
NUKE INFO TOKYO

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Citizens' Nuclear Information Center

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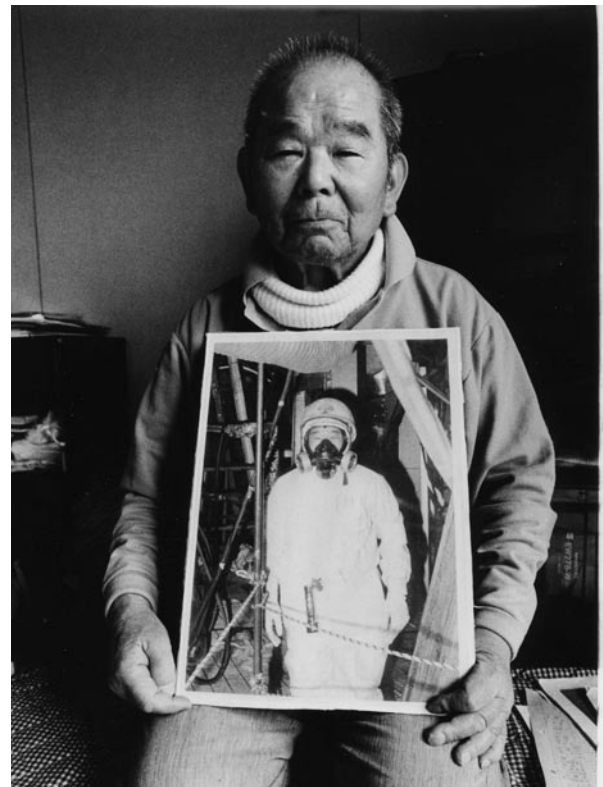
First case of Workers' Compensation for Multiple Myeloma

On January 13th the Tomioka (Fukushima Prefecture) office of the Labor Standards Office accepted the claim of Mitsuaki Nagao that his multiple myeloma (a form of bone marrow cancer) was contracted as a result of his work at nuclear reactors. The decision relates to work that Mr Nagao (78) did for a construction company on the piping of nuclear reactors and also as a supervisor of such work. Multiple myeloma is not listed as a recognized condition for workers' compensation related to work at nuclear reactors. The five cases recognized previously for work at nuclear reactors were all forms of leukemia. This is the first case of a condition other than leukemia being recognized. It is a very encouraging decision, which holds out hope that other conditions may be recognized in future.

In multiple myeloma the bones throughout the whole body are weakened and become prone to breaking suddenly. The condition is also associated with a whole range of problems with other organs. While he was still waiting for a decision on his case Nagao, who has suffered with the condition for six years, said, "Many people have been irradiated through their work at nuclear reactors. I would like them to sue as I have done. That is one of the reasons why I have to win."

Nagao's work, record of illness

From October 1977 (when he was 52) to January 1982 Nagao worked at Fukushima Daiichi Nuclear Power Station Reactors 2



Mitsuaki Nagao displays a picture of himself wearing a full face mask while working at Fukushima Daiichi Nuclear Power Plant. (photo taken by Kenji Higuchi)

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and 3, Hamaoka Reactors 1 and 2 and Fugen Advanced Thermal Reactor. During that period he received radiation doses totaling 70 millisieverts. If you convert this to a yearly dose, it works out at between three and eight times the average for workers at each of the nuclear power plants in Japan. Compared to other subcontractor workers, who are often forced to work in highly contaminated areas, his dose was 1.5 to 3.5 times the average. At the time that he was working at Fukushima Daiichi Nuclear Power Station Reactor No. 2, there were several cases of fuel rods being damaged. Consequently workers were exposed to very high levels of radiation.

Nagao was a naturally healthy person. He worked right through to retirement with no particular health problems, but his blood pressure began to fluctuate in 1993. In 1994 he began to get pain in his neck, then in 1998 his front tooth broke and he also had to have an operation after fracturing his neck. It was then that he was diagnosed as having multiple myeloma. He has also had more problems since then. On cold days the upper half of his body becomes unbearably painful and now his collarbone has dissolved.

Connection between multiple myeloma and radiation

Although there were no instances of multiple myeloma being accepted in workers' compensation cases, the incidence of multiple myeloma in Hiroshima and Nagasaki hibakusha is high and in the last ten years there have been seventeen cases of people being recognized as having atomic bomb disease. The Ministry of Health, Labor and Welfare

(MHLW) standard for workers' compensation for leukemia requires that the worker received a dose of over 5 millisieverts multiplied by the number of years of work and that the onset of the disease was at least one year after the exposure. Nagao was exposed to about three times that amount, but because multiple myeloma was not a recognized condition, the Tomioka Labor Standards Office referred the case to MHLW for a decision.

MHLW established a committee of experts to investigate whether disorders caused by ionizing radiation may be work related (a closed committee chaired by Kunio Sakai, a Professor at Niigata University). The committee considered the nature of the work and the dose, and conducted a literature survey of national and international epidemiological studies related to multiple myeloma. They announced their conclusion at their third meeting that there is a cause and effect relationship.

Nuclear power plants have been in operation in Japan for 37 years. In that period only 14 workers have applied for workers' compensation for conditions caused by radiation. Three of those cases related to the JCO criticality

