriminate.”

The panel also said a South Korean requirement that Japanese exporters of all marine products submit certificates of inspection if small amounts of radioactive cesium or iodine are detected is an effective barrier to fair trade.

In Tokyo, Chief Cabinet Secretary Yoshihide Suga welcomed the ruling.

“We believe our claims have been duly taken into account and think highly of the judgment” by the panel, he said, adding that Japan will “swiftly” urge South Korea to scrap its ban on seafood.

Suga also said Tokyo will further “strengthen efforts” to alleviate or remove regulatory measures implemented by other countries against Japanese food due to fears over the nuclear disaster.

As of Thursday, countries including the U.S., China and Singapore have partial import bans on Japanese food.

While Japan welcomed the ruling, the panel's judgment is not final. South Korea said Friday that it will appeal to a higher panel, suggesting Japan still faces a thorny road ahead.

“The Korean government will appeal (the ruling) to safeguard public health and safety,” the Ministry of Trade, Industry and Energy, was quoted as saying by the Yonhap news agency.

“Regardless of the decision, the current import ban will be put in place until the WTO’s dispute settlement procedure ends.”

The final decision is expected to be handed down in the summer at the earliest.

Suga expressed disappointment over Seoul’s response.

“We find the appeal extremely regrettable. We will take appropriate steps to make sure our claims will be acknowledged by a higher-level committee, too,” Suga said. “Needless to say, we will also firmly urge South Korea to sincerely and swiftly redress measures recognized by the panel as in violation of the WTO agreement.”

**Since the 2011 nuclear meltdowns at the Fukushima No. 1 power plant, South Korea has established one of the world’s most stringent measures against Japanese food in general.**

In addition to the import ban, South Korea slaps Japanese food products with pre-export testing requirements that don’t apply to products from anywhere else, the WTO report noted.

In the pre-export testing, detection of a minuscule amount of cesium leads to additional testing for 17 other radionuclides, including plutonium, it said.

“What makes South Korea stand out is that it has expanded its regulatory measures against Japanese exports and to this day still maintains significant barriers amid a global trend toward loosening up regulations against Japanese food,” a farm ministry official told The Japan Times.

*Information from Kyodo added*

## "False" alarm at Kyoto research reactor

### **Mistaken emergency shutdown at Kyoto U. research reactor**

<https://mainichi.jp/english/articles/20180223/p2a/00m/0na/007000c>

KUMATORI, Osaka -- Kyoto University's research reactor here had an emergency shutdown during an experiment in January, it was announced on Feb. 22.

The Kyoto University Research Reactor Institute's 5,000-kilowatt reactor was restarted in August last year. The emergency shutdown was mistakenly triggered by a power failure detection system, which malfunctioned due to deteriorating components. There was nothing wrong with the reactor itself, and there was no radiation leak, the institute stated.

The incident was reported to the Nuclear Regulation Authority, and the reactor went back into service after a safety check.

According to the institute, the reactor's electrical relay had not been updated since the 1999 academic year.

February 28, 2018

## Talking of tsunami barriers...again

## **Court told ex-Tepco Execs were informed barriers could prevent tsunami flooding at Fukushima plant**

<https://www.japantimes.co.jp/news/2018/02/28/national/court-told-ex-tepco-execs-informed-barriers-prevent-tsunami-flooding-fukushima-plant/#.Wpa-wHwiGos>

JJI

An employee with a subsidiary of Tokyo Electric Power Company Holdings Inc. testified in court Wednesday that the unit reported a need to install tide barriers to prevent flooding from a tsunami well before the March 2011 nuclear accident at Tepco's Fukushima No. 1 nuclear plant.

According to the worker, the Tepco unit produced an estimate in March 2008 on the basis of long-term assessments released by a government organization, saying that a tsunami could occur with a height of 15.7 meters, which is above ground level at the nuclear plant site.

The estimate was presented at a meeting in June the same year that was attended by Sakae Muto, a former Tepco vice president.

The worker testified during a hearing at the Tokyo District Court that the Tepco unit estimated the tsunami height to reflect the latest information on a possible massive earthquake off Fukushima Prefecture, home to the now-devastated nuclear plant.

After finding that the nuclear plant site was vulnerable to flooding, the subsidiary reported at the meeting that installing 10-meter tide barriers would provide protection from a tsunami, the worker said.

The worker gave the testimony as a witness in the trial of three former Tepco executives, including Muto, 67, who were indicted in February 2016 for allegedly neglecting to take measures against massive tsunami. A prosecution inquest panel comprising ordinary citizens has overruled decisions by public prosecutors twice not to charge the executives. In the indictment, they were charged with professional negligence resulting in death and injury over the accident.

Lawyers appointed by the district court to act as prosecutors have said that former Tepco Chairman Tsunehisa Katsumata, 77, and former Vice President Ichiro Takekuro, 67, were also informed of the tsunami estimates on separate occasions. The lawyers claimed that the three former Tepco executives could have foreseen that a massive tsunami might hit the nuclear power plant.

The former executives denied the claim during the first hearing in their trial in June 2017, saying that the company would have been unable to prevent the accident even if measures were taken based on the estimate.

## **TEPCO asked for 'smaller tsunami' in simulation**

[https://www3.nhk.or.jp/nhkworld/en/news/20180228\\_33/](https://www3.nhk.or.jp/nhkworld/en/news/20180228_33/)

An employee at a group company of the operator of the damaged Fukushima nuclear power plant says he was asked to decrease his estimate of a projected tsunami. This was 3 years before the 2011 disaster that caused the severe nuclear accident.

He testified as a witness on Wednesday before the Tokyo District Court in the trial of 3 former executives of Tokyo Electric Power Company, or TEPCO. The defendants are accused of professional negligence resulting in deaths in connection with the nuclear accident.

In 2008, the witness was in charge of estimating the height of a tsunami assumed to hit the plant.

In his testimony, he said he estimated that tsunami as high as 15.7 meters could hit the plant in a report submitted to TEPCO.

However, he said, a TEPCO official in charge asked him to lessen the height of tsunami by altering calculation conditions and the movement of tsunami.

The witness testified that he answered that he could not alter the calculation conditions as they are used by experts at conferences.

He made the statement while answering a question by a designated lawyer who is serving as a prosecutor.

The presiding judge asked him to be more specific about his conversation with TEPCO, but he replied that he had no memory of it.

March 1, 2018

## **Greenpeace study shows significant radiation risks to last for decades to come**

### **Greenpeace investigation shows Fukushima radiation risks to last into next century**

<http://www.greenpeace.org/japan/ja/news/press/2018/pr201803011/>

Tokyo, 1 March 2018 - A comprehensive survey by Greenpeace Japan in the towns of Iitate and Namie in Fukushima prefecture, including the exclusion zone, **revealed radiation levels up to 100 times higher than the international limit for public exposure.[1][2] The high radiation levels in these areas pose a significant risk to returning evacuees until at least the 2050's and well into next century.**

The findings come just two weeks ahead of a critical decision at the United Nations Human Rights Council (UNHRC) review on Japan's human rights record and commitments to evacuees from the nuclear disaster. "In all of the areas we surveyed, including where people are permitted to live, the radiation levels are such that if it was in a nuclear facility it would require strict controls. Yet this is public land. Citizens, including children and pregnant women returning to their contaminated homes, are at risk of receiving radiation doses equivalent to one chest X-ray every week. This is unacceptable and a clear violation of their human rights," said Jan Vande Putte, radiation specialist with Greenpeace Belgium and leader of the survey project.

Greenpeace Japan conducted the investigations in September and October last year, measuring tens of thousands of data points around homes, forests, roads and farmland in the open areas of Namie and Iitate, as well as inside the closed Namie exclusion zone. The government plans to open up small areas of the exclusion zone, including Obori and Tsushima, for human habitation in 2023. The survey shows the decontamination program to be ineffective, combined with a region that is 70-80% mountainous forest which cannot be decontaminated.

Key finding from the Greenpeace Japan survey:

- Even after decontamination, in four of six houses in Iitate, the average radiation levels were three times higher than the government long term target. Some areas showed an increase from the previous year, which could have come from recontamination.
- At a house in Tsushima in the Namie exclusion zone, despite it being used as a test bed for decontamination in 2011-12, a dose of 7 mSv per year is estimated, while the international limit for public exposure in a non-accidental situation is 1 mSv/y. This reveals the ineffectiveness of decontamination work.
- At a school in Namie town, where the evacuation order was lifted, decontamination had failed to significantly reduce radiation risks, with levels in a nearby forest with an average dose rate of more than 10 mSv per year. Children are particularly at risk from radiation exposure.
- In one zone in Obori, the maximum radiation measured at 1m would give the equivalent of 101 mSv per year or one hundred times the recommended maximum annual limit, assuming a person would stay there for a full year. These high levels are a clear threat, in the first instance, to thousands of decontamination workers who will spend many hours in that area.

This contamination presents a long term risk, and means that the government's long-term radiation target (1 mSv/year which is equivalent to 0.23 $\mu$ Sv/hour) are unlikely to be reached before at least the middle of the century in many areas that are currently open and into next century for the exclusion zone of Namie. In an admission of failure, the government has recently initiated a review of its radiation target levels with the aim of raising it even higher.

The Government's policy to effectively force people to return by ending housing and other financial support is not working, with population return rates of 2.5% and 7% in Namie and Iitate respectively as of December 2017.

In November last year, the UNHRC's Universal Periodic Review (UPR) on Japan issued four recommendations on Fukushima issues. Member governments (Austria, Portugal, Mexico and Germany) called for Japan to respect the human rights of Fukushima evacuees and adopt strong measures to reduce the radiation risks to citizens, in particular women and children and to fully support self evacuees. Germany called on Japan to return to maximum permissible radiation of 1 mSv per year, while the current government policy in Japan is to permit up to 20 mSv per year. If this recommendation was applied, the Japanese government's lifting of evacuation orders would have been halted.

"Our radiation survey results provides evidence that there is a significant risk to health and safety for any returning evacuee. The Japanese government must stop forcing people to go back home and protect their rights," said Kazue Suzuki, Energy Campaigner at Greenpeace Japan. "It is essential that the government fully accept and immediately apply the recommendations at the United Nations."



Notes:

[1] Reflections in Fukushima: The Fukushima Daiichi Accident Seven Years On

[2] The International Commission on Radiological Protection (ICRP) sets a maximum dose of 1 mSv/ year in normal situations for the public, and in the range of 1-20 mSv/y under post-nuclear accident situations, such as that resulting from Fukushima Daiichi. The ICRP recommends that governments select the lower part of the 1–20 mSv/year range for protection of people living in contaminated areas, and “to reduce all individual exposures associated with the event to as low as reasonably achievable.”

March 5, 2018

## Fukushima 7 years later

### **EDITORIAL: 7 years after, Fukushima still struggling to return to normal**

<http://www.asahi.com/ajw/articles/AJ201803050026.html>

Almost one year has passed since the evacuation order for four municipalities around the ruined Fukushima No. 1 nuclear power plant was lifted to make it possible for local residents to return home. But the harsh reality of life in towns and villages devastated by the 2011 Great East Japan Earthquake and tsunami and the consequences are clearly visible to anyone who visits these areas.

These towns and villages lack many of the functions and facilities to meet the essential needs of people such as housing, shopping, health and nursing care, jobs and communities. This is the reason why many of the local residents have not returned home despite an end to forced evacuation. A survey of evacuees by one local government found nearly 50 percent of the residents have no plan to return.

But it is also true that many of the people who left their towns and villages in the wake of the catastrophic accident want to eventually return home or are of two minds.

It is the government’s important role to make things easier for evacuees to return to their former communities if they want to do so while supporting their current lives.

The government needs to review the measures that have been taken so far and, if necessary, adjust them to better suit the actual circumstances.

A myriad of challenges are threatening to thwart the efforts to rebuild towns and villages ravaged by the disaster. But progress is only possible through hard, tenacious work and constant adjustments for the better.

#### **REALITIES DETER RETURN OF EVACUEES**

In Namie, a town located north of the nuclear plant, the newly built Namie Sosei elementary and junior high school, which is to open this spring, held a school enrollment briefing at the end of January.

“Each child receives more sufficient attention at a school with a small number of students, I believe,” says a father of two in his 30s who left Namie with his family following the disaster and now lives in Iwaki, a city in the prefecture farther from the nuclear plant. He has decided to return to Namie so that his children can attend the new school.

The opening of the school will be “an important step forward in the efforts to rebuild Namie back into a normal town where we can hear the voices of children,” says Kiichiro Hatakeyama, head of the municipal board of education.

But the number of such families is still small. Only about 10 students are expected to enter the elementary and junior high school in the first year.

Before the 2011 disaster, more than 20,000 people lived in the town. Only about 500 of them had returned by the end of January since the evacuation order was lifted.

Many evacuated residents have been discouraged from returning to the town by the slow progress in the restoration of the living environment.

There are convenience stores in the town but not a supermarket. Local residents have to drive dozens of minutes to shop at the nearest supermarket.

The municipal government is courting supermarket operators to open a store in the town, but the population is still too small to support this kind of business.

There are only clinics for surgery and internal medicine in Namie. Many of the residents who have returned are elderly people, and they are asking for dentists and eye doctors.

### **NEW APPROACH NEEDED TO ESCAPE FROM SITUATION**

The situation is more or less similar in Tomioka and Iitate, two other municipalities where the evacuation order was called off at the same time with Namie. The government’s strategy aimed at encouraging evacuated residents of these communities to return home by stepping up the decontamination efforts has failed to work as expected.

As the living circumstances remain poor, evacuated residents don’t go back to their homes. As the population thus remains small, services necessary for daily life remain unavailable.

To break this never-ending cycle, the central and local governments need to come up with better ideas to improve the living environment.

As for medical and nursing care services, the Fukushima prefectural government and the administration need to work together with organizations involved to provide active support for the efforts to secure service providers instead of leaving the task entirely to the municipalities.

A system should be created to provide policy support for retailers, not just for their preparations to restart their businesses, but also for their actual operations for a certain period of time.

There are obviously limits to what individual municipal governments can do independently to regenerate their cities, towns and villages.

Cooperation among areas, such as joint efforts by multiple municipalities to restore necessary functions and facilities, is essential.

There have been troubling signs that the government’s policy to support the reconstruction of disaster-hit areas tends to focus on the building of new facilities.

Costly projects to build various facilities, such as research and development institutions in the areas of energy and robotics and large sports facilities, are under way in the region.

“Some local government chiefs are forging ahead with public works projects to build facilities in a rush to take advantage of the central government budget for post-disaster reconstruction while the money is available, but they are failing to think about the ongoing costs,” says a senior official at the municipal government of one affected town. “The central government is also acting in a somewhat senseless manner.”

The administration stresses the importance of helping rebuild the lives of local residents. But its priorities in allocating the financial and human resources seem to be messed up.

## **SUPPORT FROM ENTIRE SOCIETY**

In disaster-stricken areas, the vital bonds between people have been totally destroyed by the effects of prolonged periods of living as evacuees. Local communities have also been hurt by conflict and division over such issues as the status of evacuees as to whether they can return home or how much compensation they have received.

Rebuilding the broken human ties is no easy task. But there are some encouraging signs as well.

In Naraha, where about 30 percent of the residents have returned since the evacuation order was lifted two and a half years ago, a small and casual Japanese restaurant named Yui no Hajimari, which opened in September last year, is thriving. At night, it is thronged with residents in the neighborhood and nuclear workers.

Kaori Furuya, the 33-year-old woman who runs the restaurant, used to work in the Tokyo metropolitan area but decided to start the business in the town after she became involved in a project to help people acquire the skills and abilities needed for the reconstruction of affected communities.

"I want to keep operating the restaurant as a place where local residents and people from outside the town develop contacts and enjoy spending time together naturally," Furuya says.

Iitate will soon launch a program to expand ties and communication with other parts of the nation. The program, dubbed "Furusato Juminhyo" (hometown certificate of residence), will involve various attempts to convey information about Iitate to people outside who want to support the town and provide them with opportunities to mix with local residents, according to the municipal government.

"We will test various ideas designed to build a new village instead of trying to restore the village to its former state," says Iitate Mayor Norio Kanno.

Seven years since the calamitous nuclear accident, people in Fukushima are still facing a grim reality and fighting an uphill battle to find a way to regain an environment that enables them to enjoy a peaceful and quiet daily life.

What must not be forgotten is the grave fact that the accident occurred in connection with the government's long-running policy of promoting nuclear power generation.

Our society is facing a serious test of whether it can keep this in mind and commit itself as a whole to supporting the affected communities' struggles to rebuild themselves.

March 6, 2018

## **160 cases of thyroid cancers among Fukushima children**

### **No. of children at time of Fukushima disaster diagnosed with thyroid cancer hits 160**

<https://mainichi.jp/english/articles/20180306/p2a/00m/0na/007000c>

FUKUSHIMA -- The total number of children at the time of the 2011 nuclear disaster here who have since been diagnosed with thyroid cancer has reached 160, a prefectural investigative commission announced at a March 5 meeting.

- **【Related】** Many children diagnosed with thyroid cancer after 3.11 disasters, families still worried
- **【Related】** Experts divided on causes of high thyroid cancer rates among Fukushima children
- **【Related】** Child thyroid cancer in Fukushima many times national average: report draft

One more local person, who was aged 18 or under at the time of the meltdowns at the Fukushima No.1 Nuclear Power Plant, had been found to have thyroid cancer following health examinations as of the end of December. However, the commission has stated that "it is difficult to think that the cases are related to radiation exposure" from the disaster.

The first round of thyroid examinations started after the accident in 2011 for people who were 18 and under living in the prefecture at the time of the disaster. The second round covered about 380,000 people, including children who were born in the year following the meltdowns. The fourth round will begin next fiscal year starting April 1.

March 13, 2018

## Thai restaurants refuse to serve Fukushima fish

### **Bangkok restaurants stop serving fish recently imported from Fukushima Pref.**

<https://mainichi.jp/english/articles/20180313/p2a/00m/0na/002000c>

FUKUSHIMA -- Eleven Japanese restaurants in the Thai capital of Bangkok have stopped serving imported fish caught off the coast of the Fukushima prefectural city of Soma, the prefectural government here said on March 12.

The decision of each restaurant came following fears that they might experience a backlash and a reduction in customer numbers -- fueled by citizen group protests that have spread online -- even though Thailand does not restrict the import of goods from Fukushima Prefecture.

Consignments of fresh seafood including flounder, fluke and octopus have been exported from Fukushima Prefecture to Thailand since late February -- the first export of seafood from the prefecture since the disaster at Tokyo Electric Power Co. (TEPCO)'s Fukushima No. 1 Nuclear Power Plant in 2011. It is not sure when the restaurants will start offering the fish again.

According to the Fukushima Prefectural Government, 143 kilograms of fish have been exported to Thailand since Feb. 28, with about 50 kilograms being consumed at an event starting on March 2 that was jointly hosted by the 11 restaurants.

However, consumer groups in Thailand have been directing protests toward the country's Ministry of Public Health, saying, "Don't make citizens here eat dangerous fish." Meanwhile, the ministry has stated that a thorough inspection has been conducted and the fish is safe.

### **Event promoting Fukushima fish cancelled**

[https://www3.nhk.or.jp/nhkworld/en/news/20180313\\_03/](https://www3.nhk.or.jp/nhkworld/en/news/20180313_03/)

An event in Thailand promoting flounder from Fukushima has been cancelled amid concerns from consumers.

The event was being held at a Japanese restaurant and scheduled to run through the end of the month. The export of flounder caught in waters off Fukushima was resumed on March 1st for the first time since the 2011 nuclear accident.

The Fukushima prefectural government says a consumer group raised concerns about the safety of the fish. The group said the fish were caught in contaminated waters and dangerous to eat.

The group also reportedly demanded the Thai government announce the name of a local restaurant that sold the fish.

Consumers took to social media to voice their concerns.

Organizers say they cancelled the event to avoid confusion.

Nearly 130 kilograms of flounder have been exported from Fukushima to Thailand but close to half remains untouched. Exports are essentially halted.

A Fukushima government official said the prefecture will continue to promote the safety of the fish in hopes of once again resuming the exports.

### **Thai govt. detects no radiation in Fukushima fish**

[https://www3.nhk.or.jp/nhkworld/en/news/20180313\\_31/](https://www3.nhk.or.jp/nhkworld/en/news/20180313_31/)

The government of Japan's Fukushima Prefecture hopes to export more flounder to Thailand after the Thai government's tests showed no radioactive substances in the fish.

Exports of flounder caught off Fukushima resumed on March 1st for the first time since the 2011 nuclear accident. The fish were the first marine products from the prefecture to be sold abroad since the accident.

The flounder was being promoted at Japanese restaurants in Thailand. But the promotion was cancelled on Monday after local consumers voiced concerns about the fish's safety. Flounder exports have essentially been halted.

Fukushima prefectural officials say they were notified late on Monday that the Thai health ministry detected no radioactive material in the fish.

They plan to call attention to the fish's safety through online video sites, social media and food tasting events for local consumers.

See also : <https://www.japantimes.co.jp/news/2018/03/14/national/organizers-cancel-bangkok-event-promote-fukushima-fish-groups-voice-safety-concerns/#.WqkXQnzA-os>

March 29, 2018

## Radioactive water still flowing into Pacific

### **Seven years on, radioactive water at Fukushima plant still flowing into ocean, study finds**

<https://www.japantimes.co.jp/news/2018/03/29/national/seven-years-radioactive-water-fukushima-plant-still-flowing-ocean-study-finds/#.WrzdR38uCos>

Kyodo

More than seven years after the March 2011 Fukushima nuclear crisis, radioactive water is continuing to flow into the Pacific Ocean from the crippled No. 1 plant at a rate of around 2 billion becquerels a day, a study has found.

The amount of leaking cesium 137 has decreased from some 30 billion becquerels in 2013, Michio Aoyama, a professor at the Institute of Environmental Radioactivity at Fukushima University, said in his study, which was presented Wednesday at an academic conference in Osaka.

The study said the concentration of radiation — 0.02 becquerel per liter of seawater found in samples collected near a coastal town 8 km south of the No. 1 plant — is at a level that does not affect the local fishing industry.

The radioactive water is generated in a process to cool melted nuclear fuel at three damaged reactors at the complex. The reactors experienced core meltdowns after the March 2011 earthquake and tsunami. “It can be assumed that there is a path from the complex to the ocean” through which contaminated water flows, Aoyama said.

The water accumulates in the basements of the buildings at the site after being used to cool the melted fuel.

Tokyo Electric Power Company Holdings Inc., the operator of the Fukushima complex, has been trying to prevent contaminated water from increasing within the facilities by building an underground ice wall in an effort to block ground water. It has also built a seawall aimed at preventing contaminated water from entering the ocean.

March 31, 2018

## Leak forces shutdown of No.3 Genkai reactor

### **Steam leak prompts power generation to halt at Japan nuclear plant**

<https://mainichi.jp/english/articles/20180331/p2g/00m/0dm/002000c>

FUKUOKA (Kyodo) -- Kyushu Electric Power Co. stopped generating and supplying electricity at its nuclear reactor in southwestern Japan on Saturday after detecting a steam leak the previous day.

The utility said there has been no radiation leak and that it will inspect the reactor, which resumed operation only a week ago at the Genkai power plant in Saga Prefecture.

According to Kyushu Electric, staff discovered at around 7 p.m. Friday that steam was leaking from the pipe of a device used for the removal of oxygen and other dissolved gases from the feedwater to steam generators.

The No. 3 reactor at the plant resumed operation on March 23 after being offline for over seven years, amid lingering concerns among residents about how to evacuate from islets near the plant in the event of a serious accident. It restarted power generation two days later.

Following the latest incident, Kyushu Electric's plan to restart the No. 4 reactor in May could be delayed, the utility said.

The No. 3 unit was suspended for a regular inspection in December 2010, three months before a massive earthquake and tsunami sparked a crisis at the Fukushima Daiichi nuclear plant.

It cleared the Nuclear Regulation Authority's safety screening in January 2017 under stricter, post-Fukushima regulations and was later approved for reactivation by the Genkai municipal government and Saga prefectural government.

## **Steam leak found at Genkai nuclear power plant**

[https://www3.nhk.or.jp/nhkworld/en/news/20180331\\_09/](https://www3.nhk.or.jp/nhkworld/en/news/20180331_09/)

The operator of the Genkai nuclear power plant in southwestern Japan has found a steam leak in a reactor just one week after putting it back online. It suspended power generation early Saturday.

Kyushu Electric Power Company says a worker found the small leak at the No. 3 reactor around 7 PM on Friday. The plant is located in Genkai Town in Saga Prefecture.

The utility says the steam does not contain radioactive substances, and that monitoring posts around the plant show no change in radiation levels. It says there has been no harm to the environment.

Kyushu Electric says the leak occurred in a pipe connected to equipment that removes oxygen, carbon dioxide and other substances from the steam.

The reactor was generating power at 75 percent of its capacity at the time. The utility says it gradually lowered output through the night, halting it completely by around 6 AM on Saturday.

Kyushu Electric says it is working quickly to determine the cause and resume operations.

**The leak is an unwelcome setback for the utility, which put the reactor back online on March 23rd, ending a break of more than 7 years in operations.** The reactor began generating and transmitting power 2 days later.

The reactor was suspended for a regular inspection after the 2011 earthquake and tsunami, which triggered the Fukushima nuclear accident.

April 2, 2018

## Hole in pipe found at Genkai plant

### Hole found in pipe after steam leak at reactivated nuclear reactor

[https://mainichi.jp/english/articles/20180402/p2g/00m/0dm/005000c#cxrecs\\_s](https://mainichi.jp/english/articles/20180402/p2g/00m/0dm/005000c#cxrecs_s)

FUKUOKA (Kyodo) -- Kyushu Electric Power Co. said Sunday that it found a one centimeter-size hole in a pipe that is believed to have caused a small steam leak at its recently reactivated nuclear reactor in southwestern Japan on Friday.

The steam leak at the Genkai plant's No. 3 reactor in Saga Prefecture occurred in part of a system to produce steam for electricity generation and did not cause any radiation leakages. The utility is currently checking the reactor without taking it offline.

The hole was spotted in an air vent pipe in a device used for the removal of oxygen and other gases that goes to a steam generator, according to Kyushu Electric Power. The generator is located inside the reactor's primary containment vessel.

The No. 3 reactor had resumed operation on March 23 after a seven-year hiatus, as it took time to clear a set of new safety requirements introduced after the 2011 Fukushima Daiichi nuclear power plant disaster. The reactor was expected to enter into commercial operation on April 24, but the plan has hit a snag due to the latest incident. The utility's plan to restart the No. 4 reactor in May is also likely to see a delay.

April 4, 2018

## Fukushima hamburgers in Tokyo

### Hamburger event using Fukushima ingredients held in Tokyo

<https://mainichi.jp/english/articles/20180404/p2a/00m/0na/020000c>

A special event promoting homemade hamburgers using ingredients from Fukushima Prefecture recently took place in Tokyo's Shibuya Ward.

Roughly 30 people turned up on the occasion, where they sampled hamburgers containing fresh meat and vegetables produced in Fukushima Prefecture that were brought to the venue by young food-growing volunteers.



The event was organized by groups such as "Eat, and Energize the East," which strives to put Tohoku-grown food back on the map, and which was formed in the wake of the Great East Japan Earthquake in 2011.

Yoshitaka Ono, 34, head of an agricultural support group called "Cool Agri" based in Koriyama, Fukushima Prefecture, and 31-year-old Masamichi Egawa, who both reside in the prefecture, actively promoted locally grown ingredients at the event.

Ono runs an organic fruit farm, while Egawa focuses on growing potatoes and asparagus, in addition to trying to popularize a rare type of saffron that had traditionally been grown in Fukushima Prefecture. At the hamburger event on March 18, held in Tokyo's trendy Ebisu district, Ono provided a sauce processed from various fruits from his farm, and Egawa supplied saffron-rice buns made from his saffron. Adding the sauce and the buns to the meat and the tomatoes makes the hamburger "Instagrammable." A number of impressed participants took photos of the completed burgers with their smartphones before eating them.

In addition, Ono told the crowd about his barbeque area and beer garden situated in the middle of his apple fields, which is designed to bring producers and consumers together.

"The vegetables (in Fukushima Prefecture) retain key nutrients and develop a brilliant, slightly sweet taste. Being able to eat these products, which are not available in Tokyo, is our special privilege," Egawa said, as he spoke about the Tohoku region's method of growing vegetables such as Chinese cabbage in snowy conditions.

Erika Morikawa, a 23-year-old dietician who attended the event, said, "There's a tendency to dismiss the aftermath of 3.11 as a problem that doesn't concern you. However, after hearing the stories of people who are trying hard in Fukushima Prefecture, I've come to realize that I really want to cooperate for the area's reconstruction."

## Rokkasho: Safety checks to resume

### Checks of trouble-prone nuclear fuel reprocessing plant to resume

<https://mainichi.jp/english/articles/20180404/p2g/00m/0dm/059000c>

TOKYO (Kyodo) -- Nuclear regulators on Wednesday decided to resume assessing the safety of a spent fuel reprocessing plant in northeastern Japan after suspending the process for several months following revelations about the operator's lax safety management.

**Clearing the safety checks is a requirement for Japan Nuclear Fuel Ltd. to start operating its plant in Rokkasho, Aomori Prefecture. It was originally scheduled for completion in 1997 but has pushed the timeline back 24 times despite the facility being slated to play a key role in Japan's nuclear fuel recycling policy.**

What would be Japan's first commercial nuclear reprocessing plant is designed to handle up to 800 tons of spent nuclear fuel per year, extracting about 8 tons of plutonium to reuse as nuclear fuel.

Japan Nuclear Fuel applied for the state safety assessment in 2014, seeking to meet tougher standards introduced in the wake of the 2011 Fukushima Daiichi nuclear power plant disaster that was triggered by a massive earthquake and tsunami.

But in August last year, about 800 liters of rainwater was found to have seeped into a building housing key emergency power sources because the operator had failed to notice that equipment to keep the building watertight was aging. The equipment had not been checked for about 14 years.

The findings led the Nuclear Regulation Authority to level harsh criticism at the safety management record of Japan Nuclear Fuel. The review process was halted in October, with the operator saying it will prioritize inspections of all facilities at the plant.

The company's latest timeline had aimed for the reprocessing plant to be completed in the first half of fiscal 2018, but it said in December that it will push back the schedule by three more years.

## 60 years after, the unfulfilled promise of breeder reactors

### *Background:*

*Even before two A-Bombs were dropped on Japan in 1945, starry-eyed nuclear scientists were planning for a future world in which plutonium and thorium would become the principal energy resources of human society, replacing uranium as a nuclear fuel. This dreamy-eyed vision has always been considered of paramount importance to the future of nuclear energy — and nuclear weaponry. The only naturally-occurring element that can be used as a nuclear explosive in an A-Bomb or as fuel for a nuclear reactor, is a rare type of uranium called uranium-235 (U-235). When uranium deposits are found in nature, only 7 uranium atoms out of a thousand are U-235. Virtually all of the other uranium atoms are of a different type called uranium-238 (U-238).*

*U-238 is a "non-fissile" variety of uranium, often called "depleted uranium" (DU). U-238 is far more abundant than U-235, but it cannot be used as a nuclear explosive or as fuel for a nuclear reactor. Similarly, Thorium-232 (Th-232) is a naturally-occurring element three times more abundant than U-238, but it is not fissile either.*

*However, there's a trick that nuclear scientists learned way back in the early 1940s. It's a way to make U-238 and Th-232 "breed" new elements -- human-made, artificial elements — that are fissile, and perfectly suited for use in nuclear reactors or nuclear weapons. For this reason, U-238 and Th-232 are said to be "fertile" elements, because they breed fissile materials.*

*When an atom of uranium-238 absorbs a neutron, it becomes an atom of plutonium-239. And when an atom of thorium-232 absorbs a neutron, it becomes an atom of uranium-233. Both of these human-made materials, plutonium-239 and uranium-233, are fissile — they are both excellent candidates to be used as an explosive in nuclear weapons or as fuel for nuclear reactors. Neither of them occurs in nature. They are human-made.*

*Breeder reactors are specifically designed to breed large quantities of plutonium-239 and/or uranium-233 in order to extend the supply of fissile materials, which — unless replenished — will not long outlast the world's oil supplies. There is simply not enough uranium-235 to allow nuclear power to replace a significant amount of the world's oil consumption. At present, nuclear power produces about 11 percent of global electricity, but that's less than 2 percent of the world's energy use (most of which is non-electrical).*

*Up to the present time, most breeder reactors have been built to mass-produce plutonium-239, although breeding uranium-233 using thorium-232 as a “starter” has been repeatedly tried. At Chalk River, for example, in the late 1940 and early 1950s, there were two “reprocessing plants” — one to extract plutonium-239 from irradiated uranium fuel rods, and one to extract uranium-233 from irradiated thorium rods. (You can’t call them “fuel rods” because thorium is not a fuel.)*

*One of the biggest worries associated with breeder reactors is the very real danger of the proliferation of nuclear weapons — not only spreading these doomsday devices to other countries, but also to terrorist groups and criminals. For plutonium and uranium-233 are very powerful nuclear explosive materials, and if stolen or diverted can be fabricated into formidable nuclear explosive devices that can be delivered to their targets in any number of ways -- even in the trunk of an auto.*

*Such is not the case with today’s nuclear power reactors. Normal uranium reactor fuel cannot be used as a nuclear explosive because there is too much uranium-238 mixed with the uranium-235, and there is no practical way to easily or quickly remove the U-238. The situation would change drastically if plutonium or uranium-233 were used as reactor fuel, for such fuel could readily be converted to a powerful nuclear explosive.*

*Many breeder reactor programs around the world have failed. The Fermi-1 reactor just outside Detroit was an experimental breeder that suffered a partial meltdown and was scrapped; it was the subject of the book “We Almost Lost Detroit”. The Superphénix in France was a breeder reactor that was a spectacular failure at the time and marked the beginning of the decline of the French nuclear power industry. The SMR-300 breeder reactor in Germany was abandoned without ever operating. Nevertheless, interest in breeder reactors continues because without it the nuclear enterprise has no long-term future. Some of the small modular reactors (SMRs) currently proposed are breeders. In 2010 the International Panel on Fissile Materials said “After six decades and the expenditure of the equivalent of tens of billions of dollars, the promise of breeder reactors remains largely unfulfilled and efforts to commercialize them have been steadily cut back in most countries”. In Germany, the United Kingdom, and the United States, breeder reactor development programs have been abandoned.*

*Now Japan has joined the parade, abandoning its Monju breeder reactor for good.  
Gordon Edwards,*

April 5, 2018

## **Remove those dosimeters...**

### **NRA to remove most dosimeters in Fukushima as radiation drops**

<http://www.asahi.com/ajw/articles/AJ201804050009.html>

By MASANOBU HIGASHIYAMA/ Staff Writer

Japan’s nuclear watchdog will remove 80 percent of its radiation dosimeters in Fukushima Prefecture to slash costs and alleviate unnecessary concerns, as air dose rates have decreased significantly since the nuclear crisis unfolded in 2011.

The Nuclear Regulation Authority (NRA) on March 20 decided to stop using 2,400 of 3,000 radiation meters set up in elementary schools, parks and elsewhere in the prefecture.

While there are 600 extra monitoring posts for long-term radiation measuring, local municipalities and Tokyo Electric Power Co. have also introduced hundreds of dosimeters in the prefecture. The latest removal plan will not cover those long-term radiation meters.

“Although the number of radiation meters will be reduced, our measuring network will never fail to cover any locations when problems occur at the Fukushima No. 1 nuclear power plant,” said an NRA official. The decision was reached because radiation figures are below the threshold level of 0.23 microsieverts per hour in most areas thanks to the progress of decontamination work, seven years after the disaster started at TEPCO’s Fukushima plant.

Another reason behind the move is that radiation meters will soon reach the end of their operating lives. While the NRA plans to change the arrangement of dosimeters, those installed near the nuclear facility will be maintained.

Under the plan, real-time systems to measure dose rates around facilities for children could be removed in regions sufficiently far from the nuclear plant. Meters in cities, towns and villages that are currently or have once been home to evacuation zones will be maintained.

Most of those areas now report radiation levels as low as before the disaster and readings higher than 0.23 microsieverts per hour are measured at only several points.

**The thousands of dosimeters require annual maintenance costs of 360 million yen (\$3.39 million).**

In addition, the NRA has received complaints from residents, with one of those saying, “**The existence of radiation meters could mistakenly make people believe dose rates are high in the area.**”

In response to those issues, the NRA decided to reduce the number of dosimeters to around 600 in three years. It will determine which meters to remove after holding talks with residents, starting in April, according to NRA officials.

April 6, 2018

## Monju Breeder Reactor Abandoned

### Japan prepares to shut down its troubled ‘dream’ nuclear reactor

<https://asia.nikkei.com/Politics/Japan-prepares-to-shut-troubled-dream-nuclear-reactor>

or <https://nuclear-news.net/2018/04/06/the-end-for-japans-expensive-monju-nuclear-fast-breeder-dream/>

***Decades-old plant has cost almost \$10 billion and hardly ever operated***

***KAZUNARI HANAWA, Nikkei staff writer***

TOKYO — **Japan is set to start decommissioning its troubled Monju fast-breeder reactor after decades of accidents, cost overruns and scandals.** It is the beginning of the end of a controversial project that exposed the shortcomings of the country’s nuclear policy and the government’s failure to fully explain the risks and the costs.

In July, the Japan Atomic Energy Agency will begin decommissioning what was hailed as a “dream” reactor that was expected to produce more nuclear fuel than it consumed. **The government has so far spent more than 1 trillion yen (\$9.44 billion US) on the plant, which has barely ever operated.**

The plan approved by the Nuclear Regulation Authority on March 28 to decommission the reactor, located in central Japan’s Fukui Prefecture, calls for the extraction of spent nuclear fuel to be completed by the end of the fiscal year through March 2023. Full decommissioning is expected to take about 30 years.

Total costs to shut down the reactor are currently estimated at 375 billion yen, but that could climb, as the full technical requirements and the selection of the nuclear waste sites are not well understood. Japan does not have the technological ability to manage the decommissioning process on its own, and must enlist the help of France, which has more experience with fast-breeder reactors. Among the technical challenges is handling the plant’s **sodium coolant, which is highly reactive and explodes on contact with air.**

Many of the problems with Japan’s nuclear policy were brought to light by the Fukushima Daiichi nuclear disaster caused by the tsunami and earthquake of March 2011. Such problems have included the high costs of plants, the selection of nuclear disposal sites, and the threat of shutdowns due to lawsuits. Japan’s nuclear policy has largely been gridlocked since the disaster.

But the Monju project had many problems before the Fukushima catastrophe.

Planning for the project began **in the 1960s. Its fast-breeder technology was considered a dream technology for resource-poor Japan,** which had been traumatized by the oil crisis of the 1970s. The reactor was supposed to generate more plutonium fuel than it consumed.

The reactor finally started operating in 1994, but was forced to shut down the following year due to a sodium leak. It has been inoperative for most of the time since. The decision to decommission it was made in December 2016 following a series of safety scandals, including the revelation that many safety checks had been omitted.

Recent experience suggests **the government’s estimated cost of 375 billion yen to decommission Monju could be on the low side.** In 2016, the estimate for **decommissioning the Fukushima Daiichi plant ballooned to 8 trillion yen [\$74.8 billion US]** from an initial 2 trillion yen in 2013, largely due to inadequate understanding of the decommissioning process.

While “the JAEA will try to keep costs down,” said Hajime Ito, executive director with the agency, the process of extracting sodium, the biggest hurdle, has yet to be determined. Future technical requirements will also involve significant costs.

The Monju reactor is not the only example of failure in Japan’s nuclear fuel cycle policy — the cycle of how nuclear fuel is handled and processed, including disposing nuclear waste and reprocessing used fuel.

Central to this policy is **a nuclear fuel reprocessing plant in the village of Rokkasho in northern Aomori Prefecture that was supposed to extract plutonium and uranium by reprocessing spent nuclear fuel to be reused at nuclear plants.**

**More than 2 trillion yen [\$18.7 billion US] has been spent on the plant so far.** Construction was begun in 1993, but completion has been repeatedly postponed due to safety concerns. On Wednesday, the NRA decided to resume safety checks on the plant, but if it chooses **to decommission it, the cost would be an estimated 1.5 trillion yen [\$14 billion US].**

**Had Japan taken into consideration the costs of decommissioning plants and disposing of spent nuclear fuel, it probably would not have been able to push ahead with its nuclear policy in the first place,** said a former senior official of the Ministry of Economy, Trade and Industry, who was involved in formulating the country’s basic energy plan.

April 11, 2018

## TEPCO accused of negligence over tsunami wall

### TEPCO worker: Boss scrapped tsunami wall for Fukushima plant

<http://www.asahi.com/ajw/articles/AJ201804110051.html>

An employee of Tokyo Electric Power Co. testified in court that his boss abruptly ended preparations in 2008 to build a seawall to protect the Fukushima No. 1 nuclear plant from a towering tsunami.

“It was unexpected,” the employee said of former TEPCO Vice President Sakae Muto’s instructions during a hearing at the Tokyo District Court on April 10. “I was so disheartened that I have no recollection of what followed afterward at the meeting.”

Muto, 67, was deputy chief of the company’s nuclear power and plant siting division at the time.

He, along with Tsunehisa Katsumata, former TEPCO chairman, and Ichiro Takekuro, former TEPCO vice president, are now standing trial on charges of professional negligence resulting in death and injury over the 2011 nuclear disaster at the Fukushima No. 1 plant.

To prove negligence, prosecutors are trying to show that the top executives could have predicted the size of the tsunami that swamped the plant on March 11, 2011, resulting in the most serious nuclear accident since the 1986 Chernobyl disaster.

The employee was a member of a team tasked with compiling steps against tsunami at the earthquake countermeasures center that the utility set up in November 2007.

He reported directly to Muto.

According to the employee, TEPCO was considering additional safeguards on the instructions of the then Nuclear and Industrial Safety Agency for all nuclear plant operators to review their anti-earthquake measures.

The group weighed its options based on a long-term assessment of the probability of major earthquakes released by the science ministry’s Headquarters for Earthquake Research Promotion in 2002.

The assessment pointed out that Fukushima Prefecture could be hit by a major tsunami.

Some experts were skeptical about the assessment, given that there were no archives showing a towering tsunami ever striking the area.

But the employee told the court, “Members of the group reached a consensus that we should incorporate the long-term assessment” in devising countermeasures.

The group asked a TEPCO subsidiary to conduct a study on the maximum height of a tsunami on the basis of the assessment.

The subsidiary in March 2008 informed the group that a tsunami of “a maximum 15.7 meters” could hit the Fukushima plant.

The group reported that number to Muto in June that year.

Based on Muto’s instructions, the group studied procedures on obtaining a permit to build a seawall to protect the Fukushima No. 1 nuclear plant, according to the employee.

