

# NUKE INFO TOKYO

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Citizens' Nuclear Information Center

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## High-Level Radioactive Waste Shipped from UK



Photos by Masakazu Yamauchi (PEACE LAND)

The first shipment of high-level radioactive waste (HLW) from the UK arrived in Rokkasho Mutsu-Ogawara Port, Aomori Prefecture on March 9. The shipment left the port of Barrow on January 21, UK time (January 22 Japan time). It was the first repatriation of any category of foreign waste to overseas customers from the UK and was some 15 years later than originally projected. The ship, the Pacific Sandpiper, passed through the Panama Canal early February.

### Details of the shipment

A total of 28 vitrified HLW waste canisters, each weighing about 500kg, were shipped on this occasion. They were packed into a single 98-ton (113.5 ton loaded) TN28VT transport cask (also referred to as a 'flask').

Seven canisters each belong to Tokyo Electric Power Company, Kansai Electric Power Company, Shikoku Electric Power Company and Kyushu Electric Power Company. They were produced at the THORP reprocessing plant in Sellafield, UK. The nine Japanese electric power companies which operate nuclear power plants as well as electricity wholesaler Japan Atomic Power Company signed

contracts with France's AREVA (formerly Cogema) and the UK's NDA (formerly BNFL) to reprocess<sup>1</sup> their spent nuclear fuel. The contracts covered a total of 7,100 tons of spent fuel.

All Japanese HLW produced in France was sealed in a total of 1,310 canisters and returned to Japan in twelve shipments between April 1995 and March 2007. Only one cask was loaded on this first shipment from the UK, but the quantity will increase in future consignments. Progressively larger quantities were loaded onto the shipments from France. The largest quantity shipped at one time was 12 casks containing a total of 164 HLW canisters.

Approximately 920 canisters of HLW will be

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shipped from the UK to Japan over a period of ten years. Japan's power companies will receive around 850 canisters of HLW directly resulting from their reprocessing contracts. Additionally, in place of low- and intermediate-level waste resulting from reprocessing of Japan's spent fuel, under a 2004 agreement a 'radiologically equivalent' quantity of HLW will be shipped to Japan. This amounts to about 70 canisters.<sup>2</sup> Significantly larger volumes of intermediate and low-level wastes, for which these canisters were substituted, must be disposed of in the UK. So far no such substitution agreement has been made with France.

The HLW that was returned from France is now stored in the Vitrified Waste Storage Center on the site of the Rokkasho Reprocessing Plant in Aomori Prefecture. The HLW from the UK is destined for the same interim storage site. Under an agreement with Aomori Prefecture, HLW may be stored in this facility for a maximum of 50 years from the time it is deposited there. No final disposal site for Japan's HLW has been chosen and there is no indication that a suitable site will be found any time soon.

### **Shipment safety and security problems**

Many problems have been identified with shipping HLW in general, and with this shipment in particular. The UK's Nuclear Free Local Authorities (NFLA) issued a media release on January 25, 2010 in which it raised the following concerns about the condition of the Pacific Sandpiper.

"The Pacific Sandpiper is now the oldest member of the PNTL fleet, it and its predecessors, were designed in the 1970s and have been shown to be susceptible to run away corrosion problems which has caused premature decommissioning of the earlier, older vessels.

The Pacific Sandpiper has recently been issued with three Statutory Memos demanding the completion of work related to crew safety, Emergency Towing Procedures, and engine room fire extinguishing systems. The available evidence implies that this work has not yet been carried out.

During recent Port State Control Inspections in Europe and Japan, the Pacific Sandpiper has been shown to have a number of deficiencies including Fire Safety measures.

The Asia Pacific Port State Control Inspection (PSCI) organisation's website currently reports that the Pacific Sandpiper has a Target Factor of 81 and a High Risk Level."<sup>3</sup>

Independent marine pollution consultant

Tim Deere-Jones produced a detailed briefing on nuclear material shipments over the Irish Sea for the NFLA.<sup>4</sup> In addition to identifying the run-away corrosion problem, he pointed out several weaknesses with the double hulling of the vessels and showed that PNTL's claims that its ships are collision-resistant are not credible.

To bring these concerns into perspective, it is important to bear in mind that there have been many accidents involving shipments of radioactive substances. According to Deere-Jones, 20 accidents/incidents were recorded in the decade 1991 to 2000 involving INF Class 2 and INF Class 3 shipments<sup>5</sup>. These included fires and collisions in harbor. The following quote from a letter written in 1997 by the late Paul Leventhal, former President of the US-based Nuclear Control Institute, is a particularly sobering warning against complacency.

"The hazards of shipping radioactive material by sea are very real. Last month, a container ship carrying highly radioactive cesium was split in two in a storm in the Atlantic Ocean. The fore section went to the bottom with its cesium packages. French regulatory authorities acknowledged the cesium containers would rupture at 3,000 meters, the depth at which the wreckage finally came to rest, but also announced they would not salvage the radioactive cargo. Lloyd's List, a shipping-trade newspaper, editorialized that the sinking of the ship, the MSC Carla, is 'a stark reminder of what can be done by the sheer force of the elements upon a ship which, when she was built, was the last word in strength and power.'"<sup>6</sup>

Concerns about the security of the cargo have also been raised. Cumbrians Opposed to a Radioactive Environment (CORE) made the following comment in a press release dated 26 November 2009.