Results of Applications for Workers' Compensation at Nuclear Facilities

Application Date	Decision Date	Decision	Disease	Dose/Duration
19 March '75	9 Oct. '75	rejected	skin inflammation	
31 May '82	?	result not published not compensated	leukemia type malignant lymphoma	
2 Sep. '88	26 Dec. '91	accepted, compensated	chronic myeloid leukemia	40 mSv in 11 mths
1 Dec. '92	27 July '94	rejected	acute myeloid leukemia	
14 Dec. '92	27 July '94	accepted, compensated	acute myeloid leukemia	July '87-Dec. '92
6 May '93	27 July '94	accepted, compensated	chronic myeloid leukemia	March '81-Dec. '89, 50.63mSv
27 May '96	?	result not published not compensated	aplastic anemia	
16 May '97	?	result not published not compensated	chronic myeloid leukemia	
22 Dec. '98	30 July '99	accepted, compensated	acute lymphatic leukemia	Dec. '84-Jan'97, 129.8mSv (film badge reading)
20 Oct. '99	26 Oct. '99	accepted, compensated	acute myeloid leukemia	1-4.5 Sv
20 Oct. '99	26 Oct. '99	accepted, compensated	acute myeloid leukemia	6.0-10 Sv
20 Oct. '99	26 Oct. '99	accepted, compensated	acute myeloid leukemia	16 - over 20 Sv
20 Nov. '99	24 Oct. '00	accepted, compensated	acute myeloid leukemia	Oct. '88-Oct. '99, 74.9mSv (film badge reading)
8 Nov. '03	13 Jan. '04	accepted, compensated	multiple myeloma	Oct. '77-Jan '82, 70mSv (film badge reading)

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accident and were not therefore associated with work at nuclear reactors. From that, one can gather how difficult the process of lodging such a claim is and how many would be applicants must have fallen by the wayside.

The biggest reason for this is that the thing which would provide evidence of radiation exposure, the 'radiation control hand book', is held by the company, not the workers. Also there is a lack of systematic health monitoring. Since April 2001 it has been a requirement that records of radiation doses and health examinations be held for thirty years, but before then they were only held for the extremely brief period of five years. Especially in the case of subcontractor workers, there are problems such as companies going bankrupt, or records being lost. The Radiation Dose Registration Center, run by the Radiation Effects Association, was established in 1977 with the aim of accurately ascertaining and managing in a unified manner the radiation doses of workers. There are currently almost 400,000 people registered. However, even if a worker personally applies for his or her radiation records, without the company's agreement the information will not be provided. Moreover, where people have requested this information, there have even been cases

where the worker was subjected to pressure from the company, the end result being that they lost their chance of applying for workers' compensation.

The total radiation exposure from Japan's 53 nuclear reactors in 2002 represented an increase of 6 person-sieverts on the previous year. This increase was due to the inspections that followed the exposure of scandals involving the concealment of problems at Tokyo Electric Power Company. With the aging of reactors the contamination of the work environment is getting worse and worse. Safety measures for workers exposed to radiation is now an urgent issue.

Finally, as an aside, another example of a worker applying for radiation related workers' compensation for a condition other than leukemia relates to a man who contracted malignant lymphoma while working at the Kori Nuclear Power Plant in South Korea. The probability of it being work related was assessed as low, but, dissatisfied with this conclusion, he took out a lawsuit and in June last year he emerged from his court battle victorious. It would be interesting to hear the situation in other countries. If anyone has information about radiation-related workers' compensation cases for

conditions other than leukemia, please let me know.

by Mikiko Watanabe (CNIC)

Labor Standards Office	Company/Site	Comments
Tsuruga, Fukui Pref.	JAPC, Tsuruga	Kazuyuki Iwasa
Matsue, Shimane Pref.		
Tomioka, Fukushima Pref.	TEPCO, Fukushima No1	Died 1988, pipe corrosion prevention
Kobe Nishi, Hyogo Pref.		
Kobe Nishi, Hyogo Pref.	Kyushu Electric, Genkai; KEPCO, Oi and Takahama	Inspection work
Iwata, Shizuoka Pref.	Chubu Electric, Hamaoka	Nobuyuki Shimahashi, died Nov. 1991, checked measurement devices
Tomioka, Fukushima Pref.		
Tomioka, Fukushima Pref.		
Hitachi, Ibaraki Pref.	JAPC, Tokai; Chugoku Electric, Shimane; TEPCO, Fukushima No. 1	Equipment inspection, revealed during health check, still living
Mito, Ibaraki Pref.	JCO Tokai Plant	Yutaka Yokogawa, criticality accident, still living
Mito, Ibaraki Pref.	JCO Tokai Plant	Masato Shinohara, criticality accident, died April 2000
Mit, Ibaraki Pref.	JCO Tokai Plant	Hisashi Ouchi, criticality accident, died December 1999
Tomioka, Fukushima Pref.	TEPCO, Fukushima Nos.1&2; Genden, Tokai No.2; etc.	Welder, medical examination at own initiative, deceased
Tomioka, Fukushima Pref.	TEPCO, Fukushima No.1; Fugen; Chubu Electric, Hamaoka No.1	Mitsuaki Nagao, supervisor of inspection and repair of pipes etc.

JAPC = Japan Atomic Power Company; TEPCO = Tokyo Electric Power Company

KEPCO = Kansai Electric Power Company

Is Japan qualified to undertake reprocessing at Rokkasho?

On 11th February 2004 President Bush, in a speech delivered at the National Defense University, made the following comment: "The 40 nations of the Nuclear Suppliers Group should refuse to sell enrichment and reprocessing equipment and technologies to any state that does not already possess full-scale, functioning enrichment and reprocessing plants." Coming from a person who is himself expanding the development of nuclear weapons, Bush's anti-proliferation proposal lacks credibility. Furthermore, creating a distinction between those countries which may and those which may not have enrichment and reprocessing plants is not a realistic approach.

However, on the basis of this proposal, we are immediately able to make the following point. Since it can be argued that Japan does not already possess 'full-scale, functioning enrichment and reprocessing plants', why is the President silent about Japan's stockpile of plutonium and the spent fuel reprocessing plant being developed in Rokkasho Village, Aomori Prefecture?

It must be stressed that the definition of 'full-scale' and 'functioning' is extremely vague. In the President's mind Japan is obviously a supplier of this equipment and technology. But what is the real situation?

Japan has an enrichment plant in Rokkasho, Aomori Prefecture, which is operated by Japan Nuclear Fuel Limited (JNFL) as a commercial venture. It has a theoretical capacity of 1500tSWU/year, though its actual output has never exceeded 1050tSWU/year. At the moment it is unable to achieve even this reduced amount, due to the fact that operations at part of the plant have been suspended. This results in an additional short fall of 300tSWU/year, which is likely to increase to 450tSWU/year this Spring. It's highly

questionable whether this can be called 'full-scale, functioning'.