But in July, Muto, without giving an explanation, told the group at a meeting that TEPCO will not adopt the 15.7-meter estimate, the employee said.

He said Muto’s decision stunned group members who had believed the company was moving to reinforce the plant.

The tsunami that caused the triple meltdown at the Fukushima No. 1 nuclear plant reached 15.5 meters. But Muto and the two others on trial have pleaded not guilty, arguing that the 15.7-meter prediction was "nothing more than one estimate."

Why the TEPCO management dropped the tsunami prediction will be the focus of future hearings. Prosecutors had initially declined to press charges against the three former executives, citing insufficient evidence. However, a committee for the inquest of prosecution twice concluded that the three should be indicted.

Their trial began in June last year. Lawyers are acting as prosecutors in the case.

(This story was compiled from reports by Mikiharu Sugiura, Takuya Kitazawa and Senior Staff Writer Eisuke Sasaki.)

### **TEPCO staffer testifies execs put off tsunami measures at Fukushima plant**

<https://mainichi.jp/english/articles/20180411/p2a/00m/0na/018000c>

TOKYO -- A Tokyo Electric Power Co. (TEPCO) employee testified in court here on April 10 that company executives decided to postpone tsunami prevention measures at the Fukushima No. 1 nuclear plant despite an assessment warning that a massive wave could hit the power station.

- **【Related】** Ex-TEPCO executives set to plead not guilty over Fukushima nuclear accident
- **【Related】** TEPCO asked subsidiary to underestimate tsunami threat at Fukushima nuke plant: worker

Three former TEPCO executives including former Vice President Sakae Muto, 67, are on trial for professional negligence causing death and injury over the Fukushima nuclear crisis triggered by the March 2011 Great East Japan Earthquake and tsunami. The TEPCO employee's statements at the trial's fifth hearing were in line with the arguments of the court-appointed attorney acting for the prosecution. Since 2007, the male employee had been part of an internal assessment group tasked with estimating the maximum height of tsunami which could strike the Fukushima No. 1 plant.

The group commissioned a TEPCO-affiliated company to estimate the size of potential tsunami, based on a long-term assessment made by the government's Headquarters for Earthquake Research Promotion that a massive wave could be generated by a quake in the Japan Trench, including off Fukushima Prefecture. In 2008, the TEPCO subsidiary reported that tsunami as tall as 15.7 meters could hit the plant.

In the trial, the employee stated, "I thought that TEPCO should take the assessment into consideration in taking (earthquake and tsunami) countermeasures, as the assessment was supported by prominent seismologists." He said he was so confident that the utility would take action that he emailed another working group at the company, "There will definitely be major renovations at the Fukushima No. 1 and other plants."

When the employee reported the assessment result to Muto, the then vice president gave him instructions that could be interpreted as an order to prepare to build a levee. However, the employee testified that Muto later shifted policy and called for an investigation into whether the long-term tsunami risk assessment is correct rather than taking tsunami countermeasures.

"I thought they (TEPCO) would consider taking tsunami prevention measures, but they changed policy unexpectedly and I lost heart," the employee told the court.

Along with Muto, former TEPCO President Tsunehisa Katsumata and Vice President Ichiro Takekuro were slapped with mandatory indictments in February 2016 after a decision by the Tokyo No. 5 Committee for the Inquest of Prosecution. Since the trial's first public hearing, the court-appointed lawyers for the prosecution have claimed that the executives put off tsunami countermeasures even though TEPCO staff tasked with estimating the maximum height of tsunami that could strike the Fukushima plant endeavored to address the threat. The defendants have argued that they did not put off the countermeasures. (Japanese original by Ebo Ishiyama, City News Department, and Ei Okada, Science & Environment News Department)

April 24, 2018

## Kono calls for disarmament

### Japan calls on Nuclear Non-Proliferation Treaty members to push N. Korea further on nukes

<https://www.japantimes.co.jp/news/2018/04/24/national/politics-diplomacy/japan-calls-nuclear-non-proliferation-treaty-members-push-n-korea-nukes/#.WuBran8uCos>

Kyodo

GENEVA – Foreign Minister Taro Kono on Tuesday called on parties to the Nuclear Non-Proliferation Treaty to urge North Korea to go beyond a freeze of nuclear testing and seek a “complete, verifiable and irreversible” end to its nuclear program.

“North Korea’s nuclear and missile programs pose a grave challenge to the international nuclear non-proliferation regime,” Kono said in Geneva during the second preparatory committee meeting for the 2020 NPT review conference.

Kono said Japan welcomes North Korea’s promise last week to halt its testing of nuclear weapons and intercontinental ballistic missiles, and to dismantle its main nuclear testing site.

“We need to urge North Korea, however, to do more than what was announced,” he said.

He said the international community requires North Korea to sign and ratify the Comprehensive Nuclear Test Ban Treaty, or CTBT.

Kono also discussed the recommendations of a panel of experts assembled by the Japanese government for bridging the dialogue gap between countries seeking to abolish nuclear weapons and those that count on them as part of their defense.

Based on the recommendations, Kono said Japan is calling for the international community to improve the transparency of countries’ nuclear forces, establish a more effective verification mechanism for nuclear disarmament and address “hard questions” about “security concerns that may emerge from the nuclear disarmament process.”

Japan expressed fear over a further widening of the gap between the nuclear haves and have-nots to explain why it has refused to take part in a U.N. treaty banning nuclear weapons adopted last year, despite seeking a world free of such weapons.

The world’s nuclear-armed states and other countries that rely on the U.S. nuclear deterrent also sat out on negotiations for the ban treaty.



“A sovereign state must protect the lives and properties of her people. We need to seek security and nuclear disarmament simultaneously,” Kono said.

He said Japan, as the only country to have sustained wartime nuclear bombings, has a “responsibility to lead international efforts towards the elimination of nuclear weapons.”

The meeting is the second of three that will be held prior to the 2020 review conference. It began on Monday and will run through May 4.

Kono’s predecessor Fumio Kishida attended the first meeting in Vienna last year.

### **Kono calls for disarmament and security**

[https://www3.nhk.or.jp/nhkworld/en/news/20180424\\_36/](https://www3.nhk.or.jp/nhkworld/en/news/20180424_36/)

Japanese Foreign Minister Taro Kono has stressed the importance of seeking nuclear disarmament while at the same time ensuring security.

Kono was speaking at a preparatory meeting on Tuesday for the 2020 Nuclear Non-Proliferation Treaty Review Conference in Geneva.

He explained the recommendations on nuclear arms reduction submitted to Japan last month by a panel of experts from countries that possess nuclear arms as well as from those that do not.

Kono stressed the need to build trust between countries that say nuclear arms are needed as deterrence and those that call for their abolition on humanitarian grounds.

He said Japan believes that creating realistic measures with the cooperation of nuclear-armed and non-nuclear nations is the path to a nuclear-free world.

Kono indicated that Japan will play a leading role in maintaining and strengthening the framework for nuclear non-proliferation.

He welcomed North Korea's announcement that it would halt its nuclear and missile tests, but warned about easing pressure against the country. He stressed that the international community must remain united to maintain maximum pressure.

Kono offered no comment on the UN Treaty on the Prohibition of Nuclear Weapons adopted last year.

April 26, 2018

## **Erupting again after 250 years**

## **Mt. Ioyama in southwestern Japan erupts again**

[https://www3.nhk.or.jp/nhkworld/en/news/20180426\\_27/](https://www3.nhk.or.jp/nhkworld/en/news/20180426_27/)

Mount Ioyama in southwestern Japan has erupted again a week after its first eruption in 250 years.

The volcano is part of the Kirishima Mountain Range, which straddles the prefectures of Miyazaki and Kagoshima.

The Meteorological Agency says a minor eruption occurred around 6:15 PM on Thursday. It sent smoke more than 200 meters high from a new crater where escaping gas had been observed.

The agency says the crater is about 500 meters west of where the first eruption occurred last Thursday.

It also says no scattering of large volcanic rocks has been reported and no change in ground elevation on the mountain has been observed.

The agency is keeping its volcanic alert level at 3 on a scale of 1 to 5, and urging people to stay away from the mountain.

It is also warning of possible falling rocks and pyroclastic flows within 2 kilometers of the crater.

April 29, 2018

**Roads should not be built with contaminated material**



Plastic bags filled with radioactive soil are placed in temporary storage in Nihonmatsu, Fukushima Prefecture, in October. | KYODO

### **Fukushima residents fight state plan to build roads with radiation-tainted soil**

<https://www.japantimes.co.jp/news/2018/04/29/national/fukushima-residents-fight-state-plan-build-roads-radiation-tainted-soil/#.WuqtVX8uCos>

Kyodo

FUKUSHIMA – The Environment Ministry plans to use radiation-tainted soil to build roads in Fukushima Prefecture, starting with trials in the city of Nihonmatsu next month.

But in the face of fierce protests from safety-minded residents, the ministry is struggling to advance the plan.

“Don’t scatter contaminated soil on roads,” one resident yelled during a Thursday briefing by Environment Ministry officials in Nihonmatsu.

The officials repeatedly tried to soothe them with safety assurances, but to no avail.

“Ensuring safety is different from having the public feeling at ease,” said Bunsaku Takamiya, a 62-year-old farmer who lives near a road targeted for the plan. He claims the project will produce groundless rumors that nearby farm produce is unsafe.

Seven years after the March 2011 core meltdowns at the Fukushima No. 1 nuclear plant, Takamiya has finally been able to ship his produce in Fukushima without worry. Then the ministry’s soil plan surfaced. A woman in the neighborhood agrees.

“The nature and air here are assets for the residents. I don’t want them to take it away from us,” she said. Under the plan, tainted soil will be buried under a 200-meter stretch of road in the city. The soil, packed in black plastic bags, has been sitting in temporary storage.

The plan is to take about 500 cu. meters of the soil, bury it under the road at a depth of 50 cm or more, cover it with clean soil to block radiation, and pave over it with asphalt. The ministry intends to take measurements for the project in May.

Fukushima is estimated to have collected about 22 million cu. meters of tainted soil at most. The ministry plans to put it in temporary storage before transporting it to a final disposal site outside the prefecture. The idea is to reduce the amount. The ministry thus intends to use soil with cesium emitting a maximum of 8,000 becquerels per kg in public works projects nationwide.

The average radiation level for soil used for road construction is estimated at about 1,000 becquerels per kg, the ministry says.

The ministry has already conducted experiments to raise ground levels in Minamisoma with the tainted soil, saying “a certain level” of safety was confirmed.

Similar plans are on the horizon regarding landfill to be used for gardening in the village of Iitate. But it is first time it will be used in a place where evacuations weren’t issued after the March 2011 meltdowns. Given the protests, an official linked to the ministry said, “It’s difficult to proceed as is.”

May 10, 2018

## The Fukushima legacy

### **The Fukushima legacy: more than just cancer, diabetes diagnoses have increased six-fold**

<https://www.nexusnewsfeed.com/article/geopolitics/the-fukushima-legacy-more-than-just-cancer-diabetes-diagnoses-have-increased-six-fold/>

It’s not a secret that nuclear radiation is dangerous: Not only does it cause cancer, even seemingly small amounts of the stuff can be lethal. Exposure to high enough levels can be deadly in frighteningly short periods of time. But for the survivors of the Fukushima disaster, and those living in surrounding areas, radiation and cancer aren’t the only health concerns. New research has shown that in communities nearest the power plant, cases of type 2 diabetes are on the rise.

Researchers have been analyzing the secondary health effects of the nuclear disaster, which took place seven years ago now. Dr. Masaharu Tsubokura, from the Department of Radiation Protection at Minamisoma Municipal General Hospital in Fukushima, has been working alongside other researchers to better understand the full scope of Fukushima’s health consequences. Their findings indicate both an increase in the number of cases, and a rise in severity of, health conditions like diabetes, high blood pressure, obesity and depression.

Dr. Tsubokura says that the social disruption caused by the evacuation has played an under-reported role on public health. As the research reveals, the elderly in particular have been hardest hit by the disaster — especially when it comes to diabetes. In the wake of Fukushima, “diabetes trumps radiation as a threat to life expectancy by a factor of 33,” sources say.

This is not to say that diabetes is more dangerous than radiation — but the finding shows that the number of people being afflicted by diabetes post-disaster is surprisingly high. The risk of type 2 diabetes, and poor diabetes management, as an indirect effect of the nuclear spill is substantial.

More than just a disrupted lifestyle?

The 2017 research paper highlights the fact that the effects of such disasters extend far beyond the acute: Indirect health issues abound after such an extreme disruption to normal life. But, is that really the only explanation?

Dr. Vivian Fonseca, assistant dean for clinical research at Tulane University in New Orleans reported similar effects in her post-Hurricane Katrina research. She noted that diabetes management “goes haywire” during the aftermath of a disaster — and the condition is heavily influenced by lifestyle factors like diet and exercise. The social stress of an evacuation and potential social isolation also weigh quite heavily on people who’ve already been diagnosed with the condition.

Scientists say the full scope of health ramifications is difficult to accurately ascertain; it’s hard to say what the mediating factors are (outside of the radiation, of course). But, that hasn’t stopped the Japanese government from wanting to build roads out of radioactive Fukushima dirt.

Some research from the Ukraine has documented a staggering increase in cases of diabetes and other non-cancer endocrine disorders. Even 30 years after the Chernobyl power plant incident, increased cases of diabetes and other conditions in survivors are still being documented. Scientists from the Ukraine reported in 2017 that levels of diabetes in radiation-exposed survivors (including site clean-up workers) remain noticeably higher than the rest of the population.

This finding could raise questions about the purported increase of diabetes in Fukushima survivors. While scientists say that this increase is due to the massive social disruption caused by the evacuation, one might wonder if there’s more to it than that. As the Ukrainian scientists note, research has shown that the endocrine system may be more affected by exposure to radiation than previously thought, especially the pancreas.

The idea that an increase in diabetes could be related to radiation exposure and not just lifestyle changes alone isn’t all that far-fetched, is it?

#### **Sources for this article include:**

Ozy.com

Endocrine-Abstracts.org

FacebookTwitterGoogle+Share

May 9, 2018

## **Radioactive water found at Ikata plant**

### **Contaminated water leak found at Ehime Pref. nuke plant**

<https://mainichi.jp/english/articles/20180509/p2a/00m/0na/022000c>

IKATA, Ehime -- Water containing radioactive materials has leaked from a purification system inside of a stalled nuclear reactor here, Shikoku Electric Power Co. and the Ehime Prefectural Government announced on May 9.

- **【Related】** Another aging reactor in western Japan to be scrapped
- **【Related】** In ordering nuclear plant suspension, Hiroshima high court recognizes volcanic risk

- **【Related】** NRA has nuke plant volcano checklist, but experts point to eruptions' unpredictability

The leak occurred in the auxiliary building of the No. 3 reactor at the Ikata Nuclear Power Station in the town of Ikata, Ehime Prefecture. According to the prefectural government and Shikoku Electric, the coolant water was found to be leaking from the pressure gauge stop valve for the purification system at around 2:10 a.m. on May 9.

The radiation level of the materials in the roughly 130 milliliters of escaped water measured 20 becquerels, far below the standard for filing a report to the central government. The utility and Ehime Prefecture said there is no reported leakage outside of the facility, nor was there any danger posed to employees or the surrounding environment. Regardless, the reason for the leak will be investigated thoroughly.

The No. 3 Reactor at the facility was restarted in August 2016. However, while the reactor was undergoing a scheduled inspection in December 2017, a temporary injunction was handed down by the Hiroshima High Court that halted operation at the site.

(Japanese original by Aoi Hanazawa, Matsuyama Bureau)

May 10, 2018

## China may ease restrictions on Japanese food

### Fukushima hopeful as China mulls easing of import curbs

<http://www.the-japan-news.com/news/article/0004429650>

Japan and China will start talks toward China easing its import restrictions on Japanese food products imposed after the accident at Tokyo Electric Power Company Holdings, Inc.'s Fukushima No. 1 nuclear power plant, the two nations agreed at a summit meeting in Tokyo on Wednesday.

Seven years after the 2011 accident, products from Fukushima Prefecture are still viewed with suspicion by some countries. Local producers in Fukushima Prefecture and government officials have high hopes that China will open its markets.

"I feel like I've been waiting for this," said Hideharu Ota, 57, president of Daishichi Sake Brewery Co. in Nihonmatsu, Fukushima Prefecture. "I want to promote Fukushima products with our sake and help improve the image of the areas affected by the earthquake," he added.

The long-established sake brewery had planned to export its products to China, but that stalled due to the 2011 Great East Japan Earthquake. Currently, the brewery exports sake products to 20 countries in areas such as North America and Europe.

Ota has high expectations for China's lifting of import restrictions, saying, "China's large market is attractive."

In the wake of the nuclear power plant accident, 54 countries and regions imposed import restrictions against Japanese food products. Currently, 27 countries and regions still impose such restrictions, and China has halted imports of all food products from 10 prefectures, including Fukushima.

About 210 tons of agricultural products from Fukushima Prefecture were exported in fiscal 2017, more than the 153 tons in fiscal 2010 before the disaster. But the fiscal 2017 exports were mainly to Malaysia

and Thailand, which lifted import restrictions, while shipments to East Asia have been sluggish because countries and regions in the area have yet to lift their restrictions.

“If the Chinese market opens up, it may have a positive impact on surrounding countries and regions,” said an official of the prefectural government’s division concerning strategies to promote local products.

Some nations still take a harsh position on products from Fukushima Prefecture.

In March, Russia lifted import restrictions on marine products from six prefectures, including Iwate, but requires the submission of a certificate related to radioactive materials for marine products from Fukushima. In May, the United Arab Emirates made the submission of a certificate unnecessary when importing other Japanese food products, but still requires a certificate for Fukushima products.

There are also cases of harm caused by misinformation.

In 2015, Thailand lifted import restrictions except for wild game meat. In March this year, exports of marine products from Fukushima started. But local consumer groups opposed a promotional event for raw fish from Fukushima that was held in Bangkok, saying the products were contaminated.

Partly because the incident was reported by media outlets, the event was canceled, followed by the cancellation of the exports themselves.

“Even though a country lifts restrictions, what comes next is harm caused by misinformation. Consumers reacted much more sensitively than expected,” said a person involved in the exports of the marine products at a trading company.

An official at the Agriculture, Forestry and Fisheries Ministry’s Office for Relaxing Overseas’ Import Regulations said: “There are some countries where a bad image remains, with the word Fukushima equated with the nuclear power plant. The Japanese government intends to claim the safety [of Fukushima products] and seek the understanding on it.”

May 11, 2018

## Low-water alarm at Ohi No.4

### Low-water alarm halts Oi nuke plant reactor soon after restart

<https://mainichi.jp/english/articles/20180511/p2a/00m/0na/024000c>

OI, Fukui -- A low-water level alarm sounded at the Oi Nuclear Power Plant's No.4 reactor here on May 10, according to plant operator Kansai Electric Power Co.

- **【Related】** Coastal nuclear reactor resumes operations, joins 2 units nearby
- **【Related】** Hole found in pipe after steam leak at reactivated nuclear reactor
- **【Related】** Contaminated water leak found at Ehime Pref. nuke plant
- **【Related】** Nuclear regulator OKs terror response center plans for Sendai plant

The alarm indicating low water inside the unit's steam generator stopped immediately after it rang at 5:38 p.m. However, Kansai Electric took the reactor off-line to check the situation. The utility had just restarted the No.4 reactor on May 9.

Heat transmission tubes in the steam generator boil the reactor's water coolant into steam, which then spins the generator turbine. Kansai Electric believes that one of four water level indicators inside the steam generator malfunctioned, and stated that there were no problems affecting the environment. The utility restarted the reactor again at 1:35 a.m. on May 11. ,  
(Japanese original by Kazutaka Takahashi, Fukui Bureau)

May 16, 2018

## Sendai plant & anti-terrorism

### Regulator approves Sendai plant anti-terror plan

[https://www3.nhk.or.jp/nhkworld/en/news/20180516\\_12/](https://www3.nhk.or.jp/nhkworld/en/news/20180516_12/)

Japan's nuclear regulator has approved a plan to build terrorism-response facilities for a reactor at the Sendai plant in southwestern Japan.

New government regulations require nuclear plant operators to build stand-by central control rooms at least 100 meters away from their reactors, or to make control rooms strong enough to survive a plane crash or terrorist attack. The regulations were introduced after the 2011 Fukushima Daiichi nuclear plant accident.

The Nuclear Regulation Authority, or NRA, on Tuesday approved part of an anti-terrorism plan submitted by Kyushu Electric Power Company.

NRA officials say there are no problems in a system to remotely cool the No.1 reactor if a large aircraft were to be crashed into the reactor building.

They also say the designs are appropriate for the plumbing and valves used to send cooling water to the reactor from a tank to be built. Details of the plan, such as the sites or designs of the new facilities, were not disclosed.

Of 7 nuclear plants for which operators have submitted anti-terrorism plans, Sendai is the first to win NRA approval.

Kyushu Electric hopes to finish the work for the No.1 and No.2 reactors by 2020. It says the costs will be about 2 billion dollars.



May 20, 2018

## Radiation monitors: An expensive mismanagement

### Fukushima Prefecture radiation monitoring posts installed after 3/11 hit by glitches

<https://www.japantimes.co.jp/news/2018/05/20/national/fukushima-prefecture-radiation-monitoring-posts-installed-3-11-hit-glitches/#.WwHKnlouCos>

Kyodo

Some 3,000 radiation monitoring devices installed in Fukushima Prefecture after the 2011 Fukushima No. 1 nuclear power plant disaster have been hit by glitches and other problems nearly 4,000 times, sources familiar with the matter said Sunday.

The Nuclear Regulation Authority, which operates the devices called monitoring posts, is planning to remove around 80 percent of them by the end of fiscal 2020 on grounds that radiation levels in some areas have fallen and steadied.

But the move can also be seen as an attempt to cut costs as the government is expected to terminate by the same year a special budget account for rebuilding the Tohoku region affected by the March 2011 earthquake and tsunami that triggered the nuclear crisis.

Some local governments and residents have opposed the planned removal of monitoring posts, expressing concerns about their health.

Around 3,000 monitoring posts were installed in locations such as kindergartens and schools to measure radiation levels in the air, according to the NRA.

But during the five years since fully starting the operation of the devices in fiscal 2013, the monitoring system has been hit by a variety of problems, such as showing inaccurate readings and failing to transmit data, 3,955 times.

The makers of the device and security system companies were called each time to fix the problems.

**Managing the monitoring posts has cost the central government about ¥500 million a year.**

In March, the NRA decided to remove some 2,400 monitoring devices set in areas other than 12 municipalities near the crippled No. 1 plant and reuse some of them in the 12 municipalities.

Local citizens' groups have requested the authority not to remove the monitoring posts until the decommissioning work is completed at the plant of Tokyo Electric Power Company Holdings Inc.

Terumi Kataoka, a housewife who lives in the city of Aizuwakamatsu, said she formed a group of mothers and submitted a petition to the authority in April to keep the monitoring devices, but the authority did not change the plan.

She also requested information disclosure about plans to reuse the devices, but she only received an answer that no official documents regarding such plans have been drafted.

"It's all about the budget in the end. They can't reuse the devices and there seems to be no concrete plans," she said.

May 26, 2018

## Letter from Ambassador Murata to the UN Secretary-General

The Honorable António Guterres  
Secretary-General of the United Nations Organization  
New York City, NY.

Tokyo, May 26, 2018

Dear Secretary-General António Guterres,

Please allow me to draw your attention to the persistent and deepening Fukushima crisis.

It is essential not to forget the crucial fact that the state of emergency promulgated after the Fukushima accident still persists and will not be annulled hereafter for more than 100 years according to reliable experts.

It is simply abnormal not to consecrate maximum efforts to this task. The Tokyo Olympic Games 2020 should be considered as out of the question. Its preparations, however, are being promoted without hesitation.

The International Olympic Committee continues not to respond to increasing legitimate requests from various quarters to reexamine the false assertion "under control", publicly condemned as a "big lie" by Former Prime Minister Junichiro Koizumi. He is now engaged in promoting a national movement against nuclear reactors, together with Former Prime Minister Morihiro Hosokawa.

Former Prime Minister Yukio Hatoyama, in the interview article of the Japan Times of January 21, 2016, pleaded for Japan's retreat from the Tokyo Olympic Games. He has recently sent me a message in which he expressed his appreciation and expectations of women's role in this crucial problem.

In this connection, there is a growing support for the plea to make shift the current paternal civilization based on power and domination to a maternal civilization based on harmony and solidarity.

On May 16, the House of Councilors unanimously approved a law aimed at equalizing eventually the number of male and female candidates in national elections.

Women are expected to remind the world of the very lesson of the Fukushima nuclear accident that requires the shift of priority from economy to life.

The current Japanese society, exposing one scandal after another, reminds the whole world of the well-known warning of the ancient Chinese philosopher Laozi; "The Heaven's vengeance is slow but sure". It reminds us of the law of history that does not allow immorality to last long.

I wish you the best of luck in your noble and increasingly challenging mission.

Please accept, Secretary-General António Guterres, the assurances of my highest consideration.

Mitsuhei Murata

Former Japanese Ambassador to Switzerland and Senegal

Honorary Professor of Tianjin University of Science and Technology (China)

May 28, 2018

## Fukushima mothers tell their story



### Fukushima mothers at UN tell their story

<https://beyondnuclearinternational.org/2018/05/28/fukushima-mothers-at-un-tell-their-story/>

### Evacuees from nuclear disaster urge the Japanese government to comply with UN Human Rights standards

By Linda Pentz Gunter, with contributions from Kurumi Sugita and Akiko Morimatsu

When Kazumi Kusano stood in the CRIIRAD radiological laboratory in Valence, France listening to lab director, Bruno Chareyron, describe just how radioactive the soil sample taken from a school playground back home in Japan really was, she could not fight back the tears.

"This qualifies as radioactive waste," Chareyron told them. "The children are playing in a school playground that is very contaminated. The lowest reading is 300,000 bequerels per square meter. That is an extremely high level." (*CRIIRAD is the Commission for Independent Research and Information about Radiation, an independent research laboratory and NGO*).

Kazumi, a Japanese mother and Fukushima evacuee who prefers not to use her real name, was in France with two other mothers, Mami Kurumada and Akiko Morimatsu — all of whom also brought their children — as part of an educational speaking tour. Morimatsu was also invited to testify before the UN Commission on Human Rights in Geneva, to launch an appeal for the rights of nuclear refugees.

In Japan, seven years since the March 2011 Fukushima nuclear disaster began to unfold, the government is requiring some refugees to return to the region. Says Chareyron, whose lab has worked extensively in the Fukushima zone, “the Japanese government is doing everything to force citizens to return to lands where the radiation doses that citizens and children should be subjected to are largely over the typically acceptable norms.”

“People in Japan still don’t believe that the effects they are feeling are due to radiation,” said Kusano during one of the tour stops in France. Indeed, when they took samples in their neighborhoods to be analyzed for radioactive contamination, they were mocked not only by their neighbors but by government officials.

“We don’t take this seriously in Japan,” said Kurumada, who expressed relief to be among those who understand the true dangers, like Chareyron and the French anti-nuclear activists with whom they met. “In our country, it’s taboo to talk about radiation and contamination.”

Both Kusano and Kurumada are among those who have brought lawsuits against Tepco and the Japanese government, seeking compensation for Fukushima evacuees. Several of these have already ruled in favor of the evacuees and have assigned responsibility for the accident to Tepco and the government while providing financial awards to the plaintiffs. (Kusano’s son’s testimony helped win one of those cases — see our earlier coverage.)

The Japanese government pressured evacuees to return to areas contaminated by the Fukushima disaster by withdrawing their government financial assistance. However, many in areas that were not obligatory evacuation zones also left the region, given the high levels of radioactive contamination.

In addition to the visit to CRIIRAD, the mothers also spoke at public meetings in Lyon, Grenoble and Valence where CRIIRAD is located. The short news video below, in French, captures their visit to the lab.

<https://youtu.be/HzfY0xIy0I8>

At the UN in Geneva, Morimatsu’s testimony was postponed several days by a workforce strike. But eventually, Morimatsu (pictured with her son above the headline) was able to deliver her speech. She said: “My name is Akiko Morimatsu. I am here with other evacuees and mothers, together with Greenpeace. I evacuated from the Fukushima disaster with my two children in May 2011. Shortly after the nuclear accident, radiation contamination spread. We were repeatedly and unnecessarily exposed to unannounced radiation.

“The air, water and soil became severely contaminated. I had no choice but to drink the contaminated water, to breast-feed my baby. To enjoy health, free from radiation exposure, is a fundamental principle. The Japanese Constitution states, ‘We recognize that all peoples of the world have the right to live in peace, free from fear and want.’

“However, the Japanese government has implemented almost no policies to protect its citizens.

Furthermore, the government is focusing on a policy to force people to return to highly contaminated areas.

“I call on the Japanese government to immediately, fully adopt and implement the recommendations of the UN Human Rights Council. I thank UN member states for defending the rights of residents in Japan. Please help us protect people in Fukushima, and in East Japan, especially vulnerable children, from further radiation exposure.”

Earlier that month, the Japanese government had responded to its Universal Periodic Review, by stating that it “supports” 145 recommendations and “notes” 72. One of those recommendations from the UN Human Rights Council, and which Japan “accepted”, was the paragraph that states: “Respect the rights of persons living in the area of Fukushima, in particular of pregnant women and children, to the highest level of physical and mental health, notably by restoring the allowable dose of radiation to the 1 mSv/year limit, and by a continuing support to the evacuees and residents (Germany);”

According to Hajime Matsukubo of Citizens Nuclear Information Center in Tokyo, while the Upper House of the Japanese Diet has indicated its willingness to decrease annual radiation exposures from 20 mSv, the Japanese government has only said it would “follow up” on the specific UN recommendation and report back later. There is no timeframe for such a change, hardly surprising since it would presumably mean once more evacuating people the government has already pressured to return to contaminated areas. The practical implications of this happening leave it very much in doubt.

However, Matsukubo believes that even the commitment to follow up “is a strong tool for us to push the government forward.” Aileen Mioko Smith of Kyoto-based Green Action agrees. “Now we have terrific leverage,” she said. Her group, along with Greenpeace Japan will be looking to “keep the Japanese government’s feet to the fire on this.”

June 2, 2018

## 30-km emergency planning zones: What status?

### **EDITORIAL: Giving new status to 30-km zones within nuclear plants**

<http://www.asahi.com/ajw/articles/AJ201806020020.html>

The 2011 Fukushima nuclear disaster provided graphic evidence of the lasting and far-reaching damage that can result when this technology goes askew.

**Electric utilities that operate nuclear power plants have a duty to respond with utmost sincerity to safety concerns among local governments and communities, especially cities and towns within 30-kilometer emergency planning zones.** Utilities should treat local governments within the zones, which are required to develop emergency evacuation plans under stringent new regulations introduced after the March 2011 emergency, equally as the governments in nuclear host communities.

Chugoku Electric Power Co. recently took the first step toward the start of operations of the Shimane nuclear power plant’s new reactor, whose construction was halted following the Fukushima catastrophe. The utility, based in Hiroshima, asked the Shimane prefectural government and the Matsue city government to approve its application to the Nuclear Regulation Authority (NRA) for safety screening of the No. 3 reactor under the new regulatory standards.

The No. 3 reactor was close to completion when the Fukushima No. 1 nuclear power plant went in a triple meltdown. Work to install the necessary safety measures is expected to finish in the first half of 2019.

This facility could become the first new nuclear reactor in Japan to start operation after the Fukushima disaster, an event that triggered tighter safety standards for nuclear plants.

The new reactor, if cleared for operation, will be in service until around 2060 under the principle that imposes a 40-year limit on the operational life of a reactor.

**The reactor is part of a complex that has the distinction of being the only nuclear power plant located in the capital of a prefecture.**

Within 30 km of the plant lie three other cities in Shimane as well as the cities of Sakaiminato and Yonago in neighboring Tottori Prefecture. **Some 470,000 people live in the 30-km zone.**

In 2011, authorities in Tottori Prefecture and the two cities signed an agreement with Chugoku Electric Power that commits the utility to put top priority on the safety of local residents in operating the plant. These local governments have been demanding that the utility apply the procedures for obtaining consent for reactor operations from the Shimane and Matsue governments also to the local governments in Tottori Prefecture.

In April this year, the prefectural and municipal governments in Tottori formed a joint task force to assess the safety of the new reactor with the help of the utility.

Chugoku Electric Power's move to seek the consent of only the Shimane prefectural government and the Matsue city government to start the process of bringing the reactor online has caused "considerable confusion" among the local communities in Tottori Prefecture, according to Tottori Governor Shinji Hirai. "I feel bewildered" at the way the utility is going ahead with the plan, Hirai said with obvious and justifiable discontent.

Safety agreements between nuclear plant operators and local governments generally require utilities to secure the advance consent of the local governments when new reactors are built or important changes are made to existing facilities. In most cases, however, the scope of the local governments covered is limited to the prefectures and municipalities where the plants are located.

But an agreement was reached this spring between Japan Atomic Power Co. (JAPC), the operator of the Tokai No. 2 nuclear power plant in Ibaraki Prefecture, and five surrounding municipalities that commits JAPC to seek approval from these municipalities within the 30-km zone before bringing its idled reactor back on stream. They include the city of Mito, as well as Tokai village, which hosts the nuclear plant, and the prefecture.

Some local governments around the Shimane nuclear plant are calling on Chugoku Electric Power to hold advance talks over the operation of the new reactor with all the six cities within the 30-km zone. **The utility should treat all the local governments within the emergency planning zone like host communities.**

When Kyushu Electric Power Co. moved to restart the No. 3 reactor at its Genkai nuclear power plant in Saga Prefecture, four of the eight municipalities in three prefectures located within the 30-km zone were up in arms over the plan. But the procedures for the restart went ahead after the town of Genkai, which hosts the plant, and Saga Prefecture gave their consent.

Shimane Governor Zenbe Mizoguchi has indicated his intention to listen to the opinions of all the surrounding local governments, including those in Tottori Prefecture. The Shimane and Matsue governments plan to propose this approach to their respective local assemblies. **The case of the Genkai plant should serve as a cautionary tale for these local governments.**

June 5, 2018

## **What's to be done about tritium?**



Storage tanks of contaminated water stand at Tepco's Fukushima No. 1 nuclear power plant. Tepco estimates that at the current rate it will run out of tank space in 2020, and a decision must be made on what to do with the water well before then. | BLOOMBERG

## About that tritiated water: Who will decide and when?

<https://www.japantimes.co.jp/opinion/2018/06/05/commentary/japan-commentary/tritiated-water-will-decide/#.WxehPIouCos>

by Azby Brown

Virtually every news story about the Fukushima No. 1 nuclear power plant acknowledges the tremendous ongoing problem of contaminated water that is accumulating in approximately 850 large tanks on-site. There are about 850,000 tons of water in the tanks at present, from which all radionuclides of concern except tritium — radioactive hydrogen — have been effectively removed. More water accumulates each day, in quantities roughly equal to the amount of groundwater that seeps into the damaged reactor buildings. Tokyo Electric Power Company Holdings estimates that at the current rate it will run out of tank space in 2020. Something needs to be done well before then, and the decision should address the concerns of all stakeholders, public and private.

The Ministry of Economy, Trade and Industry recently announced that meetings will be held where the public can hear explanations of proposed solutions and comment on them. Unless they think seriously about how to prevent this from becoming yet another clumsy exercise in DAD — “decide, announce, defend” — these meetings will be a mere fig leaf that will allow the government to claim it has adequately consulted the public.

As it is, the government’s decision-making process itself appears to be dysfunctional, and we have reason to be skeptical that it will be possible to avert very bad domestic and international public reactions if and when this water is disposed of.

The Subcommittee on Handling Water Treated by the Polynuclide Removal Facility is one of several Japanese government committees organized by METI tasked with formulating a response to the problem of the radioactive water. The planned public sessions were announced at its eighth meeting, on May 18. This is a step in the right direction, and is long overdue. Nevertheless it may well be a case of “too little, too late.” The decision, delayed for years, will almost certainly be to dilute the water and release it to the ocean, and meanwhile, public opposition to this idea has hardened. The issue hinges on both scientific understanding and public perception.

### **What is tritium?**

Tritium, scientifically indicated as “H3,” occurs both naturally and through man-made processes. Tritiated water (HTO), like that accumulating at the No. 1 nuclear power plant, behaves almost identically to normal water, and can be taken up easily by living organisms.

The scientific consensus is that the health risks from exposure to tritium are several orders of magnitude lower than those from radionuclides like cesium, radioactive iodine or strontium. This is reflected in allowable limits in drinking water, which are generally tens or hundreds of times higher for tritium than for these others, ranging from 100 Bq/L in the European Union to 76,103 Bq/L in Australia. Nevertheless, the scientific community acknowledges some uncertainty about these risks.

Leaving the tritiated water in the tanks at No. 1 is the riskiest thing to do, due to the possibility of ruptures or uncontrolled leaks. As far back as 2014, the International Atomic Energy Agency recommended a controlled release to the ocean as the safest course of action, and Japan’s Nuclear Regulation Agency concurred.

A Tritiated Water Task Force convened by METI in 2013 examined five options in detail, and in 2016 concluded that for reasons of cost, available technology, time required, and safety, diluting and discharging it to the ocean was the least objectionable approach. The task force presented relevant monitoring data from decades of similar releases of tritium to the ocean from nuclear facilities in Japan and abroad, noting that the quantities from the No. 1 plant would be many times smaller and the tritium levels in ocean life too low to be of real concern.

Tepco has made it clear that ocean release is its preference as well. The company says that it strives to meet government recommendations, and does not intend to act without government support, but is ultimately responsible for any actual decision.

In July 2017 Takashi Kawamura, chairman of Tepco, said publicly that the decision to release the tritiated water had already been made, and the public outcry was immediate, particularly from Fukushima fishermen who expected to be consulted. The company quickly backpedaled.

Constructing the dilution facilities and pipelines that an ocean release would require is expected to require almost a year after any decision is made. At the current rate, that means the “go” signal must be given by early 2019 at the latest. That no decision has been officially announced to date can be ascribed to the very reasonable expectation of a strong public backlash, and, I believe, the reluctance of any responsible government officials to be associated with such an unpopular decision.

### **Fishermen’s opposition**

The strongest and most meaningful opposition comes from Fukushima’s fisheries cooperatives, which have suffered tremendously due to the 2011 disaster. Representatives of Tepco, METI and other government bodies that share the mandate for dealing with the contaminated water invariably stress how important it is to them to reach understanding and agreement with all stakeholders, the fisheries cooperatives in particular.



Takahiro Kimoto, a general manager in Tepco's nuclear power division, explained, "The policies can't and shouldn't be determined by Tepco alone, but we continue discussing the available options with government and other stakeholders. These discussions are taking a long time, but we consider them essential." Put bluntly, Tepco knows they will be pilloried no matter what, and seeks broad support. Shuji Okuda, METI's director for decommissioning and contaminated water management, stressed that no decision has yet been made regarding which of the five options for dealing with the tritiated water will be chosen. "It will be a decision of the Japanese government as a whole," Okuda explains, "not one made by any single agency. And it will be based on ample discussions with all stakeholders."

Although Tepco and METI indicate that they are prepared to accommodate the fishermen's conditions regarding the release, the cooperatives are adamant. "We are totally opposed to the planned release," explained Takaaki Sawada of the Iwaki Office of the Fukushima Prefectural Federation of Fisheries Cooperative Associations, known as FS Gyoren. "It's not a question of money or compensation," he continued, "nor of any level of concentration we might accept as safe. We do not think it should be our responsibility to decide whether or not to release it. We think it will be impossible for the public in general to understand why tritium is considered low risk," he continued, "and expect there will be a large new backlash against Fukushima marine products no matter how scientifically it is explained."

Much hinges on public understanding of the risks, and therefore on transparency. Robust and effective two-way communication is essential, not to persuade the public that official plans are acceptable, but to better equip them to participate in the debate in an informed way, and to push back where they feel it is necessary. It is the public's right to demand this kind of inclusion.

Communication should be aimed not only at fishermen and Japanese consumers, but internationally to all who are concerned about what the effect on the Pacific will be. The government has been sitting on the Task Force recommendations for almost two years without taking action. That it has taken this long to even begin planning to engage the public on this issue is, again, because no one in a governmental decision-making position wants to be politically associated with the consequences of a tritium release. According to METI, the content, location and timing of the public sessions will be discussed at the next subcommittee meeting in July. People unable to attend in person will be able to submit comments and questions via email. Though hastily planned events could possibly be held before the end of this year, it seems likely they will need to happen in 2019, bumping up against the decision deadline.

While some fishermen are likely to attend, the cooperatives themselves will likely refuse. This situation requires the actual involvement of citizens in the decision making process, but it is difficult to find instances of that actually happening in Fukushima since the accident in 2011. At the central government level in particular, it has almost always been DAD.

Regardless of whether one trusts scientific opinion or Tepco, the tritiated water cannot be left in the tanks at No. 1 indefinitely, and releasing it to the ocean, though not without risk, is the least objectionable of the available options. As it stands now, given the depth of public mistrust and the nature of misinformation in our current era, the situation is ripe for the maximum misunderstanding and negative social impact to occur if and when this tritiated water is finally released.

Unfortunately, I think we should be prepared for things to be done the "Kasumigaseki way": for the decision to be avoided until the last possible moment, and for government officials to claim then that an unavoidable emergency had arisen and it couldn't be helped.

There will be negative social impact no matter what, but unless responsible government officials step up soon, own the decision and ensure that public engagement is genuine, broad, and effective, these negative impacts will be unnecessarily magnified.

*Azby Brown is the lead researcher for Safecast, a volunteer-based NPO that conducts open, independent, citizen-run monitoring of radiation and other environmental hazards worldwide. [www.safecast.org](http://www.safecast.org)*

June 7, 2018

## Cesium washed into Tokyo Bay for 5 years

### **Study: Cesium from Fukushima flowed to Tokyo Bay for 5 years**

<http://www.asahi.com/ajw/articles/AJ201806070041.html>

By NOBUTARO KAJI/ Staff Writer

Radioactive cesium from the crippled Fukushima No. 1 nuclear power plant continued to flow into Tokyo Bay for five years after the disaster unfolded in March 2011, according to a researcher.

Hideo Yamazaki, a former professor of environmental analysis at Kindai University, led the study on hazardous materials that spewed from the nuclear plant after it was hit by the Great East Japan Earthquake and tsunami on March 11, 2011.

Five months after disaster caused the triple meltdown at the plant, Yamazaki detected 20,100 becquerels of cesium per square meter in mud collected at the mouth of **the Kyu-Edogawa river, which empties into Tokyo Bay.**

In July 2016, the study team detected a maximum 104,000 becquerels of cesium per square meter from mud collected in the same area of the bay, Yamazaki said.