"[T]he industry has confirmed today that there is no plan to use an armed ship. Of the three current nuclear ships operated by Pacific Nuclear Transport Ltd (PNTL), the 4000-ton Pacific Sandpiper built in 1985 is the only ship of the fleet not fitted with the naval canon or extra accommodation for a security crew that is required for ships carrying plutonium or MOX fuel."<sup>7</sup>

This is astonishing. Unlike MOX shipments, HLW shipments do not present a risk of nuclear proliferation. However, HLW is extremely

hazardous and must be properly secured against attack by terrorists or pirates.

In light of the above concerns, it is extraordinary that the Panama Canal route was chosen. It is not surprising that companies concerned with minimizing costs should choose the shortest and fastest route, but it is surprising that governments, which presumably have a broader view, would allow such a hazardous shipment to follow the route with the maximum potential for accidents and terrorist attacks, as well as the maximum potential damage in the event of an accident.

### **Unreasonable risks caused by Japan's failed nuclear fuel cycle**

Shipping Japan's highly radioactive waste around the world imposes grave risks on en-route countries and the marine environment. No environmental assessment of the risks to en-route countries was carried out and these countries had no input into the decisions that led to these risks. The question arises, why were these risks incurred in the first place?

A fundamental assumption of the Japanese government's nuclear energy policy is that plutonium as an energy resource and using it to fuel nuclear reactors is an effective way of addressing Japan's future energy needs. Under this policy, reprocessing plants were needed to separate plutonium from Japan's spent nuclear fuel. This plutonium was to be used as fuel for Japan's fast breeder reactor program, which in turn was supposed to "breed" more plutonium than it consumed. Japan's reprocessing capacity was insufficient to meet the expected needs of this program, so Japanese power companies entered into contracts to have their spent fuel reprocessed in Europe. This meant that highly radioactive spent nuclear fuel had to be shipped to Europe and nuclear weapons-usable plutonium and HLW shipped back to Japan.

However, Japan's nuclear fuel cycle policy has been an utter failure. The Monju Fast Breeder Reactor is just now preparing to resume operations, more than 14 years after a major accident (NIT 134). Last November the pluthermal<sup>8</sup> program finally got started at Kyushu Electric's Genkai-3 plant (NIT 133), but it is over a decade behind schedule. As a consequence, Japan now has accumulated over 46 tons of plutonium, in Europe and Japan. Furthermore, the Rokkasho Reprocessing Plant, which was supposed to replace

the need to reprocess overseas, is thirteen years behind schedule and in serious trouble, due to major problems with the vitrification facility - the facility that is supposed to produce precisely the type of HLW canisters that are now being shipped from the UK.

For the sake of this fiasco of a policy, the world has been forced to endure, and will continue to suffer for at least the next ten years, all the risks associated with transporting the abovementioned hazardous materials back and forth between Japan and Europe. One would have thought that at apology was in order, but there is little evidence of contrition on the part of the Japanese government and nuclear industry.

Masako Sawai and Philip White

### **Notes and References**

1. Reprocessing separates the spent fuel into uranium, plutonium and high-level and other radioactive waste. The HLW is mixed with glass and sealed in stainless steel canisters. These canisters are too radioactive for humans to approach, so they have to be handled by remote control.
2. Figure provided on March 8, 2010 by the Federation of Electric Power Companies of Japan in response to an inquiry by CNIC. Figures published in the media were inconsistent because a previous estimate of 150 canisters was revised down to 70.
3. "Are the nuclear shipments leaving the UK truly safe? NFLA raises concern over the reprocessed HLW fuel shipments to Japan", Nuclear Free Local Authorities Steering Committee media release, 25th January 2010
4. "Nuclear shipments over the Irish Sea", Nuclear Free Local Authorities Briefing, 31st March 2009
5. INF Class 2 shipments are defined by their aggregated radioactivity. INF Class 3 shipments are defined as carrying cargoes of unlimited radioactivity.
6. The letter, dated December 22, 1997, was sent to en-route countries concerning an imminent shipment of intensely radioactive waste from France to Japan.
7. "Preparations for first ever High Level Waste shipment from Sellafield", CORE Briefing No.07/09, 26 November 2009
8. 'Pluthermal' refers to the use of plutonium (MOX) fuel in thermal reactors (i.e. light water reactors), rather than in fast breeder reactors.



## Prospects for Kashiwazaki-Kariwa Units 1 and 5

Tokyo Electric Power Company's (TEPCO) Kashiwazaki-Kariwa (KK) Nuclear Power Station Unit 6 (ABWR 1,356MW) resumed commercial operations on January 19 this year. KK-7 (also ABWR 1,356MW) resumed commercial operations on December 28 last year, so 33% of the 8,212MW seven-unit KK Nuclear Power Station's total capacity has been brought back on line since the July 2007 Chuetsu-oki Earthquake.

Residents of Niigata Prefecture are concerned about the safety of the station. They did not agree to the resumption of commercial operations of these two reactors. The deliberations of the prefecture's subcommittee looking into equipment-related issues have not concluded. Nor have issues related to earthquakes and ground condition been resolved. Nevertheless, the focus of the central government's and the prefecture's deliberations has moved on to the next stage and now equipment integrity and seismic safety for units 1 and 5 are being considered. Whereas units 6 and 7 are ABWRs, units 1 and 5 (as well as units 2, 3 and 4) are BWRs (1,100MW each). Moreover, units 1 and 5 were shaken more vigorously than units 6 and 7. Hence, the prefecture's deliberations are proceeding cautiously.