There are even bigger problems associated with the reprocessing plant. There is a plant owned by Japan Nuclear Cycle Development Institute (JNC) in Tokai Village, Ibaraki Prefecture. This is a developmental level plant, not a commercial facility. The plant being constructed by JNFL in Rokkasho is not complete and there are lots of doubts about it as an operational proposition.

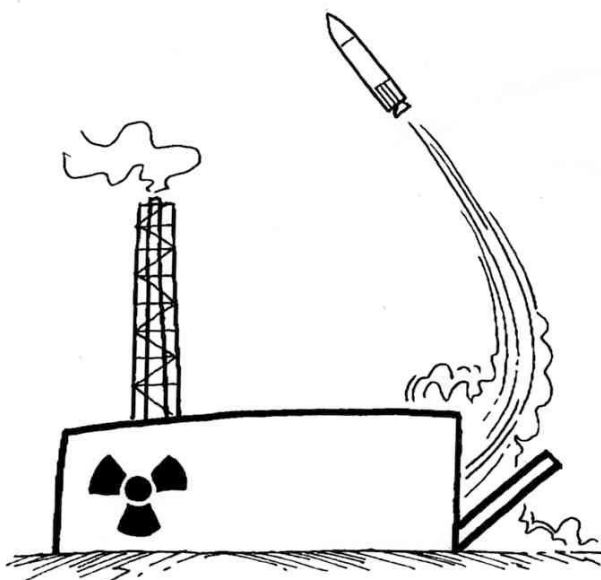
If the Rokkasho plant becomes operational, the plan is that it will have the capacity to reprocess 800tU of spent fuel and recover just under 5t of fissile plutonium each year. Plans for the use of this fuel have not progressed at all. As at the end of 2002, there was 38.7t of separated plutonium belonging to Japan, 21.6t held in France, 11.6t in the UK and 5.4t stockpiled in Japan. If Rokkasho becomes operational, this will mean that much larger quantities of plutonium will be held within Japan than in the past.

Anyone who cares to look into the issue will see that to

accept the situation in Japan, while requiring other countries in the region not to possess enrichment and reprocessing equipment and technologies, is patently unjust.

The checks on nuclear proliferation have been removed

The debate about whether or not to go nuclear is beginning to raise its ugly head in Japan. Even setting aside the irresponsible remarks of some commentators, one must be concerned by suggestions coming from people in official positions, such as Dr Tadashi Nishihara, President of Japan's National Defense Academy (JNDA). He argued in the 14th August 2003 edition of the Washington Post that America should not sign any pact prom-



cartoon by Shoji Takagi

ising that it won't use nuclear weapons against North Korea. He went on to say, "Facing that possibility, Tokyo could no longer rely on its alliance with Washington and thus might decide to develop its own retaliatory nuclear weapons."

In November of the same year the Mainichi Shimbun newspaper surveyed 480 successful candidates in the lower house elections. 82 of these politicians (17% of those polled) responded that the question of Japan obtaining nuclear weapons should be considered 'immediately', or 'depending on the international circumstances'. (One of those surveyed said 'immediately'.)

Despite this situation, the Atomic Energy Commission (AEC), which is supposed to be 'the guardian' of the principle that the development of nuclear energy is limited to 'strictly peaceful purposes', has lost its institutional ability to provide this guarantee, while the individual commissioners have lost their sense of resistance to the idea of acquiring nuclear weapons.

AEC is made up of 5 commissioners. This year, for the first time, four of these were replaced by new commissioners. On 6th January the new commissioners articulated their basic stance and major policy objectives in their New Year Policy Statement. However, not a single word was said to the effect that they would guarantee that Japan's use of nuclear energy would be strictly limited to peaceful purposes, as required by the Atomic Energy Basic Law.

The institutional assurance afforded by AEC as the 'guardian' of the principle of 'strictly peaceful purposes' disappeared when revisions to the Law concerning the Establishment of the Atomic Energy Commission and the Nuclear Safety Commission of Japan came into force in January 2001. These revisions were made as part of a general reorganization of government departments. One of the changes was the deletion of the clause which required that the Chairman of AEC must be the Minister of State responsible for the Science and Technology Agency. Since the Minister is a member of the Cabinet, previously no Cabinet decision could be made to acquire nuclear weapons if the AEC opposed it (given that Cabinet decisions are made on a consensus basis). Regardless of whether in practice the Minister could have resisted pressures to compromise on this issue, this check has been lost.

One further deletion was the clause which required that the Prime Minister must 'give due respect' to decisions of the AEC. The fact that

respect for the decisions of the Prime Minister's advisory panel was established in law provided an assurance that Japan's development of nuclear energy would be strictly limited to peaceful purposes, but that guarantee has been lost.

These profound institutional changes came in the midst of the confusion associated with a huge reorganization of government departments and passed smoothly through the Diet without debate. It appears that there was no debate within the AEC either, which is just one piece of evidence that the commissioners had no sense of being 'the guardians' of the principle of 'strictly peaceful purposes'.

At the very least they should recall that they are supposed to be 'the guardians' of the principle of 'strictly peaceful purposes' when they assess whether there is any danger that nuclear reactors and reprocessing facilities could be used for other than peaceful purposes. However it seems that this screening process is conducted in name only. The results of AEC's considerations are submitted to the Prime Minister with a one line comment, 'accepted as appropriate', without giving any explanation of the process by which this conclusion was reached or the reasons justifying it.