**He said cesium released in the early stages of the Fukushima disaster remained on the ground upstream of the river, such as in Chiba Prefecture. The radioactive substances were eventually washed into the river and carried to Tokyo Bay, where they accumulated in the mud,** he said.

On a per kilogram basis, the maximum level of radioactivity of cesium detected in mud that was dried in the July 2016 study was 350 becquerels.

The government says soil with 8,000 becquerels or lower of radioactive cesium per kilogram can be used in road construction and other purposes.

The amount of radioactive cesium in fish in Tokyo remains lower than 100 becquerels per kilogram, the national safety standard for consumption.

June 10, 2018

## Planting rice in Fukushima



University students covered in mud plant rice saplings in a drained paddy in the town of Namie, Fukushima Prefecture, on May 19, 2018. (Mainichi)

## Returnee Fukushima farmers offer taste of rice cultivation in hopes of revitalization

<https://mainichi.jp/english/articles/20180610/p2a/00m/0na/005000c>

FUKUSHIMA -- University students and others from around Japan are coming to the farming villages of Fukushima Prefecture where evacuation orders from the 2011 nuclear disaster have been lifted, experiencing rice planting and interacting with local residents who are facing a difficult recovery and population decline.

- **【Related】** Amount of food with radioactive cesium exceeding gov't standards dropping: study
- **【Related】** Hamburger event using Fukushima ingredients held in Tokyo
- **【Related】** Fukushima Pref. to stop blanket radiation checks on rice, start random testing
- **【Related】** Delicacies from disaster-hit areas on the menu for Tokyo IOC banquet

Organized by local municipal governments and residents, the visits by people from outside the region affected by the Fukushima No. 1 Nuclear Power Plant disaster are providing inspiration to farmers, who have seen less than 20 percent of the pre-disaster farmland planted, and few inheritors to carry on the region's farming industry.

The laughter echoed over the idle farmland of the Sakata district in the town of Namie, Fukushima Prefecture, as university students and other participants planted rice by hand in a drained paddy on May 19.

"Everyone looks like they're having fun," said Namie resident and farmer Kiyoto Matsumoto, 79, with a smile. "Watching them is pretty enjoyable."

Students started coming to Namie to experience rice planting two years ago. The idea of the event was to have them learn about the current conditions in areas affected by the March 2011 earthquake, tsunami and nuclear disasters, and to link the awareness with the revitalization of the region. On that day, roughly

60 students worked up a sweat in the mud of the rice paddies. The students can also take part in the harvest of the crops and sell the rice at a local festival held in the town in November.

"I really got a feel for how hard farmers work, and I also learned about the lack of successors to take over the farms and other issues," said an 18-year-old first-timer, a student at Waseda University in Tokyo. Matsumoto hopes that "the young people (who participate) will be able to feel something through experiencing agricultural work."

In areas where the 2011 evacuation order has been lifted, rice production has once again become possible. The Fukushima Prefectural Government has been testing all rice produced within the prefecture, and there have been no cases where the rice exceeded the standard limit of the radioactive material cesium from 2015-2017. Still, even after the evacuation order was lifted, residents have not been returning to their pre-disaster homes, and with the added influence of an aging population and a lack of successors, there are few farmers who have taken up rice cultivation again. **Of the farmland across the five villages and towns of Tomioka, Namie, Iitate, Katsurao and Naraha, the Odaka Ward of the city of Minamisoma and the Yamakiya district of the town of Kawamata, for which evacuation orders were lifted between 2015 and 2017, only between less than 1 percent to 14 percent of the pre-disaster farmland was in use this spring.**

In the village of Iitate, 73-year-old farmer Masao Aita also held a rice-planting event on May 19 for adults and students alike that attracted 32 participants. Aita and his wife just returned to the village the month before. The couple had given up on cultivating rice out of concern that they would not be able to sell what they had produced, and planned to plant the fields with tulips and other flowers. However, they were approached by a volunteer group. The group recommended the rice cultivation event.

Aita plans to send the harvested rice to each of the participants and have them give it a taste. "If people from the outside come visit the village, then it is bound to spark something eventually," he said.

(Japanese original by Shuji Ozaki, Fukushima Bureau)

## Mayor election in Rokkasho & nuclear risk





**Mayor election in Rakkasho Village, Aomori Prefecture, Japan: A small village where world nuclear risk is at stake.**

<https://fukushima311voices.com/2018/06/10/mayor-election-in-rokkasho-village-aomori-prefecture-japan-a-small-village-where-world-nuclear-risk-is-at-stake/>

**Don't let the Rakkasho nuclear fuel reprocessing plant start!**

**The Rakkasho village mayor election takes place on June 24, 2018.**

**We are calling for people to send encouraging comments for Ms Junko ENDO, anti-nuclear fuel cycle candidate!**

For FB users, please write messages in the Facebook page of the candidate Ms Junko ENDO's political group "Rokkasho Mura ni atarashii kaze wo okosu kai" (Group to raise a new wind in Rokkasho Village)

The Facebook page is in Japanese, but you are most welcome to post your comments in your mother language. In fact, they prefer different foreign languages so that they can show that support is arriving from all over the world!

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Text below is partly based on an original text of Kiyohiko YAMADA with additions by Kurumi Sugita and Jon Gomon.

### **A brief historical and geographical reminder**

There is a nuclear fuel cycle center in Rokkasho village, located at the root of Shimokita Peninsula in Aomori Prefecture, situated in the northernmost part of the main island of Japan.

On April 9, 1985, the governor of Aomori Prefecture decided to accept the center, composed of three facilities:

- a uranium enrichment (note 1) plant,
- a fuel reprocessing plant,
- and a low-level radioactive waste repository.

Afterwards, two facilities have been added:

- a temporary storage facility of high-level radioactive waste returned from overseas after reprocessing,
- and a MOX (note 2) fabrication plant.

### **Who is operating the nuclear fuel center?**

This nuclear fuel cycle center of Rokkasho village is operated by Japan Nuclear Fuel Limited (JNFL), notorious for its incompetent management to say the least. In October 2017, Japanese Nuclear Regulation Authority (NRA) reported that JNFL violated safety measures. See a Mainichi Shimbun article below: Unfinished nuclear fuel reprocessing plant faked safety records: NRA (Mainichi Shimbun, October 11, 2017)

*"The NRA concluded on Oct. 11 that Japan Nuclear Fuel Ltd. (JNFL) has violated safety measures after it was learned that the firm failed to carry out the required checks and nevertheless continued to write down "no abnormalities" in safety check records. There has been a spate of incidents such as the flow of rainwater into facility buildings at the plant in the Aomori Prefecture village of Rokkasho.*

*The plant, which is scheduled to reprocess spent nuclear fuel, was on the verge of hosting a final-stage NRA safety inspection, but the checkup is likely to be postponed considerably as JNFL now has to prioritize in-house inspections of all facilities at the plant."*

### **Major problems of the Rokkasho reprocessing plant**

#### **The Japanese nuclear fuel cycle collapsed with the fast breeder reactor "Monju"**

The Japanese government persisted to continue research and development on the fast breeder reactors, even though they had been abandoned elsewhere in the world. It was in December 2016 that the government decided to finally decommission the prototype reactor "Monju".

The government is still trying to start the operation of the Rokkasho reprocessing plant in the first half of 2021 fiscal year, even though the prospect of the fast breeder reactor's commercialization has become improbable. There is a contradiction here. Why start a reprocessing plant when there is no usage plan for

the end product (see below as for Mox fuel usage)? One possible reason is that for quite a while former Liberal Democratic Party (LDP) ministers have been hinting at the possibility to possess nuclear weapons. They may want to have a plutonium extraction plant which can produce eight tons of plutonium annually.

### **Surplus Plutonium problem**

The Japanese government has ordered the power companies to reprocess the total amount of used nuclear fuel resulting from nuclear power plants' operation. When there was no reprocessing plant in Japan, the reprocessing was entrusted to the UK and France. After that, a national reprocessing plant was built in Tokai village in Ibaraki prefecture, and then the construction of the private reprocessing plant in Rokkasho village in Aomori Prefecture was started in 1993.

The total amount of plutonium remaining in these reprocessing plants is about 48 tons. Since the commercialization of the fast breeder reactor has become improbable, the government wants to use the plutonium as MOX fuel at nuclear power plants (called plu-thermal in Japan).

However, since the TEPCO Fukushima Daiichi nuclear accident of March 11, 2011, the plu-thermal project is not progressing and it has become difficult to use up the surplus plutonium. If the Rokkasho reprocessing plant is put in operation, it will create a surplus of eight tons of plutonium annually. The possession of such an amount of plutonium will most certainly increase tensions in Asia.

### **Risks involved in the Rokkasho plant**

① The reprocessing plant is on a fault

Japan is riddled with geological faults, and there is no stable stratum. The Rokkasho reprocessing plant is not on a stable stratum at all. A big active fault of about 100 km lies in the Pacific Ocean side. Scientists warn that in case of a big earthquake, a magnitude 8 tremor could seriously damage the reprocessing plant.

The operating company insists that a big earthquake will not occur in Rokkasho, but their seismograph is installed on bedrock, and is set so that it does not indicate more than a seismic intensity 3. Why? It is because when seismic intensity higher than 3 is detected, it is necessary to make a total inspection of the reprocessing plant.

② Hakkoda and Towada volcanoes are nearby

Recently, Hakkoda Mountain and Lake Towada, major tourist destinations in Aomori Prefecture not far from the plant, came to be monitored as a possible origin of a volcano-related catastrophe.

With a volcanic eruption, cinders and volcanic ash can fall thick in the vicinity of the reprocessing plant. This may make it difficult to secure external power supplies, to drive emergency power vehicles, and/or to secure cooling water. In addition, if the small volcanic ash can clog filters and destroy equipment.

③ Fighter jets fly near Rokkasho

Within 30km of the Rokkasho reprocessing plant, there is Misawa Airbase used by the US Air Force and Japanese Air Self Defense Force. There is also the Amagamori bombing exercise ground within 10km. Fighter jets exercising in Amagamori fly over the Ogawara port, passing through the vicinity of the reprocessing plant to repeat the training.

There is no doubt that a major disaster will occur if a fighter plane crashes into the reprocessing plant. Considering that the reprocessing plant is planned to go into operation in the coming years, it is very unlikely that the US Misawa Airbase and exercise ground would be relocated before the reprocessing operation begins.



### **Possibility of a serious accident**

In the reprocessing project application submitted by JNFL, the following list cites as possible serious accidents:

- ① criticality in the dissolution tank,
- ② criticality by a transfer error of the solution containing plutonium,
- ③ evaporation to dryness by the loss of the cooling function,
- ④ explosion caused by hydrogen generated by radiolysis,
- ⑤ an organic solvent fire in a cell of the plutonium refining facility,
- ⑥ the damage to the used fuel aggregates in the fuel storage pool,
- ⑦ leakage from piping of liquid high-level radioactive waste storage facilities to cells.

If any of these major accidents occur simultaneously, or if the accident is triggered by a crash of a fighter plane or a volcanic eruption, the scale of the accident would be more than prepared for. However, the range of nuclear disaster prevention of the reprocessing plant is limited to a radius of 5 km only.

### **Existing radiation exposure of the entire Aomori prefecture and of the Pacific Ocean is already too high**

After the Fukushima Daiichi nuclear accident, many tanks were created on the site of the Fukushima nuclear power plant to store the tritium contaminated water after processing the radioactive water by the multi-nuclide removal facility (Advanced Liquid Processing System = ALPS). In Fukushima prefecture, tritium contaminated water is not discharged in the ocean because of the opposition of fishermen, while in Rokkasho the same tritium water was released in a large amount during the active testing. Fishermen in Iwate once required that the reprocessing plant drainage be discharged in Mutsu Bay and not in the Pacific Ocean. The person in charge in Aomori Prefecture refused, saying, "Mutsu Bay would die".

\*\*\*\*\*

Because of all these risks which involve not only Rokkasho village or Aomori Prefecture but the whole world, we need the village mayor who says NO! to Rokkasho Nuclear Fuel Center. **Please write either in a FB page or leave your comment at the bottom of this blog article page which we will transfer.**

Reminder:

For FB users, please write messages in the Facebook page of the candidate Ms Junko ENDO's political group "Rokkasho Mura ni atarashii kaze wo okosu kai" (Group to raise a new wind in Rokkasho Village) The Facebook page is in Japanese, but **you are most welcome to post your comments in your mother language**. In fact, they prefer different foreign languages so that they can show that support is arriving from all over the world!

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*Profile and manifesto of the candidate Ms Junko ENDO in English coming up soon*

June 17, 2018

## **What should be done with Japan's plutonium stockpiles?**

## Japan to cap plutonium stockpile to allay U.S. concerns

<http://www.asahi.com/ajw/articles/AJ201806170027.html>

Japan plans to boost measures to curb surplus plutonium extracted from the reprocessing of spent fuel at nuclear power plants, including capping the country's stockpile of the highly toxic material.

**The move followed the U.S. and other countries' calls for Japan to reduce excess plutonium in light of nuclear nonproliferation and the threat of terrorist attacks involving nuclear materials.**

The Cabinet Office's Japan Atomic Energy Commission will incorporate the measures in the five-point basic nuclear policy expected at the end of this month, the first revision in 15 years.

A reduction in the volume of plutonium held by Japan will also be specified in the government's basic energy plan, which will be revised next month.

Japan possesses about 10 tons of plutonium inside the country and about 37 tons in Britain and France, the two countries contracted to reprocess spent nuclear fuel. The total amount is equivalent to 6,000 of the atomic bomb that devastated Nagasaki in 1945.

In the policy, announced in 2003, the government vowed not to possess plutonium that has no useful purpose. The government has pledged not to have surplus plutonium to the International Atomic Energy Agency.

But the prospect for substantially curtailing the country's plutonium stockpile is becoming increasingly murky as the Monju prototype fast-breeder project has been abandoned.

The government decided in 2016 to decommission the Monju reactor in Tsuruga, Fukui Prefecture, which has seldom been in operation over the the past two decades due to a slew of problems.

Monju was designed to use plutonium recovered from spent fuel from other reactors as a key component of the government's nuclear fuel recycling program.

Japan can reprocess spent nuclear fuel under the Japan-U.S. Nuclear Cooperation Agreement.

The 30-year pact is expected to be automatically extended beyond its expiration on July 16.

After the expiration, however, the pact will be scrapped six months after either Japan or the United States notifies the other side of its intention to do so.

Foreign Minister Taro Kono has expressed concern about the "unstable" future of the agreement after July, and Japan has worked to meet a request from Washington to clearly spell out steps to reduce Japan's plutonium stocks.

The government's draft policy calls for allowing retrieval of plutonium strictly based on the projected amount to be used at conventional nuclear reactors as mixed plutonium-uranium oxide fuel, commonly known as MOX fuel.

It will also step up oversight on utilities with the aim of reducing the amount of plutonium to a level allowing the nuclear reprocessing plant under construction in Rokkasho, Aomori Prefecture, and other facilities to operate properly.

In addition, electric power companies will cooperate with each other in the use of MOX fuel, so that the amount of Japan's surplus plutonium that is now overseas will be reduced.

For example, Kyushu Electric Power Co. and Kansai Electric Power Co., two utilities that began using MOX fuel ahead of other utilities, will consider using more MOX fuel at their nuclear plants for the benefit of Tokyo Electric Power Co., whose prospect of bringing its Kashiwazaki-Kariwa nuclear power plant in Niigata Prefecture back on line remains uncertain.

When the 2.9 trillion yen (\$26.37 billion) reprocessing plant in Rokkasho goes into full operation, about eight tons of new plutonium will be added annually as Japan's surplus plutonium.

The Federation of Electric Power Companies of Japan, an electric power industry group, estimates that MOX fuel should be used at 16 to 18 reactors to keep the amount of Japan's plutonium from rising. But of nine reactors that have resumed operations following the introduction of more stringent safety standards after the Fukushima No. 1 nuclear disaster in 2011, only four can use MOX fuel. The operation of the Rokkasho plant will likely be significantly curtailed even if it is completed amid that environment.

(This article was written by Yusuke Ogawa, Rintaro Sakurai and Shinichi Sekine.)

June 26, 2018

## Toward "safer" nukes, according to WANO

### **WANO Calls On Nuclear Industry To Build On Post-Fukushima Safety Progress**

<https://www.nucnet.org/all-the-news/2018/06/26/wano-calls-on-nuclear-industry-to-build-on-post-fukushima-safety-progress>

The World Association of Nuclear Operators has called on its members to build on the progress they have made on safety since the March 2011 Fukushima-Daiichi accident in Japan by further developing the leadership skills of key staff.

In 2011, WANO identified 12 key post-Fukushima projects to implement in more than 460 commercial power plants worldwide to improve safety. Many recommended improvements were complex and challenging, and required a significant investment of time and resources to roll out and complete, WANO said.

WANO and its members delivered projects focused on the following 12 areas; emergency preparedness, emergency support plan, severe accident management, early event notification, onsite fuel storage, design safety fundamentals, peer review frequency and equivalency, corporate peer reviews, WANO assessment, transparency and visibility and WANO internal assessment.

The association's chief executive officer Peter Prozesky said the lessons learned from Fukushima have resulted in WANO's members collectively implementing approximately 6,000 safety enhancement activities worldwide.

A key area in which WANO is working with its members is to develop leadership at the mid- to senior management level. These managers at nuclear power plants play a vital part in delivering excellence and a strong nuclear safety culture, due to their positional influence throughout the organisation.

Mr Prozesky said: "Although major advances have been made to nuclear safety and plant performance since Fukushima, the industry must continue to evolve and improve. WANO will work closely with our members to maximise the safety and reliability of nuclear power plants worldwide."

WANO is a not-for-profit organisation established by nuclear power operators to exchange safety

knowledge and operating experience amongst organisations operating commercial nuclear power reactors. WANO's members operate some 460 nuclear units in over 30 countries and areas worldwide.

June 28, 2018

## Nuclear future: Some will never learn

### Utilities reaffirm faith in nuclear power despite safety concerns

<http://www.asahi.com/ajw/articles/AJ201806280047.html>

Nine power companies said they are eager to restart their nuclear plants at their shareholder meetings on June 27, shunning calls to move toward renewables despite skepticism about the safety of relying on nuclear energy.

At the Kansai Electric Power Co. meeting, major shareholders such as the Kyoto and Osaka city governments called for nuclear power plants to be decommissioned.

"Kansai Electric should stop relying on nuclear power as soon as possible," said Kyoto Mayor Daisaku Kadokawa.

In reply, Shigeki Iwane, president of Kansai Electric, said, "While giving top priority to the safety of nuclear plants, we intend to continue utilizing nuclear plants."

He did not rule out the possibility of constructing new reactors.

Kyushu Electric Power Co., which is now operating four reactors, showed reluctance about a major shift to renewables.

A proposal to "significantly bolster" renewable energy was turned down at its shareholder meeting.

"We cannot ensure the stability of frequency if we accept solar power more than at the current level," said Michiaki Uriu, president of Kyushu Electric, noting the output of solar energy generated within the utility's jurisdiction has reached the ceiling of 8.17 gigawatts.

At the Tokyo Electric Power Company Holdings Inc. meeting, a proposal was made to freeze preparatory work toward the planned resumption of its Kashiwazaki-Kariwa nuclear plant in Niigata Prefecture.

"Why does TEPCO bother to pursue nuclear power generation despite the Fukushima nuclear disaster?" said one shareholder. However, the proposal was rejected.

"The nuclear plant will continue to play an important role," said Tomoaki Kobayakawa, president of TEPCO Holdings, referring to the Kashiwazaki-Kariwa plant, one of the largest in the world. "We will strive toward the restart by soul-searching and taking a lesson from the unprecedented accident."

Some shareholders hailed the company's decision to decommission the Fukushima No. 2 nuclear plant, announced by Kobayakawa, although they said the decision came belatedly.

But others voiced their regret over the decision, saying the plant is too good to be decommissioned.

The Fukushima No. 2 nuclear plant was damaged in the 2011 Great East Japan Earthquake and tsunami, but it managed to avert a meltdown, unlike the Fukushima No. 1 nuclear power plant nearby, where a triple meltdown occurred.

Another shareholder proposal concerned an end to providing financial support to Japan Atomic Power Co., which intends to resume operations at the Tokai No. 2 nuclear plant in Ibaraki Prefecture.

The same proposal was also made and rejected at a shareholder meeting of Tohoku Electric Power Co. the same day. Both TEPCO Holdings and Tohoku Electric fund Japan Atomic Power.

“We have offered debt guarantee to Japan Atomic Power due to the company’s efforts to ensure sustainability and cut fuel costs by restarting the nuclear plant,” said Jiro Masuko, vice president of Tohoku Electric.

All of Japan’s active nuclear power plants were shut down as part of precautionary measures after the 3/11 Fukushima disaster. Since then, nine have been restarted, and further 26 that remain idle could potentially be restarted.

## Tokai No.2: Ready to be restarted and extended for another 20 years?

### Japan Atomic's Tokai No. 2 plant set to pass restart screening

<https://mainichi.jp/english/articles/20180628/p2a/00m/0na/016000c>

TOKYO -- The Nuclear Regulation Authority (NRA) said on June 27 that it is set to complete a safety screening of Japan Atomic Power Co.'s Tokai No. 2 nuclear power station in Tokai, Ibaraki Prefecture -- a reactor Japan Atomic is looking **to have both restarted and its operational life extended.**

- **【Related】** Editorial: JAPC pact seeking local bodies' consent for N-plant restart a good move
- **【Related】** Japan Atomic Power grants local gov'ts say in reactor restart under new agreement
- **【Related】** TEPCO, Tohoku Electric to give Japan Atomic financial boost to help restart reactor

Japan Atomic filed a written amendment for the Tokai No.2 nuclear plant's safety measures with the NRA on the same day. Commenting on the move, NRA Chairman Toyoshi Fuketa said at a news conference, "We can forecast the prospects for the screening." After NRA officials examine the amendment, the nuclear watchdog is expected to present a draft report at a regular meeting stating that the nuclear plant has met the new safety standards.

The Tokai No. 2 nuclear plant will be decommissioned if the facility can't pass three types of NRA screenings, one each for adherence to the new safety standards, construction plans for updating the plant, and the operational life extension. **All the screenings must be passed by Nov. 27, 2018, the day before the plant reaches its 40-year operational limit.**

**While there were concerns the construction plan screening may take too long to meet the deadline, the NRA judged at a June 26 meeting that the basic design for the reactor has met the security standards as a result of tests on safety measure devices and other evidence. That results in promoting the process of restarting the nuclear reactor and extending the operational periods for up to 20 years.**

(Japanese original by Toshiyuki Suzuki, Science & Environment News Department)

## Removing tritium from water

## Radioactive tritium removed from water by Kindai University team, raising hopes for Fukushima cleanup

<https://www.japantimes.co.jp/news/2018/06/28/national/science-health/radioactive-tritium-removed-water-kindai-university-team-raising-hopes-fukushima-cleanup/#.WzTNE4oyWos>

OSAKA – A team of researchers at Kindai University and other collaborators has succeeded in removing the radioactive substance tritium from water, **raising hopes of fully decontaminating the tainted water stored at the Fukushima No. 1 nuclear power plant.**

Tritiated water is said to be difficult to separate from ordinary water as the two substances have similar chemical properties.

Tatsuhiko Ihara, a professor in the Faculty of Engineering at Kindai's Hiroshima campus, and others used processed aluminum powder to develop a filter that has numerous superfine pores with diameters of 5 nanometers or less, the university announced Wednesday. One nanometer is equal to 1 billionth of a meter.

After putting water contaminated with radioactive materials, including tritium, through the filter, only tritiated water was caught in the pores, making it possible to separate the substance in a highly efficient manner, according to the team.

The tritiated water can then be removed from the filter by heating it so the device can be reused, thus keeping costs down.

"We want to reduce the amount of contaminated water at the Fukushima No. 1 nuclear power plant," Ihara said.

The plant is set to be decommissioned over the next several decades, as three of its six reactors suffered nuclear meltdowns after being struck by tsunami triggered by the massive March 2011 earthquake.

Water contaminated with radioactive materials in the process of cooling the damaged reactors is building up in the storage tanks at the site as tritium, a radioactive isotope of hydrogen, cannot be removed using the existing water processing facility there.

Regulatory authorities have called for the processed water to be drained into the sea, but locals, especially fishermen, are opposed to the idea as the water still contains tritium.

The research team includes representatives of Kindai's Faculty of Engineering, the university's Atomic Energy Research Institute, Toyo Aluminium K.K. and A-Atom Technol Co., a startup that measures and analyzes radiation. The team has applied for an international patent on the technology.

July 2, 2018

## A mega quake for Japan

### What Is the Probability of a Mega-quake Striking Japan in the Future?

<https://www3.nhk.or.jp/nhkworld/nhknewsline/backstories/megaquakecould/>

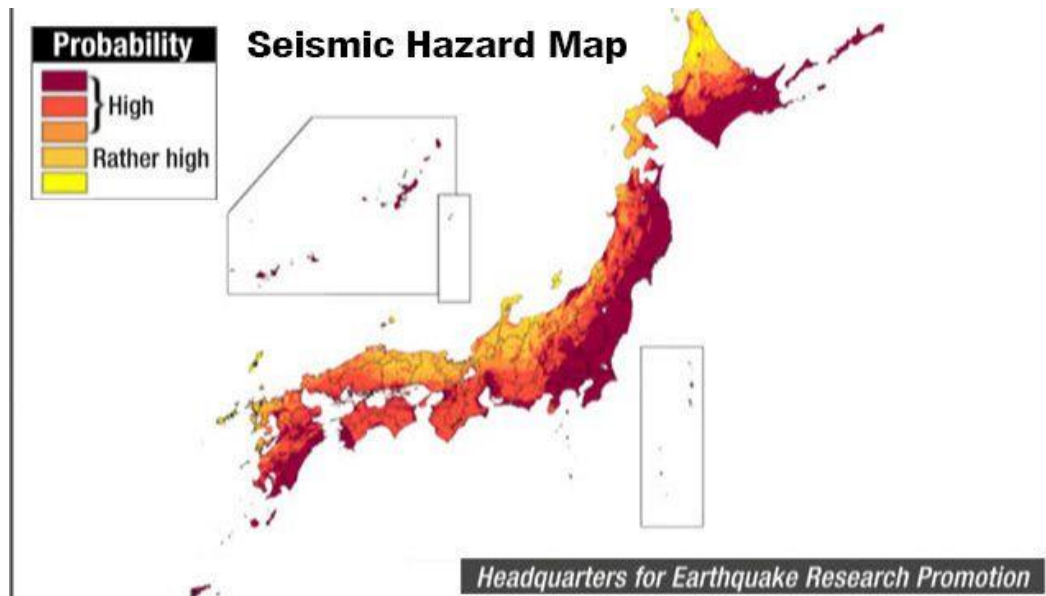
Earlier this month, an earthquake of magnitude 6.1 struck northern Osaka, killing 5 people and injuring more than 300.

A government panel has released its latest earthquake probability map, which indicates the likelihood of each area being hit in the coming 3 decades by tremors of 6-minus or above on the Japanese intensity scale of zero to 7 -- about the same level as the one that hit Osaka. A member of the panel says an earthquake of 6-minus could strike anywhere in Japan, and urges people to be prepared.

### High probability in the Kanto region and along the Pacific coast

The earthquake probability map shows high-risk areas in red. The darker the color, the greater the likelihood of a big quake. Yellow indicates a relatively lower probability.

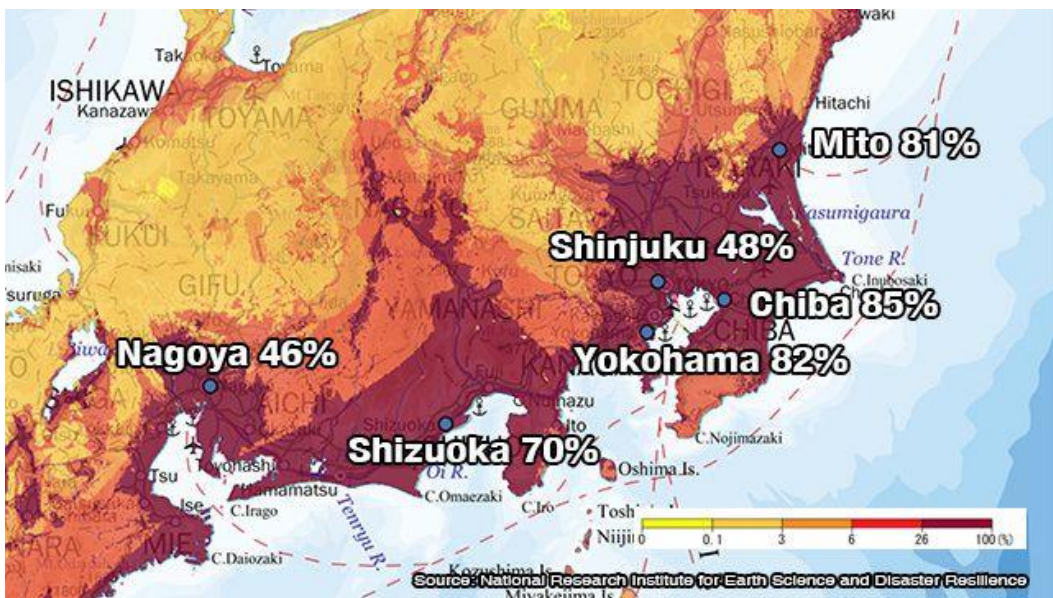
A 3 percent probability roughly means that a quake of 6-minus or higher will occur once in 1000 years, while 6 percent means once in 500 years, and 26 percent points to once in a century.



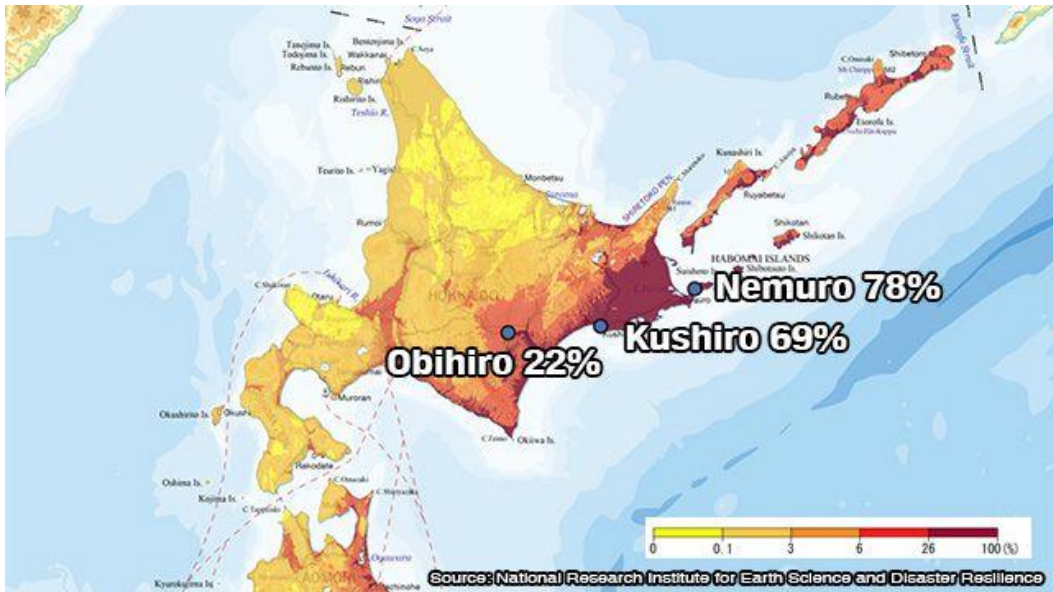
By region, the areas facing the Pacific Ocean from Shikoku to Kanto and the Pacific coast of Hokkaido are marked in dark red, indicating probabilities of 26 percent or higher.

In the Kanto region, the probability of a major quake is highest in Chiba City, at 85 percent. The figure is 82 percent for Yokohama and 81 percent for Mito. Tokyo's Shinjuku Ward is located in an area with 48 percent probability.

In the Tokai region, the probability for Shizuoka is 70 percent and Nagoya is 46 percent.



In Hokkaido, the risk for Nemuro City is 78 percent, Kushiro is 69 percent, and Obihiro, 22 percent.



**Beware of massive earthquakes that occur in ocean trenches**

The panel explains that these areas have high probabilities because massive earthquakes centering in the Chishima Trench, Japan Trench and the Nankai Trough have been occurring at intervals of a few decades to a century.

These earthquakes occur around ocean trenches where the oceanic plate is forced underneath the continental plate.

Huge earthquakes have been occurring especially around the Nankai Trough roughly every 100 years. As the last one took place more than 70 years ago, there is a growing probability the next one will happen soon around the Pacific coast of western Japan.

**Vigilance needed for active faults**

The map shows the probability of a major quake hitting Osaka City is 56 percent. The June 18th quake in Osaka is believed to have been caused by active faults. Aitaro Kato, an associate professor at the University



of Tokyo's Earthquake Research Institute, has found that aftershocks have concentrated on the northern and the southwestern sides of the epicenter. This led him to conclude that the quake was caused by 2 faults in the area moving almost concurrently.

Active faults exist across Japan. They are believed to total about 2,000, including 114 major ones around the archipelagos. Some areas have yet to be studied thoroughly, and there may be more that have not yet been identified.

The latest assessment takes into account possible unknown active faults.



### **Mega-quake could hit anywhere around the country**

Panel chair Naoshi Hirata says there's no place in Japan that has zero probability of 6-minus or stronger tremors, so everyone should be prepared for powerful quakes.

Details of the latest map are available on the website of the National Research Institute for Earth Science and Disaster Resilience.

<http://www.j-shis.bosai.go.jp/map/?lang-en>

### **Related Stories:**

**Three Fault Zones May Have Been Involved in Osaka Quake**  
**School Walls to Undergo Emergency Checks Following Death of 9-year-old Girl**  
**Mega-Quake Could Cripple Japanese Economy**

<https://www3.nhk.or.jp/nhkworld/en/news/backstories/162/>

July 3, 2018

## **Radiation still too high in reactor building**

[https://www3.nhk.or.jp/nhkworld/en/news/20180702\\_35/](https://www3.nhk.or.jp/nhkworld/en/news/20180702_35/)

A robotic probe has found that radiation levels remain too high for humans to work inside one of the reactor buildings at the damaged Fukushima Daiichi nuclear power plant.

Tokyo Electric Power Company, the operator of the plant, plans to relocate 615 units of nuclear fuel from the spent fuel pool, which is located on the top floor of the No. 2 reactor building and is separate from the reactor itself.

TEPCO says the relocation will help reduce risks, including possible damage caused by earthquakes.

The No. 2 reactor underwent a meltdown, but did not experience a hydrogen explosion in the 2011 nuclear accident. The building is likely to still have a high concentration of radioactive materials.

**Last month, TEPCO drilled a hole in the wall of the building in order to use a camera-equipped robot to create a detailed map of the radiation on the top floor.**

On Monday, workers started the survey and measured radiation levels at 19 points, mainly near the opening. **Up to 59 millisieverts were detected per hour.**

**That's above workers' allowable annual exposure of 50 millisieverts and more than half of their 5-year exposure limit.** TEPCO has concluded it cannot let humans work inside the building.

TEPCO will use the results to determine specific ways to remove the fuel from the pool. It plans to start the work in fiscal 2023.

July 4, 2018

## **No-entry signs in English to deter tourists from trespassing**



English signs along National Road No. 114 on the border between Namie and Kawamata in Fukushima Prefecture (Taro Kotegawa)

## English signs tell tourists to stay away from Fukushima plant

<http://www.asahi.com/ajw/articles/AJ201807040009.html>

By TARO KOTEGAWA/ Staff Writer

NAMIE, Fukushima Prefecture--English signs now appear along roads in Fukushima Prefecture **to prevent curious, thrill-seeking or simply ignorant foreign tourists from entering areas of high radiation.**

The central government's local nuclear emergency response headquarters set up 26 signs at 12 locations along the 70-kilometer National Road No. 114 and elsewhere starting in mid-April. The signs carry straightforward messages in English, such as "No Entry!"

In September, a 27-kilometer section of the road opened in Namie's "difficult-to-return zone" near the crippled Fukushima No. 1 power plant for the first time since the Great East Japan Earthquake, tsunami and nuclear disaster in March 2011.

The road is mainly used by construction vehicles involved in rebuilding projects and dump trucks transporting contaminated soil to intermediate storage facilities.

Motorists can use the reopened section, but they are urged to refrain from stopping or venturing outside their vehicles. Pedestrians and motorcyclists are still forbidden from the area because of the high radiation levels.

But **an increasing number of people from abroad are visiting the area, some to snap photos**, according to Fukushima prefectural police.

Many have gotten out of their vehicles or entered the "no-go" zone by motorbike or foot.

Prefectural police asked the central government for help to deal with the trespassers.

"When police questioned foreigners who were taking photos in the difficult-to-return zone, they said they did not know that entering the area was prohibited," a police official said.

Officials also wanted to avoid any confusion from the signs with technical terms, such as “difficult-to-return zones,” which are the areas most heavily polluted by radiation that remain essentially off-limits even to residents.

An official of the Cabinet Office’s nuclear disaster victim life assistance team, which developed English messages, said they decided to use simpler expressions, such as “high-dose radiation area,” for the signs. The signs have already produced a positive effect.

“A foreign motorcyclist came here the other day, so I told the person to return by pointing to the English signboard,” said a security guard who monitors the Namie-Kawamata border zone at the Tsushima Gate.

## **Nuclear watchdog OKs restart of aging nuclear plant hit by tsunami**

TOKYO (Kyodo) -- Japan's nuclear watchdog on Wednesday gave the green light to the restart of an aging nuclear power plant northeast of Tokyo, idled since it was hit by the tsunami that caused meltdowns at the Fukushima Daiichi plant.

- **【Related】** Japan Atomic's Tokai No. 2 plant set to pass restart screening
- **【Related】** Japan approves 70-year plan to scrap nuclear reprocessing plant

The Tokai No. 2 plant is the first nuclear plant affected by the March 2011 earthquake and tsunami disaster to have cleared screening by the Nuclear Regulation Authority, part of the steps required before it can actually resume operations.

The plant, located in the village of Tokai in Ibaraki Prefecture, suffered an emergency automatic shutdown of its reactor and was cut off from its external power source following the quake.

After being hit by a 5.4-meter tsunami, one of its three emergency power generators was incapacitated. But the other two remained intact and allowed the reactor to cool down three and a half days after the disaster.

Despite the approval by the NRA, the Tokai plant still needs to clear two more screenings by regulators by November, when it will turn 40 years old, otherwise it could face the prospect of decommissioning. Tougher safety rules introduced in the post-Fukushima years prohibit in principle the operation of nuclear reactors beyond 40 years. But extending a unit's life for an additional 20 years is possible if operators make safety upgrades and pass regulators' screening.

Actual plant operation is unlikely before March 2021 when construction to bolster safety measures is scheduled to be completed. The restart plan also needs to be approved by local municipalities.

The Tokai No. 2 plant, operated by Japan Atomic Power Co., uses a boiling water reactor, the same type as those used at the crisis-hit Fukushima Daiichi plant, which saw core meltdowns and spewed a massive amount of radioactive materials into the atmosphere in the 2011 disaster.

It is the eighth plant approved of a restart under the stricter safety rules introduced after the 2011 Fukushima nuclear crisis and the second with a boiling water reactor following the Kashiwazaki-Kariwa nuclear plant run by Tokyo Electric Power Company Holdings Inc.

The plant's evacuation plan -- which covers 960,000 residents, the largest number of potential evacuees for a nuclear plant in Japan due to its location in a metropolitan area -- has yet to be compiled.

The operator filed for a safety screening to restart the plant in May 2014. It predicts a potential tsunami as high as 17.1 meter and expects some 180 billion yen (\$1.63 billion) is needed to construct coastal levees and beef up power sources among other safety measures.

Japan Atomic Power solely engages in the nuclear energy business but none of its reactors has been online since the 2011 quake. Given its financial problems, the NRA has asked it to show how it will finance the safety measures and Tokyo Electric Power and Tohoku Electric Power Co. have offered to financially support the company.

## Court overturns suspension ruling on Oi plant

### Court rejects suspension of Oi nuclear power plant

<https://mainichi.jp/english/articles/20180704/p2g/00m/0dm/073000c>

KANAZAWA, Japan (Kyodo) -- A Japanese high court on Wednesday ruled two nuclear reactors at a central Japan plant should not suspend operation, overturning a lower court ruling in favor of local residents who claim the plant is vulnerable to major earthquakes and other disasters.

- **【Related】** Nuclear watchdog OKs restart of aging nuclear plant hit by tsunami
- **【Related】** TEPCO willing to resume Higashidori nuclear plant construction
- **【Related】** Japan approves 70-year plan to scrap nuclear reprocessing plant

The ruling by the Kanazawa Branch of the Nagoya High Court on the Nos. 3 and 4 reactors of Kansai Electric Power Co.'s Oi plant came after the Fukui District Court ruled in May 2014 against their restart in the first such ruling over Japanese nuclear power plants since the Fukushima nuclear crisis in March 2011. The pressurized water reactors in question already resumed operation in March and May, respectively, after clearing in May last year new safety standards introduced in the wake of the meltdowns at Fukushima Daiichi power plant triggered by a major earthquake and ensuing tsunami.

The reactors had been idle since Sept. 2013 for regular safety inspections. They previously halted operations in March and July of 2011, respectively, for inspection and restarted in July 2012 after clearing provisional safety standards.

During a high court hearing, Kunihiro Shimazaki, a former member of the Nuclear Regulation Authority, testified the utility could be underestimating the size of an earthquake it uses as a base for designing its reactors' quake resistance.

Kansai Electric argued, saying it has made calculations by assuming longer and wider faults exist around the premises.

The Fukui District Court ruled it will not allow the restart of the two reactors, citing flaws in the utility's measures against earthquakes and allowing suspension if there are specific risks of people's most fundamental right to protect their lives and maintain their living.

While plaintiffs said the district court ruling was appropriate as it took into account of the Fukushima accident and damage it caused, the utility said the ruling was based on abstract risks and the court needs to base its decision on scientific expertise.

Of the plaintiffs, the court only accepted the claims by 166 and rejected 23 who were outside the 250-kilometer area from the power plant. Both the utility and the rejected plaintiffs appealed the ruling.

July 5, 2018

## NRA clears restart of Tokai 2 reactor



*Residential areas spread around the Tokai No. 2 nuclear plant in Tokai, Ibaraki Prefecture. (Satoru Semba)*

### The reactor closest to Tokyo is cleared by nuclear watchdog

The Nuclear Regulation Authority approved safety measures at the only nuclear plant in the Tokyo metropolitan area, but questions remain on whether its aging reactor can restart and if its operator will survive.