Of all the reactors, unit 1 incurred the largest horizontal seismic movement: 680 Gal at the base plate of the reactor building in the east-west direction. Unit 1 also incurred the second largest vertical seismic movement: 408 Gal at the base plate of the reactor building, compared to 488 Gal for unit 6. It also suffered the largest number of defects: 693 non-conformities (18.5%) identified, compared to 246 (6.6%) for unit 7 and 275 (7.4%) for unit 6.

During the deliberations regarding the seismic safety of unit 1, the issue was raised of whether or not during an earthquake the control rods would insert as designed. Based on data from vibration testing of a single fuel assembly, TEPCO asserted that scram specifications would be met for relative displacement up to 40mm. However, several members of Niigata Prefecture's equipment integrity and seismic safety subcommittee were not satisfied. They were concerned that there was a lot of random variation in the measured data, the analysis was not conservative and there was no

guarantee that the control rods would insert safely.

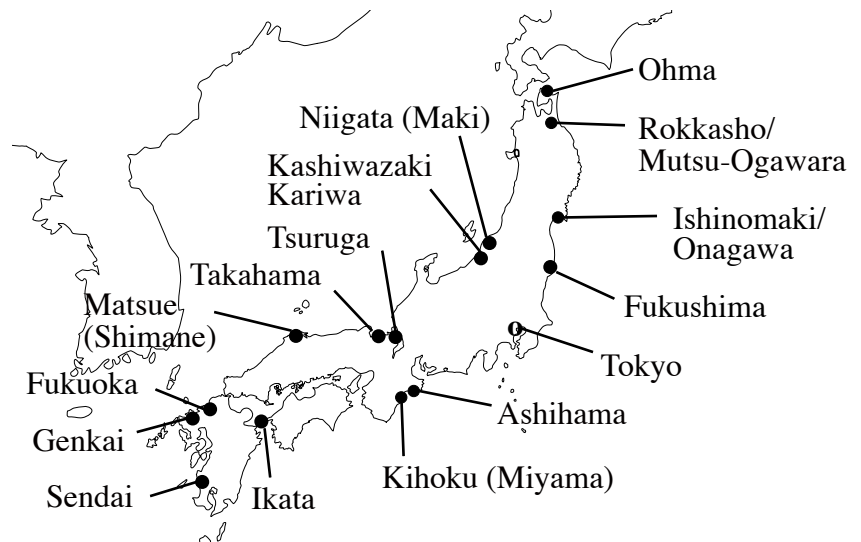
The debate about plastic deformation is likely to be reignited (see NIT 125). During deliberations in relation to unit 7, TEPCO and the central government concluded that plastic deformation below about 2% was undetectable. They claimed that although it is not possible to identify slight deformation incurred by metal materials, on the whole the deformation incurred was in the elastic range. Although there was a grey zone, they proclaimed the plant safe. However, unit 1 suffered much greater seismic stress than unit 7, so the debate about plastic deformation should be raised again.

There was also discussion about the strength of the concrete. The issue related to judgments about whether there was any seismic resistance margin. The design basis strength of the concrete in unit 1 is 240 kg/cm<sup>2</sup>, but integrity and seismic safety are being considered on the basis of an excessively large figure for the so-called "actual strength" of 450 kg/cm<sup>2</sup>. Concrete gets stronger for a period of time after it is initially poured. However, it is not certain when it reaches its peak strength, or how strong it becomes. Furthermore, the value for "actual strength" would vary depending on where the sample was taken from.

For the time being deliberations concerning Unit 1 are being prioritized. Unit 5 will not resume operations until deliberations concerning unit 1 are completed. At this stage the prospects for both units are still very unclear.

Yukio Yamaguchi (Co-Director CNIC)

Map of places mentioned in NIT 135



## Ryusuke Umeda Lodges Workers' Compo Claim

**T**hirty years ago Ryusuke Umeda was exposed to radiation while working at the Shimane and Tsuruga nuclear power plants. In September 2008 he applied for workers' compensation for myocardial infarction and in February this year he caught an all night bus to Tokyo from Fukuoka City on the island of Kyushu to present his case directly to the Ministry of Health, Labour and Welfare (MHLW).

In most nuclear-related workers' compensation claims, relatives have applied after the person in question has passed away. The only other cases we are aware of where people applied on their own behalf were Kazuyuki Iwasa (1975) and Mitsuaki Nagao (see NIT 131, 130, 127, 125, 99). As far as we are aware, Ryusuke Umeda was the first person ever to present his case in person to MHLW. His visit to the MHLW was, therefore, a historic moment.

Umeda did welding work to fix lead plates of nuclear reactor cores. He spoke in detail about the work environment at Tsuruga and demanded a review of the circumstances of his exposure at that plant. He explained how often his radiation alarm would go off as soon as he entered the work site. His facemask would fog up from the heat, so that he couldn't work unless he removed it. The readings on his whole body radiation counter were very high, but the work had to be completed within the time allocated for the periodic inspection.