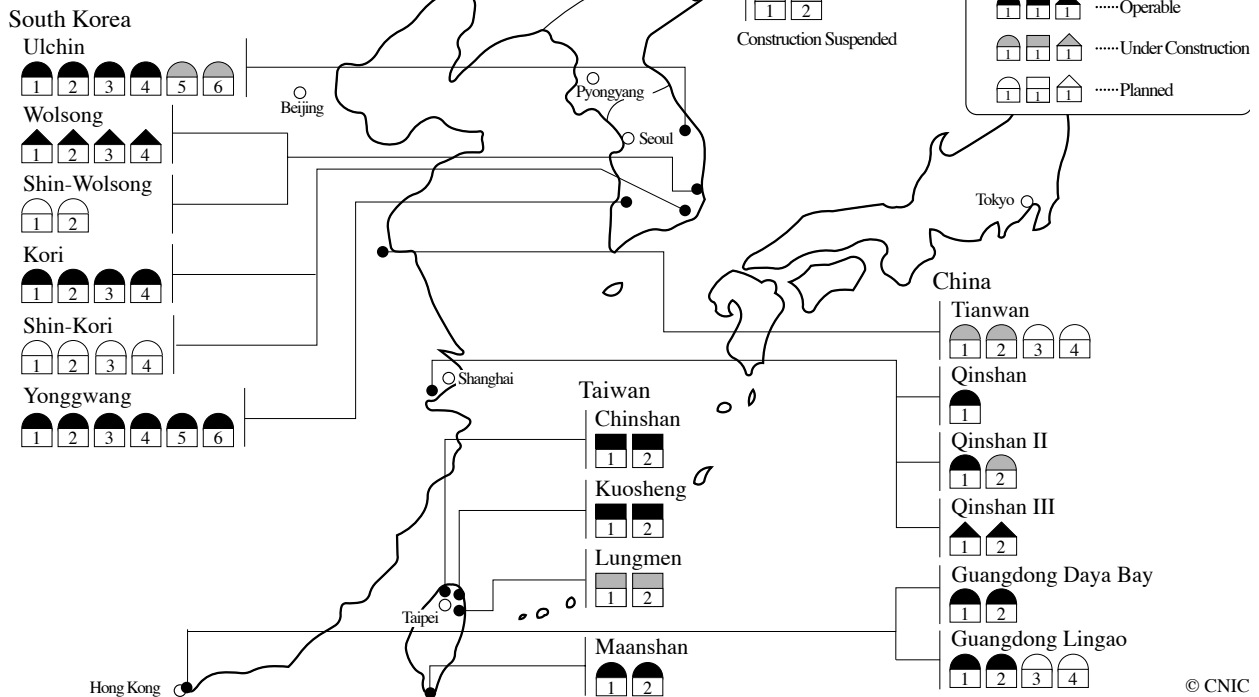
The lack of awareness of the commissioners was made plain at the 4th June 2002 AEC meeting. On 31st May Chief Cabinet Secretary Yasuo Fukuda had said at an informal meeting with the press that "if international tensions increase, regardless of the three non-nuclear principles, the general public might say 'we should acquire nuclear weapons'". Later, at an official press conference he said, "it is possible under the Constitution to have defensive nuclear weapons". In response to these comments Commissioner Noriko Kimoto raised the question, "can we overlook these remarks and remain silent?" Chairman Youichi Fujiie and Chairman's representative Tetsuya Endo (both have since resigned) rejected Commissioner Kimoto's comment saying, "the comments were poorly timed, but from the perspective of the Constitution it is as Secretary Fukuda says". The AEC was also silent in regard to the abovementioned article by JNDA President Nishihara.

We are losing those breaks that might have prevented the Rokkasho Reprocessing Plant from leading to Japan's acquisition of nuclear weapons. We wish to sound the alarm about the danger of this situation in the clearest possible terms.

Baku Nishio (CNIC)

Nuclear Plants in East Asia

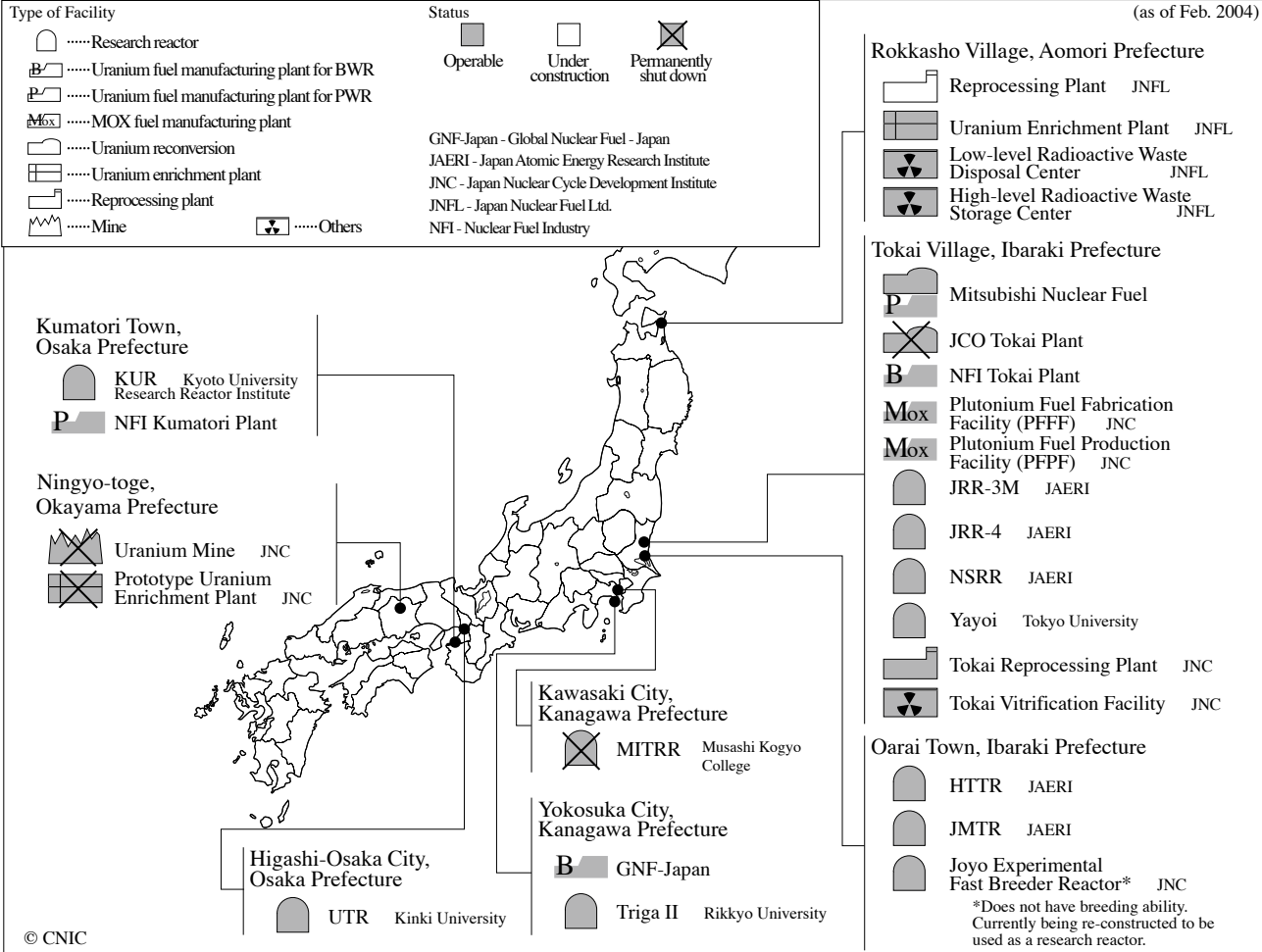
(as at Feb. 2004)