At a July 4 meeting, the NRA concluded that Japan Atomic Power Co.'s measures to protect the Tokai No. 2 nuclear plant from a severe accident, such as a core meltdown, in a powerful earthquake and tsunami meet the stricter safety regulations put in place in 2013.

"We believe the measures were designed in a way to generate appropriate and sufficient results," Toyoshi Fuketa, chairman of the NRA, said.

The plant is located in the village of Tokai, Ibaraki Prefecture, northeast of Tokyo.

The Tokai No. 2 reactor is the first to pass the NRA's safety regulations among those affected by the 2011 Great East Japan Earthquake and tsunami.

It is also the 15th reactor cleared by the NRA since the quake and tsunami caused the triple meltdown at the Fukushima No. 1 nuclear plant and forced the shutdowns of all reactors in Japan.

**The NRA's assessment will become official after it solicits public opinions over 30 days.**

However, the plant's sole reactor, with an output capacity of 1.1 gigawatts, will mark the end of its 40-year life span on Nov. 27. Japan Atomic Power will need approval from the NRA by November to extend the reactor's operational life by 20 years.

On top of that, the company will have to obtain NRA approval for details of the company's project to strengthen the facility, also by Nov. 27.

And the company needs the consent of Tokai, host of the plant, as well as Ibaraki Prefecture and five neighboring cities.

About 960,000 people reside within 30 kilometers of the Tokai No. 2 plant, making it the most crowded 30-km zone around nuclear power facilities in the nation.

Nuclear power plant operators normally gain approval for reactor restarts only from the host community and the prefectural government.

But Japan Atomic Power in March reached an agreement with Tokai village and the five cities to reactivate the plant only after they all endorsed the restart.

Last month, the Mito municipal assembly adopted a motion objecting to the restart of the Tokai No. 2 reactor.

Central government guidelines call on municipalities sitting within 30 km of a nuclear facility to devise evacuation plans in advance.

Mito, with a population of 270,000, has not secured places for 90,000 potential evacuees. In fact, only three of the 14 municipalities around the Tokai No. 2 nuclear plant have come up with evacuation plans so far.

**The establishment of evacuation plans is not a legal requirement for restarting a nuclear power plant.**

But local leaders have said they will take it into consideration when they weigh their decision on the Tokai No. 2 reactor.

One other problem facing Japan Atomic Power is that the NRA's screening procedures have been stalled. If further delays cause the company to miss the deadline for submitting required documents to the NRA, Japan Atomic Power could be forced to decommission the plant.

The Tokai No. 2 reactor is the only unit that the company can bring back online in the near future.

Of the company's four reactors, two are already on their way to be decommissioned.

Prospects for restarting the No. 2 reactor at its Tsuruga plant in Fukui Prefecture are slim because many seismologists have said an active geological fault runs under the reactor building.

The Tokai No. 2 reactor appears to be Japan Atomic Power's last chance for survival.

The company is expected to spend 174 billion yen (\$1.58 billion) on safety measures, including construction of a sea wall to protect the plant against tsunamis.

Japan Atomic Power used to supply power to Tohoku Electric Power Co. and Tokyo Electric Power Co. before the Fukushima disaster. The two utilities said they will provide funds for Japan Atomic Power's measures.

## Restarting Tokai 2 "a huge mistake"

### **EDITORIAL: Restarting Tokai No. 2 nuclear plant would be a huge mistake**

<http://www.asahi.com/ajw/articles/AJ201807050026.html>

The Nuclear Regulation Authority has concluded that the Tokai No. 2 nuclear power plant in Ibaraki Prefecture, operated by Japan Atomic Power Co., meets improved safety standards for a restart.

The watchdog body's decision effectively paves the way for bringing the idled facility back online.

But **a slew of questions and concerns cast serious doubt on the wisdom of restarting this aging nuclear plant located at the northern tip of the Tokyo metropolitan area, given that it is approaching the end of its 40-year operational lifespan.**

There is a compelling case against bringing the plant back on stream unless these concerns are properly addressed.

The first major question is how the project can be squared with the rules for reducing the risk of accidents at aging nuclear facilities.

The 40-year lifespan for nuclear reactors is an important rule to reduce the risk of accidents involving aging reactors that was introduced in the aftermath of the disaster at the Fukushima No. 1 nuclear power plant in 2011.

Although a reactor's operational life can be extended by up to 20 years if approved by the NRA, the government, at the time of the revision to the law, said it would be granted only in exceptional cases.

Despite this caveat, Kansai Electric Power Co.'s applications for extensions for its three aging reactors all got the green light.

The NRA has yet to approve the requested extension of the Tokai No. 2 plant's operational life. But **it is obvious that the nuclear watchdog's approval will cause further erosion of the rule. It will also undermine the regulatory regime to limit the lifespan of nuclear facilities per se.**

Local communities have also raised objections to restarting the Tokai No. 2 plant. Some 960,000 people live within 30 kilometers of the plant, more than in any other 30-km emergency planning zone.

The local governments within the zone are struggling to develop legally required emergency evacuation plans to prepare for major accidents.

This spring, an agreement was reached between Japan Atomic Power and five municipalities around the plant, including Mito, that commits the operator to seek approval from local authorities within the 30-km zone before restarting the plant.

Winning support from the local communities for the plant reactivation plan is undoubtedly a colossal challenge, given strong anxiety about the facility's safety among local residents. The gloomy situation was brought home by the Mito municipal assembly's adoption of a written opinion opposing the plan.

But Japan Atomic Power is determined to carry through the plan as its survival depends on the plant continuing operation.

The company was set up simply to produce and sell electricity by using atomic energy. Its nuclear reactors are all currently offline, which has placed the entity in serious financial difficulty.

**Since the company is unable to raise on its own funds to implement the necessary safety measures at the Tokai No. 2 plant, which are estimated to exceed 170 billion yen (\$1.54 billion), Tokyo Electric Power Co. (TEPCO) and Tohoku Electric Power Co., which are both shareholders and customers of the company, will provide financial support.**

But TEPCO has been put under effective state control to deal with the costly consequences of the Fukushima disaster.

**It is highly doubtful that the utility, which is kept alive with massive tax-financed support, is qualified to take over the financial risk of the business of another company in trouble.**

TEPCO claims the Tokai No. 2 plant is promising as a source of low-cost and stable power supply, although it has not offered convincing grounds for the claim.

Some members of the NRA have voiced skepticism about this view.



TEPCO and the Ministry of Economy, Trade and Industry, which supervises the power industry, have a responsibility to offer specific and detailed explanations about related issues to win broad public support for the plan to reactivate the Tokai No. 2 nuclear plant.

A hard look at the grim situation surrounding the plant leaves little doubt that restarting it does not make sense.

Japan Atomic Power and the major electric utilities that own it should undertake a fundamental review of the management of the nuclear power company without delaying efforts to tackle the problems besetting the operator of the Tokai No. 2 plant.

July 10, 2018

## **Fukushima residents oppose NRA's plan to remove dosimeters**

### **Fukushima Residents Oppose Govt. Plan**

<https://www3.nhk.or.jp/nhkworld/en/news/videos/20180710112706325/>

July 9, 2018

### **Locals opposed to removal of most dosimeters in Fukushima**

<http://www.asahi.com/ajw/articles/AJ201807090004.html>

TADAMI, Fukushima Prefecture--Officials and residents in Fukushima Prefecture are opposing the central government plan to remove 80 percent of the radiation dosimeters set up in the wake of the 2011 accident at the Fukushima No. 1 nuclear power plant.

**The Nuclear Regulation Authority (NRA) in March announced plans to remove 2,400 of the 3,000 monitoring posts by fiscal 2020 in areas where dose rates have fallen and keep the remaining 600 in 12 municipalities around the plant.**

About 20 residents on June 25 attended a meeting here during which the NRA secretariat explained a plan to remove seven of nine monitoring posts in the town, including those installed at three elementary and junior high schools.

Shoji Takeyama, head of the secretariat's monitoring information section, asked the residents to understand the objectives of the move.

"We believe that continuous measuring is unnecessary in areas where dose rates are low and stable," Takeyama said. "The equipment requires huge maintenance costs. We have to effectively use the limited amount of funds."

Residents expressed opposition.

One described the plan as being “out of the question,” saying that the shipment of edible wild plants and mushrooms in Tadami was prohibited although the town is far from the Fukushima No. 1 nuclear power plant.

The secretariat emphasized that two portable monitoring posts will remain in the town.

NRA officials have said dose rates have significantly dropped in areas other than those near the Fukushima No. 1 nuclear plant, annual maintenance costs for monitoring posts total 400 million yen (\$3.64 million) and that the dosimeters will soon reach the end of their 10-year operating lives.

**In late June, the NRA was forced to suspend the plan to remove 27 monitoring posts in Nishigo after the village assembly adopted a statement opposing the plan, saying that sufficient explanations have not been provided to residents.**

The Aizu-Wakamatsu city government in May submitted a request to continue operating monitoring posts to the NRA.

The city argues “there are citizens who are concerned about the radiation’s potential impact on their health and possible accidents that could happen during decommissioning work, and such people can feel relieved by visually checking dose rates constantly with monitoring systems.”

The prefectural government says it is “calling on the central government to proceed with the plan while winning consent from residents at the same time.”

A citizens group has sent a statement to the prefectural government and seven cities and towns, calling for maintaining monitoring posts. It has also collected more than 2,000 signatures on a petition to be submitted to the NRA.

Yumi Chiba, 48, a co-leader of the group, said authorities should take into account the reality surrounding those residing in Fukushima Prefecture.

**“What is important is not knowing the average but identifying where dose rates are higher,”** said Chiba, who lives in Iwaki in the prefecture. “I would like authorities to consider the circumstances facing residents.”

The NRA plans to offer explanations to residents according to requests. The gathering in Tadami was the first of its kind, and similar meetings are planned in Kitakata, Aizu-Wakamatsu and Koriyama on July 16, July 28 and Aug. 5, respectively.

**The NRA is also making arrangements to hold meetings in 15 other municipalities.**

(This article was written by Hiroshi Ishizuka and Yasuo Tomatsu.)

July 11, 2018

## **Boosting nuke antiterrorism ahead of Olympics**

### **Japan to beef up nuclear security before Rugby World Cup, Olympics**

<https://mainichi.jp/english/articles/20180711/p2g/00m/0dm/106000c>

TOKYO (Kyodo) -- Japan's nuclear watchdog decided Wednesday to oblige facilities using any of about 200 radioactive materials to introduce antitheft measures to enhance nuclear security ahead of the 2019 Rugby World Cup and 2020 Tokyo Olympics.

- **【Related】** Nuclear watchdog OKs restart of aging nuclear plant hit by tsunami
- **【Related】** Editorial: Time to transform Japan's nuclear plant inspection system
- **【Related】** Japan drops in Hiroshima Report rankings due to refusal to sign nuclear ban treaty

As part of the country's efforts to boost counterterrorism steps before hosting the major sporting events, the government will aim at enforcing related laws in September 2019, in time for the Rugby tourney kicking off on Sept. 20 that year, which would cover some 500 business operators, the Nuclear Regulation Authority said.

Hospitals and companies and the like would be required to install surveillance cameras near their storage sites for radioactive materials. The containers must be kept in rooms with solid doors and manuals and communication equipment must be provided for personnel to deal with intruders, to prevent such materials from falling into the hands of terrorists.

Nuclear power plants have already introduced a personal background investigation system to prevent potential terrorists from being hired as workers.

According to the NRA, the planned regulation would cover radioactive substances including cesium 137 and cobalt 60, which are widely used for medical and industrial purposes, but which could be used in so-called dirty bombs.

Amid the globally mounting threat of terrorism, the International Atomic Energy Agency advised countries in January 2011 to take measures to better manage radioactive materials.

Tokyo, however, has yet to introduce these steps due to its need to deal with the 2011 Fukushima Daiichi nuclear disaster.

In Brazil, instruments for radiation therapy were taken away from the former site of a hospital and then dismantled. But it led to large-scale exposure and the deaths of four people in 1987.

July 18, 2018

## "We have our doubts"

### **EDITORIAL: Oi nuclear plant ruling reads like it was rendered pre-Fukushima**

<http://www.asahi.com/ajw/articles/AJ201807180016.html>

The Nagoya High Court's Kanazawa branch declared that the nation, having learned its lesson from the accident at the Fukushima No. 1 nuclear power plant in 2011, will not make the same mistakes again. We have our doubts.

The July 4 ruling overturned the Fukui District Court's decision of four years ago in favor of the plaintiffs, who sought an injunction against Kansai Electric Power Co. to suspend operations of the No. 3 and No. 4 reactors at the Oi nuclear power plant in Fukui Prefecture.

The plaintiffs have decided against taking their case to the Supreme Court, which will finalize the high court ruling.

The Fukui District Court's decision to halt operations of the Oi reactors was based on its own study of whether the reactors posed "risks of causing grave situations similar to the Fukushima accident."

Its main focus was not to judge whether the reactors met the new safety regulations established by the Nuclear Regulation Authority, which was set up after the Fukushima disaster.

In contrast, the high court said it would be “only proper for a court to respect (the NRA regulations)” as they were “established based on the latest scientific and technological expertise of specialists from many fields.”

The court said there was nothing unreasonable in the NRA judgment that the Oi reactors met the new safety regulations. It concluded that the risks posed by the reactors were being controlled to a negligible level by socially accepted standards.

But what lessons has the Fukushima disaster taught us? Don't they boil down to the fact that we believed in many experts who assured us of the safety of nuclear reactors, only to realize that an “unexpected” disaster could and did occur, causing tremendous damage we have yet to recover from.

The high court ruling read like something from pre-Fukushima days. We could not help feeling the same way every time we come across the view that the nation has more or less learned all the lessons it needed to learn from Fukushima.

One of the hardest lessons we learned--which the high court did not really address--is the sheer difficulty of evacuating citizens safely after a serious accident.

After the Fukushima disaster, local governments within 30 kilometers of nuclear power plants came to be required to establish evacuation plans for residents.

A reactor restart should be decided only after third-party experts determine whether the evacuation plan is appropriate and realistic enough.

This is not how things are being done, however.

The NRA specializes solely in examining the safety of plant facilities and equipment from a technological aspect. The administration merely reiterates that reactors that have passed the NRA's safety tests should be allowed to restart.

There is a huge procedural flaw here, in that all such reactors are back online once the host local governments give the green light.

The high court did say that ending nuclear power generation is an available option. But it went on to state, “The final decision is not for the judiciary to make. It should be based on a political judgment to be left to the legislature or the administration.”

How have the Diet and the government received the high court ruling?

If they have truly learned lessons from Fukushima, their obvious responsibility should be to clearly present a policy to close nuclear plants and critically examine each case for a reactor restart, taking the evacuation plan set by the local government into account.

July 22, 2018

## **Patrol boats to be deployed to protect nuke plants**

### **Japan to deploy large patrol boats to guard nuclear plants**

<https://mainichi.jp/english/articles/20180722/p2g/00m/0dm/007000c>

TOKYO (Kyodo) -- The Japan Coast Guard will deploy two large patrol vessels to areas of the Sea of Japan to reinforce protection of nuclear power plants against terrorism, sources familiar with the matter said Saturday.

Two new 1,500-ton vessels with helipads will be deployed between fiscal 2019 and 2020 to the coast guard's Tsuruga office in Fukui Prefecture where several nuclear plants are located, according to the sources.

Patrol boats of similar size, each costing about 6 billion yen (\$54 million), will be introduced in other parts of the country in the future, they said.

The government is moving to strengthen counterterrorism measures in the run-up to the 2020 Tokyo Olympics and Paralympics, in line with an agreement in February with the International Atomic Energy Agency to bolster Japan's capacity to respond to nuclear terrorism.

The coast guard expects the new ships will also enhance its ability to respond to North Korean boats engaged in illegal fishing, and to unidentified ships sighted off the central Japan coast, the sources said.

**The new ships could also be used to respond to emergency situations at nuclear plants in other areas, and crew will receive special training in dealing with radioactive substances,** they said.

An additional 60 to 80 coast guard crew will be posted at the Tsuruga office, nearly doubling the personnel there.

The Tsuruga office belongs to the 8th Regional Coast Guard Headquarters, which is responsible for patrolling waters along a 2,000-kilometer stretch of Japan's central and western coasts. That office operates three patrol boats, the largest being the 350-ton Echizen.

To better deal with China's growing maritime assertiveness, Japan has allocated an initial budget of a record 211.2 billion yen to the Japan Coast Guard for fiscal 2018.

See also: <https://www.japantimes.co.jp/news/2018/07/22/national/coast-guard-deploy-1500-ton-patrol-boats-protect-sea-japan-nuclear-plants/>

July 23, 2018

## **Fukushima's radioactive legacy in Californian wine**

### **Fukushima's Nuclear Imprint Is Found in California Wine (Drinkers, Don't Panic)**

<http://www.asahi.com/ajw/articles/SDI201807235851.html>

By MIHIR ZAVERI/ © 2018 The New York Times

Ever since a huge earthquake off the coast of Japan sent a tsunami crashing into a nuclear plant in Fukushima, setting off one of the world's worst nuclear crises, scientists have been uncovering the radioactive legacy of the 2011 disaster.

The government warned about contaminated seafood around Japan, and toxic water, sludge and rubble. More frighteningly, radioactive wild boars marauded Japanese towns and attacked people.

Now a group of French nuclear physicists say they have stumbled on Fukushima's signature in Northern California wine. (No, it's not believed to be dangerous.)

**In a new study, the researchers report testing 18 bottles of California rosé and cabernet sauvignon from 2009 onward and finding increased levels of radioactive particles in the wine produced after the Fukushima disaster. In the case of the cabernet, the levels of the radioactive materials doubled.**

“We can measure some radioactive level that is much higher than the usual level,” said Michael Pravikoff, a physicist at a French research center who worked on the study.

The French research team has in recent years examined wines from around the world, trying to correlate the level of radioactive material with the date the wine grapes were picked.

Wines made around major nuclear events, including U.S. and Soviet nuclear tests during the Cold War and the Chernobyl accident, should show higher levels of radioactive isotopes, called cesium-137, according to the researchers. The man-made isotope cannot be found in nature and would be present only at certain levels after the nuclear events.

This method of analysis, Pravikoff said, has become a way of verifying the authenticity of wine as fraud continues to be a persistent and lucrative crime. Wine with cesium-137 cannot have existed before the mid-20th century, and certain nuclear events would leave unique signatures based on time and proximity to the grapes.

Ingesting cesium-137 can result in an elevated risk for cancer, but the level of radioactive material from Fukushima in food and drink in countries outside Japan has been too low to result in a health hazard, [according to the World Health Organization](#).

While the 2011 earthquake and tsunami killed an estimated 16,000 people in the Fukushima area and across Japan and more than 160,000 fled the area around the plant, nobody was believed to have been sickened or killed by the radiation, as most of the fallout was swept out to sea.

Fish off the coast of Japan showed elevated levels of radiation, including cesium, resulting in the Japanese government’s banning or limiting their sale.

The California wine, however, is not seen as a health hazard, Pravikoff said. While the radioactive cloud from the disaster floated over the Pacific Ocean to California, settling on grapes there, the radioactive levels were low and drop with each passing year.

“These levels are so low, way below the natural radioactivity that’s everywhere in the world,” Pravikoff said.

He said the team’s special equipment helped detect the change in levels of radioactive material.

[The California Department of Public Health said Friday that it had not previously heard of the study, but that there were no “health and safety concerns to California residents.”](#)

“This report does not change that,” a department spokesman, Corey Egel, said in an emailed statement. Pravikoff said the California bottles had radioactive levels so low that the researchers had to use a special technique to measure them: burning the wine to ashes.

In other cases, where radiation is higher, the team’s equipment can measure the radiation through the glass of the wine bottle, so the bottle does not have to be opened.

Typically, the test has been conducted on unopened bottles.

Pravikoff said the method was developed three decades ago and gained prominence as people became more attuned to wine fraud.

Two years ago, he said, he was shopping at a supermarket when he found several bottles of cabernet sauvignon from California’s Napa Valley, produced years before, but after Fukushima. That spawned the idea to test for the disaster’s imprint.

“I just bought them, just to see,” he said. “It is more for the pure scientific aspect that we were interested in measuring them.”

Pravikoff said he would like to do more testing on bottles produced before the disaster to build more confidence in the team’s findings.

Maureen Downey, a wine authentication expert who leads Chai Consulting, a wine collection consulting firm, called the French researchers’ method “fantastic science.”

But she said it was of limited use to those in the wine industry, as prices could vary by thousands of dollars between neighboring vineyards, for example.

"Fifteen feet away is a difference in your bottle worth \$15,000," she said.

Wine, for its part, still remains a hotly debated drink when it comes to health: One study found that patients with Type 2 diabetes who drank wine, most notably red wine, had a reduced cardiometabolic risk, or the chance of heart disease, stroke or other medical conditions. Many other studies warn of the health risks of alcohol abuse and the danger to pregnant women.

While radioactivity from Fukushima will probably not hurt those seeking California wines from 2011 and later, the lesson, as always, is to drink in moderation.

August 15, 2018

## Radioactive soil disposed of "mistakenly" (by the ministry)

### Environment ministry lost 10 kg of low level contaminated soil

<https://mainichi.jp/english/articles/20180815/p2a/00m/0na/016000c>

The Ministry of the Environment announced on Aug. 14 that it has lost about 10 kilograms of contaminated soil that was shipped from a sender in the city of Fukushima after the 2011 nuclear disaster.

- **【Related】** Interim storage site for Fukushima contaminated soil to begin full operations
- **【Related】** Radiation limit for contaminated soil in reuse experiment lowered after local opposition
- **【Related】** Nuclear watchdog questions Environment Ministry's plan to reuse radioactive soil
- **【Related】** Environment Ministry deleted some of its remarks from minutes on contaminated soil meet
- **【Related】** Editorial: Move forward with construction of interim storage sites for nuclear waste

**The ministry says it probably disposed of the soil mistakenly.** The contamination level of the soil is low and it's highly unlikely to affect human health, ministry officials said.

The soil packed in small cardboard boxes was sent to the ministry on Nov. 8 and 16, 2011, by home delivery service from Fukushima and included the sender's name. A letter attached to the box read, "The ministry should keep and dispose of the soil, which was taken at my house in the city of Fukushima." At that time, the radiation dose of the soil was 0.6 microsieverts per hour and the concentration of radioactive materials was estimated to be about 4,000 becquerels per kilogram. These levels are currently estimated at 0.2 microsieverts and 2,000 becquerels, respectively, according to the ministry.

The soil had been kept in an aluminum case in the ministry building but there is a high possibility that officials threw it away when they disposed of disused articles in January this year. Commenting on the incident, Environment Minister Masaharu Nakagawa said, "It's really regrettable that there's a chance the soil was discarded due to inappropriate management."

(Japanese original by Norikazu Chiba, Science & Environment News Department)

August 17, 2018

## UN calls for protection of clean-up workers

### UN experts concerned about risks for workers on Fukushima cleanup

<https://mainichi.jp/english/articles/20180817/p2g/00m/0dm/032000c>

GENEVA (Kyodo) -- Three United Nations human rights experts criticized the Japanese government Thursday for allegedly exploiting and putting at risk the lives of "tens of thousands" of people engaged in cleaning up operations at and around the crippled Fukushima nuclear plant.

- **【Related】** Tepco halts sale of folders with Fukushima nuclear plant pictures
- **【Related】** Wildfire rages in highly radioactive Fukushima mountain forest
- **【Related】** Fukushima population falls by 110,000 after nuclear disaster

In a joint statement, the experts expressed their deep concerns "about possible exploitation by deception regarding the risks of exposure to radiation, possible coercion into accepting hazardous working conditions because of economic hardships, and the adequacy of training and protective measures."

"Workers hired to decontaminate Fukushima reportedly include migrant workers, asylum seekers and people who are homeless," the experts said, adding they were "equally concerned about the impact that exposure to radiation may have on their physical and mental health."

The press release called on the Japanese government to urgently "protect tens of thousands of workers who are reportedly being exploited and exposed to toxic nuclear radiation in efforts to clean up the damaged Fukushima Daiichi Nuclear Power Station."

The statement was issued by Baskut Tuncak, special rapporteur on the disposal of hazardous substances and waste, Urmila Bhoola, special rapporteur on contemporary forms of slavery, and Dainius Puras, special rapporteur on physical and mental health.

In Tokyo, an official of the Health, Labor and Welfare Ministry called the statement "regrettable," saying it was based on one-sided information and stressed that the Japanese government has been sincerely dealing with the matter.

"We properly handled problematic cases in the past and do not regard it as a situation which requires any urgent response," the official said.

The Foreign Ministry also expressed disappointment, saying the statement unnecessarily sparks worries and confusion.

"It's regrettable as the statement based on one-sided allegations that could exacerbate the suffering of people in the disaster-hit areas," the ministry said.

There have been cases of payments not being distributed to subcontracted laborers and of workers not being allowed to take necessary health checkups.

Some foreign trainees under the government's Technical Intern Training Program have also engaged in cleanup operations without the nature of the work being properly explained.

Tuncak is expected to present a report to the U.N. Human Rights Council next month aimed at strengthening the protection of workers exposed to toxic substances.



## U.N.: Japan must act to protect Fukushima clean-up workers

<http://www.asahi.com/ajw/articles/AJ201808170014.html>

REUTERS

Japan must act urgently to protect tens of thousands of workers laboring to clean up the damaged Fukushima No. 1 nuclear power plant from reported exploitation and exposure to radiation, U.N. human rights experts said on Thursday.

Tokyo Electric Power Co. Holdings (TEPCO), which owns the nuclear power plant that was struck by a tsunami in 2011 that set off meltdowns, has been widely criticized for its treatment of workers and its handling of the cleanup, which is expected to take decades.

A Reuters investigation in 2013 found widespread labor abuses, including workers who said their pay was skimmed and spoke of scant scrutiny of working conditions. TEPCO said at the time it was taking steps to limit worker abuses.

Three U.N. experts, who report to the U.N. Human Rights Council, said in a statement released in Geneva that exposure to radiation remained a major hazard for workers trying to clean up the plant, and workers were in danger of exploitation.

"Workers hired to decontaminate Fukushima reportedly include migrant workers, asylum seekers and people who are homeless," said the three: Baskut Tuncak, an expert on hazardous substances; Dainius Puras, an expert on health; and Urmila Bhoola, an expert on contemporary slavery.

"We are deeply concerned about possible exploitation regarding the risks of exposure to radiation, possible coercion into accepting hazardous working conditions because of economic hardships, and the adequacy of training and protective measures," they said.

A spokesman for TEPCO and a foreign ministry official said they were unable to immediately comment on the statement.

The U.N. rights experts have been engaged in a dialogue with the Japanese government since last year, they said, with the government accepting to "follow up" on some recommendations.

## Japan upset by UN human rights experts' call

### Japan: U.N. call to protect nuclear clean-up workers is 'regrettable'

<http://www.asahi.com/ajw/articles/AJ201808170029.html>

REUTERS

Japan on Friday described as "extremely regrettable" a call by U.N. human rights experts for greater protection of workers cleaning up its damaged Fukushima No. 1 nuclear power plant, and said it had notified U.N. officials of its reaction.

Tokyo Electric Power Co. Holdings (TEPCO), the utility that owns the plant hit by a tsunami in 2011 that set off meltdowns, has been widely criticized for its treatment of workers and its handling of the cleanup, which is expected to take decades.

In a statement on Thursday, the U.N. experts urged Japan to act urgently to protect tens of thousands of the workers from reported exploitation and radiation exposure, citing **fears over possible coercion and adequate training and protective steps.**

Japan is conducting reliable management of radiation levels for Fukushima workers, however, and had already informed the office of the United Nations High Commissioner for Human Rights of this, along with data, the Foreign Ministry said on Friday.

"The fact that this statement was issued despite this is extremely regrettable, and this was conveyed to the OHCHR in Geneva on Thursday," it added.

The U.N. rights experts had said they were engaged in a dialogue with Japan since last year, with the government accepting to "follow up" on some recommendations.

A Reuters investigation in 2013 had found widespread labor abuses, including workers who said their pay was skimmed and spoke of scant scrutiny of working conditions. TEPCO said at the time it was taking steps to limit worker abuse.

August 18, 2018

## The danger of heatstroke for Fukushima workers

### Leaving no stone unturned in heatstroke battle at nuclear plant

<http://www.asahi.com/ajw/articles/AJ201808180033.html>

By HIROSHI ISHIZUKA/ Staff Writer

OKUMA, Fukushima Prefecture--How to avert a heatstroke is more pressing than usual in Japan this summer as the archipelago bakes in a record heat wave.

It's not just sun-worshippers, children, the elderly and the infirm who should worry.

**Spare a thought for the 5,000 or so workers who toil at the crippled Fukushima No. 1 nuclear power plant to get it ready for decommissioning.**

**They have to work outside in protective gear, with limited access to water and other resources.**

At 5 a.m. on Aug. 6, a manager reminded a 20-strong group from IHI Plant Construction Co., which was contracted by Tokyo Electric Power Co., of the importance of adhering strictly to work rules.

"Please limit your efforts to shifts of less than 90 minutes," the manager told the assembled workers in a lounge at the plant as he checked the complexion of each individual to gauge their health condition.

The workers are installing storage tanks for radioactive water that is accumulating at the plant.

**They are not permitted to take food and beverages with them because of the risk of internal radiation exposure if the perishables are contaminated while they are working.**

Water stations have been set up, but workers generally don't bother to quench their thirst as it means they have to change out of their work gear to reach the sites.

During the morning meeting, the manager also checked each worker's alcohol level and made sure that everybody had water from oral rehydration solution. After that, workers put a cold insulator in their vests and headed to the work site.

The Fukushima plant complex has about 900 tanks set up. IHI Plant Construction installed about 20 percent of them.

The workers' primary responsibility in recent weeks is **to inspect the condition of covers put in place to stop rainwater from accumulating around the tanks.**

The workers are spared from the scorching sun as they work under cover, but **coping with 90 to 95 percent humidity** is a formidable challenge.

Junichi Ono, the head of the IHI Plant Construction's task force assigned to the plant, said his company has tried to take every precaution against heatstroke.

"We need to pay attention because we work in a humid environment," he said. "If a worker falls sick, we will lose valuable time taking that person to the doctor."

According to TEPCO, 23 workers suffered heatstroke in the summer of 2011, shortly after the nuclear crisis unfolded at the plant.

Learning a lesson from that, workers were later instructed to start their tasks early in the morning and not work outdoors in principle between 2 p.m. and 5 p.m. in July and August, the hottest part of the day.

The "**summer time**" schedule appears to be paying off.

In fiscal 2014, the number of workers afflicted with heatstroke at the plant stood at 15.

It dropped to four in fiscal 2016, but went back up to six in fiscal 2017 despite it being a relatively cool summer that year.

Although this year's heat wave is unprecedented, only four workers have suffered heatstroke at the plant this summer.

The Japan Meteorological Agency forecast blistering summer heat in the coming week after a respite this weekend.

August 25, 2018

## Nuke disaster drill in Fukui

### Japan holds nuclear disaster drill for multiple simultaneous accidents in Fukui

[https://www.japantimes.co.jp/news/2018/08/25/national/japan-holds-nuclear-disaster-drill-multiple-simultaneous-accidents-fukui/#.W4F\\_l8IyWos](https://www.japantimes.co.jp/news/2018/08/25/national/japan-holds-nuclear-disaster-drill-multiple-simultaneous-accidents-fukui/#.W4F_l8IyWos)

JJI

FUKUI – The government held a comprehensive disaster drill Saturday for a scenario in which serious accidents simultaneously strike the Oi and Takahama nuclear plants in Fukui Prefecture.

This is the first disaster response drill designed for simultaneous atomic accidents at multiple plants since the Fukushima nuclear crisis in March 2011.

The drill, which lasts through Sunday, involves some 21,000 people including residents and officials from the Cabinet Office, the Nuclear Regulation Authority and municipal governments.

Preparations involving the Oi and Takahama plants, both managed by Kansai Electric Power Co., are deemed necessary because they are just 13.5 km from each other.

The exercise assumes radioactive substances are released from the plants after an earthquake in northern Kyoto knocks out the reactors' cooling systems.

As part of the drill, task forces created at the two plants' off-site emergency response centers were integrated into Oi's task force.

Katsunori Yamamoto, 64, who runs a nursing home within 5 km of the Takahama plant, took part by playing one of the home's residents. He was moved to an evacuation site in Tsuruga by a wheelchair-accessible van driven by a Kansai Electric worker.

"I want to assess risks to our nursery home residents," he said. Six of the 18 residents use wheelchairs.

## **Disaster drill underway for Fukui nuclear plants**

[https://www3.nhk.or.jp/nhkworld/en/news/20180825\\_15/](https://www3.nhk.or.jp/nhkworld/en/news/20180825_15/)

Emergency crews and residents in central Japan began a major disaster drill on Saturday that is the first exercise of its kind.

The 2-day drill is being held at 2 nuclear power plants in Fukui Prefecture.

The Cabinet Office planned the exercise to prepare for accidents striking multiple locations at the same time.

The drill is based on a scenario of an earthquake causing the Ohi and Takahama Plants to lose power, stopping the plant cooling systems and releasing nuclear substances.

The 2 plants are located 13 kilometers from each other.

Central and local government officials ran the drill from the Ohi plant's offsite center where functions were centralized to smoothly evacuate people in the 2 locations.

About 21,000 people were slated to take part, including members of relevant organizations and local residents.

Workers are conducting a separate drill at the Ohi plant to contain the accident.

Employees of plant operator Kansai Electric Power Company confirmed procedures to set up large-capacity pumps to draw up sea water to cool the containment vessels.

Two reactors at the Takahama plant restarted in 2016, and 2 at the Ohi plant restarted this year, making Fukui the only prefecture to have multiple active nuclear power plants.

The central and prefectural governments intend to use the drill to test the effectiveness of their evacuation plans.

August 28, 2018

## **Fukushima food ban in Taiwan subject to referendum?**

## Taiwan to hold referendum on lifting Fukushima food ban in November

<https://mainichi.jp/english/articles/20180828/p2a/00m/0na/027000c>

TAIPEI -- Taiwan's largest opposition party Kuomintang has announced that it has collected some 470,000 signatures supporting a referendum on whether to lift a ban on the import of food products from five Japanese prefectures, including Fukushima, imposed after the 2011 Fukushima No. 1 nuclear plant disaster.

- **【Related】** Tokyo's road to 'Reconstruction Olympics' not an easy one
- **【Related】** Hamburger event using Fukushima ingredients held in Tokyo
- **【Related】** Amount of food with radioactive cesium exceeding gov't standards dropping: study

The number is far more than the 280,000 legally required to hold a referendum, and it is most likely that one will be held on Nov. 24 in tandem with general local elections.

Taiwan has banned foodstuff from the prefectures of Fukushima, Ibaraki, Tochigi, Chiba and Gunma in the northern and eastern parts of Japan, and the Kuomintang supports the ban.

A national referendum must have a turnout rate of at least 25 percent for the result to be valid, but this hurdle is likely to be cleared if the voting is done alongside the local elections. If voters back the ban, it would be extremely difficult for the administration of Tsai Ing-wen to ignore the outcome and Japan-Taiwan relations would suffer substantially as a result.

Behind the referendum move is a political rivalry between the Kuomintang and the ruling Democratic Progressive Party (DPP) headed by Tsai. The opposition is stepping up attacks on the ruling party in a bid to win the local elections and build political momentum toward the 2020 presidential election.

The Kuomintang has launched a negative PR campaign against food items from Fukushima and the other prefectures because the Tsai administration is positive about lifting the import ban. The opposition called the Japanese products "nuclear food," meaning contaminated by the nuclear accident, and accused the government of ignoring people's food safety concerns. A person linked to the DPP lamented that the issue is "being used in a political fight."

The government of Japan has repeatedly urged Taiwan to lift the import ban, saying the safety of its food items is scientifically proven. However, the Tsai administration is hesitant about rushing a decision on resuming imports as it faces faltering approval rates and the issue could trigger explosive opposition from some voters.

(Japanese original by Shizuya Fukuoka, Taipei Bureau)

August 29, 2018

## Water leak in Rokkasho plant

## Unfinished nuclear fuel plant had water leak

[https://www3.nhk.or.jp/nhkworld/en/news/20180829\\_02/](https://www3.nhk.or.jp/nhkworld/en/news/20180829_02/)

The operator of a nuclear fuel reprocessing plant under construction in northern Japan says it found a water leak earlier this month at one of its facilities.

Japan Nuclear Fuel says an employee spotted the leak in the pipes of a storage pool at the plant in Rokkasho Village, Aomori Prefecture.

The operator found that the pipes were corroded in 20 places and one of them had a hole. They are located outdoors and used for inspections.

The operator believes that rainwater seeped through gaps in insulation materials wrapped around the pipes.

It says the corrosion has not had any impact on the pool's functions.

Workers have been checking all the facilities since they found in August last year that rainwater had flowed into the building that houses an emergency power generator.

The operator says it will replace the pipes and check if there are similar problems at other facilities.

In May, the nuclear regulator resumed its review of the plant after a suspension of 8 months. The operator says the plant is expected to be completed in the first half of fiscal 2021.

The plant will extract uranium and plutonium from spent fuel from nuclear power stations.

August 31, 2018

## Safety vital in scrapping Monju

### EDITORIAL: Safe and steady progress needed to finally end Monju debacle

<http://www.asahi.com/ajw/articles/AJ201808310018.html>

The Japan Atomic Energy Agency (JAEA) on Aug. 30 started work to remove nuclear fuel from the Monju prototype fast-breeder reactor in the first stage of decommissioning the trouble-prone experimental reactor in Tsuruga, Fukui Prefecture.

It is the first step in a long and grueling process that will take three decades. **Safe and steady progress is vital for achieving the goal.**

Monju burns uranium-plutonium mixed oxide (MOX) fuel and is cooled by liquid sodium, instead of water. Monju worked only very briefly during the more than 20 years of its life, and the government decided to pull the plug on the reactor at the end of 2016.

While the work to remove fuel continues, the liquid sodium coolant will be extracted from Monju, and related equipment will be dismantled. The reactor building will then be demolished and removed.

There have only been 10 or so cases of decommissioning a fast reactor in the world. These rare projects have been carried out in such countries as the United States, Britain and France. Maximum caution is in order to ensure safety in the process.

Plutonium is a material used to make atomic bombs. To avoid causing unnecessary concerns about nuclear proliferation, the operator should adequately share information about fuel transfer work with the International Atomic Energy Agency (IAEA).

According to the JAEA's plan, 530 fuel assemblies will be removed from the reactor core and the storage tank outside the reactor, which are filled with sodium coolant. The fuel assemblies will be cleaned before being transferred to an on-site water-filled storage pool. This stage is scheduled to be completed by fiscal 2022.

Since sodium is not transparent, it is impossible to see the fuel assemblies submerged in liquid sodium while retrieving them.

Only two fuel assemblies have ever been transferred to the pool at the Monju plant. There are only about 10 workers who have experienced the task.

During a test operation eight years ago, refueling equipment fell into the reactor vessel. Work to remove fuel was originally scheduled to begin in late July, but the start has been delayed by one month due to a series of troubles with related equipment.

**A rigorous system of checks and double-checks is indispensable for ensuring steady progress in the project.**

Removing fuel is not the only part of the process that requires great care and caution. Sodium reacts violently with water or air. A sodium leak accident at Monju in 1995 caused a fire. Radioactive sodium requires particularly cautious handling.

The JAEA is known for its problem-plagued history. It has been criticized for poor safety consciousness and lax discipline.

While scrapping Monju, the JAEA will also decommission its facility to extract unused fissionable material, plutonium to be exact, from spent nuclear fuel in Tokai, Ibaraki Prefecture, in a 70-year-long process.

That means the JAEA will have to maintain high levels of alertness, attentiveness and discipline for a very long period of time.

Some 1.1 trillion yen (\$10 trillion) has already been spent on the Monju project, and decommissioning the reactor will cost at least 375 billion yen. Most of the money has been or will be paid by taxpayers.

No sharp increase in the cost of decommissioning due to glitches or human errors is acceptable.

It should not be forgotten that the process also poses one common and sticky challenge involved in decommissioning any nuclear reactor.

No decision has been made on how to dispose of the nuclear fuel, sodium and other radioactive waste that will be produced in the decommissioning process.

Instead of postponing actions to tackle this challenge, the government should immediately embark on serious efforts to find a solution to this tough question.

September 3, 2018

**What MOX program?**

## Japanese utilities ended funding for nuclear fuel reprocessing in 2016, putting MOX program in doubt

<https://www.japantimes.co.jp/news/2018/09/03/national/japanese-utilities-ended-funding-nuclear-fuel-reprocessing-2016-putting-mox-plans-doubt/#.W45GDsLLipo>

Kyodo

Utilities that operate nuclear power plants stopped funding the reprocessing of nuclear fuel in fiscal 2016, their financial reports showed Sunday, a step that may affect resource-scarce Japan's nuclear fuel recycling policy.

The 10 utilities, including Tokyo Electric Power Company Holdings Inc. and Japan Atomic Power Co., apparently halted allocating reserve funds for reprocessing costs due to the huge expenses linked to building the reprocessing facilities, sources said.

The government, along with the power companies, has been pushing for the reuse of mixed-oxide, or MOX, fuel, which is created from plutonium and uranium extracted from spent fuel.

While Japan has not changed its policy on spent fuel reprocessing, the outlook for it has remained uncertain since the 2011 Fukushima disaster. At the same time, the government's latest energy plan in July also stated for the first time that disposal of spent MOX fuel as waste can be considered.

**If MOX fuel cannot be reprocessed, nuclear fuel can only be reused once.**

For the reprocessing of spent MOX fuel, the utilities had allocated about ¥230 billion in reserves as of March 2016.

Currently, only two reactors at Kansai Electric Power Co.'s Takahama power plant, one reactor at Shikoku Electric Power Co.'s Ikata plant and one reactor at Kyushu Electric Power Co.'s Genkai power plant use MOX fuel in so-called pluthermal power generation.

As Japan has decided to cut its stockpile of plutonium, the government and utilities aim to increase plants for pluthermal generation. But if spent MOX fuel is not reprocessed, it would be considered nuclear waste, raising concerns over how to deal with it.

Japan Nuclear Fuel Ltd. — in which power companies have invested — has been pursuing the construction of a spent nuclear fuel reprocessing plant in northeastern Japan as well as a MOX fuel fabrication plant, with the costs coming to about ¥16 trillion.

But a series of problems has resulted in their delay. When operational, the Rokkasho plant in Aomori Prefecture, key to Japan's nuclear fuel cycle policy, can reprocess up to 800 tons of spent nuclear fuel per year, extracting about 8 tons of plutonium.

With this setback, if new MOX reprocessing plants are to be built, it would be hard to secure further funding.