MHLW took very seriously the fact that he came to present his case in person and promised to investigate his claim, including exposure that was not recorded in his radiation control handbook.

We confirmed with MHLW that myocardial infarction is recognized as a condition that can be caused by radiation exposure and that it is listed as an atomic bomb-related disease.

We were informed that there were seven applications in 2008 for workers' compensation for radiation exposure to nuclear industry workers (one each from people living in Hokkaido, Hyogo, Shimane, Nagasaki and Miyazaki Prefectures and two from Fukuoka Prefecture). This was the first time we knew that there had been seven such applications in a single year. This information had never been disclosed before. We hope to trace how many applications there have been, how many were approved, the relationship between the number approved and the number of cases considered by review committees and so on.



*Ryusuke Umeda: Photo of by Kenji Higuchi*

In regard to applications for and approval of radiation-related workers' compensation for nuclear industry workers, MHLW used the Privacy Act as an excuse not to disclose details such as the name of the condition and the dose. All it disclosed was the number of cases. Given that MHLW's role is to protect the health of workers and citizens, ascertaining the health effects to workers in specific industries and disclosing this information is an important task that MHLW should carry out. MHLW's response in this case completely distorts the meaning of the Privacy Act

Multiple myeloma and malignant lymphoma (non Hodgkin) were added to the list of radiation-induced conditions eligible for workers' compensation under article 35 of the implementing ordinance of the Labor Standards Act (NIT 131). We have strongly demanded that, instead of the current system of adding recognized conditions to the list, all conditions that have been recognized as radiation-induced conditions (including those recognized overseas) should automatically be recognized for workers' compensation.

In Europe and the US most cancers are recognized for workers' compensation purposes. By comparison, Japan's system is a half a century out of date.

Another problem is that if NGOs approach MHLW directly we are ignored. If we don't go through a Diet Member we receive no reply. There is a whole host of problems related to radiation-related workers' compensation for nuclear industry workers. We have to pursue these issues with great persistence.

Mikiko Watanabe (CNIC)

# Public Involvement in Japan's Nuclear Power Licensing System

**C**NIC was requested to provide information on the approval process for construction of nuclear power plants in Japan and in particular on rules and practice relating to public involvement and information disclosure. This article was written in response to that request. We hope that it will be of use to citizens' groups concerned about the introduction of nuclear power into their countries, in particular in the Asian region.

We do not present the Japanese system as a model. Japanese civil society groups are deeply dissatisfied with it in many ways. However, a comparison with systems being introduced in countries which do not yet have nuclear power plants might help identify inadequacies in the proposed systems. Likewise, we would be interested to hear about aspects of the systems in other countries which are superior to Japan's system.

## Overview

Broadly speaking, requirements for public involvement and information disclosure in Japan's nuclear licensing system can be broken into three categories: requirements specified in law, requirements specified in agreements between electric power companies and local authorities, and customary practice. In comparing the systems of different countries, there may be a tendency to focus on formal legal requirements and procedures. However, in Japan at least, these are not necessarily the most significant factors in determining whether nuclear power projects are approved.

## Approval Process

The main procedures for licensing a nuclear power plant are shown in the diagram on page 9, but before these begin the electric power company must obtain local agreement to begin the process. This is not a legal requirement, but in practice no nuclear power project can proceed without it. Specifically, agreement must be obtained from the mayor of the local municipality, the governor of the prefecture and from the municipal and prefectural assemblies. Two types of agreement are required, one covering the preliminary study and the other covering the construction plan.

Local residents for and against construction may petition the mayor and the governor, as well as

the local and the prefectural assemblies. The local authorities and the power companies often hold explanatory meetings for the local residents. There have also been cases where local referenda were held. One such referendum was held on November 18, 2001 in Miyama Town in Mie Prefecture (which later amalgamated with another town to form Kihoku Town). In this case 67.5% of legitimate votes opposed construction of a nuclear power plant. The result of the local referendum was not legally binding, but the project was cancelled.

Once local approval for a preliminary study has been given, the power company can then carry out its own preliminary study of the ground condition and begin proceedings under the Environmental Impact Assessment Act. During the formal environmental assessment stage, public comments are sought on two occasions. The power company collates the comments and submits them to the Minister for Economy, Trade and Industry along with its own responses to the comments received from the public. At this stage in the process the governor of the prefecture also submits his or her views. It is customary for the governor to listen to the views of the local municipalities when forming his or her views. The Minister is not obliged to accept the views of the public, nor of the mayor or governor, but it is unlikely that the Minister would support construction of a nuclear power plant if the mayor or governor opposed it.

Under the Japanese system, issues unique to nuclear energy, namely those relating to radioactivity, are not covered in the environmental assessment. Nuclear legislation was first introduced in the 1950s. When basic environmental legislation was introduced starting in the late 1960s, the government took the position that radiation-related issues were already covered. Environmental laws, therefore, excluded radiation-related issues, simply referring to the pre-existing nuclear legislation.