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map B Commercial and Research Nuclear Facilities in Japan

(as of Feb. 2004)

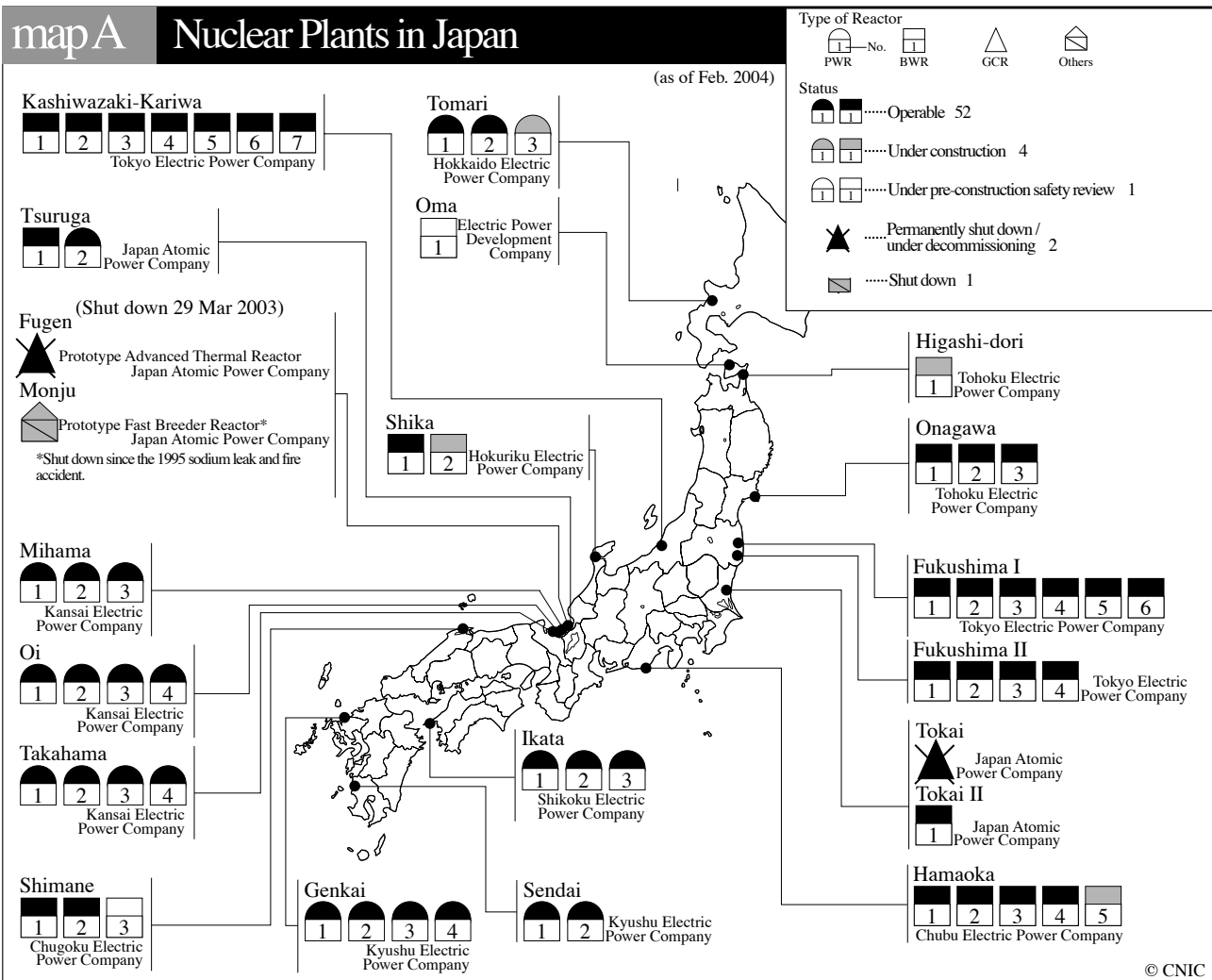
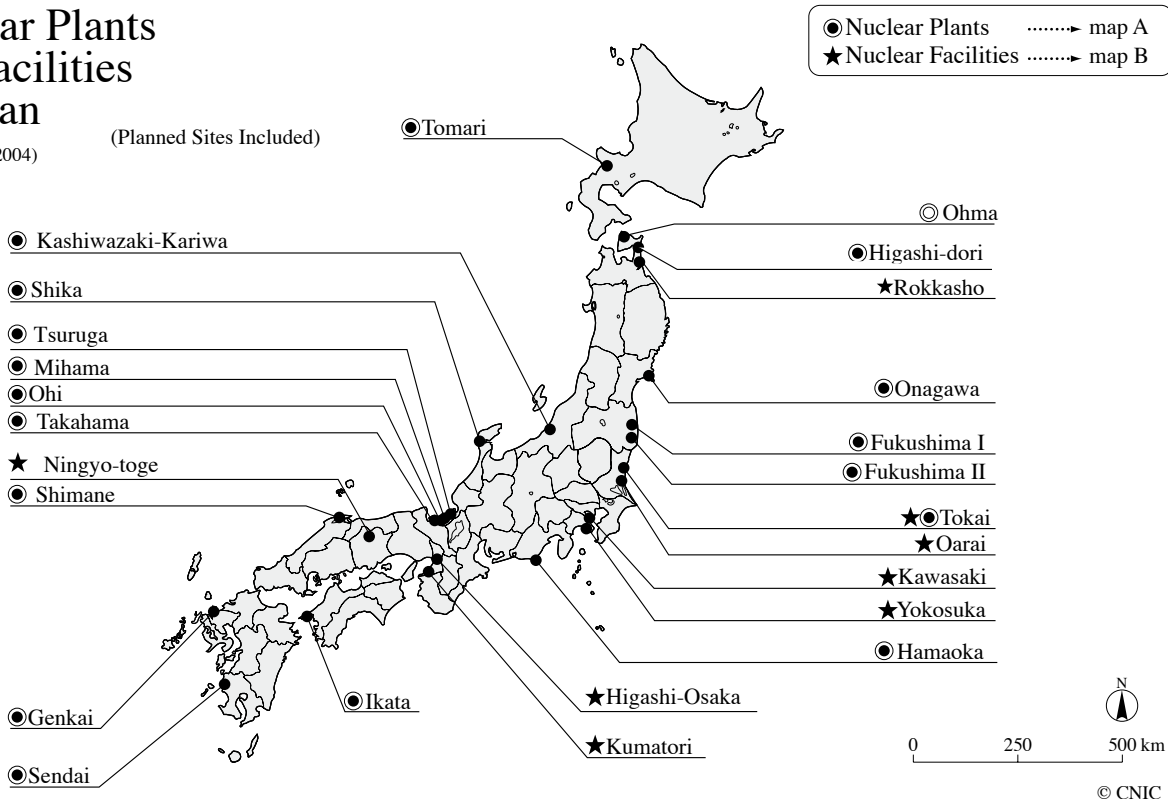