September 4, 2018

## Plan for MOX fuel plant pushed back for 3rd time



## Safety checks delay construction of MOX fuel plant in Aomori for third time

<https://www.japantimes.co.jp/news/2018/09/04/national/safety-checks-delay-construction-mox-fuel-plant-aomori-third-time/#.W45IGMLLipo>

Kyodo

AOMORI – Construction in Aomori Prefecture of **the world’s first commercial reactor to operate solely on plutonium-uranium mixed oxide fuel** will be pushed back for the third time due to prolonged safety checks, the utility building the reactor said Tuesday.

Electric Power Development Co. had been planning to begin construction of major facilities at the Oma nuclear power plant in the prefecture during the latter half of this year, but told the Oma Municipal Assembly on Tuesday it has decided to delay the work by about two years. The delay means the new target for the reactor to begin operations is fiscal now 2026.

The move clouds the course of Japan’s policy for the nuclear fuel cycle, in which the reactor was supposed to play a key role. Mixed oxide (MOX) fuel is produced by extracting plutonium from spent nuclear fuel and mixing it with uranium. **Tokyo is also under international pressure to slash its stockpile of plutonium, which has the potential to be used to produce nuclear weapons.**

“We would like Electric Power Development to put top priority on safety and respond appropriately to the Nuclear Regulation Authority’s screening,” industry minister Hiroshige Seko said at a news conference. The company, also known as J-Power, initially sought to start operations at the nuclear plant, to be located in the Aomori town of Oma with an output of 1.38 million kilowatts, in fiscal 2021, but put it back by one year in 2015 and then postponed it to fiscal 2024 in 2016.

Construction of the reactor began in 2008 after gaining state approval, but was stalled following the nuclear meltdowns at the Fukushima No. 1 power plant triggered by the 2011 earthquake and tsunami disaster.

About 40 percent of the construction has been completed, but work so far has centered on setting up office buildings and conducting road repairs.

J-Power applied for safety checks in December 2014, but NRA examinations have focused on assumptions about tsunami and earthquake risk at the overall complex and not at its nuclear facilities. An official at the company told the Oma Municipal Assembly that it may take two more years for the reactor to pass the screening.

J-Power said it hopes to start construction of the reactor and other facilities in the latter half of 2020 and complete it by the second half of 2025.

“It’s very regrettable that the project will be postponed once again. I hope (J-Power) will strive to swiftly pass the screening and help revitalize the regional economy,” Oma Mayor Mitsuharu Kanazawa said at the assembly meeting after hearing from the company official.

The Oma plant has also faced lawsuits seeking suspension of the project.

Residents in Hakodate, Hokkaido, which is some 23 kilometers northwest of Oma across the Tsugaru Strait, filed a lawsuit against the company and the central government with the Hakodate District Court in July 2010, claiming they are concerned about the large amount of highly toxic plutonium that will be used as reactor fuel.

The city of Hakodate also filed suit against the two parties with the Tokyo District Court in April 2014, saying it fears the impact of an accident at a so-called full-MOX reactor will be far more devastating than that of the Fukushima disaster, which led to the long-term evacuation of many local residents.

## Extended screening pushes back MOX fuel plant construction for 3rd time

<https://mainichi.jp/english/articles/20180904/p2g/00m/0dm/063000c>

AOMORI, Japan (Kyodo) -- Construction of the world's first commercial reactor to operate solely on plutonium-uranium mixed oxide fuel in northeastern Japan will be pushed back for the third time due to prolonged safety checks, its constructor said Tuesday.

- **【Related】** Japan's efforts to decrease plutonium stockpiles do little to appease US, int'l community
- **【Related】** New reactor being built in western Japan applies for safety checks
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[..]

## Monitoring stations to be installed around nuclear plants

### Reactor hosts to set up systems to check for plumes of radioactivity

<http://www.asahi.com/ajw/articles/AJ201809040018.html>

By YUSUKE OGAWA/ Staff Writer

Japan's nuclear watchdog decided Sept. 3 to instruct municipalities that host nuclear power plants **to install atmospheric monitoring systems that can detect radioactive plumes in accidents and warn residents of the dangers.**

Central government grants can be used to set up the monitoring stations **within a 30-kilometer radius of all nuclear power plants**, the Nuclear Regulation Authority (NRA) said.

A plume containing radioactive substances emerges after a reactor meltdown and can spread over wide areas via wind. The substances can contaminate the ground in rainfall.

**In the event of a serious nuclear accident, the atmospheric monitoring systems will measure radiation concentrations in the air every 10 minutes to determine if a plume has indeed formed.**

One system will consist of **a maximum 48 measurement devices--three at each of 16 different areas from the plant.**

To minimize radiation exposure among residents, the measurement figures will be shared in real time and improve the accuracy of data used to issue evacuation orders or warnings to remain indoors, according to an NRA official.

Monitoring posts have been set up across the nation to measure radiation dosage rates. However, it is difficult to determine if the radiation measured has been deposited on the ground from a plume drifting in the air.

The NRA will also instruct the municipalities to prepare emergency power sources for the monitoring systems in case electricity stops in a nuclear plant emergency.

September 5, 2018

## Confirmed: Death of Fukushima nuclear worker linked to job exposure

### **Fukushima nuclear plant worker died from radiation exposure on the job: ministry**

<https://mainichi.jp/english/articles/20180905/p2a/00m/0na/004000c>

TOKYO -- The death from lung cancer of a male worker at the crippled Fukushima No. 1 Nuclear Power Plant operated by Tokyo Electric Power Co. (TEPCO) in the northeastern prefecture of Fukushima has been confirmed as work-related, the Ministry of Health, Labor and Welfare announced on Sept. 4.

- **【Related】** Gov't, TEPCO plan to dump treated water in sea angers Fukushima fishermen
- **【Related】** Gov't decides against increasing compensation fund for nuclear disaster
- **【Related】** TEPCO eyes 1st contact with fuel debris in damaged nuke reactor from Oct.

The announcement marks the government's first recognition of a fatality linked to radiation exposure at the facility since a triple core meltdown occurred there in March 2011.

The ministry ruled in favor of granting workman's compensation on Aug. 31. According to the ministry, the man had worked mainly at the Fukushima No. 1 nuclear plant and other atomic power stations nationwide over a period of about 28 years and three months between June 1980 and September 2015. He was exposed to a total radiation dose of approximately 195 millisieverts.

After the March 2011 disaster triggered by the massive Great East Japan Earthquake and tsunami, the worker, who was in his 50s, was exposed to roughly 34 millisieverts of radiation by December 2011. In September 2015, his exposure reached around 74 millisieverts. He was in charge of measuring radiation on the premises of the Fukushima No. 1 plant, and he is said to have worn a full-face mask and protective suit while working, according to the ministry.

The man was diagnosed with lung cancer in February 2016. The timing of his death was withheld in accordance with his bereaved family's wishes, ministry officials explained.

For the death by lung cancer of a worker at a nuclear power plant to be recognized as work-related under current guidelines, the individual must be exposed to 100 millisieverts or more of radiation and the development of the disease must happen five years or more after the exposure.

The ministry made the latest recognition based on opinions of a panel of experts specializing in radiology and other disciplines.

A public relations official of TEPCO Holdings Inc. commented, "We would like to continue to secure the safety of power plants and improve the work environment."

(Japanese original by Shunsuke Kamiashi, City News Department)

September 6, 2018

## Power restored in Hokkaido nuclear plant

## Japan nuclear plant's power restored after quake triggers Hokkaido blackout

<https://www.reuters.com/article/us-japan-quake-nuclear/japan-nuclear-plants-power-restored-after-quake-triggers-hokkaido-blackout-idUSKCN1LM031>

Osamu Tsukimori, Aaron Sheldrick

TOKYO (Reuters) - Power was restored to a nuclear energy plant in Hokkaido, northern Japan on Thursday after a strong earthquake left it relying on emergency generators for 10 nervous hours, but it may be a week before lights are back on all over the major island.

MANDATORY CREDIT REUTERS/Kyodo

Triggering a blackout just after 3 a.m. local time, the magnitude 6.7 quake left at least seven people dead, more than 100 injured and dozens missing on Hokkaido, an island of about 5.3 million people whose capital is Sapporo. A major coal-fired power station was also damaged in the temblor that shut down the grid.

The situation at utility Hokkaido Electric Power's (9509.T) three-reactor Tomari nuclear plant provided an uncomfortable, if comparatively brief, echo of the Fukushima Daiichi nuclear disaster in 2011. Reactors there melted down after a massive tsunami knocked out back-up generators, designed to maintain power to cool reactors in emergencies.

Though Tomari was shut down after the Fukushima disaster in 2011, it needs electricity to keep fuel rods cool, and had to rely on back-up diesel generators that kicked in after the quake until power was restored to all three reactors by 1 p.m. local time.

Hokkaido Electric is now scrambling to get power restored to households, factories and other customers, even as rescuers bring in heavy machinery and digging equipment to search for survivors that may be trapped in stricken buildings.

In another echo of the 2011 disaster, Hokkaido's situation was compounded by difficulties in receiving supplies from neighboring regions that remain dominated by separate utilities with their own grids. A Hokkaido Electric spokesman said the utility was not receiving any supplies from the island of Honshu to the south - home to Tokyo, Osaka and Nagoya - despite there being a 600 megawatt connection for transferring power from the coast of Japan's main island.

"Nationwide, they have been trying to bolster power systems by linking these fairly Balkanized domains, but it's not as easy as it sounds," said Andrew DeWit, professor of energy policy at Rikkyo University in Tokyo. "It requires equipment like transformers that is quite expensive and tailor-made."

Damage to transmission lines, transformers and other equipment from the quake is likely also delaying the restoration of power, DeWit said.

### COAL SHUTDOWN

By early afternoon, Hokkaido Electric had restarted one 125 megawatt coal-fired unit at its Sunagawa station.

Its Tomato-Atsuma coal station, which normally supplies about half the island's electricity, remained shut after sustaining damage in the quake.

The abrupt halt in supplies from Tomato-Atsuma caused such a huge imbalance in supply and demand that other power plants on Hokkaido had to be shut own, industry minister Hiroshige Seko told reporters in Tokyo. It may take a week to restore power fully to Hokkaido, he said.

Thursday's blackout prompted the shutdown of Hokkaido's New Chitose Airport, a popular gateway to the most northern of Japan's main islands, the second major airport to be knocked out in the country in two days after a typhoon swamped the nation's third-biggest.

A number of industrial plants and factories were also affected.

A fire that broke out at a steel production facility at Mitsubishi Steel Manufacturing's (5632.T) joint venture with Nippon Steel & Sumitomo Metal Corp (5401.T) in Muroran, Hokkaido, was extinguished with little damage to the facilities, a company official said.

The plant will work toward resuming special steel production after power supply from Hokkaido Electric is restored, the official said. It usually takes about eight hours to resume production after the power supply has been secured, he said.

Meanwhile Idemitsu Kosan (5019.T), Japan's second-biggest refiner by sales, stopped all refining and product shipments at its 150,000 barrels per day Hokkaido refinery, the only one on the island, an official told Reuters.

Kirin Beer, part of giant drinks maker Kirin Holdings Co (2503.T), said it closed its Chitose plant, which accounts for about 5 percent of its beer output, because of the power outage. There was no structural damage to the factory, it said.

Sapporo Holdings Ltd (2501.T) said it closed down its Hokkaido brewery because of the lack of power.

## Radioactive water in Fukushima: What to do?



Contaminated water is stored in large tanks at the crippled Fukushima No. 1 nuclear power plant. (Asahi Shimbun file photo)

### **EDITORIAL: All options need to be weighed for Fukushima plant tainted water**

<http://www.asahi.com/ajw/articles/AJ201809060020.html>

The government has held public hearings on plans to deal with growing amounts of radioactive water from the ruined Fukushima No. 1 nuclear power plant.

The hearings, held in Tomioka and Koriyama in Fukushima Prefecture as well as in Tokyo, underscored the enormous difficulty government policymakers are having in grappling with the complicated policy challenge.

The crippled reactors at the plant are still generating huge amounts of water contaminated with radiation every day. Tons of groundwater percolating into the damaged reactor buildings as well as water being injected into the reactors to cool the melted fuel are constantly becoming contaminated.

Almost all the radioactive elements are removed from the water with a filtering system. But the system cannot catch tritium, a mildly radioactive isotope of hydrogen.

The tritium-contaminated water is stored on-site in hundreds of large tanks. As the number of tanks has reached 900, the remaining space for them is shrinking and expected to run out by around 2020, according to the government.

Clearly, time is growing short on deciding what to do about the problem.

A task force of the Ministry of Economy, Trade and Industry has considered five options, including release into the Pacific Ocean after dilution, injection into deep underground strata and release into the air after vaporization. The group has concluded that dumping the water into the ocean would be the quickest and least costly way to get rid of it.

This is seen as the best option within the government.

Tritium is a common radioactive element in the environment that is formed naturally by atmospheric processes. Nuclear power plants across the nation release tritium produced in their operations into the sea according to legal safety standards.

But these facts do not automatically mean that releasing the tritium-laced water into the sea off Fukushima is a good approach to the problem.

Local communities in areas affected by the 2011 nuclear disaster are making strenuous efforts to rebuild the local fishing and agricultural industries that have been battered by the radiation scare. There are still countries that ban imports of foodstuffs produced in Fukushima Prefecture.

Local fishermen and other community members have every reason to oppose the idea of releasing tritium into the ocean. They are naturally concerned that the discharge would produce new bad rumors that deliver an additional blow to the reputation and sales of Fukushima food products.

Unsurprisingly, most of the citizens who spoke at the hearings voiced their opposition to the idea.

Moreover, it was reported last month that high levels of radioactive strontium and iodine surpassing safety standards had been detected in the treated water.

The revelation has made local communities even more distrustful of what they have been told about operations to deal with the radioactive water.

It is obvious that the hearings at only three locations are not enough to sell any plan to cope with the sticky problem to skeptical local residents. The government needs to create more opportunities for communication with them.

In doing so, the government should show a flexible stance without adamantly making the case for the idea of releasing the water into the sea. Otherwise, there can be no constructive debate on the issue.

It can only hope to win the trust of the local communities if it gives serious consideration to other options as well.

During the hearings, many speakers suggested that the water should be kept in large tanks until the radioactivity level falls to a very low level.

The pros and cons of all possible options, including this proposal, should be weighed carefully through cool-headed debate before the decision is made.

**Repeated discussions with fruitful exchanges of views among experts and citizens including local residents are crucial for ensuring that the final decision on the plan will win broad public support.**

The government and Tokyo Electric Power Co., the operator of the Fukushima plant, should disclose sufficient information for such discussions and give thoughtful and scrupulous explanations about relevant issues and details.

The government, which has been promoting nuclear power generation as a national policy priority, has the responsibility of building a broad and solid consensus on this problem.

## Disposing of tritium

### News Navigator: What is tritium and why is its disposal difficult?

The Mainichi Shimbun answers some common questions readers may have about the characteristics of tritium, and why it is hard to dispose of water containing the radioactive element.

- **【Related】** Gov't, TEPCO plan to dump treated water in sea angers Fukushima fishermen
- **【Related】** Researchers develop technology to remove radioactive tritium from water
- **【Related】** Decommissioning Fukushima reactors will take time but progress continues
- **【Related】** Fukushima nuclear plant still plagued by tainted water 6 years after meltdowns

Question: I heard the term "water containing tritium" used when talking about the treatment of contaminated water at the Fukushima No. 1 Nuclear Power Plant operated by the Tokyo Electric Power Co. (TEPCO).

Answer: It refers to treated water including tritium. The element cannot be removed using the current purification method used at the crippled nuclear power plant. The government and TEPCO are considering ways to dispose of the liquid, which is continuing to fill waste water tanks at the plant.

Q: What kind of substance is tritium?

A: Tritium is a radioactive isotope of hydrogen containing one proton and two neutrons while the ordinary hydrogen nucleus contains just one proton. It has a half-life of about 12.3 years, which is the time required to reduce half of its radioactivity.

Q: Is tritium found only in the treated water from the damaged nuclear plant?

A: Tritium can also develop when oxygen and nitrogen in the atmosphere react to cosmic neutrons.

Around 70 quadrillion becquerels appear naturally per year, and around a total of 223 trillion becquerels are contained in Japan's annual rainfall, according to data compiled by the Ministry of Economy, Trade and Industry (METI). Coolant in normal operating nuclear reactors also carries tritium. At the Fukushima No. 1 Nuclear Power Plant, tritium is generated in groundwater pouring into the buildings that house reactors, and in water used to cool melted fuel debris.

Q: Why is it difficult to dispose of tritium?

A: Other radioactive substances can be removed using specific disposal equipment for filtration and absorption to levels below the allowed ceiling. However, separation is very hard for water containing tritium because its characteristics, including the boiling temperature, are similar to those of normal water.

Q: What about the impact it will have on human health, as it is radioactive?

A: Tritium emits beta radiation that has weak energy, and will mostly pass through the body if drunk. Its effects on the human body are said to be minimal compared to radioactive cesium. Nuclear power plants around the world are disposing water containing tritium according to regulations, in oceans and other places, once it has been diluted to a radiation level that falls below standard limits. According to METI, Japan released into oceans around 380 trillion becquerels of tritium per year on average for five years before the Fukushima nuclear disaster.

(Answers by Riki Iwama, Science & Environment News Department)

## Confirmed: Death of nuclear worker due to exposure (2)

### In a First, Japan Says Fukushima Radiation Caused Worker's Cancer Death

<http://www.asahi.com/ajw/articles/SDI201809069818.html>

By MOTOKO RICH/ © 2018 The New York Times

TOKYO--More than seven years after a devastating earthquake and tsunami triggered meltdowns at a nuclear power plant in Fukushima, Japan acknowledged for the first time this week that a worker died from cancer after being exposed to radiation.

Japan's Ministry of Health, Labor and Welfare said the man, who was not identified, had worked mostly at the Fukushima Daiichi plant over 28 years and had died of lung cancer, according to Japanese news media reports.

Three years ago the government awarded workers' compensation to a man who developed leukemia while working on the Fukushima cleanup, but this week marked the first acknowledgment that exposure to radiation at the site caused a death. The government has acknowledged that three other Fukushima workers developed leukemia and thyroid cancer after working on the plant cleanup. About 5,000 workers labor at the site daily.

The ministry said the man who died worked for a subcontractor to Tokyo Electric Power Co., the plant's operator. He was in his 50s and was diagnosed with lung cancer in 2016. His family did not wish his precise date of death to be released, according to the health ministry.

According to the government, the man was responsible for measuring radiation at Fukushima Daiichi and wore a protective jumpsuit and a full face mask while working. The ministry said he had been exposed to a lifetime dose of 195 millisieverts of radiation after working at Fukushima and other plants.

Safety regulators say workers can be safely exposed to up to 50 millisieverts a year, but if a worker with an accumulated 100 millisieverts develops an illness after five years of exposure, that can be ruled an occupational injury. According to an expert cited by the Mainichi Shimbun, a daily newspaper, the man had been exposed to 74 millisieverts at the Fukushima plant since the accident.

Fukushima has faced a long and painful aftermath from the 2011 disaster, with thousands of people evacuated for years, and the government and Tokyo Electric struggling to cope with a radioactive waste cleanup on an unprecedented scale.

Experts have been divided on whether exposure to radiation can be linked to other illnesses, including thyroid cancer, among children living near the plant. The government has said that the evacuation caused more fatalities than radiation exposure. Its Reconstruction Agency determined this year that stress,



suicide and the interruption of medical care related to the nuclear crisis and evacuation had caused 2,202 deaths.

According to a report in the Asahi Shimbun, a daily newspaper, 17 Fukushima plant workers have filed for workers' compensation with the health ministry. Four have been granted compensation, and five claims have been rejected. Another five are pending, and two have withdrawn their claims.

Courts have repeatedly found the government and Tokyo Electric negligent in failing to prevent the disaster. Three of the reactors at Fukushima Daiichi, which is on the eastern coast of Japan, melted down when 32-foot waves overpowered the plant's protective sea walls and flooded buildings, destroying diesel generators that were designed to keep critical systems functioning in a blackout.

September 29, 2018

## Far too unsafe to be dumped soon



Rows of storage tanks on the grounds of the Fukushima No. 1 nuclear power plant contain water contaminated by radioactive materials. (Asahi Shimbun file photo)

### Treated water at Fukushima nuclear plant still radioactive

<https://mainichi.jp/english/articles/20180929/p2g/00m/0dm/055000c>

TOKYO (AP) -- The operator of Japan's wrecked Fukushima nuclear plant said Friday that much of the radioactive water stored at the plant isn't clean enough and needs further treatment if it is to be released into the ocean.

- **【Related】** Wildfire rages in highly radioactive Fukushima mountain forest
- **【Related】** Wind power facilities planned for Fukushima Prefecture
- **【Related】** Fukushima food products still shunned by 15 percent of consumers: survey

Tokyo Electric Power Co. and the government had said that treatment of the water had removed all radioactive elements except tritium, which experts say is safe in small amounts.

They called it "tritium water," but it actually wasn't.

TEPCO said Friday that studies found the water still contains other elements, including radioactive iodine, cesium and strontium. It said more than 80 percent of the 900,000 tons of water stored in large, densely packed tanks contains radioactivity exceeding limits for release into the environment.

TEPCO general manager Junichi Matsumoto said radioactive elements remained, especially earlier in the crisis when plant workers had to deal with large amounts of contaminated water leaking from the wrecked reactors and could not afford time to stop the treatment machines to change filters frequently. "We had to prioritize processing large amounts of water as quickly as possible to reduce the overall risk," Matsumoto said.

About 161,000 tons of the treated water has 10 to 100 times the limit for release into the environment, and another 65,200 tons has up to nearly 20,000 times the limit, TEPCO said.

Matsumoto said the plant will treat the water further to ensure contamination levels are reduced to allowable limits.

He was responding to growing public criticism and distrust about the status of the water.

More than 7 1/2 years since a massive March 2011 earthquake and tsunami destroyed three reactors at the plant, Japan has yet to reach a consensus on what to do with the radioactive water. Fishermen and residents oppose its release into the ocean. Nuclear experts have recommended the controlled release of the water into the Pacific as the only realistic option.

The release option faced harsh criticism at town meetings in Fukushima and Tokyo in late August, when TEPCO and government officials provided little explanation of the water contamination, which had been reported in local media days earlier.

TEPCO only says it has the capacity to store up to 1.37 million tons of water through 2020 and that it cannot stay at the plant forever.

Some experts say the water can be stored for decades, but others say the tanks take up too much space at the plant and could interfere with ongoing decommissioning work, which could take decades.

## **Treated water at Fukushima plant far too unsafe to be dumped soon**

<http://www.asahi.com/ajw/articles/AJ201809290029.html>

Steps to purify a radioactive water buildup at the stricken Fukushima No. 1 nuclear power plant have come to naught, forcing the operator, Tokyo Electric Power Co., to go back to the drawing board.

On Sept. 28, TEPCO acknowledged that about 80 percent of the water in giant storage tanks on the premises exceeded government standards for radioactive materials even though it had already been processed.

Some of the "processed" water showed concentrations of radioactive materials at more than about 20,000 times the standard used to determine if the water is safe enough to discharge into the ocean.

TEPCO has been treating the water with a device known as ALPS, or advanced liquid processing system.

Water is accumulating at a rate of between 50,000 and 80,000 tons a year.

The latest study covered about 890,000 tons of the 940,000 tons of water that has gone through ALPS and is stored on-site.

Tests showed that strontium 90 was present in some tanks at levels of about 600,000 becquerels per liter of water, which is about 20,000 times the safety standard.

Strontium 90 has a half-life of about 29 years. It could lead to bone cancer or leukemia after being absorbed in the bones by breathing it, or ingesting it.

Until now, TEPCO had insisted that the ALPS device could remove 62 types of radioactive materials from the water. The only substance that could not be removed was tritium, a radioactive isotope of hydrogen.

When TEPCO decides on how to dispose of the contaminated water in the storage tanks, it plans to again process the water through the ALPS device before releasing it into the ocean.

This leaves TEPCO between a rock and a hard place as the device can currently process only 340 tons of water daily.

If once-processed water is sent through the device a second time, that would not only add to costs but require years of processing before all the water can be discharged safely.

TEPCO does not have the luxury of time as contaminated water continues to be generated at the rate of tens of thousands of tons annually in the form of either groundwater or water used to cool reactor cores that come into contact with the melted nuclear fuel in the three reactors that went into meltdown after the earthquake and tsunami disaster in 2011.

An additional problem is that so many storage tanks have been constructed on the grounds of the Fukushima plant that there will be no space for new ones by 2020.

TEPCO at least knows why so much of the stored water continues to register radioactive substances in alarmingly high concentrations.

It explained that a malfunction of the ALPS device in fiscal 2013 prevented processing of all highly contaminated water. Some of the water with high concentrations of radioactive materials likely mixed in with other water in the storage tanks.

Utility officials also pointed to a delay in the replacement of absorbent in the ALPS device used to remove the radioactive substances.

TEPCO promised to review the timing for the replacement of absorbent. However, it could not rule out the possibility that radioactive materials at levels exceeding safety standards would again be detected even if that step is taken.

The utility was also taken to task for releasing the measurement levels of radioactive materials on its website without providing an adequate explanation of what those figures actually meant.

At a public hearing in August in Fukushima Prefecture, local residents pointed out that the stored water contained radioactive materials other than tritium at levels exceeding safety standards.

In the seven-plus years since the triple meltdown at the Fukushima plant, TEPCO has released a voluminous amount of data about various measurements of radioactive materials, which has caused headaches for local residents who have no in-depth knowledge of what the figures mean.

The Ministry of Economy, Trade and Industry also bears some of the blame because it has been pushing TEPCO to accelerate the processing of contaminated water to show the world gathering in Japan for the 2020 Tokyo Olympics and Paralympics that the situation in Fukushima was under control and the region well on its way to rebuilding.

(This article was written by Yusuke Ogawa and Hiroshi Ishizuka. Noriyoshi Ohtsuki, a senior staff writer, and Chikako Kawahara contributed to the article.)

## Treated water at Fukushima nuclear plant still radioactive: Tepco

<https://www.japantimes.co.jp/news/2018/09/29/national/treated-water-fukushima-nuclear-plant-still-radioactive/#.W69CiPmYRLM>

by Mari Yamaguchi  
AP

The operator of the Fukushima No. 1 nuclear plant has said that much of the radioactive water stored at the plant isn't clean enough and needs further treatment if it is to be released into the ocean.

Tokyo Electric Power Company Holdings Inc. and the government had said that treatment of the water had removed all radioactive elements except tritium, which experts say is safe in small amounts.

They called it "tritium water," but it actually wasn't.

Tepco said Friday that studies found the water still contains other elements, including radioactive iodine, cesium and strontium. It said more than 80 percent of the 900,000 tons of water stored in large, densely packed tanks contains radioactivity exceeding limits for release into the environment.

Tepco general manager Junichi Matsumoto said radioactive elements remained, especially earlier in the crisis when plant workers had to deal with large amounts of contaminated water leaking from the wrecked reactors and could not afford time to stop the treatment machines to change filters frequently. "We had to prioritize processing large amounts of water as quickly as possible to reduce the overall risk," Matsumoto said.

About 161,000 tons of the treated water has 10 to 100 times the limit for release into the environment, and another 65,200 tons has up to nearly 20,000 times the limit, Tepco said.

Matsumoto said the plant will treat the water further to ensure contamination levels are reduced to allowable limits.

He was responding to growing public criticism and distrust about the status of the water.

More than 7½ years since a massive March 2011 earthquake and tsunami destroyed three reactors at the plant, Japan has yet to reach a consensus on what to do with the radioactive water. Fishermen and residents oppose its release into the ocean. Nuclear experts have recommended the controlled release of the water into the Pacific as the only realistic option.

The release option faced harsh criticism at meetings in Fukushima and Tokyo in late August, when Tepco and government officials provided little explanation of the water contamination, which had been reported in local media days earlier.

Tepco only says it has the capacity to store up to 1.37 million tons of water through 2020 and that it cannot stay at the plant forever.

Some experts say the water can be stored for decades, but others say the tanks take up too much space at the plant and could interfere with ongoing decommissioning work that could take decades.

October 31, 2018

## Evacuation agreements between municipalities

## Eastern Japan cities sign nuclear accident evacuation accord

<https://mainichi.jp/english/articles/20181031/p2g/00m/0dm/061000c>

CHIBA, Japan (Kyodo) -- A local government near a nuclear power plant in eastern Japan signed an accord Wednesday that will allow its residents to take shelter in six municipalities further away from the complex in the case of an accident at the plant.

- **【Related】** Evacuation drill held near nuclear plant in capital of Shimane Pref.
- **【Related】** Tokai No. 2 nuke plant passes tighter safety checks introduced after 2011 quake
- **【Related】** UN rights expert urges Japan to halt returns to Fukushima
- **【Related】** Large-scale evacuation drill held around Takahama nuclear plant

The arrangement aims to enable **the evacuation of about 43,000 of around 270,000 residents from Mito, Ibaraki Prefecture, which is located within 30 kilometers from the Tokai No. 2 plant, to Kashiwa and five other cities in Chiba Prefecture.**

Under the accord, the **six cities in Chiba** are to set up shelters to be managed by the Mito municipal government. The maximum evacuation period will be one month in principle and Ibaraki Prefecture and Mito will be in charge of securing necessary supplies.

Screenings for radioactive materials and decontamination work will be carried out by the Ibaraki prefectural government.

The nuclear plant located northeast of Tokyo is operated by Japan Atomic Power Co. In September, it cleared a safety screening to resume operations under stricter rules introduced after the March 2011 nuclear disaster at the Fukushima Daiichi plant.

**The conclusion of the evacuation accord met with opposition from civic groups in the six cities which claimed the cooperative partnership could be viewed as a step toward the aging plant's resumption.**

The city of Mito has concluded similar accords with municipalities in Ibaraki, Tochigi and Gunma prefectures to evacuate around 180,000 people. It is arranging an agreement to flee the remaining 40,000 residents to Saitama Prefecture.

Eight other municipalities within a 30-km radius of the Tokai No. 2 plant in the village of Tokai, Ibaraki Prefecture, have also signed evacuation accords with local authorities in nearby prefectures.

October 1, 2018

## NRA, volcanic risks and conventional wisdom

## **EDITORIAL: Focus on science needed to assess volcano risks at nuclear plants**

<http://www.asahi.com/ajw/articles/AJ201810010011.html>

Volcanic eruptions, especially giant events that occur only once every 10,000 years, can pose a serious threat to nuclear power plants.

Concerned parties, particularly the government's Nuclear Regulation Authority in charge of safety screenings, should continue discussing how to deal with the risks.

Two different presiding judges at the Hiroshima High Court have given opposite decisions on restarting the No. 3 reactor at Shikoku Electric Power Co.'s Ikata nuclear plant in Ehime Prefecture in light of the risk of a potential eruption of Mount Aso in Kumamoto Prefecture.

The initial decision late last year approved residents' request for an injunction against restarting the reactor.

But another decision handed down last month in response to Shikoku Electric's appeal gave the green light to resume operations.

The NRA has internal rules for safety screenings titled a "volcano impact assessment guide." The document sets procedures for evaluating risks posed by a potential eruption of a volcano within 160 kilometers of a nuclear power plant.

In accordance with the guide, the Hiroshima High Court assumed a catastrophic eruption of the sort that occurred 90,000 years ago at Mount Aso and studied the possibility of a pyroclastic flow reaching the Ikata plant located 130 km away.

The latest decision agreed with the initial decision in saying that no nuclear plant should be located at Ikata under the rules of the NRA's guide.

The conclusions reached, however, were the opposite because of a difference in attitude toward "conventional wisdom."

No particular regulations or measures are in place to prepare for a giant eruption in domains other than nuclear safety. The public does not appear to be seriously concerned about a catastrophic eruption.

Therefore, the risk of a giant eruption seems acceptable in light of conventional wisdom, according to the court's second ruling.

The court's initial decision showed an understanding toward a similar viewpoint, but it attached more importance to the guide, which is based on the NRA's scientific and technological knowledge.

The regulatory body was set up following the 2011 Fukushima nuclear disaster.

The latest decision said the guide is unreasonable, partly because volcanic eruptions cannot be easily predicted, and instead derived its conclusion from conventional wisdom.

Question persists about a judicial decision that emphasized conventional wisdom, which has its own ambiguities.

The serious nature of a nuclear disaster is evidenced by the rigorous restrictions on entry into areas contaminated by radioactive fallout from the Fukushima disaster.

In-depth discussions are needed on what represents "conventional wisdom" on the issue of nuclear safety. The NRA should take the initial step.

The NRA in March issued an opinion statement in the name of its secretariat that said the risks from a giant eruption are acceptable in light of conventional wisdom. The Hiroshima High Court's latest decision also referred to that opinion.

Some, however, have criticized the statement, saying the NRA abandoned its mission of providing scientific assessments.

In response to the court's decision that said the volcano guide is unreasonable, NRA Chairman Toyoshi Fuketa, at a news conference, acknowledged the guide has legibility problems in parts and mentioned the possibility of revisions.

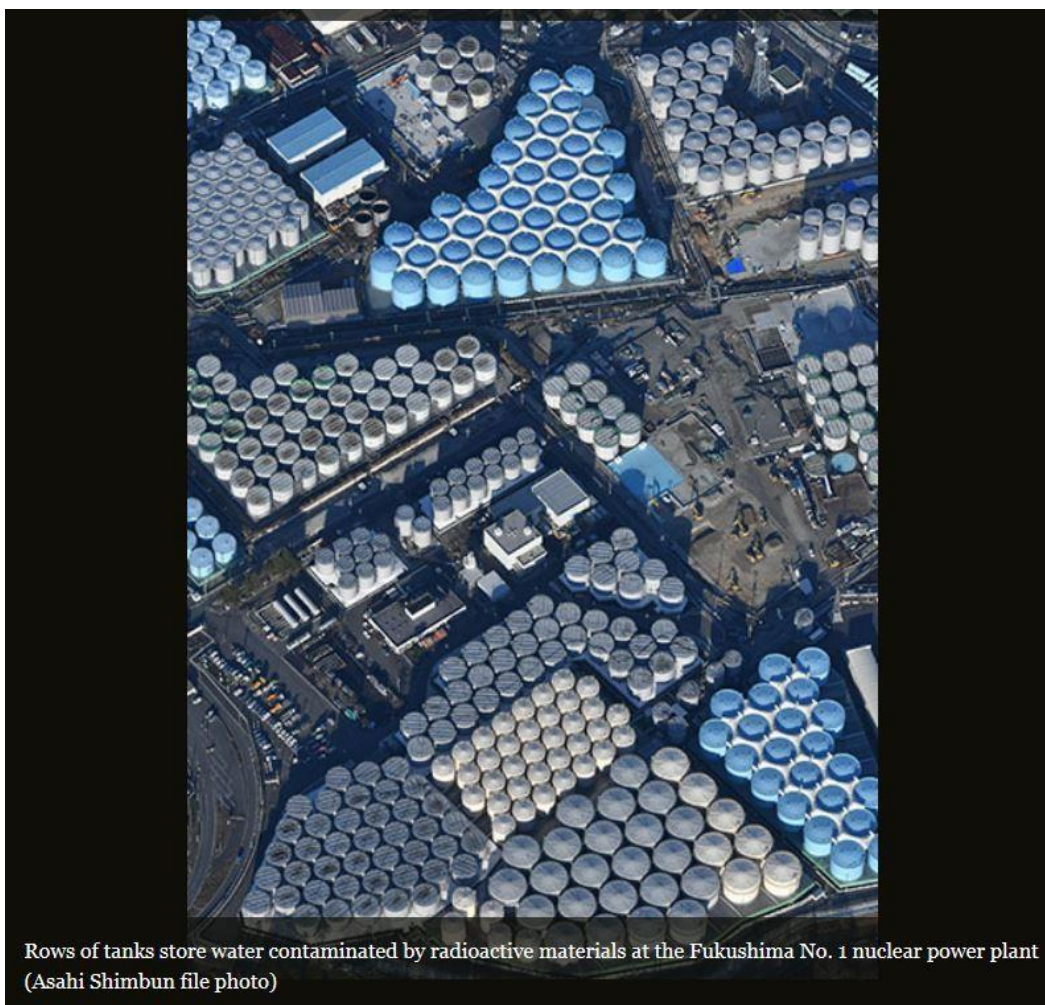
The revisions should not be limited to wording. The NRA should rethink the issue of nuclear safety related to volcanoes, including the role the watchdog will play.

Concerns about volcanic eruptions have been raised at other nuclear plants across Japan, including Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture.

**We hope the NRA will spearhead a national debate on the matter.**

October 9, 2018

## Disturbing new revelations



Rows of tanks store water contaminated by radioactive materials at the Fukushima No. 1 nuclear power plant (Asahi Shimbun file photo)

## EDITORIAL: TEPCO bungles it again in dealing with Fukushima tainted water

<http://www.asahi.com/ajw/articles/AJ201810090025.html>

Disturbing new revelations about increasing amounts of radioactive water at the Fukushima No. 1 nuclear power plant have undoubtedly further darkened the already dim prospects for solving this tricky and complicated challenge.

Tokyo Electric Power Co. (TEPCO), the operator of the nuclear plant destroyed by the 2011 earthquake and tsunami disaster, has said **the filtering system to decontaminate the polluted water, known as ALPS (advanced liquid processing system), has failed to remove such radioactive elements as strontium 90 and radioactive iodine.**

**On Sept. 28, the utility acknowledged that about 80 percent of the water in storage tanks for ALPS-treated water on the plant premises exceeded government standards for radioactive materials.**

TEPCO previously claimed that the ALPS system could remove all radioactive elements except for tritium, a mildly radioactive isotope of hydrogen.

But the fact is that of the 890,000 tons of water treated by the ALPS system and stored in the tanks, about 750,000 tons contain higher concentrations of radioactive materials than levels permitted by the safety regulations for release into the ocean.

In 65,000 tons of treated water, the levels of strontium 90 are more than 100 times the safety standards, according to TEPCO. The levels are as high as 20,000 times the standards in some tanks.

In explaining the reasons for this failure, TEPCO pointed to problems with the ALPS system shortly after it was first installed. The utility also reduced the frequency of the replacement of absorbents for removing radioactive materials to keep the system running as long as possible.

**The company had long known these facts, but was less than eager to share them with the public.**

TEPCO says it has disclosed the data on its website. But it is virtually impossible for an uninformed third-party information seeker to detect such problems in the massive reams of data.

The company deserves to be criticized for having deliberately concealed these inconvenient facts.

The utility reported the facts to an industry ministry subcommittee dealing with the problem of radioactive water and apologized. It appears that the company is not yet fully aware of its responsibility to solve this problem as the operator of the plant where an unprecedented nuclear accident occurred.

**The ministry, for its part, should be held accountable for its failure to ensure appropriate disclosure of the information by TEPCO. The subcommittee should be faulted for concentrating its attention almost exclusively on tritium.**

**Tackling this formidable challenge requires debate from a broad perspective based on diverse information.**

This point has been underscored afresh by the latest revelations.

The consequent radical changes in the basic assumptions concerning the problem of radioactive water have brought the process of figuring out a workable way to deal with the challenge **back to square one.**

TEPCO plans to treat the contaminated water with the ALPS system again to lower the levels of radioactive materials below the safety standards.

**This approach, however, is expected to make the water treatment process far costlier and more time-consuming than originally expected, possibly affecting the entire project to decommission the crippled reactors at the plant.**

The biggest blow comes from the serious damage the revelations have caused to TEPCO's already strained relationship with local communities.



To build a broad consensus on how to cope with the problem, the government and the utility should work together to ensure timely and adequate information disclosure and set up opportunities for dialogue with local residents.

A system should also be created to promote a national conversation on this issue.

The tanks to store treated water is expected to be filled to capacity by around 2020, according to the government.

But **no time limit should be set for debate on the problem. There is no shortcut to a solution.**

October 14, 2018

## Fukushima rice still favourite for rice balls

### **After 16 years, Fukushima's Aizu Koshihikari still the brand of choice for popular Tokyo rice ball shop**

<https://www.japantimes.co.jp/news/2018/10/14/national/16-years-fukushimas-aizu-koshihikari-still-brand-choice-popular-tokyo-rice-ball-shop/#.W8Qz6PmYSos>

Fukushima Minpo

A popular rice ball shop stands near Tokyo Station's Yaesu Central Gate, drawing long lines of customers waiting to buy products made with rice from Aizu, Fukushima Prefecture, known for remaining soft with a touch of sweetness even when it gets cold.

As it takes less than a minute to make the rice balls, customers don't have to wait long at Honnoriya, a rice ball chain operated by JR East Food Business Co.

From actors, athletes and comedians to politicians and culinary maestros, many say they are fans of the rice balls. After it was featured on the popular TBS television show "Matsuko no Shiranai Sekai" ("The World Unknown to Matsuko"), a rush of traffic swarmed Honnoriya's website, temporarily shutting it down.

Sadafumi Yamagiwa, president of JR East Food, said the secret of the chain's popularity is the quality of the rice — Koshihikari rice produced in Fukushima's Aizu region.

"It's because the rice tastes good. The Aizu Koshihikari rice is chewy, making it different from other rice," Yamagiwa said.

The firm uses Aizu Koshihikari in all of its 13 outlets located in Tokyo, Kanagawa, Saitama and Chiba. At the main shop in Tokyo, around 7,000 rice balls are sold on busy days. In fiscal 2017, a total of 252 tons of rice were consumed at its 13 stores.

Since Honnoriya opened its first outlet at Tokyo Station in March 2002, it has continued to use Koshihikari brand. Despite having been awarded the top "special A" ranking by the Japan Grain Inspection Association, Aizu Koshihikari is cheap compared with other varieties produced in different regions, Yamagiwa said. Following the 2011 Great East Japan Earthquake and the ensuing nuclear meltdowns at the Fukushima No. 1 nuclear power plant, many consumers avoided produce from the prefecture. The company also received many inquiries about the safety of the rice, and employee opinions differed over which brand should be used.

But as blanket radiation checks conducted on Fukushima-grown rice found no radioactive material, such concern gradually eased, Yamagiwa said.

He stressed that the company has been using Aizu Koshihikari solely for the reason that it tastes good. "It's not like we've been using the rice to support the disaster-hit regions," he said.

Each year, the company chooses a rice brand after comparing the tastes of different varieties produced in different parts of the country.

For the past 16 years, there has been no rice that surpassed Koshihikari produced in Aizu, Yamagiwa said, meaning that Aizu Koshihikari has consistently won the internal competition every single year.