When agreement has been received for the construction plan itself, it is possible for the power company to move ahead with the nuclear-specific procedures in parallel with the environmental assessment process. The first step is the first public hearing. This hearing is legally required under a decision of the former Ministry of International Trade and Industry (MITI – now the Ministry of

Economy Trade and Industry (METI)). METI hosts the meeting and the power company explains its construction plan. Residents are selected from amongst those who have submitted public comments to present their opinions about the plan. The power company responds to the residents' comments, so in practice, it is not so much a hearing as an explanatory meeting. However, it provides formal grounds for claiming that the residents' opinions were taken into consideration in the safety assessment.

In some cases the local authorities may take the view that the preliminary study and the construction plan should be treated separately and initially only approve the preliminary study. In such cases, the power company re-announces its construction plan and proceeds to the first hearing after the results of the preliminary study have been submitted (assuming of course that the preliminary study judged that construction is possible).

After the Minister has approved the environmental assessment and the first hearing has taken place, the power company may submit an application to the Minister for Economy, Trade and Industry for designation of the project as an important electrical power development. This designation is issued as a METI notice based on a Cabinet Agreement. (In many cases such notices are based on a law, but in this case the notice was based on a Cabinet Agreement.) The matter is referred to the governor for comment when such a designation is made.

After receiving this designation, based on the Nuclear Reactor Regulation Law, the power company applies to the Minister for Economy, Trade and Industry for a reactor establishment license. The Nuclear and Industrial Safety Agency (NISA, part of METI) assesses the application. The Nuclear Safety Commission (NSC) double-checks NISA's findings in regard to safety, while the Atomic Energy Commission (AEC) double-checks matters related to economic viability and the assurance of "peaceful use". When the safety double-check is commenced, NSC hosts a second public hearing. The requirement for this hearing derives from an NSC determination, which carries legal force. During the second hearing, METI explains the results of NISA's safety assessment, residents give their opinions and METI responds. The second hearing is conducted in a similar fashion to the first and the residents' views are said to have been taken into consideration during the

double-check process.

### **Opportunities to Influence the Decision**

Basically, there are no more opportunities for public involvement after a reactor establishment license has been awarded. However, in reality, if the project is not stopped before the environmental assessment begins, the process just keeps moving forward. A unique exception was when a plan to construct a reactor in Maki Town, Niigata Prefecture (since merged with Niigata City) was stopped by a local referendum after an application for a reactor establishment license had already been submitted. The license application was submitted on January 25, 1982, but the Tohoku Electric Power Company failed to acquire some of the land for the site, so the safety review was suspended. A local referendum was held on August 4, 1996 and 60.9% of eligible votes opposed the project. Even then Tohoku Electric did not withdraw its plan until December 24, 2003 (see NIT 98).

If residents want to block a nuclear construction project, the earlier they do so the better. Effective ways of doing this include preventing the power company from acquiring land for the site, refusing to relinquish fishing rights and preventing the power company from obtaining agreement from the local authorities. As mentioned above, regardless of the lack of formal legal authority, no nuclear power plant will be built without the agreement of the local and prefectural governments. There are many examples in Japan where local communities have prevented construction of nuclear power plants in this way.

### **Information Disclosure**

At that early stage the information that residents can get their hands on is limited. It is necessary to keep an eye on developments in the local municipal authority. The only publicly available information is simple explanatory material provided by the power company, but power companies sometimes prepare detailed documents for members of the local council and influential people in the local community.

In the context of the environmental assessment an outline of the proposed nuclear power plant, as well as information about the local climate, plants and animals, the impact of warm water discharge, and environmental pollution arising from construction are provided. However, as mentioned above, explanations about nuclear safety and information about environmental



contamination arising from radioactivity are not provided at this stage. This information is eventually released as appendixes to the application for a reactor establishment license. (Some simple remarks are included in the documents handed out at explanatory meetings and at the first public hearing.)

At this stage detailed information is published, including large quantities of data about ground condition and earthquakes, the safety assurance system, management of radioactive waste, radiation exposure due to the release of radioactivity in the course of normal operations, accident scenarios and predictions of the damage that would arise from such accidents. In addition to the license application, most of the documents submitted in the course of NSC's and AEC's double-checks are made available to the public. Documents containing the analytical basis are not released, but judges have ordered the release of some of this information during lawsuits for the annulment of licenses.

Disclosure of information has improved due to the need to pacify the public after accidents. The proceedings of commissions and review committees are held in public and documents are handed out to observers. These documents can also be downloaded from the internet. On the other hand, liberalization of the electricity market is being used as an excuse to withhold more information on the grounds that it is commercial-in-confidence.

### **Power of Local Authorities and Residents**

Due to repeated accidents and incidents, local and prefectural governments are more able to speak out than they were. Local and prefectural governments effectively have a power of veto over restart after accidents. There are some cases where this right is explicitly stated in safety agreements between the power company and the local government. In the case of Kashiwazaki City and Kariwa Village, a forum has been established where representatives of local residents (pro, anti and neutral in regard to nuclear power) can demand explanations from METI, Tokyo Electric Power Company and the prefecture.

Residents can exert pressure on their local authority in all sorts of ways. At times they can wield considerable power. On February 22, 2000, after a petition opposing construction of a nuclear power plant in Ashihama signed by more than 810,000 residents of Mie Prefecture (more than half

the population) was submitted to the governor, he demanded that the plan be withdrawn. On the same day Chubu Electric Power Company announced that it was abandoning the project.