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Nuclear Plants and Facilities in Japan

(as of Feb. 2004)

(Planned Sites Included)



Rokkasho Reprocessing Plant: exposure of inadequate protective measures against aircraft crashes

It has been revealed during the Rokkasho Reprocessing Plant court case that the government approved Japan Nuclear Fuel Limited's (JNFL) aircraft crash protection measures, despite the fact that they completely disregarded the issue of safety.

Due to the presence of the U.S. Misawa Air Force base and firing range just 30km south from the plant, it was considered necessary that the plant be designed to provide special protection against a jet fighter crash.

The plant building was constructed on the premise that a jet fighter would crash into the building after gliding through the air without any engine thrust. On this basis it was estimated that the crash velocity would be 150 m/s.

The plant's major walls and ceilings were constructed to a thickness of around 120cm (maximum 180cm) in order to withstand the impact of an aircraft crashing into it at this speed.

However, at the time the plant was inspected it was confirmed that, according to a memo submitted by the operator of the plant, JNFL, the actual crash velocity could reach from 215 to 340m/s.

The memo listed problems that would arise if measures were taken to address these realistic velocities: "The plant's structure would have to be modified, but consultation with SGN (a subsidiary of COGEMA) would take more than 2 years, which would have a big impact on cost." "A velocity of 150 m/s was adopted during the inspection of the Uranium Enrichment Facility, next door to the reprocessing plant. This too would have to be adjusted to the higher speed." "Changing the crash velocity would be very controversial in the local community and the suitability of the site would be brought into question."

As a conclusion the memo notes, "in view of the effect on the plant's design and the societal impact, the company (JNFL) wishes to adopt a crash velocity of 150m/s for all facilities which

are required to take protective measures against aircraft crashes."

So the approval of an aircraft crash velocity of 150m/s was made not on scientific grounds for safety reasons, but entirely on the grounds of "cost and time constraints and societal impact."

With regard to the safety license inspection of nuclear facilities in Japan, there are two licensing steps: the first step is conducted by the government agency responsible and the second by the Nuclear Safety Commission.

The memo in question was submitted to the inspection carried out by the then Science and Technology Agency (STA), but had not been made public. This memo, which was presented by order of the court, revealed the seamy communications that passed between STA and JNFL.

Evidently the government fully accepted the company's statements and neglected the safety issue. According to our own calculations, if an F-16 fighter jet crashed at a velocity of 215m/s, the thickness of the wall would have to be at least 170 to 190cm.

A further problem is that the impact assessment for an aircraft crash employs a hypothetical jet fighter which has lost engine thrust.

The protection of nuclear facilities has become a huge issue since the September 11th terrorist attack. Surely there is no country other than Japan making such unrealistic assumptions.

Japan's regulatory authority and electric power companies doubly neglect safety protection. They dream up completely unrealistic accident scenarios and then they cheat on the specifics of the safety inspection.

And now the Rokkasho Reprocessing Plant, which only just managed to pass this deceitful licensing procedure, is still having trouble covering the cost of these flimsy ceilings and walls (about 11 billion yen).

by Masako Sawai (CNIC)

Revelations of Sloppy Management at Nuclear Power Stations

Sloppy management has been revealed at Tokyo Electric Power Company's (TEPCO) Fukushima Daiichi, Fukushima Daini (Fukushima Prefecture) and Kashiwazaki/Kariwa (Niigata Prefecture) Power Stations. Examples include tools, plastic sheets and other 'foreign objects' being thrown into the pressure suppression pool and waste being taken outside the premises to be burned.