*This section features topics and issues from Fukushima covered by the Fukushima Minpo, the largest newspaper in Fukushima Prefecture. The original article was published on Sept. 30.*

October 19, 2018

## **Distrust an obstacle to decommissioning**

### **Distrust of TEPCO Hampers Decommissioning**

<https://www3.nhk.or.jp/nhkworld/nhknewslines/backstories/distrustoftepc/>

A major challenge at the Fukushima Daiichi nuclear power plant is disposing of water containing a large amount of radioactive tritium. The Japanese government proposed diluting and releasing the water into the sea, but many fisheries in Fukushima are voicing strong opposition to the proposal. Disposal of the tainted water is a must for scrapping reactors at the plant. So, what should the government and TEPCO officials do?

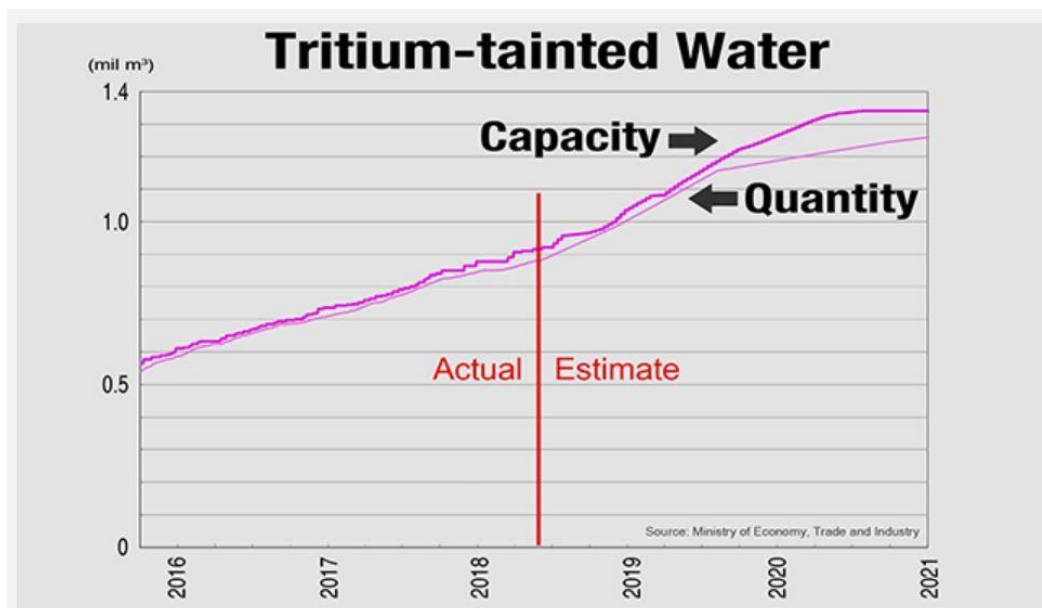
### **Doing away with tritium-tainted water is essential**

Every day, more than 100 tons of radioactive water builds up. Despite various measures taken since the 2011 accident at Fukushima Daiichi, groundwater continues to enter the reactor buildings, mixing with water which is being used to cool the reactors.

The Tokyo Electric Power Company uses a system called ALPS to treat the water. Officials have been saying that the system's high-performance filters can get rid of most radioactive substances, except tritium.

TEPCO is not allowed to dispose of that water because its tritium levels surpass the limit set by the government.

That's why the utility is storing 920,000 tons of the water in more than 800 tanks. The water is expected to increase by up to about 100,000 tons a year. The government and the firm say that in a matter of years, Fukushima Daiichi will run out of space for tanks.



A government panel of experts has been discussing what to do with the water. The experts concluded that the technology for separating tritium cannot be put into practical use yet. They instead put several options on the table such as:

- 1) Diluting and releasing the water into the sea
- 2) Heating and evaporating the water
- 3) Burying the water deep underground

A report later compiled by the panel said releasing the water into the sea will make the most sense. Experts say this is the cheapest and quickest way among all the options. The question is, is it safe?

Tritium exists in the atmosphere. The government, TEPCO and the Nuclear Regulation Authority say tritium emits a weaker form of radiation than other radioactive substances. They say that even if tritium enters the human body, it will be incorporated into water and quickly released outside. Officials say therefore, tritium is likely to pose few health risks if its concentration is low.

In the past, nuclear power plants across Japan actually released water containing tritium after confirming its readings were below the limit.

NRA Chairman Toyoshi Fuketa has been calling on the government and TEPCO to make a quick decision, saying releasing the water into the sea after its tritium level falls below the limit is the only viable option. He thinks the approval process for the proposal is unlikely to take long, so it will have limited impact on the work to scrap the reactors.

### **Mounting distrust among fisheries**

After the expert panel compiled its report, the government held public hearings to make a final decision. At a hearing held in the town of Tomioka in Fukushima Prefecture on August 30th, the proposal came under fire mainly from people in the fishing industry.

The head of the Fukushima Prefectural Federation of Fisheries Cooperative Associations said the proposed move will be a devastating blow to the local fishing industry. He said its past efforts will go to waste, and it will deprive the industry of its motivation for rebuilding businesses.

Fishermen in Fukushima suspended their operations after radioactive materials exceeding the government-set limits were detected in seafood caught off the prefecture following the 2011 accident. But in recent years, no fish from the area have been found to be highly radioactive. Now, fishermen can catch and ship most kinds of fish.

However, some consumers still hesitate to eat marine products from Fukushima. Fish landings are still about one-tenth of levels before the accident. Local fisheries fear that if TEPCO releases the water into the ocean, they will have to delay their plans to resume operations at full capacity and struggle again to make ends meet -- even if the water is deemed safe.

The underlying problem is distrust towards the government and TEPCO. There have been numerous instances in which TEPCO withheld the fact that tainted water had leaked into the sea. Locals saw them as acts of betrayal. They fear that once TEPCO begins dumping the water into the sea, consumers may refrain from purchasing fishery products from Fukushima Prefecture even further.

Public distrust further deepened during the hearings. It came to light that the water stored in some of the tanks contains levels of radioactive substances, such as iodine that exceed the limit. This contradicts the explanation given by the government and TEPCO -- that the water treatment system can reduce all radioactive substances to a level below the limit, except for tritium.

My understanding was that tritium was the only radioactive substance in the tanks that exceeds the government-set limits. I was not the only one who was confused. Other participants also expressed concerns that TEPCO may have been concealing the facts.

TEPCO officials explained that levels of some radioactive substances could exceed the limits if the water treatment filters are used continuously. They said that's not a problem, adding that the goal is to reduce the risk of radiation exposure, and that they have been making the data public on their website.

After hearing this, I checked TEPCO's website once again. There, I found the iodine levels, but they were buried in a massive amount of data, making it very difficult to find. TEPCO officials didn't seem eager to provide a full explanation of what has happened so far.

But TEPCO's claim that this isn't a problem differs with the public's view. Its attitude is worsening the problem.

TEPCO officials tend to make decisions based on technical considerations, which often fail to sufficiently acknowledge the concerns of the locals. The officials also appear reluctant to release information that is inconvenient for them. Unless they change their mindset, they will not be able to regain the public's trust.

### **Steps TEPCO must take to regain trust**

First and foremost, the government and TEPCO must provide thorough explanations and responses to the questions and opinions expressed in the hearings. They need to clarify why they didn't proactively explain the level of radioactive substances and provide their exact levels and how they will deal with them.

In addition, the government should hold public hearings at various other locations and communicate more with the public. The latest round of public hearings was held only in Fukushima and Tokyo and this didn't seem sufficient to regain public support.

Decommissioning of the crippled Fukushima Daiichi nuclear plant is a prerequisite for the reconstruction of areas devastated by the nuclear disaster. To this end, treatment of contaminated water is a must, and it needs to be done swiftly. However, there will not be progress, no matter which method is taken, without the consent of the people affected by the nuclear disaster.

TEPCO and government officials must offer truthful updates as soon as they happen. While this sounds obvious, it's the only way to regain people's trust and resolve the problem of the accumulation of tainted water.

October 22, 2018

## Disaster drill at Tomari nuke plant

### Disaster drill at Hokkaido nuclear plant

[https://www3.nhk.or.jp/nhkworld/en/news/20181022\\_23/](https://www3.nhk.or.jp/nhkworld/en/news/20181022_23/)

About 10,000 people in northern Japan are taking part in an evacuation drill based on a nuclear disaster occurring during a typhoon.

The drill is being held on Monday at the Tomari nuclear power plant and surrounding areas on the west coast of Hokkaido Prefecture. The plant's 3 reactors have been offline since 2012. The operator has applied to restart them.

Under the drill scenario, the cooling system for one of the reactors developed a problem during a typhoon and radioactive substances were leaked after the reactor's core was damaged.

Teachers at an elementary school near the plant moved the children into a gymnasium. They stayed there until the heavy rain and storm warnings were lifted.

The teachers began preparing to evacuate the children to a village roughly 40 kilometers away.

At a command center about 10 kilometers from the plant, local government officials issued evacuation

orders after a state of emergency was declared by a man playing the role of prime minister.

The drill participants will also check if radiation monitoring posts are functioning properly.

More than 10 of the posts stopped working last month when a powerful earthquake triggered a massive blackout in Hokkaido.

October 30, 2018

## Drill at Shimane plant

### Evacuation drill held near nuclear plant in capital of Shimane Pref.

<https://mainichi.jp/english/articles/20181030/p2g/00m/0dm/083000c>

MATSUE, Japan (Kyodo) -- A nuclear evacuation drill was held Tuesday in the western Japan prefecture of Shimane, which hosts the country's only nuclear plant built in a prefectural capital.

- **【Related】** UN rights expert urges Japan to halt returns to Fukushima
- **【Related】** Mayor of city near Tokai No. 2 nuke plant to oppose reactor reactivation
- **【Related】** Nobel laureate Shimomura dies at 90; remembered for anti-nuke stance
- **【Related】** Dairy farmer resumes operations 7 1/2 years after Fukushima disaster

The drill in the city of Matsue was based on the scenario of a severe accident at Chugoku Electric Power Co.'s Shimane nuclear plant triggered by a powerful earthquake registering upper 6 on Japan's seismic intensity scale of 7.

Of the several hundred residents who participated, 127 evacuated to nearby Okayama and Hiroshima prefectures.

As the Shimane plant is located near a geologic fault, the prefectural government assumed a scenario in which the nuclear plant loses power to cool reactors and spews radioactive materials following the quake. Around 390,000 people live within 30 kilometers of the plant.

"We would have to evacuate residents outside the prefecture because of the large number of residents (living around the plant). We want to enhance the effectiveness of evacuation," said a prefectural government official in charge of nuclear safety measures.

After gathering at community centers and local schools in the morning, residents took buses to the city of Kasaoka in Okayama, around 120 km from the plant and the town of Jinsekikogen in Hiroshima, about 100 km from the plant.

Ichio Tsunoda, the 64-year-old head of a local residents' association, said, "I am worried about elderly and disabled people who would have to remain on a bus for a long time."

At the Shimane plant, the No. 1 unit is being decommissioned and the No. 2 reactor is being screened for reactivation under stricter regulations introduced after the 2011 Fukushima nuclear disaster. Construction of the plant's No. 3 reactor is nearing completion.

November 2, 2018

## **In careful moves, Japan's nuclear industry makes a comeback**

<http://www.asahi.com/ajw/articles/AJ201811020021.html>

REUTERS

IKATA, Ehime Prefecture--On a side street near a darkened shopping arcade full of abandoned storefronts in southwestern Japan, the Sushi Ko restaurant is unusually busy on a weekday.

Balancing a tray full of drinks, Sachiyo Ozaki said most of her restaurant's customers were there because of an industry shunned elsewhere: nuclear power.

"He drives a minivan to take workers to the plant," she said, gesturing towards a man sitting at the counter. Pointing to another man sipping a beer, she added, "And he works in construction, so they've been busy, too."

"We're all for nuclear power, and you can print that," Ozaki said.

In the mostly residential neighborhood around her restaurant, hotel rooms and local inns were also packed with workers preparing to reopen Shikoku Electric Power's Ikata nuclear plant, nestled next to Japan's inland sea at the base of the verdant Sadamisaki peninsula.

Nearly eight years after an earthquake and tsunami triggered nuclear meltdowns at Tokyo Electric Power's Fukushima No. 1 nuclear power plant, the battered industry is making a quiet and somewhat unexpected return in Japan.

Ikata is a poster child for that recovery. In September, a court reversed a decision that had idled Shikoku Electric's sole nuclear reactor for about a year, paving the way for the operator to re-open the facility last week.

Regional utilities like Shikoku Electric have aggressively fought a string of lawsuits since 2011, hiring veteran lawyers to beef up their legal teams. At the same time, they wooed towns where nuclear plants are based, visiting with residents door to door while the government kept up a stream of generous subsidies for local projects.

Thanks in large part to this strategy, Japan is on track to have nine reactors running in the near future.

That is a far cry from the 54 running before 2011--all of which were idled after the Fukushima disaster--but more than analysts and experts expected, considering it seemed at the time like the end of the road for the country's nuclear industry.

A Reuters analysis calculates that as few as six more reactors are likely to restart within the next five years, eight will mostly likely be mothballed and that the prospects for two dozen others is uncertain.

Despite that cloudy outlook, nuclear power recently overtook renewables like wind and solar in Japan's energy mix for the first time since Fukushima.

## **COURT BATTLES**

Japan embraced nuclear power after World War II, spurred by the promise of clean energy and independence from foreign suppliers.

But the botched Fukushima disaster response sowed public distrust in the industry and the government.

Given that skepticism, some see a recent run of court victories by utilities as the resurgence of an alliance of industry, government and host communities that for decades promoted the construction of nuclear facilities.

"If our losing streak continues, we could see 20 to 25 reactors come back online," says Hiroyuki Kawai, a prominent anti-nuclear lawyer who represented citizens in a suit against Shikoku Electric.

Since 2011, hundreds of citizens represented by volunteer lawyers like Kawai have filed nearly 50 lawsuits against the Japanese government and utilities in 25 district and appellate courts.

In Ikata, Shikoku Electric spent months gaining approval for a restart from the tougher post-Fukushima regulator, rebooting one of its plant's three reactors in 2016. But in December 2017, an appellate court issued a temporary injunction keeping the reactor, already idled for routine maintenance, shut down for nine more months.

In response, the company pulled more staff into its legal department and drafted its head of nuclear power to supervise the team. The utility also recruited outside lawyers who had handled cases for other operators.

"There are only a handful of lawyers knowledgeable about nuclear litigation, so they're popular and sought after," said Kenji Sagawa, the deputy general manager of the company's Tokyo office.

Yoshiaki Yamanouchi, 76, began his career in nuclear litigation in 1973 when he represented Shikoku Electric in a landmark suit brought by Ikata residents seeking to stop the plant from opening.

He still represents the utility and works with other companies, advising younger lawyers fighting similar cases, which he calls "superficial," in far-flung district courts.



"Utilities, in particular Shikoku, have gotten much smarter about fighting for the plants they know they can reopen and mothballing others that would cost too much time and money," Yamanouchi said. The utility is decommissioning two of the three reactors at Ikata.

Shikoku Electric would not disclose how much it has spent fighting legal challenges, but said it was a fraction of the cost of idling a plant.

Every month a nuclear reactor sits inoperative, the utility spends 3.5 billion yen (\$31 million) for additional fuel at its conventional power plants. Shikoku has also spent 190 billion yen on safety upgrades to meet stricter rules set by the Nuclear Regulation Authority.

Activists have seen some victories. Western Japan's Kansai Electric Power Co., Inc., has had its reactors slapped with temporary injunction orders multiple times over the years. All of these decisions were later overturned by higher courts.

"Before Fukushima, these utilities won by default--now, they have to work harder," said Yuichi Kaido, a lawyer who has spent three decades dueling Yamanouchi in court.

Shikoku Electric still faces several lawsuits and injunction requests. A Hiroshima court rejected a request from residents to extend the suspension of the Ikata reactor on Oct. 26, a day before the operator restarted it.

## **A COMPANY TOWN**

The quiet revival of Japan's nuclear industry is most tangible in rural areas like Ikata, which are home to the bulk of the country's nuclear plants.

Ikata is best known for its "mikan" mandarin oranges harvested on terrace farms on the sides of steep hills overlooking the Seto Inland Sea and Uwa Sea.

The town, with 9,500 residents, relies on nuclear power for a third of its annual revenue. Since 1974, Ikata has received more than 101.7 billion yen in such payments.

These funds literally built the town; Ikata's roads, schools, hospitals, fire stations and even five traditional "taiko" drums for festivals were all paid for with subsidies.

"My biggest struggle now is finding one or two more pillars for this town other than nuclear power," said Ikata Mayor Kiyohiko Takakado.

The town and utility's mutual dependence stretch back decades.

Kiyokichi Nakamoto was a city councilman in Ikata when he successfully wooed the utility to his hometown. On the walls of the dim parlor of his home are framed commendations from two prime ministers, thanking him for his contributions to Japan's energy policy.

"We were a poor village with only farming and fishing," the 90-year old said. Had the town failed to attract the plant, Ikata would have gone broke, Nakamoto said.

In the wake of the Fukushima disaster, Shikoku Electric campaigned to reassure residents of their plant's safety. Employees wearing the company's blue uniforms went from house to house to explain how their plant was different from Fukushima No. 1--and therefore safe.

"If something like Fukushima happened here, our reputation would be destroyed in an instant," said orange farmer Shigeto Suka, 54, as he checked the still-green mikan on branches.

He and other farmers in Yawatahama, a neighboring town 15 kilometers from the plant, worry that even a hint of contamination would devastate their brand.

After the 2011 nuclear disaster, Fukushima's farmers and fishermen were unable to sell their produce because of fears over contaminated food. Dozens of countries still have restrictions on Fukushima produce.

For others in the area, the Ikata plant feels like an inextricable part of life.

Hiroshi Omori, 43, spent most days over the summer at Shikoku Electric's visitors' house overlooking the Ikata plant. His three young children take free art classes there while Omori and other parents wait in air-conditioned rooms sipping water and tea.

But Ikata is projected to shrink to 5,000 residents over the next 20 years, and Takakado recently said he found it hard to imagine an industry that could replace nuclear power.

This year he joined dozens of other mayors across Japan to voice their support for the industry and ask the government to clarify its position on building new plants or replacing old ones.

"I'm just trying to prevent the town from losing even more people," he said.

November 7, 2018

## Seeds of hope?



*Shi-ome means a junction of sea currents in Japanese. The members gave this name in reference to symbolize the meeting of people through cotton.*

## **Sowing seeds of hope in Fukushima**

<https://www3.nhk.or.jp/nhkworld/nhknewsline/backstories/sowingseeds/>

By Jun Yotsumoto

People in Fukushima continue to struggle with the fallout from the 2011 earthquake, tsunami, and nuclear triple disaster. It has taken an especially heavy toll on farmers. But some are finding a way forward with a new crop.

It is peak harvest time in Iwaki, a coastal city in Fukushima Prefecture. Rows of cotton are ready to be picked. They represent a future for the region's shattered industries. When I visited the field in October, a team of volunteers from Tokyo were busy picking the brown, fluffy crop under the sunshine. The air carried a hint of autumn. One volunteer told me she had been to Iwaki several times in the past to help with the harvesting, but this year's crop seemed the most abundant.

Cotton farming was not common here before 2011. The disaster devastated the region and its farming industry. Fields were destroyed and there were fears about radiation. The image hurt the region, and consumers stayed away from Fukushima products. Farmers were forced to abandon their jobs, and the fields went fallow.

Some local residents were determined to change the situation and came up with the idea of using the empty fields to grow cotton. They wanted a crop that wasn't food, and they chose cotton after learning it could grow even on the fields that had been left salted by the tsunami. They started the Fukushima Organic Cotton Project in 2012.

35-year-old Yuta Sakai is a key member of the project. He was born and raised in Iwaki. When the disaster struck, his family evacuated. Sakai says he used to think his hometown was boring and would always complain about it. But while he was away, he says his thoughts changed drastically. Seeing all the damage the disaster had done to the city he had known all his life, he realized how dear Iwaki was to him. He says he felt a strong desire to start something new in the city. He quit his factory job and joined the cotton project.

Central to the project is a commitment to organic and eco-friendly cotton made in Japan. They harvest a species of the plant that was brought to Japan about a thousand years ago. The team gets the soil and crops tested for radiation twice a year to confirm the safety.

Local farmers and weekend volunteers helped to reclaim fallow farm land. This has helped the team increase the amount of cotton it harvests by 10 times in the past 6 years. Their success is growing.

In 2014, the team created an original brand of cotton called "Fukushima Siome." Shi-ome means a junction of sea currents in Japanese. The members gave this name in reference to the meeting of tides off the coast of Fukushima, and to symbolize the meeting of people through cotton and a change in the consciousness toward environment. The brand is now used in products sold across Japan.

The project's sales are now four times larger than when it started. Buyers range from a t-shirt and towel manufacturer in Tokyo to major overseas companies. British cosmetics brand, LUSH, started using the cotton in 2016. The company says the material fits with its environmentally-ethical policy. A customer at a LUSH store in Tokyo says the Fukushima cotton makes her want to buy some not just for herself, but also for others to spread the story.

Daisaku Koyama, PR manager for LUSH JAPAN, explains that consumers are increasingly choosing products they consider ethically correct. This trend exists despite the fact that "fair trade" and "organic" products are usually more expensive. Koyama says producing and selling products with stories like Fukushima's is very important for his company. He says LUSH's first priority is conducting business based on ethics, and that this policy has been successful.

British cosmetics brand, LUSH, says the material fits with its environmentally-ethical policy.

Recently, Sakai's team invited cotton businesses from across Japan to Iwaki to hold their annual meeting. The industry thrived in the country until about a century ago. Nowadays, almost all the cotton used in clothes is imported.

Those in the business see organic goods like Fukushima Siome as a way to change the circumstances. One of the participants at the meeting, a cotton farmer from western Japan, says if Fukushima-made cotton becomes more famous, it will draw attention to all Japanese cotton and help the whole industry.

Sakai wants to move forward, too. He surprised his team by telling them he plans to go independent and start his own company with the goal of making cotton a central Fukushima industry.

But the road ahead is rocky. Subsidies for reconstruction have been covering much of the cultivation and labor expenses. But the money is set to expire next year. Still, Sakai says it is as if he's facing his own "Siome" in his life and he is determined.

"We can't stay disaster victims forever now that more than 7 years have passed since the disaster," he says. "It is about time we should remove 'charity' from our project and stop depending on pity. We should restart as professionals that deal with good quality cotton products."

And no matter the difficulties, he says he foresees success. He wants the cotton industry to boost the hometown he once thought was boring. He wants the young generation to be proud of the city.

By planting seeds of hope into once abandoned fields, Sakai is giving Fukushima a future that was hard to imagine 7 years ago.

## 20-year life extension for Tokai 2 approved by NRA

### **Aging Tokai nuclear plant outside Tokyo cleared to restart**

<http://www.asahi.com/ajw/articles/AJ201811070061.html>

The nation's nuclear watchdog on Nov. 7 formally approved a 20-year extension of the only nuclear reactor in the Tokyo metropolitan area, although local communities will have the final say on the restart.

Operator Japan Atomic Power Co. will need the consent of the Ibaraki prefectural government, as well as six local municipalities, including the village of Tokai, where its aging Tokai No. 2 nuclear plant is located.

The company faced having to prepare to decommission the plant's 40-year-old reactor if it failed to meet a Nov. 27 deadline on revised and more stringent safety standards implemented by the Nuclear Regulation Authority in the aftermath of the 2011 nuclear disaster in Fukushima Prefecture.

After the triple meltdown at the Fukushima No. 1 nuclear plant, the operational life of nuclear reactors was set at up to 40 years in principle. But power companies can continue to operate their facilities for an additional 20 years if their reactors pass the NRA screening.

So far, all requests to the NRA to extend the operating life of old reactors have been approved.

The reactor at the Tokai No. 2 plant is the fourth to clear the NRA for extended operations since the Fukushima disaster. It is located about 120 kilometers from the heart of Tokyo.

The 1.1-gigawatt boiling water reactor is the only unit at the Tokai No. 2 plant and is of the same design as the crippled reactors at the Fukushima No. 1 nuclear plant.

The Tokai No. 2 plant was also affected by the tsunami generated by the magnitude-9.0 Great East Japan Earthquake on March 11, 2011.

It is the first time for a reactor affected by the tsunami to be approved for an operational extension. It is also the first boiling water reactor to gain such approval.

The NRA examined the reactor's pressure vessel and other equipment, and concluded that the unit could operate safely until November 2038.

But it remains unclear if Japan Atomic Power can restart the plant under its earliest time frame of 2021, due to local opposition.

In October, Mayor Toru Umino of Naka, one of the six municipalities around the plant, announced his opposition to the extension. The city assembly of Mito, another municipality, adopted a resolution against the extension in June.

About 960,000 people live within a 30-km radius of the plant, making it the most densely populated site among the nation's nuclear facilities.

After the Fukushima disaster, municipalities in close proximity to a nuclear plant were required to craft an evacuation plan to respond to a nuclear emergency.

But only three of the 14 municipalities around the Tokai No. 2 nuclear plant within that range have done so due to the difficulty of arranging transportation for such a large number of people.

Bringing the reactor back online is expected to cost Japan Atomic Power at least 174 billion yen (\$1.54 billion), a sum that includes construction of a seawall and other safeguard measures.

The company hopes to have those measures in place by the end of March 2021.

It may well also have to spend tens of billions of yen in the future to meet a new requirement that nuclear facilities are able to contain damage from a terrorist attack.

## **TIMELINE OF KEY EVENTS**

*May 20, 2014*

Operator Japan Atomic Power Co. applies for an NRA safety screening under new reactor regulations

*Nov. 24, 2017*

Application for a screening of an extension of operations

*Sept. 26, 2018*

NRA certifies that the reactor's safeguard measures meet the new regulations

*Oct. 18*

NRA approves plans to enhance the safety of the reactor

*Nov. 7*

NRA approves an operational extension

*March 2021*

Seawall and other safety measures to be completed

Plant to restart if Ibaraki prefectural government and six nearby municipalities give their consent

## **NRA approves extension of tsunami-hit Tokai No. 2 plant, but restart awaits local agreement**

<https://mainichi.jp/english/articles/20181107/p2a/00m/0na/010000c>

TOKYO -- The Nuclear Regulation Authority (NRA) has approved the extension of operations at Japan Atomic Power Co.'s Tokai No. 2 Power Station in the eastern Japan prefecture of Ibaraki by up to 20 years, but the restart of the aging facility still awaits local approval.

- **【Related】** Eastern Japan cities sign nuclear accident evacuation accord
- **【Related】** Evacuation drill held near nuclear plant in capital of Shimane Pref.
- **【Related】** Tokai No. 2 nuke plant passes tighter safety checks introduced after 2011 quake

The government's nuclear regulator made the decision on Nov. 7 after the nuclear plant passed three inspections, including one to see if the complex meets the new regulatory standards introduced in the wake of the March 2011 outbreak of the Fukushima nuclear crisis.

**The move could allow Japan Atomic Power to continue operating the atomic power station in the village of Tokai until Nov. 27, 2038.**

Attention is now focused on whether the decision will win approval from the Ibaraki Prefectural Government and six municipalities around the station with which the company has signed safety agreements.

Nuclear reactors can be operated for up to 40 years in principle. However, the period of operations at such plants can be extended just once by up to 20 years. The Tokai No. 2 plant's sole unit is the fourth nuclear reactor for which an extension has been approved following the No. 1 and 2 reactors at Kansai Electric Power Co.'s Takahama plant and the No. 3 reactor at the firm's Mihama plant, both in the central Japan prefecture of Fukui.

The Tokai No. 2 station will be the first nuclear plant for which an extension has been approved among those that sustained damage in the March 2011 Great East Japan Earthquake and tsunami. Furthermore, the plant's reactor is the sole boiling-water unit -- the same type as those at the tsunami-ravaged Fukushima Daiichi Nuclear Power Station -- for which an extension of operations has been green-lighted.

Japan Atomic Power applied to the NRA for safety inspections for the Tokai No. 2 power station in May 2014 with an eye to reactivating it and for permission to extend the operations at the plant in November 2017.

The facility would have been decommissioned if it had not passed the three inspections by Nov. 27 this year. Therefore, the NRA barely made the deadline.

The plant's large boiling-water reactor with an output of 1.1 million kilowatts stopped following the Great East Japan Earthquake on March 11, 2011. The power station temporarily lost its external power source. Moreover, it was hit by up to 5.4-meter-high tsunami waves triggered by the temblor, making one of the three emergency power generators unusable. However, the plant used the remaining two generators to continue cooling the reactor core.

Out of reflection on the trouble, Japan Atomic Power has decided to take additional safety measures, including the installation of a reinforced concrete storm surge barrier on the assumption that the plant could be hit by tsunami waves up to 17.9 meters high.

The NRA deemed these safety measures are appropriate in light of the new regulatory standards.

In inspections of the power station to see if its reactor pressure vessel has deteriorated, the atomic power regulator concluded that it can endure the extension of operations beyond the 40-year limit.

Japan Atomic Power intends to secure 174 billion yen to implement these safety measures after receiving financial assistance from Tokyo Electric Power Co. and Tohoku Electric Power Co. and complete the work by March 2021.

The operator of the Tokai No. 2 station has signed safety agreements with five municipalities around the plant besides the municipal government of Tokai that hosts the power station and the prefectural government, effectively allowing these surrounding municipalities to approve or disapprove reactivation of the plant. Japan Atomic Power's agreements with five surrounding municipalities are the first of its kind allowing municipalities other than those hosting atomic power stations to approve or disapprove operations at such plants.

Among the five municipalities, Toru Umino, mayor of the Ibaraki Prefecture city of Naka, has already clarified the city's opposition to reactivation of the power plant.

Japan Atomic Power's Tokai Power Station, situated on the premises that host the Tokai No. 2 plant, is in the process of being decommissioned.

(Japanese original by Riki Iwama, Science & Environment News Department)

See also

<https://www.japantimes.co.jp/news/2018/11/07/national/japans-nuclear-watchdog-approves-extension-tsunami-hit-plant-operate-beyond-40-year-cap/>

November 14, 2018



## IAEA wants quick fix to water problem

### IAEA urges quick plan on Fukushima radioactive water cleanup

<https://mainichi.jp/english/articles/20181114/p2g/00m/0dm/007000c>

TOKYO (AP) -- Experts from the International Atomic Energy Agency urged the operator of Japan's tsunami-wrecked Fukushima nuclear plant on Tuesday to urgently decide on a plan to dispose of massive amounts of treated but still radioactive water stored in tanks on the compound.

- **【Related】** Nuclear experts to test water, fish around Japan power plant
- **【Related】** Contaminated water, fuel extraction stand in way of decommissioning Fukushima plant
- **【Related】** 3 years after new nuclear rules, work continues to evaluate safety of plants

A 13-member IAEA team told reporters in Tokyo after a weeklong review that managing nearly 1 million tons of radioactive water is critical to the plant's safe and sustainable decommissioning.

The IAEA team said in a preliminary report that hundreds of tanks currently used to store the water over large areas of the plant's compound can only be a temporary solution and must be removed "urgently."

The cores of three reactors at the plant suffered meltdowns following a massive 2011 earthquake and tsunami that devastated parts of northeastern Japan.

Radioactive water has leaked from the damaged reactors and mixed with groundwater and rainwater at the plant. The water is treated and stored in large tanks.

More than 7 1/2 years since the accident, officials have yet to agree on what to do with the radioactive water. A government-commissioned panel has picked five alternatives, including the **controlled release of the water into the Pacific Ocean**, which nuclear experts say is the only realistic option. Fishermen and residents, however, strongly oppose the proposal.

**That option faced a major setback this summer when the plant's operator, Tokyo Electric Power Co., acknowledged that the water, which it said had been carefully treated, was not clean enough. It said the water contains cancer-causing cesium and other elements in excess of allowable limits for release into the environment.**

The IAEA interim report said TEPCO could run out of space for tanks in a few years, and the water storage adds to safety risks and could hamper the decommissioning of the plant, which is already an unprecedented challenge.

It said the water problem has improved recently because of measures such as an underground frozen wall installed around the reactor buildings to keep the radioactive water from mixing with groundwater. It suggested that **TEPCO could further reduce the amount of contaminated water by cutting back on the use**

of cooling water injected into the reactors because the temperature of the melted fuel has fallen significantly.

IAEA mission leader Christophe Xerri told reporters that **it is uncertain whether all of the melted fuel can ever be successfully removed because too little is known about the damage to the cores of the three reactors.**

TEPCO and government officials plan to start removing the melted fuel in 2021. Robotic probes inside the reactors have detected traces of damaged fuel but its exact location, contents and other details remain largely unknown.

"If you don't have the information it's very difficult to say it's possible or not" to remove all the fuel, Xerri said.

The team's final report from its review is expected in late January.

### **IAEA urges quick plan to clean up Fukushima radioactive water**

<http://www.asahi.com/ajw/articles/AJ201811140010.html>

THE ASSOCIATED PRESS

### **IAEA urges Japan to reach decision soon on handling of radioactive water at crippled Fukushima nuke plant**

<https://www.japantimes.co.jp/news/2018/11/14/national/iaea-urges-japan-make-decision-treated-radioactive-water-crippled-fukushima-nuke-plant/#.W-v0mzGNyos>

Kyodo

A team of nuclear experts from the International Atomic Energy Agency urged Japan this week to reach a decision quickly on what to do with treated water that contains low toxicity radioactive tritium, which is accumulating at the crippled Fukushima No. 1 nuclear plant.

"We advised the Japanese government that ... (a) decision should be taken very rapidly for the disposition path for water which is stored in these tanks," said Christophe Xerri, leader of the 13-member team, on Tuesday following a nine-day review of progress on scrapping the Fukushima No. 1 plant, which was damaged in the March 2011 earthquake and tsunami.

"There is space limitation, so some solution has to be decided and implemented," he said, adding that the volume of treated water containing tritium in tanks is expected to reach the planned capacity within the "coming three to four years."

As of last Thursday around 970,000 tons of tritium-containing water was stored on the premises of the plant, according to Tokyo Electric Power Company Holdings Inc.

The government has studied options for the tritium-containing water, including releasing it into the sea, as it is regarded as not harmful to humans. The tainted water has been stored in tanks after being produced as a byproduct of cooling the plant's reactors, which suffered core meltdowns following the 2011 disaster.

But local fishermen and residents have expressed concern about discharging the water, fearing the potential impact on food.

"Controlled discharge to the sea is something which is applied in many nuclear facilities, so it's not something which is new," Xerri said, while adding, "Our review was not to advise the Japanese government on one solution or another one."

"It is up to the Japanese government to decide — in engaging with stakeholders, of course — on the option Japan wants to implement," he said.

Toyoshi Fuketa, who heads the Nuclear Regulation Authority, has described discharging the water into the sea as the "only" solution.

Tepeco has been running the Advanced Liquid Processing System, said to be capable of removing almost all radioactive materials from the toxic water except tritium.

It was the fourth such review conducted by a team of experts from the Vienna-based agency, following two in 2013 and one in 2015. The IAEA will issue its final report by the end of January 2019.

Xerri said his team was impressed by the progress that has been made at the plant since the previous review, including the full operation of a frozen soil wall around the reactors that has reduced the volume of groundwater that enters the reactor buildings.

But he acknowledged many challenges in the decommissioning process, which is set to take "30 to 40 years or even more," including the removal of melted fuel from the reactors — seen as the hardest part.

When asked about the possibility of discarding the fuel — the location and volume of which remaining within the reactors is yet to be grasped due to high levels of radiation — Xerri said, "We don't have enough information to tell you yes or no."

November 22, 2018

**"Inadequate" disposal procedures at Tokai Institute**

## Low-level radioactive waste stored at Tokai research facility near Tokyo may leak, agency says

[https://www.japantimes.co.jp/news/2018/11/22/national/low-level-radioactive-waste-stored-tokai-research-facility-near-tokyo-may-leak-agency-says/#.W\\_aG6zGNyos](https://www.japantimes.co.jp/news/2018/11/22/national/low-level-radioactive-waste-stored-tokai-research-facility-near-tokyo-may-leak-agency-says/#.W_aG6zGNyos)

Kyodo

The Japan Atomic Energy Agency said Wednesday that some of the low-level radioactive waste stored underground at a facility near Tokyo may leak from its containers due to inadequate disposal procedures.

The government-backed agency keeps 53,000 drums of low-level radioactive waste, or about 10,600 kiloliters, in a concrete pit in the basement of a building of the Nuclear Research and Science Institute in the village of Tokai, Ibaraki Prefecture.

Some of the waste did not undergo the proper water removal process when placed in the pit, and leakage and corroded containers in the pit were found during inspections between 1987 and 1991, according to the agency.

The nuclear research body planned to inspect the drums over the next 50 years to check for leakage. But the Nuclear Regulation Authority said at a meeting Wednesday that the agency needs to check them more quickly.

The agency should inspect all the drums within five years, Shinsuke Yamanaka, an NRA commissioner, said at the meeting.

The agency currently inspects the drums visually once a year but will now begin to lift and check them individually.

According to the agency and the NRA, the low-level radioactive waste is placed at the facility, built sometime from around 1964 to 1976, for disposal.

The agency said it did not properly conduct the process of removing water and other materials in some cases during the 1960s.

November 25, 2018

## Fukushima monkeys & radiation



Two Japanese macaques are seen in the Fukushima Prefecture city of Fukushima in this photo provided by Fumiharu Konno from Shinichi Hayama's research team.

## Effects of suspected radiation exposure seen in Fukushima wild monkeys: researchers

<https://mainichi.jp/english/articles/20181125/p2a/00m/0na/003000c>

TOKYO -- Researchers found fewer cells that become blood in the bone marrow of wild Japanese macaques living in northeastern Japan's Fukushima Prefecture along with the delayed growth of fetuses after the 2011 nuclear crisis, possibly due to radiation exposure.

- **【Related】** Amount of food with radioactive cesium exceeding gov't standards dropping: study
- **【Related】** Dairy farmer resumes operations 7 1/2 years after Fukushima disaster
- **【Related】** Fukushima flounder exported for first time since nuclear disaster

Findings of abnormalities in these monkeys have been continuously reported in British scientific journals. Researchers assume that the monkeys ingested items like tree bark contaminated with radioactive cesium emanating from the Fukushima Daiichi Nuclear Power Station.

Tohoku University's Department of Pathology professor emeritus Manabu Fukumoto and his research team performed hematological analysis of adult monkeys captured after the nuclear disaster. They inspected blood cell counts in the bone marrow of 18 monkeys caught in locations within 40 kilometers from the plant, including the city of Minamisoma and the town of Namie. Fukumoto's team then compared the data to that of monkeys from other areas. The results revealed various substances destined to mature into blood, like cells that develop into platelets, had decreased in Fukushima monkeys.

Furthermore, the team observed some blood components had greatly decreased in monkeys with higher internal radiation exposure per day. They estimated the radiation dose from the concentration of radioactive cesium in the monkeys' muscles. Fukumoto explained, "We need to conduct long-term research to see if it (the abnormalities) has an effect on the monkeys' health."

Meanwhile, wildlife zoology expert and Nippon Veterinary and Life Science University professor Shinichi Hayama and his research team examined fetuses in pregnant female monkeys. These monkeys were among those annually captured from 2008 to 2016 by the Fukushima Municipal Government to control their population size. Hayama's research team compared data on 62 fetuses around the time of the meltdowns. They learned that the fetuses had smaller heads and delayed development over their entire bodies after the nuclear incident, in comparison to those before the disaster.

However, the team could not find any change in the nutritional status of the mother monkeys. They concluded that the mother monkeys' radiation exposure may have had an effect on the fetuses.

Hayama assumed that Fukushima monkeys "must have been exposed to high doses of radiation on a whole different scale compared to humans." This is because the monkeys "had consumed food contaminated with radiation, in addition to living near the ground where there were high radiation doses."

Japanese macaques are not included in the wild animals and plants under investigation by the Ministry of the Environment to see the effects of radiation from the nuclear disaster. Five academic associations including the Primate Society of Japan (PSJ) have submitted a request asking that Japanese macaques be included in the research, along with other demands, to the environment ministry.

"Japanese macaques have a long life span of 20 to 30 years and are sedentary," said PSJ Chairman Masayuki Nakamichi. He claimed that "it's absolutely crucial, even for the world, to conduct research on the long-term effects of radiation exposure on Japanese macaques."

(Japanese original by Momoko Suda, Science & Environment News Department)

## **Fukushima & food safety**

### **Fukushima farmers see need to better publicize food safety**

<https://mainichi.jp/english/articles/20181125/p2g/00m/0dm/049000c>

FUKUSHIMA (Kyodo) -- Farmers and fishermen in Fukushima called for further efforts to convince the public that their food is safe to eat on Sunday after Taiwan decided to maintain its import ban on Japanese food from areas affected by the 2011 nuclear disaster.

Taiwan's public voted in a referendum Saturday to maintain the ban on agricultural products and other food from Fukushima and four other prefectures.

"All we can do is to work harder until people understand that our products are safe," said Masao Koizumi, a rice farmer in Fukushima.

The prefectural government of Fukushima has been conducting radiation checks on all rice produced in the prefecture. Since 2015, all shipments cleared the screening, with radioactive cesium levels below the 100-becquerel-per-kilogram limit set by the central government.

"When people see the inspection readings, they will know that there is no threat of radioactive materials," Koizumi said.

Tetsu Nozaki, the head of an association representing fishery cooperatives in the prefecture, said, "We are disappointed, but we just need to make sure that we keep communicating the safety of our products."

November 26, 2018

## Taiwan maintains ban on Fukushima food

### Taiwan votes to keep ban on foods from Fukushima disaster areas for 2 more years

<https://mainichi.jp/english/articles/20181126/p2a/00m/0na/023000c>

FUKUSHIMA/TAIPEI -- Taiwan voted in a referendum on Nov. 24 to continue its ban on imports of food products from five Japanese eastern and northeastern prefectures, including Fukushima, hit hard by the nuclear crisis, for two more years.

- **【Related】** Fukushima farmers see need to better publicize food safety
- **【Related】** Children to be given priority for iodine tablets against radiation
- **【Related】** IAEA urges quick plan on Fukushima radioactive water cleanup

The outcome of the referendum is expected to deal a serious blow to relations between Japan and Taiwan.

According to tallies, approximately 7.79 million Taiwanese voted in favor of the continuation of the ban on the imports of food products from Fukushima, Ibaraki, Tochigi, Gunma and Chiba prefectures, while about 2.23 million people opposed the continuation. Voter turnout came to 54.56 percent, well above one-fourth required for the outcome to be valid.

The Taiwanese authority is not allowed to implement policy measures against the outcome of a referendum for a two-year period.

Taiwan prohibited the imports of food products from these five prefectures immediately after the outbreak of the crisis at the tsunami-ravaged Fukushima Daiichi Nuclear Power Station in March 2011.

In response, the Japanese government has strongly urged Taiwan to lift the ban on the grounds that the safety of such products from these prefectures has been scientifically proven.