### **Limitations of the System**

A significant limitation of the current system is the lack of formal opportunity for involvement by people beyond the administrative boundaries of the local authority and prefecture in which the plant is to be built. Lip service is paid to seeking the views of neighboring towns, but their rights and opportunities for participation are limited. For example, the people of Hakodate in Hokkaido Prefecture live just 35 km across a narrow strait from the Ohma Nuclear Power Plant in Aomori Prefecture. However, they were not allowed to participate in the first public hearing. In response to complaints they were allowed to take part in the second hearing, but they are not included in the disaster prevention plan for the plant. Nor do they receive any financial compensation, although surrounding towns within Aomori Prefecture do. Because of the narrow strait of water separating them, they are not considered to be adjacent to Ohma.

### **Conclusion**

From the above account it should be clear that Japan has formal procedures for public involvement and information disclosure in relation to the approval of nuclear power plants. However, public hearings and public comment processes tend to be proforma in nature. If residents have not blocked the project before these procedures begin, the process develops a momentum of its own which is hard to reverse.

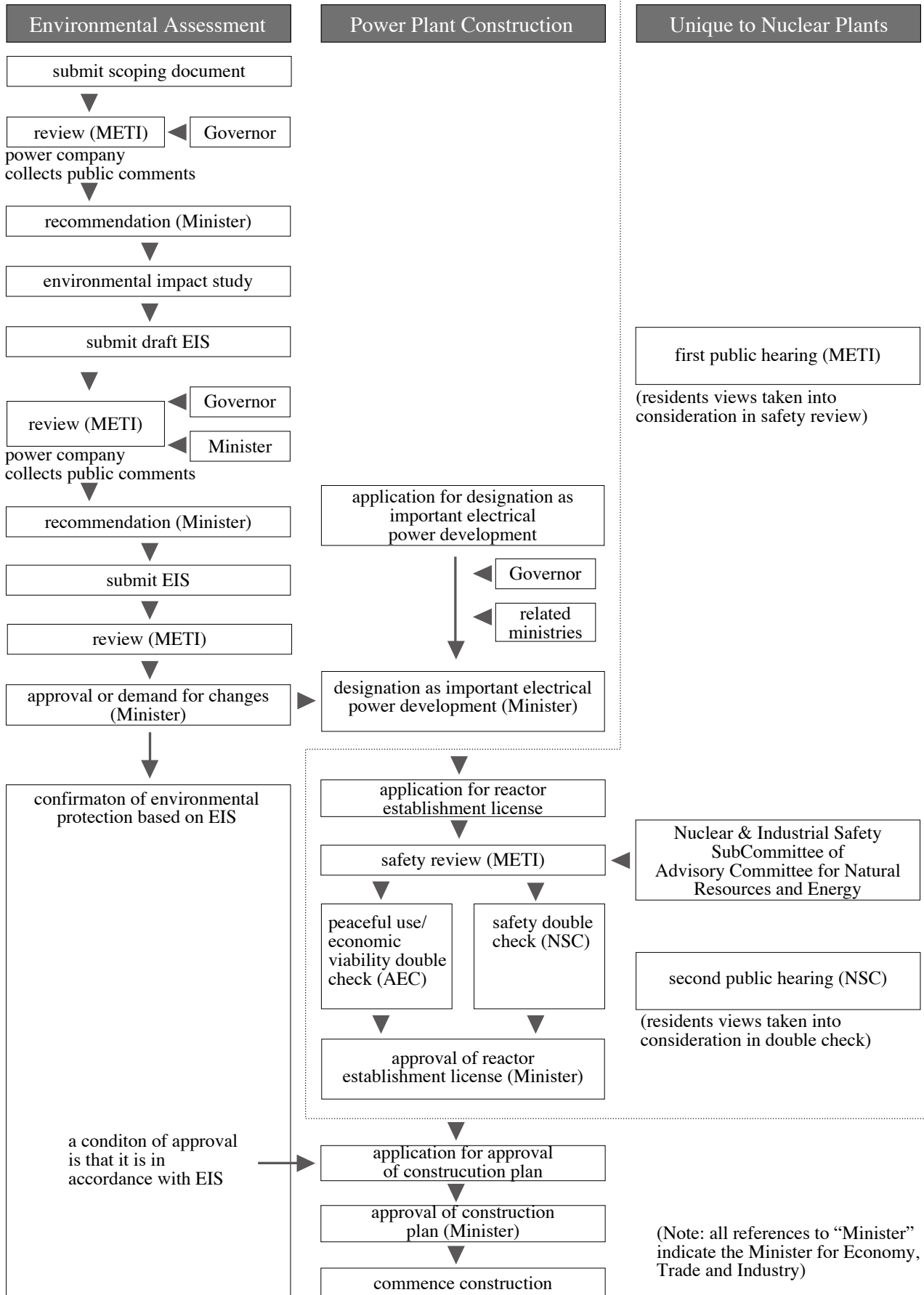
Baku Nishio (CNIC Co-Director)

*Continued from page 12* Kyushu Electric Power Company's Sendai-1 (PWR, 890MW) when they were burnt while checking electrical equipment. Two of the injured were still in hospital at the time of a February 22 report by Kyushu Electric.

The report suggested the following likely chain of events. While the workers were trying to install earthing equipment, there was a short when the equipment came into contact with the charged circuit. This caused an electric arc, which caused sudden heating of the surrounding air and metal. This in turn created a gust of hot gas, which burnt the workers.