TEPCO announced that objects had been abandoned and misplaced on 9th October 2003. Items including an iron pipe, which was used in scaffolding, were found in the suppression pool at Fukushima Daiichi Reactor No.2. After that, investigations were carried out at other nuclear power stations and 'foreign objects' were found at them all. Among the objects were an electric grinder, a wrench, dust masks, work shoes, plastic sheets, string, barbed wire, pieces of cloth, can lids and so on. All together well over a thousand items were collected. At Hamaoka and Shimane Power Stations similar 'foreign objects' were discovered.

In the case of an accident, if the pressure within the containment vessel increases, the suppression pool is used to draw off the steam from within the vessel, to cool it down and convert it into water again in order to reduce the pressure. At the same time, it also serves as one source of water for the Emergency Core Cooling System (ECCS). It is not clear how the foreign objects ended up in the pool, but it is suspected that some of the objects were thrown into the pool intentionally, not just by mistake. At any rate, if these objects had blocked the inlet for the ECCS water, or damaged the pump or the valve, it could have led to a major accident. This incident has irrefutably exposed the sloppy management of equipment in nuclear power stations.

Incredible though this incident may seem, even worse things were found at Kashiwazaki/Kariwa. Based on reports from a whistleblow-

er, a local resident group carried out soil investigations at a location outside the power station, where waste which had been removed from the power plant had been burned. There they discovered radioactivity from cobalt 60.

The resident group made its findings public on 19th December. At first TEPCO denied the accusation saying, "No waste material has been taken outside the controlled area". The management principles applied to waste generated in this controlled area treats all such waste as radioactive waste. The principles covering Japan's nuclear power plants in this regard have not changed, so such waste "would not", TEPCO stressed, "have been taken outside".

However, on 6th February 2004, TEPCO made a 180 degree turn by admitting that waste was taken out to be burnt or buried. TEPCO does not admit to transporting waste, but reusable tools can be taken out and reused if the radioactivity is below the permitted level (the legal standard is 0.4 Bequerels/cm² and at TEPCO the level of radioactivity for objects which can be taken outside is one tenth of this). The same applies for recyclable materials such as batteries etc. If the radioactivity is below the permitted limit, they can be taken to recycle traders outside. Thus, according to TEPCO's explanation, some of the objects taken outside to be recycled were thrown away.

Regarding the waste which was taken outside, TEPCO says, "the material shouldn't be contaminated, so there is no need for a follow-up survey or recovery of the material". But as it turns out, that which "shouldn't be" in fact is and as more and more facts are brought to light, the anxiety and distrust of the local people grows.

by Baku Nishio(CNIC)

Anti-Nuke Who's Who

The Sea and Takeichi Saito

by Hideyuki Sato

Takeichi Saito sees the present and the future through the sea and through the sea he sees the future of his home town, Iwanai.

Born in 1953, Takeichi started measuring the temperature of the sea in early Spring, 1978. In the spring of 1977, at the age of 24, he was suffering from sores all over his body. Unable to continue his student life in Tokyo, he returned to his hometown Iwanai in Hokkaido. When he returned, it was the sea and the sky which welcomed him - warmly, with no questions asked - and he worried about the future of his beloved hometown, then in the midst of a debate about the construction of a nuclear power station.

Hokkaido Electric Power Company (HEPCO) had started making preparations for the construction of two nuclear reactors at Tomari Village, which lies in the Herokaruusu area on the opposite side of Iwanai Bay, about 5 km from Iwanai Town. Iwanai's main industry was fishing and at the time the Iwanai County Fishing Association was vehemently opposed to the construction of a nuclear power station.

When the power station starts operating, radioactive material will be released. Furthermore, large amounts of seawater will be used as cooling water. This will be warmed by around 6° or 7° then discharged continuously as thermal discharge back into Iwanai Bay. "The sea will be murdered." "Our hometown will be destroyed." What should he do, he wondered.

He was unable to shout out against the power station and he had absolutely no idea what a person such as himself could do. Distressed by this state of affairs, he went to the harbor nearby his house and, gazing at the proposed site of the nuclear power station on the opposite shore, he continued to mull over the problem.

On one of those days, he thought to himself that even if it was impossible to fight against the power station itself, there must be something that he as an individual could do.

"The sea!" "That's it! The sea which has supported the town of Iwanai for all these years! We have to protect the sea right in front of our eyes."

Even though it was repugnant for him to accept

the construction of the power station as a fait accompli, he realized that it was important to measure the temperature of the seawater before large amounts of thermal discharge water were released.

He decided that that was what he would do.

From that moment his struggle began. At the start it was a case of groping his way forward - finding a place on the breakwater to measure the seawater temperature, deciding the time, choosing his implements - but in the process he developed his own unique methods. However, doubts persisted. "Am I really helping to protect the sea? Am I not just running away from the fight against the power station? Does the data, which I collect every day, have any scientific foundation?"

The sea greeted him with many different faces. Its colors and moods changed every day. On stormy winter days he was sometimes almost swept away by the waves which broke over the seawall. But the sea kept saying to him, "Protect me!"

The data he collected corresponded wonderfully with the data of Hokkaido Prefecture and HEPCO. At times he also pointed out mistakes in the Prefecture's data, forcing them to correct it. Truly he has, in his own way, carried on the fight.

Twenty-seven years have passed since Takeichi began measuring the temperature of the seawater. Over that time, as a childcare worker, he has nurtured the development of many children. But even now, supported by his family, he still takes his bucket and thermometer every day and, along with the sea he loves so much, he continues the

Hideyuki Sato is a member of the Research Committee into the Problems of the Iwanai Power Plant



NEWS WATCH

MHI Receives Order for U.S. Repair Work

Mitsubishi Heavy Industries Co., Ltd. (MHI) received an order jointly with Westinghouse Electric Corp. (WH) for the replacement of the upper reactor vessel and control rod drive of H.B. Robinson Nuclear Power Plant in the U.S. MHI will be responsible for the manufacture of the equipment, while WH will be in charge of installation. In 2003 MHI received an order to replace two steam generators for Fort Calhoun Nuclear Power Plant, also in the United States. These are currently being manufactured.