The Taiwanese administration of President Tsai Ing-wen considered lifting the ban, but the largest opposition Nationalist Party launched a campaign to provoke a sense of fear among Taiwanese people who are sensitive about food safety and demanded that a referendum on the issue be held.

The exports of agricultural products made in Fukushima Prefecture plummeted to 2.4 metric tons in fiscal 2012 after the outbreak of the nuclear disaster. However, the figure rose to some 210 tons in fiscal 2017, the highest figure since fiscal 2005 when statistics are available, because concerns about the safety of foods produced from the prefecture have been dispelled.

Shin Nagamine, 44, a farmer who grows the Koshihikari brand of rice in the Fukushima Prefecture town of Aizubange, has expressed concerns that Taiwan's latest move could spread harmful rumors about products from Fukushima and surrounding areas throughout the world.

"The move is regrettable all the more because we expected that the lifting of the import ban would be a step toward our disaster recovery. I fear that the harmful rumors could spread to surrounding countries and doors that have been opened could be closed again," he said.

The head of a fisheries cooperative in Fukushima Prefecture has calmly responded to Taiwan's decision. "We can't completely reject Taiwanese people's ideas and force them to ease restrictions on our Fukushima products," said Tetsu Nozaki, leader of the Fukushima Prefectural Federation of Fisheries Cooperative Associations.

Since April 2015, radioactive substances in excess of the upper limit set by the central government have not been detected in fish caught off Fukushima.

Chiba Gov. Kensaku Morita, who visited the Taiwanese city of Taoyuan in November 2017 to ask that the ban on food products from the five Japanese prefectures be lifted, said his prefecture will continue efforts to persuade Taiwan to ease the ban.

"We've tried to convince the Taiwanese public of the safety of local food products and our response to the matter based on scientific grounds. We'd like to continue tireless efforts to win their understanding," he said.

(Japanese original by Hideyuki Kakinuma, Fukushima Bureau, and Shizuya Fukuoka, Taipei Bureau)

November 27, 2018



## Taiwan and Japan to hold trade talks in shadow of vote to keep post-Fukushima food ban

[https://www.japantimes.co.jp/news/2018/11/27/national/politics-diplomacy/taiwan-japan-hold-trade-talks-shadow-vote-keep-post-fukushima-food-ban/#.W\\_1MmDGNyos](https://www.japantimes.co.jp/news/2018/11/27/national/politics-diplomacy/taiwan-japan-hold-trade-talks-shadow-vote-keep-post-fukushima-food-ban/#.W_1MmDGNyos)

Kyodo

TAIPEI – Taiwan and Japan will hold annual trade talks in Taipei this week, coming after a weekend referendum in the former that could have a negative impact on bilateral relations. [...]

## New findings should trigger reevaluation of volcanic ash fall

### EDITORIAL: Nuclear plants must take threat of volcanic ash more seriously

<http://www.asahi.com/ajw/articles/AJ201811270019.html>

The Nuclear Regulation Authority will reassess the safety risks posed by possible natural disasters to certain nuclear power plants that have been declared to be fit for operation under the new safety standards.

The nuclear watchdog's unusual decision has been prompted by **recent discoveries of new facts concerning possible effects of volcanic eruptions on the Mihama, Oi and Takahama nuclear power plants operated in Fukui Prefecture by Kansai Electric Power Co.**

It is a totally reasonable decision based on the principle of putting the top priority on safety in regulating nuclear plants.

Initially, Kansai Electric asserted that volcanic ash posed no threat to the safety of the three nuclear plants. Its claim was based on its own estimate of the amount of volcanic ash that would fall on the plants.

Using research findings and geological surveys as well as simulations of eruptions of Mount Daisen, a volcanic mountain in Tottori Prefecture located about 200 kilometers from the plants, the Osaka-based utility estimated that the nuclear compounds could be coated with up to 10 centimeters of ash from a major volcanic eruption.

The NRA accepted the company's assessments of volcanic hazards for these plants and allowed the No. 3 and No. 4 reactors at both the Oi and Takahama plants to come back online.

After the NRA's safety screenings, however, **a 30-cm ash layer from an eruption of Mount Daisen that occurred 80,000 years ago was discovered in Kyoto, 190 km from the mountain.**

Kansai Electric argued that the thickness of ash from the mountain cannot be estimated accurately because ash from other sources was mixed in.

But the NRA confirmed that the layer of volcanic ash from the mountain is 25 cm thick through its own on-site inspection and other research, concluding that the eruption was greater in scale than the utility's estimate of a maximum possible incident.

These developments have led to the regulator's unusual decision to reassess the risks posed by volcanic ash fall to the safety of the plants.

A massive fall of volcanic ash could cause a malfunction of the emergency power generation system at a nuclear power plant and cut off the power supply, which is crucial for preventing a severe nuclear accident during a natural disaster.

**The new findings have made it inevitable to re-evaluate the estimate of maximum possible volcanic ash fall for each nuclear plant and consider the necessity of additional safety measures.**

One important component of the new tighter nuclear safety standards introduced after the 2011 Fukushima nuclear disaster is the so-called "back-fit" system, which applies the latest safety requirements to existing reactors.

The NRA acted on this new rule when it decided to reassess the threats posed by volcanic eruptions to the safety of the nuclear plants by incorporating the implications of the newly discovered facts.

The body should adopt the same stance toward safety risks posed by other natural disasters such as earthquakes and tsunami.

But the NRA has also decided not to order the utility to suspend the operations of the four reactors, at least for now, because there is a certain safety margin in the measures to deal with volcanic ash fall taken at the three nuclear plants in Fukui Prefecture.

But it should not hesitate to order the shutdowns of these reactors if more new facts are discovered with risk implications for them.

Bodies of scientific knowledge concerning earthquakes, tsunami and volcanic eruptions change constantly due to new findings from research and surveys.

Kansai Electric Power's response to the new discovery deserves to be criticized as an attempt to escape from an inconvenient new fact.

Electric utilities operating nuclear plants need to make constant efforts to gather the latest information and face new facts concerning the safety of their nuclear plants in a humble and honest manner.

The back-fit system was introduced to ensure the safety of nuclear plants in this nation as a policy response to the lessons learned from the catastrophic accident at the Fukushima No. 1 nuclear power plant. This should never be forgotten.

December 2, 2018

## Fukushima food ban: Involve WTO?

### Japan may take Taiwan's Fukushima food import ban to WTO

<https://mainichi.jp/english/articles/20181202/p2g/00m/0fp/055000c>

TOKYO (Kyodo) -- Japan may take Taiwan's import ban on food products from Fukushima and other prefectures affected by the 2011 nuclear disaster to the World Trade Organization, Japanese Foreign Minister Taro Kono said Sunday.

"It goes against the WTO's quarantine-related agreement," Kono said, referring to Taiwan's ban on products from Fukushima, Ibaraki, Gunma, Tochigi and Chiba prefectures.

Taiwan voted to maintain the ban in a legally binding referendum on Nov. 25. Taiwanese Foreign Ministry spokesman Andrew Lee said the ministry respected public opinion on the issue and will explain to Japan the safety concerns of the Taiwanese public.

At the WTO, "there is a procedure that allows (a member state) to file a complaint. If necessary, we need to act," Kono told a meeting of the ruling Liberal Democratic Party in Morioka, Iwate Prefecture, in northeastern Japan.

"The WTO sets clear rules that (import bans) should be decided based on scientific foundations," he said.

Following the nuclear disaster at the Fukushima Daiichi nuclear plant, triggered by the massive earthquake and tsunami on March 11, 2011, the prefectural government has sought to ease consumer concern about the safety of farm and fishery products through radiation checks.

Since 2015, all shipments of rice from Fukushima have cleared the screening, with radioactive cesium levels below the 100 becquerel per kilogram limit set by the Japanese government for agricultural, forestry and fishery products. No samples of vegetables and fruit from Fukushima have exceeded the legal limit in inspections since April 2013, and no fishery products have since 2015.

The Japanese chamber in Taiwan, with 471 member companies, has also called on the Taiwanese government to re-examine the ban based on scientific evidence.

As of August, the Taiwanese government has inspected over 125,000 samples of imported food products from Japan since March 15, 2011, with none exceeding the island's legal limits for radiation, according to the Japanese chamber.

Japan is Taiwan's third-largest trading partner, while Taiwan is Japan's fourth-largest trading partner.

January 9, 2019

## Doubts raised about radiation data for Date people

### Radiation doses underestimated in study of city in Fukushima

<http://www.asahi.com/ajw/articles/AJ201901090057.html>

A nuclear physicist who has drawn attention for tweeting about fallout from the Fukushima nuclear disaster has admitted that he and a colleague underestimated radiation doses in an article for an international scientific journal.

**Ryugo Hayano, professor emeritus at the University of Tokyo**, said the error, which he recognized on Jan. 8, was “unintentional.”

The article, carried in the Journal of Radiological Protection’s online edition in July 2017, listed average radiation doses that were one-third of the actual levels for people in Date, a city around 60 kilometers northwest of the crippled Fukushima No. 1 nuclear plant, he said.

Hayano’s admission came after an atomic nucleus expert contacted the journal last year to point out unnatural data carried in the report and call for a correction.

The radiation doses in the article were based on figures kept by Date residents after the nuclear accident unfolded in March 2011.

“Even if residents lived in the most contaminated area of Date for 70 years, the median of the doses would not exceed 18 millisieverts,” the article concluded.

However, **Shinichi Kurokawa, professor emeritus with the High Energy Accelerator Research Organization, an institute jointly used by national universities**, raised doubts about the data presented in some sections of the report.

When Hayano and his colleague re-examined the figures, they found that they mistook a monthly dose recorded on a dosimeter as the figure for three months of exposure.

Hayano said the conclusion of the report still stands.

“Even after the error was fixed, I believe the average of annual doses will be within the 1-millisievert mark,” he said.

The benchmark upper limit for radiation exposure among ordinary people is 1 millisievert a year.

Hayano has frequently tweeted about radiation levels and doses from the nuclear disaster.

He was also involved in another research paper that analyzed radiation doses among people in Date. Kurokawa also questioned the veracity of a chart in the second report.

The second report has often been cited in discussions by the government’s Radiation Council on setting standards for protecting people from radiation.

The two research papers were produced after the Date city government provided Hayano’s research team with data on radiation doses of about 59,000 residents.

But it has emerged that data for 27,000 citizens were provided without their consent.

The city plans to set up an investigation panel to find out why it occurred. Date has a population of 61,000.

January 22, 2019

## **Young girl exposed to radiation of 100 millisieverts (Govt-set standard)**

### **Girl, 11, exposed to high radiation levels after 2011 nuclear disaster**

<http://www.asahi.com/ajw/articles/AJ201901220056.html>

An 11-year-old girl who evacuated from the town of Futaba after the 2011 Fukushima nuclear disaster was likely exposed to radiation levels near the government-set standard, despite assurances that no children were exposed to such high doses.

The girl is said to have been exposed to a radiation dose of about 100 millisieverts, the threshold for enhanced risk of cancer, following the triple meltdown at the Fukushima No. 1 nuclear power plant.

**The previously undisclosed case, which was reported to The National Institute of Radiological Sciences (NIRS) after the disaster, contradicts the central government's statement that "there has been no confirmed cases of children exposed to radiation doses of 100 millisieverts or higher."**

According to the NIRS, the case was not disclosed at the time because the institute considered that the estimate was based on information from the site using a simple monitoring instrument and that the figures were not calculated precisely.

The Fukushima Prefecture town of Futaba co-hosts, along with Okuma, the crippled nuclear plant, which was inundated by massive waves triggered by the megaquake on March 11, 2011.

On around March 17, 2011, a radiological technician of the Fukushima prefectural government office engaged in radiation check-up tests on residents detected 50,000 to 70,000 cpm of radiation when checking the girl's thyroid gland using a radiation monitoring device at a gym in Koriyama, according to the NIRS and other sources.

Cpm, or counts per minute, is a measurement of radiation emitted per minute from radioactive substances detected by such a device.

**No documents regarding the case remain**, but the figures were conveyed to a team from Tokushima University that traveled to the site to provide support for the tests.

The team estimated that the radiation level in the girl's thyroid gland was likely a dozen kilobecquerels on the assumption that all the radioactive substances were absorbed by her thyroid gland and reported the estimated figures to the NIRS.

A becquerel is a measurement unit that indicates the ability of a radioactive material to emit radiation, or the intensity of radioactivity.

A sievert, in contrast, is a unit that focuses on the effects of radiation on human health.

The NIRS shared the information on the case among its staff members and left memos indicating the dose that **the girl may have been exposed to a radiation dose of around 100 millisieverts**.

**Children are said to be particularly vulnerable to thyroid gland cancer due to radiation exposure.**

In March 2011, a government survey of 1,080 children in the three municipalities of Iwaki, Kawamata and Iitate in Fukushima Prefecture found a maximum level of 35 millisieverts of exposure, far lower than the 100-millisievert standard.

## **Greenpeace report on contaminated water tanks**

### **Technical failures increase risk of contaminated Fukushima water discharge into Pacific – Greenpeace**

<https://www.greenpeace.org/international/press-release/20351/technical-failures-increase-risk-of-contaminated-fukushima-water-discharge-into-pacific-greenpeace/>

by Greenpeace International

Tokyo, 22 January 2019 – The nuclear water crisis at the Fukushima Daiichi plant has been compounded by multiple technical failures and flawed decision making driven by short term cost cutting by the Japanese government and TEPCO, a new Greenpeace Germany analysis concludes.

The report details how plans to discharge over 1 million tonnes of highly contaminated water into the Pacific Ocean was proposed by the same Government task force that ignored alternative options that would have avoided threatening further contamination of the ocean.

“The decision not to develop water processing technology that could remove radioactive tritium was motivated by short term cost cutting not protection of the Pacific ocean environment or the health and livelihoods of communities along the Fukushima coast,” said Kazue Suzuki, Energy Campaigner at Greenpeace Japan. “We have raised the water crisis with the UN International Maritime Organization and firmly stand with local communities, especially fisheries, who are strongly opposed to any plans to discharge contaminated water into their fishing grounds.”

The report concludes that the water crisis remains unresolved, and will be for the foreseeable future. The only viable option to protect the environment and the communities along the Fukushima coast being long term storage for the contaminated water.

The discharge option for water containing high levels of radioactive tritium was recommended as least cost by the Government’s Tritiated Water Task Force and promoted by Japan’s Nuclear Regulation Authority (NRA). The Task Force concluded in 2016 that “sea discharge would cost 3.4 billion yen (US\$30 million) and take seven years and four months to complete. It concluded that this was cheapest and quickest of the five methods.” However, technical proposals for removing tritium were submitted to the same Government Task Force by multiple nuclear companies with estimated costs ranging from US\$2- US\$20 billion to US\$50-US\$180 billion depending on the technology used. These were dismissed as not viable but without detailed technical consideration.

TEPCO has claimed since 2013 that its ALPS technology would reduce radioactivity levels “to lower than the permissible level for discharge.” However, in September 2018 TEPCO admitted that the processing of over 800,000 tons of contaminated water in 1000 storage tanks, including strontium, had failed to remove radioactivity to below regulatory limits, including for strontium-90, a bone seeking radionuclide that causes cancer. TEPCO knew of the failure of the technology from 2013. The Greenpeace report details technical problems with the ALPS system.

The Fukushima Daiichi site, due its location, is subject to massive groundwater contamination which TEPCO has also failed to stop. Each week an additional 2-4000 tonnes of contaminated water is added to the storage tanks.

“The Japanese government and TEPCO set an objective of ‘solving’ the radioactive water crisis by 2020 – that was never credible. TEPCO has finally admitted that its ALPS technology has failed to reduce levels of strontium, and other hazardous radioactivity, to below regulatory limits,” said Shaun Burnie, nuclear specialist with Greenpeace Germany.

“The reality is there is no end to the water crisis at Fukushima, a crisis compounded by poor decision making by both TEPCO and the government. Discharging into the Pacific is the worst option and must be ruled out. The only viable option, and it’s not without risks, is the long term storage of this water in robust steel tanks over at least the next century, and the parallel development of water processing technology.” Greenpeace offices are calling on the government and TEPCO to urgently reassess options for the long term management of highly contaminated water at Fukushima Daiichi. Paramount in any future decision

making should be the protection of the environment and the interests of the those in the front line – the communities and fishing industries of Fukushima’s Pacific coast.

**Photos and video can be accessed here**

**Notes:**

“TEPCO Water Crisis” briefing can be accessed here

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January 26, 2019

## **Governor promotes Fukushima food in Hong Kong amid post-disaster import restrictions**

<https://www.japantimes.co.jp/news/2019/01/26/business/governor-promotes-fukushima-food-hong-kong-amid-post-disaster-import-restrictions/#.XF2wyaBCeos>

JJI

HONG KONG - Fukushima Gov. Masao Uchibori, on a visit to Hong Kong which kicked off Thursday, has worked to promote the safety of food from his prefecture, home to the heavily damaged Fukushima No. 1 nuclear plant.

Hong Kong introduced restrictions on food imports from the prefecture after a triple meltdown occurred at Tokyo Electric Power Company Holdings Inc.’s Fukushima No. 1 nuclear power station, which was inundated by tsunami following the Great East Japan Earthquake on March 11, 2011.

Uchibori is the first Fukushima governor to visit Hong Kong after the disasters for the promotion of local food products.

During his stay, Uchibori met with officials of an industry association related to Japanese food. He also paid a courtesy call on a senior Hong Kong government official in charge of import regulations.

The official said that Hong Kong will consider whether to relax the restrictions on Fukushima food while closely watching the pace of recovery in food imports from four nearby prefectures —Ibaraki, Tochigi, Gunma and Chiba — according to Uchibori. Hong Kong eased its restrictions on food from the four prefectures last year.



At a seminar for Hong Kong journalists on Friday, Uchibori stressed that he will redouble efforts to ease concerns over Fukushima food as much as possible, noting that more than 80 percent of all exports of Fukushima-made agricultural, forestry and fishery products had been shipped to Hong Kong before the disasters.

January 29, 2019

### **(USS) NRC votes to ignore lessons of Fukushima disaster**

<http://www.beyondnuclear.org/home/2019/1/29/nrc-commissioners-in-partisan-vote-slash-agency-rulemaking-o.html>

NRC Commissioners in partisan vote slash agency rulemaking on severe accident upgrades for US reactors  
On January 24, 2019, a majority of five voting members of the U.S. Nuclear Regulatory Commission (NRC) rolled back more than seven years of the agency's technical study on the hazards and lessons learned for US reactors from Japan's Fukushima nuclear catastrophe. In a vote along party lines, the three Presidentially appointed Republican Commissioners voted against incorporating years of new science and management strategies to safely contain a severe nuclear accident following extreme earthquakes and flooding. **The Commission vote drastically undercut a requirement to industry operators to make safety upgrades at U.S. nuclear power stations that were built decades ago.** Instead of requiring operators to upgrade, the Commission reduced the rule to allowing industry voluntary compliance, effectively stripping the agency of enforcement action. Nuclear power stations will now only pay but a small fraction of the cost for implementing Fukushima upgrades determined as necessary by agency staff and independent nuclear safety experts.

The Commission majority voted to allow licensees to ignore modern methods and science to quantify and qualify the hazards from extreme natural events including earthquake and flooding on nuclear safety as demonstrated in the Fukushima catastrophe. Instead, operators will be allowed to rely upon the outdated hazard analysis that the original reactor design was licensed under, also known as "design basis accidents."

As Fukushima's GE Mark I boiling water reactors were not designed and constructed to withstand the extreme flooding of the 50-foot tsunami generated by a 9-magnitude earthquake, the nuclear power plant site experience three severe accidents that led to multiple reactor core meltdowns and breaches of containment. US reactors are similarly not adequately prepared for extreme but real world events such as unprecedented flooding created from climate change and "beyond design basis accidents" earthquakes.

"This outcome is a complete U-turn for NRC," said appointed Democrat Commissioner Jeff Baran in his notated vote sheet for the protection of the public safety from nuclear accidents. Baran charged his Republican members of the Commission as gutting the rule of key Fukushima lessons learned and actions needed to address critical safety vulnerabilities in US reactors. Commissioner went on to say, "The

changes to the final rule supported by the majority will, in my view, significantly weaken what will be the agency's most enduring action as a result of lessons learned from the Fukushima Daiichi accident. In doing so, the Commission will have systematically and inexplicably unraveled a framework for addressing beyond-design-basis external events carefully crafted as a collaborative effort between the NRC staff and our external stakeholders over the past seven and a half years.”

NRC Commissioner Stephen Burns, who was equally disturbed by the Commission vote, and quoted from the official report of the National Diet of Japan's Fukushima Nuclear Accident Independent Investigation Commission, where Chairman Kiyoshi Kurokawa said, “The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. Although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded as a natural disaster. It was a profoundly manmade disaster that could and should have been foreseen and prevented. And its effects could have been mitigated by a more effective human response.”

Voting to ignore some of the most important lessons of Fukushima, strip the agency of enforcement capability and shield an already financially beleaguered U.S. nuclear power from the cost of staff recommended actions and upgrades were Chairwoman Kristine Svenicki, Commissioner Annie Caputo and Commissioner David Wright.

January 30, 2019

## **Radiation leak at Ibaraki facility but no word since**

### **Alarm triggered at onetime nuclear fuel facility in Ibaraki after leak of radioactive substances**

<https://www.japantimes.co.jp/news/2019/01/30/national/alarm-sounded-nuclear-facility-ibaraki/#.XFNm66BCeos>

Staff Report, Kyodo, AP

An alarm was triggered at a onetime nuclear fuel manufacturing facility Wednesday after radioactive substances leaked from materials that were being transferred at the facility operated by the Japan Atomic Energy Agency in Tokai, Ibaraki Prefecture, company officials said.

All nine of the workers who were in the room when the radiation leak occurred were cleared with no ill-effects to their health, JAEA official Shinichi Nishikawa told a news conference.

JAEA said the workers, each wearing a mask, escaped radiation exposure after running into another room. No leak was detected outside the Nuclear Fuel Cycle Engineering Laboratories. The facility ended nuclear fuel production in 2001 and is being decommissioned.

The cause of the leak is under investigation. The agency suggested possible damage to the plastic covers during the routine change.

Officials told the news conference that they would begin assessing the site as soon as possible to determine how much radioactive material had been leaked and if it was still leaking.

The agency will file a report of its findings to the Nuclear Regulation Authority and come up with preventive measures.

The warning alarm that detects radioactive materials went off at around 2:30 p.m. as workers were removing radioactive materials — which were contained in a plastic bag — from sealed-up equipment that had been used for experiments.

The mixed oxide fuel (MOX) and plutonium was being kept in a sealed glove box container for future research.

The alarm is set up in an area of the facility once used for the production of MOX nuclear fuel made by mixing uranium with plutonium extracted from spent nuclear fuel.

In June 2017, a JAEA research facility in the town of Oarai, Ibaraki Prefecture, was the scene of another leak of radioactive substances, including powdered plutonium, when a plastic bag containing nuclear fuel remnants exploded. Five workers who were handling the materials were exposed to the substances.

JAEA possesses about half of the 10.5 tons of separated plutonium that Japan stores domestically, while an additional 37 tons have been reprocessed and are stored overseas. To reduce the stockpile, Japan burns plutonium as MOX fuel in conventional reactors.

Restarts of halted nuclear plants have proceeded slowly amid persistent anti-nuclear sentiment since the 2011 Fukushima nuclear power plant disaster

January 31, 2019

## **You can buy uranium on Internet**

### **Possible uranium sold on internet auction site, seized by police**

<https://mainichi.jp/english/articles/20190131/p2a/00m/0na/001000c>

TOKYO -- Radioactive materials that appear to be uranium were sold and bought on an internet auction website, people close to a police investigation into the case told the Mainichi Shimbun on Jan. 30.

- **【Related】** Tohoku Electric to scrap aging Onagawa nuke plant reactor over maintenance costs
- **【Related】** Asia, Europe leaders to prod N. Korea on denuclearization at summit
- **【Related】** Student suspected of illegally shipping military-grade night-vision camera to China

The materials have been confiscated by the Tokyo Metropolitan Police Department (MPD) consumer and environment protection division and passed on for identification to the Japan Atomic Energy Agency (JAEA) officials. The JAEA judged that the materials are extremely likely to be depleted uranium and yellowcake uranium concentrate powder.

Police have identified the sellers and buyers of the materials, and will launch a full-fledged investigation into the case shortly as a possible violation of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors. The law regulates unauthorized transfer of nuclear fuel material in the country. Violators face an imprisonment of up to 1 year or 1 million yen in fine.

According to individuals close to the investigation, the secretariat of the Nuclear Regulation Authority first spotted materials dubbed as "uranium" were placed on an auction website, and reported the issue to the MPD. Investigators identified the seller and several buyers and confiscated the materials in question. The items were either powdered or solid and radioactive. They were placed in glass casings and weighed several grams in total. The seller agreed to voluntary questioning by police, saying that he had bought the goods on an overseas website.

The MPD requested that the JAEA identify the items in mid-December last year. The materials are likely to include depleted uranium that was produced during uranium enrichment and yellowcake, according to the people close to the investigation. The final results of the agency examination are expected to be released soon. Depleted uranium contains the fissile uranium 235 isotope at a concentration less than the natural concentration of 0.7 percent.

Experts worry that such radioactive materials could be abused in "dirty bombs" designed to disperse such materials as a form of terrorism. Professor Mitsuru Fukuda of the Nihon University College of Risk Management says the use of such explosives could result in sealing off the detonation area so that residents can evacuate and the area can be decontaminated.

"People's concerns would rise and economic activities could stop. Even a tiny amount of material with low radioactivity could have a major impact on society," he said.

(Japanese original by Ikuko Ando, City News Department, and Toshiyuki Suzuki and Riki Iwama, Science & Environment News Department)

## **Clothes, golf clubs--uranium?! Web auction item stuns police**

<http://www.asahi.com/ajw/articles/AJ201901310061.html>

All manner of products can be bought online, but one would never expect to find nuclear substances.

And then it happened.

Radioactive material, likely uranium, was sold through an Internet auction in Japan, investigative sources said Jan. 31.

The Metropolitan Police Department in Tokyo has already identified the seller and buyers, with the perpetrators suspected of violating the law regulating nuclear source material, nuclear fuel material and reactors, which prohibits non-authorized individuals from handling nuclear substances.

According to sources, the secretariat of the Nuclear Regulation Authority received information from an outside party at the end of November 2017 that “99.9% Uranium” was being sold on a Web auction site in Japan.

The secretariat reported the matter to police in January 2018.

After Tokyo police identified the seller and buyers, all male, it confiscated the substance last summer after obtaining a warrant.

The confiscated substance, in powder and solid form, was kept in several glass vessels. The total stash weighed several grams and emitted a small amount of radiation.

The seller was quoted by police as saying that the substance is “depleted uranium” and that he “bought it on a foreign website.”

In mid-December 2018, police asked the Japan Atomic Energy Agency in Tokai, Ibaraki Prefecture, to analyze the substance and expects to receive results of the analysis soon.

Police said the substance is possibly “depleted uranium” or “uranium concentrate” (yellow cake). The latter is made by refining uranium ore.

Uranium in natural form is used as nuclear fuel for nuclear weapons and nuclear power plants. However, enrichment can increase the ratio of uranium-235, which easily undergoes nuclear fission.

During this process, depleted uranium is generated, which has a low rate of uranium-235.

Cesium exceeding limit found in Fukushima fish

February 2, 2019

**Radioactive cesium above legal limit detected in fish caught off Fukushima**

<https://www.japantimes.co.jp/news/2019/02/02/national/science-health/limit-cesium-detected-fish-caught-off-fukushima/#.XF2wXaBCeos>

JJI

FUKUSHIMA - Radioactive cesium exceeding the state limit has been detected in fish caught off Fukushima Prefecture for the first time in about four years, the prefecture's fisheries cooperatives association has said.

The cesium level of 161 becquerels per kilogram, exceeding the limit of 100, was detected in a skate, a type of ray, caught at a depth of 62 meters during test fishing Thursday.

The association stopped the shipments of skates caught in the waters. The fish will be taken off the market until safety is confirmed.

The prefecture will collect more samples for research and the central government will judge the safety of the fish.

In radiation checks of fish by the Fukushima Prefectural Government, a cesium level exceeding the limit was last detected in a stone flounder in March 2015, at 140 becquerels per kilogram.

The prefecture is home to Tokyo Electric Power Company Holdings Inc.'s crippled Fukushima No. 1 nuclear power plant.

**"People are losing the purposes of living"**



Weeds grow in the parking lot of an abandoned restaurant along Route 6, just outside the exclusion zone around the Fukushima Daiichi Nuclear Power Plant, which suffered a multiple-reactor meltdown following a 2011 earthquake and tsunami. (Shiho Fukada for The Washington Post)



THE WASHINGTON POST





A radiation-monitoring device stands in front of Ukedo Elementary School in Namie. (Shiho Fukada for The Washington Post)



A cemetery in Namie that was destroyed after the catastrophe. (Shiho Fukada for The Washington Post)

February 2, 2019

## Near site of Fukushima nuclear disaster, a shattered town and scattered lives

[https://www.washingtonpost.com/world/asia\\_pacific/near-site-of-fukushima-nuclear-disaster-a-shattered-town-and-scattered-lives/2019/02/02/0dea7886-1e8c-11e9-a759-2b8541bbbe20\\_story.html?noredirect=on&utm\\_term=.f81113baf693](https://www.washingtonpost.com/world/asia_pacific/near-site-of-fukushima-nuclear-disaster-a-shattered-town-and-scattered-lives/2019/02/02/0dea7886-1e8c-11e9-a759-2b8541bbbe20_story.html?noredirect=on&utm_term=.f81113baf693)

Weeds grow in the parking lot of an abandoned restaurant along Route 6, just outside the exclusion zone around the Fukushima Daiichi Nuclear Power Plant, which suffered a multiple-reactor meltdown following a 2011 earthquake and tsunami. (Shiho Fukada for The Washington Post)

By Simon Denyer

NAMIE, Japan — Noboru Honda lost 12 members of his extended family when a tsunami struck the Fukushima prefecture in northern Japan nearly eight years ago. Last year, he was diagnosed with cancer and initially given a few months to live.

Today, he is facing a third sorrow: watching what may be the last gasps of his hometown.

For six years, Namie was deemed unsafe after a multiple-reactor meltdown at the Fukushima Daiichi Nuclear Power Plant following a 2011 earthquake and tsunami.

In March 2017, the government lifted its evacuation order for the center of Namie. But hardly anyone has ventured back.

Its people are scattered and divided. Families are split. The sense of community is coming apart.

“It has been eight years; we were hoping things would be settled now,” the 66-year-old Honda said. “This is the worst time, the most painful period.”

For the people of Namie and other towns near the Fukushima plant, the pain is sharpened by the way the Japanese government is trying to move beyond the tragedy, to use the 2020 Tokyo Olympics as a symbol of hope and recovery, a sign that life can return to normal after a disaster of this magnitude.

Its charm offensive is also tied up with efforts to restart the country’s nuclear-power industry, one of the world’s most extensive networks of atomic power generation.

Six Olympic softball games and a baseball game will be staged in Fukushima, the prefecture’s bustling and radiation-free capital city, and the Olympic torch relay will start from here.

But in Namie, much closer to the ill-fated nuclear plant, that celebration rings hollow, residents say.

This was a close-knit community of farmers, fishermen and potters — of orchards, rice paddies and cattle sandwiched between the mountains and the sea. It was a place where people celebrated and mourned as a community, and families lived together across generations.

That's all gone. On the main street, a small new shopping arcade has opened. But a short walk away, a barber shop stands abandoned, its empty chairs gathering years of dust. A sign telling customers to make themselves at home is still displayed in a bar, but inside debris litters the floor. A karaoke parlor is boarded up. Wild boars, monkeys and palm civets still roam the streets, residents say.

Just 873 people, or under 5 percent, of an original population of 17,613 have returned. Many are scared — with some obvious justification — that their homes and surroundings are still unsafe. Most of the returnees are elderly. Only six children are enrolled at the gleaming new elementary school. This is not a place for young families.

Four-fifths of Namie's geographical area is mountain and forest, impossible to decontaminate, still deemed unsafe to return. When it rains, the radioactive cesium in the mountains flows into rivers and underground water sources close to the town.

Almost eight years after the disaster at the nuclear power plant in Fukushima, the Japanese government is urging people to return, but there's little left. (Simon Denyer/The Washington Post)

Greenpeace has been taking thousands of radiation readings for years in the towns around the Fukushima nuclear plant. It says radiation levels in parts of Namie where evacuation orders have been lifted will remain well above international maximum safety recommendations for many decades, raising the risks of leukemia and other cancers to "unjustifiable levels," especially for children.

In the rural areas around the town, radiation levels are much higher and could remain unsafe for people beyond the end of this century, Greenpeace concluded in a 2018 report.

"The scale of the problem is clearly not something the government wants to communicate to the Japanese people, and that's driving the whole issue of the return of evacuees," said Shaun Burnie, senior nuclear specialist with Greenpeace. "The idea that an industrial accident closes off an area of Japan, with its limited habitable land, for generations and longer — that would just remind the public why they are right to be opposed to nuclear power."

Today, Namie's former residents are scattered across all but one of Japan's 47 prefectures. Many live in the nearby town of Nihonmatsu, in comfortable but isolating apartment blocks where communal space and interaction are limited. With young people moving away, the elderly, who already feel the loss of Namie most acutely, find themselves even more alone.

A sign that reads "Do not enter" hangs along Route 6 in Tomioka near the Fukushima Daiichi Nuclear Power Plant. (Shiho Fukada for The Washington Post)

"People are losing the purposes of living. The more time that passes, they feel their dignity as human beings is lost," said Shigeru Sasaki, a former farmer from Namie.

"As a community, we were already suffering from an aging population," said Katsunobu Sakurai, former mayor of the nearby town of Minamisoma. "Now, the damage is more severe because young people are

not returning. The elderly who come back feel pessimism and depression. The biggest tragedy now is the high rate of suicides.”

Kazuhiro Yoshida, the embattled mayor of Namie, said fears about radiation are not the only reason people aren’t returning; many complain the deserted town lacks amenities.

He has managed to get a medical clinic reopened and hopes a supermarket will finally reopen despite the lack of residents. But an elder-care facility remains shuttered because the owner can barely find workers, he said.

“For the past eight years, we have seen the destruction of the area, the destruction of the community, and it will be difficult to bring people back,” he said. “But throughout history, we have been through many hardships. If we give up, we would lose our town, and as mayor, I will work with all my heart to prevent that.”

But many residents say the central government is being heavy-handed in its attempts to persuade people to return, failing to support residents’ efforts to build new communities in places like Nihonmatsu, and then ending compensation payments within a year of evacuation orders being lifted.

“We are upset. Everyone is upset,” said Sasaki, the former farmer.

In other towns around the nuclear plant, people have complained that arbitrarily decided compensation payouts — more for people deemed to have been in radiation-affected zones, far less for tsunami victims, nothing for people just a mile outside the zone most affected — have divided communities and caused resentment and friction.

The government is building and fortifying sea walls along hundreds of miles of the Pacific coast to prevent another tsunami from wreaking havoc, but some residents say they weren’t consulted and aren’t happy about being shut off from the sea.

“This is a place desperate to attract people to return, but this reduces our attractiveness for young people,” said Riken Komatsu in the fishing port of Onahama, who is working to rebuild a sense of community and raise awareness about problems with the reconstruction effort.

Komatsu says reconstruction has been imposed from above, a problem he says reflects, in a broader sense, what Japan is like.

“We are going through a second sense of loss because this is not the reconstruction we wanted,” he said.

Today, Honda’s home, ruined by the tsunami, has been bulldozed to make way for new houses. But none have been built.

“We were driven out of our community, and had it destroyed,” he said. “We asked the town and the prefecture to re-create a community for us, away from home, but we were not listened to.”

Akiko Kashiwagi contributed to this report.

February 5, 2019

## Promoting Fukushima food in Hong Kong

### **VOX POPULI: Hong Kongers knock back Fukushima sake, despite food ban**

<http://www.asahi.com/ajw/articles/AJ201902050032.html>

About five years ago, I saw a poster at a Japanese restaurant in Hong Kong that declared in large print, “Absolutely no rice or any other food from Fukushima, Japan, used here.”

The overly harsh tone made me sigh.

When I visited Hong Kong recently for the first time in many years, I was surprised by the popularity of sake from Fukushima Prefecture. Locals seemed to be thoroughly enjoying “Sharaku,” “Toroman” and other noted brands from the Aizu area in western Fukushima Prefecture.

People’s perceptions must be changing.

According to a Fukushima prefectural government official, 54 countries and regions around the world imposed restrictions on imports from the prefecture in the immediate aftermath of the 2011 earthquake and tsunami, which triggered the accident at the Fukushima No. 1 nuclear power plant.

**The number is down to 24 today, of which Hong Kong is still one.**

Last summer, the government of Hong Kong lifted restrictions on imports from Gunma, Ibaraki and two other prefectures around Fukushima. The last remaining restrictions are on vegetables, fruits and dairy products from Fukushima.

Fukushima Governor Masao Uchibori visited Hong Kong in late January.

Hong Kong was Fukushima’s top customer before the 2011 disaster. Eighty percent of the prefecture’s agricultural exports went there.

Uchibori strongly asserted the safety of Fukushima’s produce, but failed to obtain a commitment from the Hong Kong government to resume imports.

“(Hong Kong’s) perceptions about Fukushima (are unchanged), and anxieties, worries and concerns remain deep-rooted,” the governor noted.

He must have sensed that acutely from interacting with locals.

When I was stationed in Hong Kong in the past, even for a short while, I was aware of the high trust locals placed in Japanese food.

“It’s expensive, but safe,” I was told repeatedly.

Perhaps the lingering negative publicity surrounding Fukushima produce is the flip side of the absolute trust people used to have for many years.

Whether at home or abroad, it is hard to focus on a goal when fighting negative publicity. Still, I felt encouraged by how much Hong Kong citizens seemed to be enjoying Fukushima’s sake.

This time, I didn’t see a single poster proclaiming “absolutely no (Fukushima food).”

## **Letter from Amb. Murata about the Olympics**

Dear Friends,

The International Community is increasingly concerned about the Tokyo Olympic Games.

The February 3, 2019 edition of the *Washington Post* published an article about the present tragic situation in

The Tokyo Olympic Games cannot serve as a perfect cover-up for the present situation in Fukushima.

The February 1, 2019 edition of the *People’s Daily of China* carried an article on President Xi-Jinping’s meeting with

President Bach of the IOC in which the former repeatedly referred to the importance of integrity in making preparations for the Winter Olympic Games in Beijing. His concern seems to reflect the impact of the serious problems connected to the Tokyo Olympic Games, including the latest actions of the French prosecution office in investigating possible corruption. For this reason, President Xi’s remarks are considered opportune and important.

We notice mounting criticism regarding the hosting of baseball and softball games in Fukushima prefecture.

This criticism can no longer be ignored for obvious reasons.

The February 6, 2019 edition of *Sankei* newspaper reported that demonstrations had taken place in London protesting against Japan's restarting of commercial whaling and calling for a boycott of the Tokyo Olympic Games.

The IOC and the JOC should also bear in mind that the International Community has not forgiven the huge, immoral lies claiming the Fukushima Nuclear Accident was "under control" or that "July-August is ideal" for hosting the Olympic Games.

Please allow me to count on your understanding and support.

Mitsuhei Murata, Former Japanese Ambassador to Switzerland

February 24, 2019

## 8 years on

### **Eight years on, Fukushima Still Poses Health Risks for Japanese and American Children**

<http://akiomatsumura.com/?p=2525>

*Akio Matsumura*

#### **High Radiation Levels Continue at Damaged Reactors**

On March 11, 2019, we commemorate the 8th anniversary of the Fukushima nuclear disaster. To an outside observer, this anniversary passes as a technical progress report, a look at new robot, or a short story on how lives there are slowly returning to normal.



A child inspected in Fukushima prefecture, Japan

Yet in Japan, the government has not figured out how to touch or test the irradiated cores in the three crippled reactors, which continue to contaminate water around the site of the melt down. The government does not know where it will put that radioactive material once it can find a way to move it. Meanwhile, the government and site operator are running out of room to store the contaminated water, which is filling up more and more tanks. The cleanup is estimated to take forty years and the cost is estimated at \$195 billion.

The latest publicly released findings of radiation levels are from 2017, when Tokyo Electric Power Company had to use a remote-controlled robot to detect the levels in Reactor 2, since no human can approach the crippled reactor. The rates read 530 sieverts per hour, the highest since the March 2011 meltdown. We have no reason to believe that they have fallen since then. Remote-control robots are being used in the other reactors as well, indicating that radiation levels are similarly high there. Even using the robot, work can only be carried out for very short times, since the robots can only stand 1000 sieverts of exposure – less than two hours in this case.

This is an extremely high amount of radiation. After TEPCO published the rate, the *Asahi Shimbun* reported that “an official of the National Institute of Radiological Sciences said medical professionals have never considered dealing with this level of radiation in their work.”

The *Japan Times* quoted Dr. Fumiya Tanabe, an expert on nuclear safety, who said that the “findings show that both the preparation for and the actual decommissioning process at the plant will likely prove much more difficult than expected.”

### **Fukushima’s Children Need International Attention**

There have been many victims of this disaster. Thousands of people have been displaced from their homes. Local fishermen are worried that the government will proceed with its plan to dump the storage tanks of contaminated water into the ocean. Others worry that the flow of the radioactive wind and contaminated water are reaching North America and will continue to do so for the next forty years.



Above all of these important issues, it is the children of Fukushima who most need our attention. They are at risk of higher rates of cancer because of their exposure to the contamination from the initial explosion. In Chernobyl, the only comparable case we have, more than 6,000 cases of thyroid cancer were found in children according to the UN through 2005.

There is evidence that thyroid cancer rates are higher among Fukushima's children than the national population, but it is a latent disease: it is still too early to tell what the full impact will be. But it is clear the case needs action.

Scientists will always offer different opinions, swayed first by uncertainty, but also, sadly, by politics, money, and ambition. Some will claim that the evidence has been exaggerated, underestimated, or that perhaps we're at too early a stage to be certain. Or that we need more time to clarify the results. I have seen many instances of these arguments at the United Nations and international science conferences. Why do we wait and make another mistake?

Helen Caldicott, a medical doctor and founding president of Physicians for Social Responsibility, part of a larger umbrella group that was awarded the Nobel Peace Prize in 1985, wrote: "The truth is that most politicians, businessmen, engineers and nuclear physicists have no innate understanding of radiobiology and the way radiation induces cancer, congenital malformations and genetic diseases which are passed generation to generation. Nor do they recognize that children are 20 times more radiosensitive than adults, girls twice as vulnerable as little boys and fetuses much more so."