## Main Procedures in Licensing a Nuclear Power Plant in Japan



## Group Introduction

# Niigata Women Thinking about Life and Nuclear Energy

By Mie Kuwabara\*

Fifty kilometers away in Niigata City interest in the damage to the Kashiwazaki-Kariwa Nuclear Power Station caused by the July 16, 2007 Chuetsu-oki Earthquake is not very great. But distance is not the only reason for the lack of interest. The manipulation of public opinion by the government and the electric power companies is deeply rooted in society.

On the other hand, the Prefectural Government set up its own committees to scrutinize Tokyo Electric Power Company's (TEPCO) inspections and opened these committees' deliberations to the public. The Prefectural Government took this initiative based on its belief in the need to create a safe society in which residents have access to information and are free from anxiety about accidents and other problems. However, the number of people who can observe the proceedings is limited. Furthermore, the deliberations are full of technical jargon, so it is very difficult for ordinary people to understand what is being said. The vocabulary used in meetings hosted by anti-nuclear energy groups is also very difficult and, therefore, it is very hard to ask questions.

Residents are unable to think about issues that they can't understand, so most of them have concluded that they have no choice but to leave it to the experts. However, the majority of these experts are compliant academics, who automatically fall in line with the wishes of the government and TEPCO. There are even some who say that the question of whether or not residents should be free from anxiety is a secondary issue.

But we cannot just dismiss as "incomprehensible" or "too hard" an issue that directly impacts our lives. We need to enable people to think about nuclear energy by learning and talking about it in everyday language. The aim of *Niigata Women Thinking about Life and Nuclear Energy* is to create a forum in Niigata City where people can learn and exchange ideas about nuclear energy in a relaxed fashion. We want people to feel free to ask any questions they like.

We have held three study and exchange meetings since April 2009. Under the catch phrase

*\*Mie Kuwabara is a member of Niigata Women Thinking about Life and Nuclear Energy. She knows what it means to win, having played a leading role in the movement that forced the Tohoku Electric Power Company to abandon its plan to build a nuclear power plant in Maki Village, Niigata Prefecture (see NIT 98).*



*Fourth meeting of Niigata Women Thinking about Life and Nuclear Energy*

"easy to understand, easy to ask questions and fun", we have taken a creative approach to the meetings. In the first meeting we exchanged views with women from Kariwa Village, the site of the nuclear power plant. In the second meeting we created a mock law court and debated the issue of "climate change and nuclear energy". Members of the audience were the jury, while group members played the roles of judge, plaintiff (the earth), defendant (nuclear power) and lawyers. It was a great success. We later handed a submission based on the many points raised during the discussion to the prefectural office responsible.

In the third meeting we took up the issue of worker exposure to radiation. The keynote speaker was CNIC staff member, Mikiko Watanabe. Participants learnt about the roots of "the peaceful use of nuclear energy" by playing the roles of four historical figures, including President Eisenhower. We are currently planning the theme of our fourth meeting, which we will hold at the end of April this year.

We believe that by enabling people who are now silent to raise their voices we can help put a break on the uncontrolled promotion of nuclear power. We want to encourage people to speak out about the problems of nuclear power, including the lack of any solution to the problem of nuclear waste and the daily radiation exposure of nuclear power workers.

There are just six of us and we are all over 60, but we intend to continue to shine a light in the nuclear darkness of Niigata.

# NEWS WATCH

## **Pluthermal begins at Ikata-3**

On March 2 Shikoku Electric Power Company's Ikata-3 reactor (PWR, 890MW) reached criticality with a load of MOX fuel<sup>1</sup>. It is the second reactor in Japan in which pluthermal<sup>2</sup> has been implemented, following Genkai-3 (PWR, 1180MW), which began using MOX fuel in November 2009 (see NIT 133).

From February 9 to 12, 16 MOX assemblies were loaded when a total of 50 fuel assemblies were replaced during a periodic inspection which began on January 7. Power transmission began on March 4 and commercial operations are set to resume on March 30, after the periodic inspection is completed. The schedule slipped about one week from that announced in December 2009. The reason for the delay was the discovery of a leak of boroated water on January 10.

The remaining 5 of the MOX assemblies that arrived from France on May 27, 2009 (see NIT 130) will be stored in the spent fuel pool and loaded during the next periodic inspection. Despite the fact that these 5 assemblies are unused fuel, they are being stored in the spent fuel pool because MOX fuel is more radioactive than uranium fuel.

1. MOX is an abbreviation for "mixed oxide of plutonium and uranium".
2. 'Pluthermal' refers to the use of plutonium (MOX) fuel in thermal reactors (i.e. light water reactors), as opposed to in fast breeder reactors.

## **Governor and mayors approve pluthermal for Onagawa**

On March 18 Miyagi Prefecture Governor Yoshihiro Murai, Mayor Nobutaka Azumi of Onagawa Town and Mayor Hiroshi Kamiyama of Ishinomaki City gave their consent for Tohoku Electric Power Company to implement pluthermal at its Onagawa-3 Nuclear Power Plant. They all demanded strengthened safety management. In addition, Onagawa Town demanded local economic stimulus measures. Tohoku Electric plans to begin using MOX fuel at Onagawa-3 by the 2015 fiscal year.