In the past MHI has also received orders for the replacement of steam generators from Belgium. It delivered a total of six steam generators to Tihange Nuclear Power Plant in 1995 and 2001, and two to Doel Nuclear Power Plant this year.

MHI's annual nuclear-related sales amount to almost 200 billion yen. Foreign sales are about 10 billion yen, but MHI aims to increase orders from overseas in future.

MHI Bids for Reactor Manufacture in China

Mitsubishi Heavy Industries Co., Ltd. (MHI) is planning to enter a joint bid with Westinghouse Electric Corp. of the United States in the international competitive bidding for the construction of two PWRs each (1,000-1,500 MW) at the Ling Dong and Sanmen Nuclear Power Plants in China. It is said that China plans to order the primary (reactor) and secondary (turbine) systems separately, but MHI hopes to win orders for both systems. For the primary system FRAMATOME of France, and for the secondary system General Electric Co. of the United States and Hitachi, Ltd. and Toshiba Corp. of Japan are likely to be MHI's main rivals. As a condition in the awarding of the contract, the Chinese government is demanding that the successful bidder realize about 60% of production domestically through technology transfer to Chinese firms.

TEPCO Requests Site for Spent Fuel Storage

On February 18th President Katsumata of Tokyo Electric Power Company (TEPCO) visited Governor Mimura of Aomori Prefecture and Mayor Sugiyama of Mutsu City to ask for their cooperation in the siting of an interim storage facility for spent nuclear fuel. TEPCO's plan is for the dry storage of about 3,000 tU of spent fuel.

Mayor Sugiyama warmly welcomed the request saying, "We are most grateful to you, since we made the request in the first place. We hope that you will ensure that there are no delays." Governor Mimura, on the other hand, stated first, that the problem of defective welding in the spent fuel storage pool at Rokkasho Village (see NIT Nos. 95 and 98) was most regrettable from the point of view of the safety of the residents of the prefecture. He further added, "The prefectural government is watching the response of the central government and the company very carefully. We will begin to consider the interim storage facility plan only after we assess how the central government is tackling the problem of the soundness and quality assurance of the reprocessing plant."

Request for Measures against Exposure to Cosmic Rays

On February 6th two trade unions, one covering pilots and the other flight attendants on commercial aircraft, submitted a petition to the Minister of Education, Culture, Sports, Science and Technology requesting regulations dealing with exposure to cosmic rays during flights. Cosmic rays are very strong at altitudes above 10,000 meters, where passenger planes on international routes fly. If a pilot or flight attendant shuttles between Narita and New York ten times, he or she may be exposed to 1millisievert, which is the annual dose limit for the general public. It is said that the exposure received during a single long flight over high altitudes during a period of high cosmic ray activity may exceed this dose limit.

In 1990 the International Commission on Radiological Protection (ICRP) defined the exposure of aircraft crew to cosmic rays as occupational exposure and recommended that steps be taken to protect against it. The petitioners criticized the Japanese government for neglecting the recommendation during the 14 years that have passed since then, and demanded that it immediately take steps to address the problem.

A Candidate for the High-Level Radioactive Waste Disposal Site?

It has been more than a year since the Nuclear Waste Management Organization of Japan (NUMO), in December 2002, publicly began its search for candidates for a high-level radioactive waste disposal site. Now a first candidate town may have emerged.

On December 8, 2003 about 30 residents of Saga Town, Kochi Prefecture, located on the Pacific coast of Shikoku Island, submitted a petition to the town council, calling for it to respond to the invitation. The purport of the petition was, "in order to achieve a breakthrough in regard to such problems as shrinking population and the decline of local industries, we should seek to revitalize the town through the economic benefits brought by state subsidies and project implementation." If the town were to submit an application, it would be granted 210 billion yen per year while a survey is conducted to see whether the site should become a candidate. If it were to become a candidate site, then it would receive a total sum of up to 7 billion yen (the annual ceiling being 2 billion yen) while a further survey is carried out to determine whether it is a suitable site.

NUMO explained at the council meeting that they could withdraw their application even after the process has commenced. NUMO is bending over backwards to interest the council in the proposition, because then they will be able to say to others that they have a candidate and that not

everyone has turned their nose up at the project. However, many council members were bewildered, saying that they could not make a judgment until they learnt more about the project. The local fishing cooperative also reacted negatively, worrying that talk of such a proposal might in itself be sufficient to cause a drop in the price of fish. The town mayor is said to be at a complete loss over the matter.

The chances of this being the "first candidate" would seem to be slim.

Nuclear Industry Trends

On January 15 the Japan Atomic Industrial Forum, Inc. (JAIF) published the findings of its FY2002 Nuclear Industry Fact-Finding Survey. This is a series that JAIF has produced every year since 1959 based on a questionnaire sent to relevant companies. This time target companies included a total of 356 businesses with some sort of a track record in the industry in 2002. These included 11 electrical businesses, 318 mining and manufacturing companies, and 27 trading companies.

One notable result was the decline in sales in the mining and manufacturing sector. In FY2002 industry sales were 149.8 billion yen, falling below 150 billion for the first time in 14 years. The slump in the reactor equipment sector is particularly great, with sales remaining below the 500 billion mark for five successive years since FY1998 (less than a half of the peak period). They are expected to decline further in the future.

The number of people working in the nuclear power-related field of the mining and manufacturing industry sector has continued to decrease from 61,007 in the peak period of 1992 to 40,986 in 2002. This is also expected to decrease in the future.

This is the reason why the industry is trying so hard to secure orders from overseas.

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