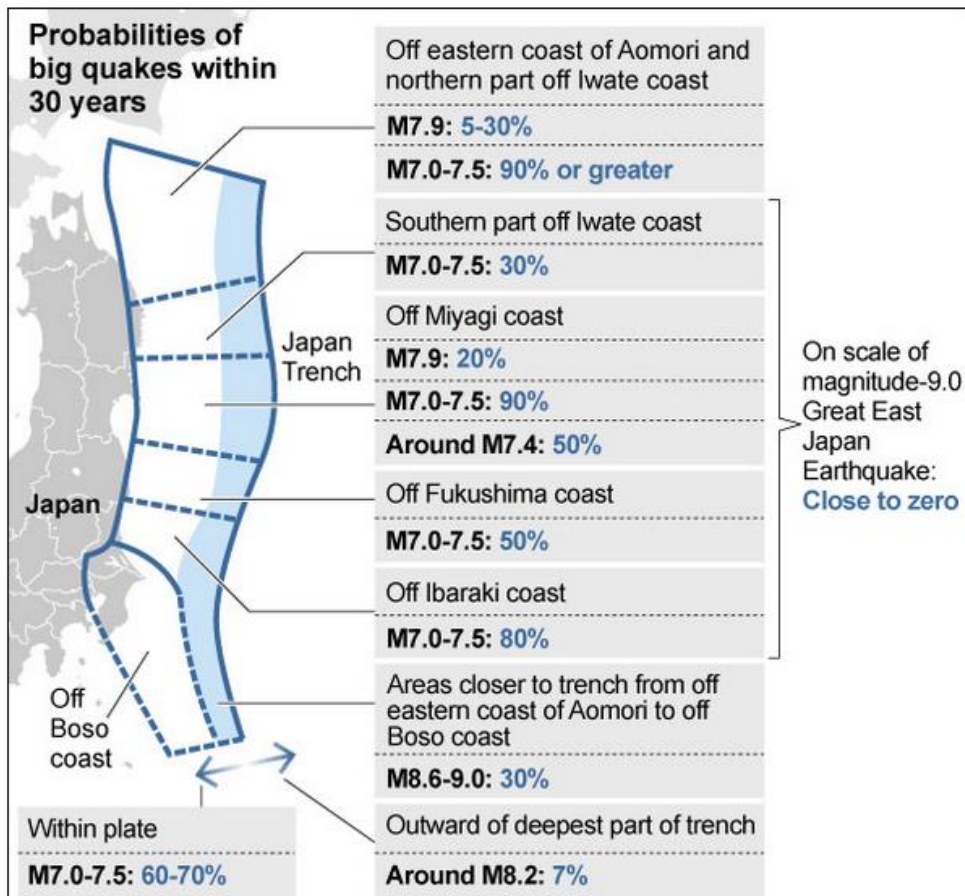
### **UNICEF Can Lead**

We face many complex challenges of climate change, poverty alleviation, and national security. The health and welfare of children must always be our top priority. They are our future; our deepest purpose is to care and provide for them. By deciding not to fully investigate the effects of Fukushima, we fail them. We all agree with that personally, but which institution is best positioned to carry out the mission? To me, UNICEF, the UN International Children's Emergency Fund, is the only answer. Indeed, putting children above national security is at UNICEF's core. Maurice Pate, an American humanitarian and businessman who joined UNICEF at its inception in 1947, agreed to serve as the Executive Director upon the condition that UNICEF serves the children of "ex-enemy countries, regardless of race or politics." In 1965, at the end of Pate's term, the organization won the Nobel Peace Prize.

To this day, its mission includes a commitment to "ensuring special protection for the most disadvantaged children – victims of war, disasters, extreme poverty, all forms of violence and exploitation and those with disabilities." The children of Fukushima deserve the protection of UNICEF.

February 27, 2019

## **High probability of magnitude 7 or more earthquake striking off Tohoku coast**



## High probability of magnitude-7.0 earthquake off Tohoku coast

<http://www.asahi.com/ajw/rarticles/AJ201902270037.html>

By MAIKO KOBAYASHI/ Staff Writer

Given that the Great East Japan Earthquake struck just eight years ago, the probability of another temblor of that scale hitting the Tohoku region anytime soon is close to nil.

But that still leaves room for earthquakes of magnitude-7.0 or greater jolting the northeastern part of the main Honshu island, according to the latest assessment by the Headquarters for Earthquake Research Promotion.

The Feb. 26 announcement covered probabilities for undersea quakes striking within 30 years along the Japan Trench that stretches east of Honshu from the northernmost prefecture of Aomori all the way south to off the Boso coast of Chiba Prefecture.

The last time similar probabilities for a quake in those areas was released was in November 2011.

The new assessment was based on subsequent seismic activity, crust movements and data from sediment produced by past tsunami.

The panel said the probability of another magnitude-9.0 temblor like the Great East Japan Earthquake striking the region was "close to zero."

That earthquake, which hit on March 11, 2011, affected a wide area extending from the southern part of coastal Iwate Prefecture to off the coast of Ibaraki Prefecture, producing towering tsunami that devastated the Tohoku region and claimed close to 16,000 lives. Those two events also triggered the disaster at the Fukushima No. 1 nuclear power plant.

The latest assessment said there was a 90 percent probability of a magnitude-7.0 scale earthquake striking off the coast of Miyagi Prefecture. Temblors of that scale could still cause considerable damage, and experts urged no let-up in caution.

With regard to the probability of earthquakes of magnitude-7.0 or greater, the area off the coast of eastern Aomori Prefecture to the northern part of Iwate Prefecture was considered at high risk. That region was said to have a probability of 90 percent or greater. It said there was an 80 percent probability that a magnitude-7.0 or greater quake would hit off the coast of Ibaraki Prefecture.

The area off the Miyagi coast closer to the shore was given a probability of 50 percent. In the past, scientists said they were unsure of the probability for that area. They noted that recent observations of crust movements led them to believe the region had entered the next cycle for a possible quake.

Past quakes in the region that had magnitudes of at least 7.0 triggered tsunami that were often dozens of centimeters in height. While such tsunami are much smaller than those triggered by quakes of magnitude-9.0, which can rise to more than 10 meters, or of magnitude-8.0, which can lead to tsunami of several meters, there is still the possibility that people along the coast could be swept away.

In 1978, an undersea earthquake of magnitude 7.4 struck off Miyagi Prefecture, causing the collapse of concrete walls and other damage that killed 28 people. It led to a review of safety standards for such concrete block walls.

Naoshi Hirata, chairman of the headquarters' Earthquake Research Committee, said, "There is a high probability of a magnitude-8.0 or -7.0 quake hitting the Pacific coast of the Tohoku region. People need to prepare for strong shaking or tsunami."

February 28, 2019

## **Risk of thyroid cancer in Fukushima 15 times higher than normal**



Artikel von Dr. Alex Rosen

## **15-faches Risiko für Schilddrüsenkrebs**

[https://www.ipnw.de/no\\_cache/atomenergie/gesundheit/artikel/de/15-faches-risiko-fuer-schilddruesenk.html#c11062](https://www.ipnw.de/no_cache/atomenergie/gesundheit/artikel/de/15-faches-risiko-fuer-schilddruesenk.html#c11062)

### 8 Jahre Fukushima

Zum achten Mal jährt sich diesen März die Atomkatastrophe von Fukushima. Kinder, die im Jahr der Kernschmelzen zur Welt kamen, besuchen heute die Grundschule, während viele der Kinder und Jugendlichen, die damals radioaktives Jod einatmeten oder mit der Nahrung aufnahmen, mittlerweile junge Erwachsene sind. Es ist viel Zeit vergangen seit den bewegenden Bildern der Explosionen in den Atomreaktoren von Fukushima Dai-ichi im März 2011. Das Thema ist größtenteils aus dem öffentlichen Bewusstsein verschwunden und in Japan mehren sich die Stimmen, die die Ereignisse von damals und ihre Folgen verdrängen wollen. Doch die Atomkatastrophe dauert an.

Weiterhin dringt Tag für Tag radioaktiv kontaminiertes Wasser von den havarierten Reaktorgebäuden in den Ozean und ins Grundwasser. Erst kürzlich musste die Betreiberfirma TEPCO zugeben, die Regierung

und die Öffentlichkeit jahrelang über den Zustand des auf dem Gelände gelagerten kontaminierten Wassers getäuscht zu haben. Entgegen Beteuerungen des Unternehmens, dass dieses nur noch den radioaktiven Stoff Tritium enthalte, stellten die japanischen Behörden fest, dass rund 750.000 der insgesamt etwa 890.000 Tonnen Wasser die staatlichen Strahlengrenzwerte um mehr als das hundertfache übersteigen und auch hohe Konzentration an gefährlichen Radioisotopen wie Strontium-90 enthalten. In manchen Proben stellten die Behörden Strontium-90 Konzentrationen fest, die die staatlichen Grenzwerte um das 20.000 fache überstiegen. Erst kurz zuvor hatte TEPCO noch Pläne veröffentlicht, das kontaminierte Wasser in den Pazifik entsorgen zu wollen. Die neuesten Enthüllungen haben diesem Vorhaben erst einmal einen Riegel vorgeschoben.

Gleichzeitig wurden mittlerweile ganze Dörfer und Stadtteile in mühevoller Kleinarbeit vom radioaktiven Niederschlag befreit. Die unwegsamen Wald- und Gebirgsregionen Nordostjapans stellen jedoch ein unkontrollierbares Reservoir an radioaktiven Partikeln dar. Jedes Unwetter, jede Überflutung, jeder Waldbrand und jeder Pollenflug kann bereits dekontaminierte Landstriche wieder mit Cäsium-137 überziehen. So weisen zahlreiche Ortschaften, die nach den Vorstellungen der atomfreundlichen japanischen Regierung längst wieder besiedelt werden sollten, weiterhin erhöhte Strahlenwerte auf. Die Menschen kehren daher auch nicht zurück. Mehr als 50.000 der ursprünglich rund 200.000 Vertriebenen leben auch heute, acht Jahre nach Beginn der Katastrophe, weiterhin in Flüchtlingsheimen und Behelfsunterkünften. Jetzt sollen ihnen die staatlichen Unterstützungen gestrichen werden. So glaubt die Regierung, eine rasche Rückkehr der Menschen forcieren zu können. Der Menschenrechtsausschuss der UN sah sich bereits gezwungen, sich mit der Situation der Vertriebenen aus Fukushima zu befassen.

### **166 bestätigte Krebsfälle, 38 Kinder warten noch auf OP**

Dass Strahlung krank macht, ist nirgendwo so anschaulich zu beobachten wie bei den steigenden Fällen von Schilddrüsenkrebs. Seit 2011 werden bei Menschen in der Präfektur Fukushima, die zum Zeitpunkt der Kernschmelzen unter 18 Jahre alt waren, alle zwei Jahre die Schilddrüsen untersucht. Von 2011 bis 2014 erfolgte die erste Untersuchungsreihe, von 2014 bis 2016 die zweite, von 2016 bis 2018 die dritte und seit 2018 die vierte. Während die Datenaufarbeitung der ersten Runde bereits vollständig abgeschlossen ist, sind die Daten der zweiten, dritten und vor allem der vierten Untersuchungsrunde bislang noch unvollständig. Dennoch lassen sich aus den derzeit vorliegenden Untersuchungsergebnissen bereits erste Schlüsse ziehen. Ursprünglich begonnen, um die Sorgen der Bevölkerung über gesundheitliche Folgen der Atomkatastrophe zu zerstreuen, haben die Untersuchungen mittlerweile besorgniserregende Ergebnisse zu Tage gefördert.

Laut der Datenbank des Japanischen Krebsregisters betrug die Neuerkrankungsrate (Inzidenz) von kindlichem Schilddrüsenkrebs in Japan vor der Atomkatastrophe rund 0,35 pro 100.000 Kinder pro Jahr. Bei einer pädiatrischen Bevölkerung von rund 360.000 wären in der Präfektur Fukushima somit ca. eine einzige Neuerkrankung pro Jahr zu erwarten gewesen, also etwa 8 Neuerkrankungen seit Beginn der Atomkatastrophe im März 2011.

Tatsächlich sind seitdem bei mittlerweile 205 Kindern in der Feinnadelbiopsie Krebszellen gefunden worden. 167 dieser Kinder mussten aufgrund eines rasanten Tumorwachstums, einer ausgeprägten Metastasierung oder einer Gefährdung vitaler Organe mittlerweile operiert werden. In 166 Fällen bestätigte sich die feingewebliche Verdachtsdiagnose „Schilddrüsenkarzinom“, in nur einem Fall lag ein

gutartiger Tumor vor. 38 Kinder warten weiterhin auf eine Operation. Diese Zahlen basieren auf den aktuellsten Veröffentlichungen der Fukushima Medical University (FMU) vom 27. Dezember 2018 und umfassen alle Untersuchungsergebnisse, die bis Ende September 2018 erhoben wurden.

Die FMU teilte in ihrer aktuellen Veröffentlichung zudem mit, dass von mittlerweile 217.513 vollständig untersuchten Kindern (64,6% der gesamten Studienpopulation von 336.669 Betroffenen) bei 141.275 Kindern (65%) Knoten oder Zysten in der Schilddrüse gefunden wurden. Besorgniserregend ist dabei vor allem die Zahl der Pathologien, die bei Kindern gefunden wurden, welche in den Voruntersuchungen noch keine Auffälligkeiten hatten: bei 22.108 Kindern (10%) wurden in der dritten Untersuchungsrunde Zysten und Knoten entdeckt, die in der zweiten Runde noch nicht sichtbar gewesen waren. Bei 135 von ihnen waren die Knoten über 5 mm groß, bzw. die Zysten über 20 mm, so dass weiterführende Untersuchungen notwendig waren. Zusätzlich kam es bei 557 der Kinder, die in der zweiten Untersuchungsrunde noch kleine Knoten oder Zysten hatten, zu einem so starken Wachstum, dass ebenfalls weiterführende Diagnostik durchgeführt werden musste.

Bei insgesamt 54 der Kinder mit auffälligen Befunden wurden in der dritten Untersuchungsrunde Feinnadelbiopsien durchgeführt. Bei 18 ergab sich in der feingeweblichen Aufarbeitung ein Krebsverdacht. 13 dieser Kinder wurden bislang operiert, in allen Fällen bestätigte sich die Verdachtsdiagnose eines Schilddrüsenkarzinoms.

Somit sind seit dem letzten Jahr in der dritten Untersuchungsrunde 5 bestätigte Krebsfälle und 6 weitere Verdachtsfälle hinzugekommen. Etwa 35% der Daten aus der dritten Untersuchungsrunde steht aktuell noch aus, so dass abschließende Bewertungen noch nicht durchgeführt werden können.

### **Ein Screeningeffekt?**

Von Seiten der Atomlobby wird immer wieder versucht, die hohe Zahl an Schilddrüsenkrebsfällen in Fukushima auf den sogenannten Screeningeffekt zu schieben. Dieses Argument mag für die 101 Schilddrüsenkrebsfälle der Erstuntersuchung noch durchgegangen sein, bei den Folgeuntersuchungen der 2. und 3. Runde ist es jedoch nicht mehr legitim. Die Krebsfälle, die hier detektiert werden, müssen seit der letzten Untersuchung neu aufgetreten sein. Betrachtet man ausschließlich die Schilddrüsenkrebsfälle, die in der 2. und 3. Untersuchungsrunde diagnostiziert wurden, kommt man auf eine Gesamtzahl von bislang 65 neu aufgetretene Schilddrüsenkrebsfälle (52 Fälle in der 2. und 13 Fälle in der 3. Runde). Dies entspricht bei einer untersuchten Studienpopulation von rund 270.000 Kindern und einem Zeitraum von 4,5 Jahren (April 2014-September 2018) einer jährlichen Inzidenz von ca. 5,3 neu aufgetretenen Fällen von Schilddrüsenkrebs pro 100.000 Menschen, die zum Zeitpunkt des Super-GAU unter 18 Jahren waren. Wie oben bereits erläutert, beträgt die übliche Inzidenz dieser Krebsart in Japan 0,35 Fälle pro 100.000. Wir sprechen also in der Präfektur Fukushima von einer Neuerkrankungsrate (Inzidenz), die mehr als 15-fach über der japanischen Norm liegt. Man kann sagen: Menschen, die als Kinder in Fukushima waren als sich der Super-GAU ereignete, haben ein mindestens 15-faches Risiko, an Schilddrüsenkrebs zu erkranken. Dieses Ergebnis ist höchst signifikant und lässt sich aufgrund der eindeutigen Voruntersuchungen aller Patient\*innen nicht durch einen Screeningeffekt erklären oder relativieren.

Gleichzeitig muss berücksichtigt werden, dass mehr als 87.000 Kinder der ursprünglichen

Studienpopulation nicht mehr nachuntersucht werden, ein Drittel der Daten der 3. Untersuchungsrunde noch ausstehen und alle Krebsfälle, die außerhalb der offiziellen Krankenhäuser diagnostiziert und behandelt werden, gar nicht in der Statistik aufgeführt werden, so dass die Dunkelziffer deutlich höher liegen dürfte.

### **Schilddrüsenkrebs - eine Bagatellerkrankung?**

Angesichts dieser besorgniserregenden Entwicklungen muss daran erinnert werden, dass Schilddrüsenkrebs trotz relativ guter Behandlungsmöglichkeiten und entgegen der Behauptungen der Atomlobby keine Bagatellerkrankung ist und mit schwerwiegenden Einschränkungen der Lebensqualität und der Gesundheit einhergehen kann. Die Operation der Schilddrüse hat bedeutende Risiken, und die Patient\*innen müssen lebenslang Medikamente einnehmen, sich regelmäßig für Blutuntersuchungen bei Ärzt\*innen vorstellen und leben ständig mit den Angst vor einem Rezidiv. Laut einer Studie der japanischen Stiftung für Kinder mit Schilddrüsenkrebs hatten bereits knapp 10% der operierten Schilddrüsenkrebspatient\*innen Rezidive, also neue Krebsgeschwüre, die erneut operativ entfernt werden mussten: bei 8 von 84 betreuten Kindern aus der Präfektur Fukushima kam der Krebs innerhalb weniger Jahre wieder.

### **Geographische Verteilung der Schilddrüsenkrebsfälle**

Bereits letztes Jahr hatten wir darauf hingewiesen, dass sich die Verteilung der Schilddrüsenkrebsfälle bei Kindern mit dem Grad an Kontamination mit radioaktivem Jod-131 in den unterschiedlichen Regionen der Präfektur deckt (siehe [www.ippnw.de/commonFiles/pdfs/Atomenergie/Fukushima/SD\\_Artikel\\_Fukushima\\_Maerz\\_2018.pdf](http://www.ippnw.de/commonFiles/pdfs/Atomenergie/Fukushima/SD_Artikel_Fukushima_Maerz_2018.pdf)). Am niedrigsten war die Inzidenz von krebsverdächtigen Biopsiebefunden mit 7,7 Fällen pro 100.000 Kindern pro Jahr in der am wenigsten radioaktiv verseuchten Region Aizu. Mit einer Inzidenz von 9,9 Fällen pro 100.000 Kindern pro Jahr lag an zweiter Stelle der Teil von Hamadori, der ebenfalls nur eine geringe radioaktive Verseuchung aufweist. Höher war die Inzidenz in der stärker radioaktiv verseuchten Region Nakadori (13,4 Fälle pro 100.000 Kindern pro Jahr) und am höchsten in den 13 am stärksten verseuchten Ortschaften rund um das AKW (21,4 Fälle pro 100.000 Kindern pro Jahr). Diese Inzidenzen dieser Studie beziehen sich nicht ausschließlich auf operativ bestätigte Fälle sondern schließen auch die Verdachtsfälle in der Biopsie mit ein und liegen daher höher als die oben aufgeführten Inzidenzen.

### **Versuche, die Schilddrüsenkrebsstudie zu entwerten**

Den Verantwortlichen der FMU scheinen diese Daten unangenehm zu sein, widersprechen sie doch der seit Beginn der Atomkatastrophe verbreiteten These, dass der mehrfache Super-GAU zu keinen zusätzlichen Krebserkrankungen führen würde. Die FMU steht seit Beginn der Atomkatastrophe unter großem politischen Druck von Seiten der atomfreundlichen Regierung in Tokio und der mächtigen Atomindustrie im Land. Auch erhält sie finanzielle und logistische Unterstützung der internationalen Atomlobby in Form der IAEO. All dies stellt die wissenschaftliche Unabhängigkeit der FMU in Frage.

Bereits letztes Jahr hatten wir darauf hingewiesen, dass die Schilddrüsenuntersuchungen seit längerem durch die FMU selber unterminiert werden. So sollen die Untersuchungsintervalle entgegen ursprünglicher Pläne und Ankündigungen ab dem 25. Lebensjahr von 2 auf 5 Jahre ausgeweitet werden.

Zudem wurde bekannt, dass Mitarbeiter\*innen der FMU Schulen besuchen, um dort Kinder über deren „Recht auf Nichtteilnahme“ und „Recht auf Nichtwissen“ aufzuklären. Neuerdings gibt es auf den Formularen auch eine entsprechende „opt-out“ Option, also eine Möglichkeit, aus dem Screening entfernt zu werden. Dies ist bemerkenswert, da die Teilnahme ja ohnehin freiwillig ist und bereits jetzt 20-30% der Kinder aus der Untersuchungskohorte nicht an den Untersuchungen teilnehmen. Kritisch wird auch gesehen, dass die Kosten für die Untersuchungen ab Erreichen des 18. Lebensjahres nicht erstattet, sondern von den Patienten und deren Familien selbst erbracht werden müssen. Es ist zu vermuten, dass die Bemühungen der FMU darauf abzielen, die Teilnahmequote weiter zu reduzieren und durch eine systematische Verzerrung der Testergebnisse langfristig die gesamte Studie zu entwerten – eine Konsequenz, die der japanischen Atomindustrie nicht gerade unlieb sein dürfte.

Auch muss erneut darauf hingewiesen werden, dass die Zahlen der FMU lediglich einen Teil der tatsächlichen Krankheitslast abbilden. Strahlenbedingte Erkrankungen jenseits des Schilddrüsenkarzinoms werden ebenso wenig erfasst wie Erkrankungen bei Patient\*innen, die zum Zeitpunkt der Kernschmelzen älter waren als 18 Jahre, die außerhalb der Grenzen der Präfektur gemeldet waren oder die seither umgezogen sind oder sich aus eigenen Beweggründen nicht an den Erhebungen beteiligt haben. Ein weiterer Umstand, der zeigt, wie die offizielle Statistik manipuliert wird, ist das Herausrechnen von Schilddrüsenkrebsfällen die an Krankenhäusern diagnostiziert wurden, die nicht der FMU angehören. Anfang 2017 ging die Familie eines an Schilddrüsenkrebs erkrankten Kindes an die Öffentlichkeit und monierte, dass der Fall ihres Kindes in den offiziellen Daten der FMU nicht auftauchte. Die Studienleitung argumentierte, dass die Diagnose des Kindes nicht durch sie gestellt worden war, sondern durch eine kooperierende Klinik, an die der Junge zur weiteren Diagnostik und Therapie überwiesen wurde. Dass der Junge zum Zeitpunkt der Kernschmelzen in Fukushima gelebt hatte, in die Reihenuntersuchung der FMU aufgenommen war und aufgrund einer neu diagnostizierten Schilddrüsenkrebskrankung operiert werden musste, wurde von der Studienleitung dabei nicht für relevant gehalten.

Ende Dezember 2017 wurde ein weiterer Fall von Schilddrüsenkrebs bekannt, der in den offiziellen Statistiken der FMU nicht vorkommt. Der Patient lebte zwar zur Zeit der Kernschmelzen in der Präfektur Fukushima und nahm an der Erstuntersuchung der Universität statt, wurde jedoch aus seiner Heimatstadt Koriyama evakuiert, so dass die Diagnosestellung und die Operation außerhalb der Präfektur stattfanden und somit nicht in die offizielle Statistik aufgenommen wurde.

Wie viele weitere Fälle von Schilddrüsenkrebs bei Kindern ebenfalls nicht berichtet wurden, wie viele Fälle außerhalb der Grenzen der Präfektur auftraten oder bei Menschen, die zum Zeitpunkt der Kernschmelzen bereits über 18 Jahre alt waren - all das wird wissenschaftlich nicht untersucht und damit vermutlich nie bekannt werden.

### **Das Recht auf Gesundheit**

Wir sehen in Fukushima einen signifikanten Anstieg der Neuerkrankungsraten von Schilddrüsenkrebs bei Kindern und diese Zahlen dürften aufgrund der besonderen Abhängigkeit der Studienleitung von der Atomlobby und der restriktiven Auslegung der Studie gleichzeitig eine systematische Unterschätzung darstellen.



Zudem wird auch mit einem Anstieg weiterer Krebsarten und anderer Erkrankungen gerechnet, die durch ionisierte Strahlung ausgelöst oder negativ beeinflusst werden. Die Schilddrüsenuntersuchungen der FMU stellen die einzigen wissenschaftlichen Reihenuntersuchungen dar, die überhaupt relevante Aufschlüsse über die gesundheitlichen Folgen der Atomkatastrophe von Fukushima liefern können. Und sie laufen derzeit Gefahr, von den Befürwortern der Atomenergie unterminiert zu werden.

Die Bewohner von Fukushima und die Menschen in Japan haben ein unveräußerliches Recht auf Gesundheit und auf ein Leben in einer gesunden Umwelt. Die Untersuchungen kindlicher Schilddrüsen kommt dabei nicht nur den Patient\*innen selber zu Gute, deren Krebserkrankungen frühzeitig detektiert und behandelt werden können, sondern der gesamten Bevölkerung, die durch die freigesetzte Strahlung beeinträchtigt wird. Die korrekte Fortführung und wissenschaftliche Begleitung der Schilddrüsenuntersuchungen liegen somit im öffentlichen Interesse und dürfen nicht durch politische oder wirtschaftliche Beweggründe konterkariert werden.

*Dr. med. Alex Rosen*  
*Vorsitzender der IPPNW*

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Foto: Ayotos Mutter sammelt alle Unterlagen über Untersuchungen und Strahlenbelastung ihres Sohnes,  
Foto: Ian Thomas Ash

March 3, 2018

**Trying to revive fisheries**



## **THE MARCH 11 DISASTER 7 YEARS ON REVIVING THE FISHERIES**

<https://www3.nhk.or.jp/nhkworld/en/special/episode/201903030810/>

7 years ago, a huge earthquake hit the Tohoku region of northeastern Japan. The fishery industry sustained heavy damage from the quake and the tsunami that followed. Reactor meltdowns at the Fukushima Daiichi Nuclear Power Plant led to the spread of radiation. People became nervous about the safety of seafood. We followed the 7-year-long journey of the locals striving to overcome various challenges, including a fisherman trying to regain consumers' trust and business owners trying to expand overseas.

## Simply Info.org 2019 report on Fukushima

# 2019 Annual Report

Fukushima 8th Anniversary



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March 7, 2019

## Contaminated water and so many challenges



Nearly 1,000 water tanks are scattered across the grounds of the Fukushima No. 1 power plant. Some are over 10 meters tall, hold 1,000 to 1,200 tons and take seven to 10 days to fill. | POOL / VIA TOKYO PRESS PHOTOGRAPHERS ASSOCIATION

### **Eight years after triple nuclear meltdown, Fukushima No. 1's water woes show no signs of ebbing**

<https://www.japantimes.co.jp/news/2019/03/07/national/eight-years-triple-meltdown-fukushima-no-1s-water-woes-slow-recede/#.XIjRLjjLyQ>

by Ryusei Takahashi

Staff Writer

This is the first in a series examining how the northeast and the nation are progressing with efforts to deal with the March 2011 earthquake, tsunami and nuclear crisis.

OKUMA, FUKUSHIMA PREF. - Nearly a thousand storage tanks are scattered across the Fukushima No. 1 nuclear power plant, holding a staggering 1.1 million tons of treated water used to keep its melted reactor cores cool while they rust in the sun.

Plant manager Tokyo Electric Power Company Holdings Inc., or Tepco, plans to build more of the gigantic tanks to hold another 0.27 million tons, which is roughly the equivalent of 108 Olympic-size swimming pools. The new tanks are expected reach full capacity in four or five years.

Each tank takes seven to 10 days to fill and holds between 1,000 to 1,200 tons of liquid, Tepco officials told reporters during a tour in February organized by the Japan National Press Club. It's been eight years since Fukushima No. 1 suffered three core meltdowns triggered by tsunami following the Great East Japan Earthquake, but the situation with the tanks may be a sign Tepco has yet to get the facility under control. "Space isn't a big issue at this point in time, but five or 10 years from now, after we've started removing the melted fuel debris, we're going to need facilities to store and preserve it," Akira Ono, president of Fukushima No. 1 Decontamination and Decommissioning Engineering Co., a Tepco unit overseeing the decommissioning process, said at a news conference in January.

**The water issue is eating up both space and resources,** but a solution is unlikely to emerge anytime soon. The International Atomic Energy Agency published a report in November that said the physical constraints of the site "leave little room for additional tanks" beyond what Tepco has allocated. The IAEA report went on to say it believes storing tainted water in "above ground tanks . . . can only be a temporary measure while a more sustainable solution is needed" and a "decision on the disposition path should be taken urgently."

Beyond 2020, Tepco has not allocated any additional space for holding treated water on the site and has no plans to do so at this time. The utility said the tanks will likely become a headache if they remain at the plant.

"At that point, we may need to rethink how we're using the space," Ono said.

Eight years ago when the monstrous tsunami hit, the entire plant lost power and reactors 1, 2 and 3 lost coolant, causing their cores to overheat. The fuel rods consequently melted, dripping molten fuel that burned through their pressure vessels and pooled in their primary containment vessels. Reactors 1, 3 and 4 then suffered hydrogen explosions.

Tepco must inject water into the reactors indefinitely to keep the melted cores cool, but water tainted by contact with the fuel and associated debris has been leaking from the damaged containment vessels and into the basements of the reactor buildings, where tons of fresh groundwater flows in daily through holes in their damaged walls.

The contaminated water is pumped out and passed through a filtration device called the Advanced Liquid Processing System — which is supposed to remove every radionuclide except for tritium — and stored in the tanks.

Tepco has taken steps to limit the amount of groundwater seeping into the reactor buildings, including wells to intercept and divert it and an underground ice wall around the buildings to block any inflow. According to Tepco, however, about 83 tons of water are seeping into the reactor buildings each day. Although this is an improvement from some 300 tons in previous years, Tepco must keep making more tanks.

At the moment, Tepco is waiting for a government panel's advice on what to do with the tritium-tainted water. The panel is considering five disposal methods: ground injection, sea discharge after diluting the tritium concentration, discharging it as steam, discharging it as hydrogen, and solidification followed by underground burial.

Tritium is a radioactive form of hydrogen that forms naturally and is a common byproduct of nuclear reactors. In large quantities, exposure can be dangerous, especially if ingested or inhaled. Processed adequately, however, tritium is believed to pose little to no health risk. For instance, tritium is present in

regular tap water, but no ill effects have been confirmed, according to the Ministry of Economy, Trade and Industry.

Discharging treated tritium water into the ocean is a common practice at nuclear power plants around the world.

Thus some experts, including Toyoshi Fuketa, who heads the Nuclear Regulation Authority, think this is the best option for Fukushima.

“Prolonging the storage of water in those tanks will make decommissioning the power plant that much more difficult for Tepco. Limited resources are being used to use these tanks as storage, not just money but other resources as well,” Fuketa said at a news conference in September.

“The longer we store the water, the greater the influence it will have on the decommissioning of the Fukushima No. 1 power plant.”

But there are concerns about the impact an ocean discharge may have on fisheries still trying to recover from the nuclear crisis.

Fishing in the area has resumed on a trial basis and workers still perform radiation checks before shipping their hauls to fish markets. The waters off Fukushima Prefecture are at the confluence of two ocean currents — the Oyashio from the north and Kuroshio from the south — which make for the good fishing grounds that have been a vital part of the agrarian prefecture’s economy.

Eight years after the meltdowns, however, residents are still struggling to convince the world that fish from the area are safe to eat. Many believe public perception alone will cripple Fukushima’s fishing industry anew if the tainted water is expelled into the ocean — even if the tritium has been reduced to below international standards.

Trust issues continue to plague Tepco after it claimed ALPS was filtering every radionuclide from the cooling water except tritium. Last August it came to light that the allegedly treated water still contained other dangerous contaminants, including iodine, cesium and strontium. Some of the concentrations were above current safety limits.

This has further angered Fukushima residents and made it harder to get their approval for dumping the water held by the tanks into the sea.

During a public hearing hosted by METI in August, participants urged the government and Tepco to consider finding an off-site location to store the water instead of discharging it into the ocean.

“Without a national debate and without the understanding of Japanese citizens or the countries importing our products, as a fisherman of Fukushima Prefecture, I strongly oppose the plan to discharge the treated water into the ocean,” Tetsu Nozaki, chairman of the Fukushima Prefectural Federation of Fisheries Cooperative Association, told the hearing.

“To release the ALPS-treated water into the ocean, at this time, would deal a disastrous blow to the fishermen of Fukushima and rob them of their hard work and motivation,” he said.

Thierry Charles, deputy director-general in charge of nuclear safety at the Radioprotection and Nuclear Safety Institute in France, admitted it is a difficult problem to address, given the volume of water concerned and the tritium content.

Charles believes a controlled release into the ocean would be viable “under conditions to be defined.”

“In this respect, the societal acceptance of this solution should be based on the broad involvement of all stakeholders at the various stages of the process, by explaining the different options studied,” he told *The Japan Times*.

Meanwhile, the crippled plant faces other serious challenges — including how to extract the molten fuel. “How we remove the melted fuel debris from the reactors. That’s the most important point. . . . The water tanks are not a big problem,” said Hiroshi Miyano, a professor at Hosei University’s Graduate School of

Engineering and Design and chair of the decommissioning committee of the Atomic Energy Society of Japan.

In February, Tepco inserted a remote-controlled probe into reactor 2 to make contact with material inside the containment vessel believed to be melted fuel. The machine — equipped with a camera, thermometer and dosimeter — was designed to poke and gently lift sediment to test its physical properties.

This was the first time a machine had touched melted fuel debris inside any of the crippled reactors at Fukushima No. 1.

The removal process at the plant is slated to begin in 2021. Before that part begins, though, research from the site will be used to make various remote-controlled probes capable of navigating the unique scenarios in each unit. Reactor 3, for example, remains largely submerged and requires an aquatic probe.

Miyano said Tepco and the government — with the help of scientists, nuclear physicists and engineers from around the world — are inventing new technologies as they devise a way to remove the debris.

He added that no country has ever attempted to use remote-controlled robots to remove melted fuel from the inside of a crippled nuclear reactor.

“This is the first time, so there will be many challenges.”

March 8, 2017

## Fukushima's water woes

### 8 years on, water woes threaten Fukushima cleanup

<http://www.asahi.com/ajw/articles/AJ201903080035.html>

REUTERS

OKUMA, Fukushima Prefecture--Eight years after the Fukushima nuclear crisis, a fresh obstacle threatens to undermine the massive clean-up: 1 million tons of contaminated water must be stored, possibly for years, at the power plant.

Last year, Tokyo Electric Power Co said a system meant to purify contaminated water had failed to remove dangerous radioactive contaminants.

That means most of that water--stored in 1,000 tanks around the plant--will need to be reprocessed before it is released into the ocean, the most likely scenario for disposal.

Reprocessing could take nearly two years and divert personnel and energy from dismantling the tsunami-wrecked reactors, a project that will take up to 40 years.

It is unclear how much that would delay decommissioning. But any delay could be pricey; the government estimated in 2016 that the total cost of plant dismantling, decontamination of affected areas and compensation, would amount to 21.5 trillion yen (\$192.5 billion), roughly 20 percent of the country's annual budget.

TEPCO is already running out of space to store treated water. And should another big quake strike, experts say tanks could crack, unleashing tainted liquid and washing highly radioactive debris into the ocean.

Fishermen struggling to win back the confidence of consumers are vehemently opposed to releasing reprocessed water--deemed largely harmless by Japan's nuclear watchdog, the Nuclear Regulation Authority (NRA)--into the ocean.

"That would destroy what we've been building over the past eight years," said Tetsu Nozaki, head of the Fukushima Prefectural Federation of Fisheries Co-operative Associations. Last year's catch was just 15 percent of pre-crisis levels, partly because of consumer reluctance to eat fish caught off Fukushima.

### **SLOW PROGRESS**

On a visit to the wrecked Fukushima No. 1 nuclear power plant last month, huge cranes hovered over the four reactor buildings that hug the coast. Workers could be seen atop the No. 3 building getting equipment ready to lift spent fuel rods out of a storage pool, a process that could start next month.

In most areas around the plant, workers no longer need to wear face masks and full body suits to protect against radiation. Only the reactor buildings or other restricted areas require special equipment.

Fanning out across the plant's property are enough tanks to fill 400 Olympic-sized swimming pools.

Machines called Advanced Liquid Processing Systems, or ALPS, had treated the water inside them.

TEPCO said the equipment could remove all radionuclides except tritium, a relatively harmless hydrogen isotope that is hard to separate from water. Tritium-laced water is released into the environment at nuclear sites around the world.

But after newspaper reports last year questioned the effectiveness of ALPS-processed water, TEPCO acknowledged that strontium-90 and other radioactive elements remained in many of the tanks.

TEPCO said the problems occurred because absorbent materials in the equipment had not been changed frequently enough.

The utility has promised to re-purify the water if the government decides that releasing it into the ocean is the best solution. It is the cheapest of five options a government task force considered in 2016; others included evaporation and burial.

TEPCO and the government are now waiting for another panel of experts to issue recommendations. The head of the panel declined an interview request. No deadline has been set.

NRA chief Toyoshi Fuketa believes ocean release after dilution is the only feasible way to handle the water problem. He has warned that postponing the decision indefinitely could derail the decommissioning project.

### **STORING INDEFINITELY**

Another option is to store the water for decades in enormous tanks normally used for crude oil. The tanks have been tested for durability, said Yasuro Kawai, a plant engineer and a member of Citizens' Commission on Nuclear Energy, a group advocating abandoning nuclear energy.

Each tank holds 100,000 tons, so 10 such tanks could store the roughly 1 million tons of water processed by ALPS so far, he said.

The commission proposes holding the tritium-laced water, which has a half life of 12.3 years, in tanks for 123 years. After that, it will be one thousandth as radioactive as it was when it went into storage.

Although experts caution that tanks would be vulnerable to major quakes, Japan's trade and industry minister, Hiroshige Seko, said the committee would consider them anyway.

"Long-term storage ... has an upside as radiation levels come down while it is in storage. But there is a risk of leakage," Seko told Reuters. "It is difficult to hold the water indefinitely, so the panel will also look into how it should be disposed of eventually."



Space is also a problem, said Akira Ono, TEPCO's chief decommissioning officer. By 2020, the utility will expand tank storage capacity by 10 percent to 1.37 million tons, and about 95 percent of total capacity will probably be used by the end of that year, he said.

"Tanks are now being built on flat, elevated spots in stable locations," Ono said. But such ideal space is getting scarce, he added.

Many local residents hope TEPCO will just keep storing the water. If it does get released into the ocean, "everyone would sink into depression," said fishing trawler captain Koichi Matsumoto.

Fukushima was once popular with surfers. But young people in the area do not go surfing any more because they've been repeatedly warned about suspected radioactivity in the water, said surf shop owner Yuichiro Kobayashi.

Releasing treated water from the plant "could end up chasing the next generation of children away from the sea as well," he said.

Ono says dealing with contaminated water is one of many complex issues involved in decommissioning. A year ago, when he took over leading the effort, it felt like the project had just "entered the trailhead," he said. "Now, it feels like we're really starting to climb."

March 20, 2019

## Fukushima rice rebounds as "industrial" rice

### As fears linger, Fukushima rice rebounds under anonymity

<http://www.asahi.com/ajw/articles/AJ201903200005.html>

By DAISUKE HIRABAYASHI/ Staff Writer

FUKUSHIMA--Shipments of Fukushima rice have rebounded since the 2011 nuclear disaster, but Masao Matsukawa, a rice farmer in the prefecture, is not happy about the situation.

Before the triple meltdown at the Fukushima No. 1 nuclear plant, most of the rice grown at Matsukawa's farm in Sukagawa was sold for household use.

Now, the bulk of his annual harvest of 15 tons is designated for "industrial use," mainly by convenience store and restaurant chains, and simply labeled "domestic product."

"I am so sad about it all," Matsukawa, 74, said. "I am so confident in the rice I grow, so I wish to sell it openly under the 'Fukushima' label."

But rice from the northeastern prefecture is still struggling to reach pre-disaster levels for household use because of lingering consumer concerns about radiation.

The nuclear disaster took a heavy toll on the prices of Fukushima rice.

The "arm's length price" of the rice, for direct transactions between marketing groups and wholesalers, was 10.4 percent below the national average for the 2014 harvest.

However, the price was only 3.0 percent below the national average for the 2018 harvest, according to preliminary figures.

The comeback has been driven by solid demand for industrial use rice for products sold at convenience stores and dishes served at restaurants.

According to a farm ministry survey, industrial use accounted for 65 percent of shipments of rice produced in Fukushima Prefecture in the year through June 2017, one of the highest ratios in Japan. No comparable figures are available, though, for the pre-disaster period.

When the scope is limited to rice handled by the Fukushima Prefecture branch of the National Federation of Agricultural Cooperative Associations, industrial use accounts for more than 80 percent of the shipments, up about 15 percentage points from pre-disaster levels, officials said.

“There is high demand for industrial use rice from Fukushima Prefecture, which is cheap for its taste,” one distributor said.

Industrial use rice often only carries a “domestic” label with no mention of the production area.

But labels on rice for household use usually show the production area. And consumers are still pulling back from Fukushima labels.

Rice of the Tennotsubu strain, a brand from Fukushima Prefecture that debuted in autumn 2011, was put on the shelves at a rice store in Tokyo last year, only to be withdrawn because of next-to-nothing sales.

“Products of Fukushima Prefecture, where the nuclear disaster has had lingering consequences, are not the first to be chosen,” the shopkeeper said.

Since 2012, all bags of rice produced in Fukushima Prefecture have been subject to the prefectural government’s blanket testing. The screening has cost about 6 billion yen (\$54 million) annually.

Since August 2015, no rice has been found with radioactive substances exceeding the central government’s safety standards.

The prefectural government plans to switch to a sample testing, possibly with the 2020 harvest.

According to a Consumer Affairs Agency survey conducted in February, 12.5 percent of consumers are hesitant to buy products from Fukushima Prefecture because of possible radioactive content.

Although that percentage is the lowest since the survey started in 2013, it shows that aversion to Fukushima products remains.

In hopes of further reducing the ratio, the prefectural government in October began sending its workers to rice shops across Japan to advertise the taste and safety of Fukushima rice.

# Livres numériques édités

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