## **Fukushima Governor indicates conditional approval for pluthermal**

On January 20, Tokyo Electric Power Company (TEPCO) reapplied to the Fukushima Prefectural government for prior consent for its pluthermal plan for the Fukushima I-3 (BWR, 784MW) reactor. Governor Yuhei Sato responded at the Prefectural Assembly's February 16 session that his consent was conditional on an assurance of seismic safety, aging countermeasures, and integrity of the MOX fuel. This is the first indication that pluthermal might finally be implemented since Fukushima Prefecture withdrew its consent following revelations in August 2002 of cover-ups of major problems at TEPCO's nuclear power plants.

In September 1999, 32 MOX fuel assemblies arrived at the Fukushima I-3 plant and have been stored there ever since. Over ten years later, TEPCO began inspections of the integrity of the fuel on February 25 this year. However, these are only visual inspections.

## **KEPCO, Kyushu to jointly ship MOX**

On February 8, Kansai Electric Power Company (KEPCO) and Kyushu Electric Power Company announced that they would jointly ship MOX fuel fabricated at Areva's Melox Plant in France. Two armed ships will provide mutual defense for each other. The name of the ships and the port will be announced a few days before departure. The date of departure, the route and the expected time of arrival in Japan will be announced on the day of departure, or on the following day. Fabrication of 12 assemblies for KEPCO and 20 assemblies for Kyushu Electric has been completed. However, for reasons of security, how many of these will be shipped this time will not be announced until after the shipment is completed.

On January 29 KEPCO announced that it plans to load 8 assemblies into its Takahama-3 reactor (PWR, 870 MW) during the periodic inspection beginning at the end of September this year and 4 assemblies into its Takahama-4 reactor (PWR, 870 MW) during the 2011 fiscal year. It said that the



assemblies would be shipped by summer.

### **Local authority approves Tsuruga-1 operation beyond 40 years**

On March 14, Japan Atomic Power Company's (JAPCO) Tsuruga-1 nuclear power plant (BWR, 357MW) will reach 40 years of commercial operation (see NIT 133). On February 22, Fukui Prefecture and Tsuruga City conveyed their approval to JAPCO of its plan to operate the plant until 2016. Governor Issei Nishikawa emphasized that he would not approve a further extension and demanded that safety checks be properly performed during the period of the extension.

### **Request to Aomori Prefecture to accept radioactive waste returned from Europe**

On March 6, Masayuki Naoshima, Minister for Economy, Trade and Industry, requested Aomori Governor Shingo Mimura and Rokkasho Village Mayor Kenji Furukawa to accept radioactive waste (besides high-level waste (HLW) - see pages 1~3) returned from reprocessing plants in the UK and France. Governor Mimura agreed to commence consideration of the matter.

The Minister's request followed requests on March 1 by Toru Ishida, Director-General of the Agency for Resources and Energy (ANRE), and on March 2 by Shosuke Mori, Chairman of the Federation of Electric Power Companies (FEPC), and Yoshihiko Kawai, President of Japan Nuclear Fuel Ltd..

Previously, FEPC had applied in October 2006, but on that occasion Governor Mimura refused to consider the application, saying that it was premature to apply before the commencement of commercial operations of the Rokkasho Reprocessing Plant. When reapplying, ANRE Director-General Ishida said, "If the schedule is delayed, there is a risk that Japan's international reputation will be damaged." Governor Mimura replied, "I need to hear from the Minister for Economy, Trade and Industry directly to confirm this." The Minister promptly visited Governor Mimura and confirmed this concern. He also undertook not to make Aomori Prefecture the

final disposal site, thus extending to LLW an undertaking that already applied to HLW

Return of the radioactive waste from France is scheduled to begin in Fiscal Year 2013. The 4,400 canisters of waste to be returned are referred to as "low-level waste" (LLW) in Japan, but over half of these contain trans-uranic elements and are destined for geological disposal. Due to the fact that a new storage facility will not be ready by FY2013, FEPC's policy is to hold the waste in the Vitrified Waste Storage Center for HLW returned from overseas.

In the case of the UK, since an arrangement has been made to substitute this waste with HLW (see article on pages 1~3), a radiologically equivalent quantity of HLW will be returned in 70 canisters. Naturally, all of this is destined for geological disposal.

### **Prime Minister Hatoyama sales pitch to Vietnam**

On March 3, Prime Minister Yukio Hatoyama sent a letter to the Vietnamese Prime Minister suggesting that Japan be chosen to build two nuclear power plants for the second phase of its nuclear power plan. It is reported that Vietnam has selected Russia to construct its first two nuclear power plants (2 x 1,000MW). It appears that concerns that Japan is losing out to the slick salesmanship of other countries induced the Prime Minister to go into bat for Japan's nuclear industry.

It is said that another reason why Japanese power companies cannot win nuclear construction contracts is that Japanese electric power companies are not involved. In this regard, the Nikkei Shimbun reported on February 27 that a new company will be set up with government funding and the participation of companies including Tokyo Electric Power Company and Kansai Electric Power Company, along with Toshiba, Hitachi and Mitsubishi to carry out studies to help win contracts for overseas nuclear projects.

### **One killed, six others injured at Sendai-1**

On January 29, one person was killed and six others were injured at *Continued on page 8*

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