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Back-sliding on Monju

"OK. They've won their court case. Now perhaps they can let Monju go." Thus spoke CNIC Co-Director Baku Nishio, attempting to put a favorable light on the Supreme Court's rejection of the twenty-year struggle of residents opposed to the construction and operation of the Monju Prototype Fast Breeder Reactor (280 MW FBR) in Tsuruga, Fukui Prefecture. He said this knowing from bitter experience how stubbornly Japanese politicians and public servants cling to policies to which they have once committed themselves. It seems to have less to do with the practical merits of the policy and more to do with saving face. Maybe now at last they can feel that their faces are not in danger.

Interestingly, within two weeks of the Supreme Court decision newspaper reports suggested that Monju was not the top priority project in Japan's nuclear development strategy. An article in the Asahi Shimbun, a leading daily national newspaper, included the following claim: "In a policy shift, the government will upgrade existing light-water nuclear reactors and shelve its fast-breeder reactor plans for the nation's power needs over the next few decades, officials said Thursday." (11 June 2005) The official quoted was from the Nuclear Energy Policy Planning Division of



Waiting for the verdict (Photo by Hidemichi Kano)

the Agency for Natural Resources and Energy. This agency is an affiliate of the Ministry of Economy, Trade and Industry, the ministry responsible for nuclear energy development.

Actually, this policy shift was inevitable, since FBRs won't be developed in time to replace the current fleet of light water reactors. It is still official government policy to proceed

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with FBRs, although they are not expected to be operating on a commercial scale until around 2050. The Monju prototype itself is supposed to recommence operations around February 2008. However, the timing of this announcement suggests that the administration realizes that the Supreme Court decision isn't the FBR's biggest hurdle. Of far greater significance are the questions of whether a sodium cooled fast reactor can ever be operated safely and economically and whether the 'B' part of FBR will ever work according to theory. The latter question can be rephrased as, "Will FBRs ever succeed in breeding more plutonium than they consume?" After all, that is the whole purpose of this type of reactor. FBRs are supposed to turn all the world's uranium reserves into plutonium, thus multiplying the energy generating potential of this fuel source sixty fold and solving the world's energy problems for thousands of years.

Returning to the Supreme Court verdict, the decision overturned a January 2003 ruling by the Nagoya High Court that the Monju license approval was invalid (NIT 93, 104). The High Court had concluded that three major flaws in the Nuclear Safety Commission's (NSC) safety assessment made it invalid. Each of these flaws entailed the possibility that there could be a release of radioactivity into the environment. It concluded that the flaws were too serious to be overlooked and had resulted in an unreasonable decision to approve construction of Monju.

The first flaw related to the steel floor liner. This was designed to prevent any sodium leak from leading to contact between sodium and the concrete floor. Such contact could lead to an explosive reaction between the sodium and the water in the concrete. The safety assessment underestimated the temperatures that could result from a sodium leak. It also failed to take into account the phenomenon of erosion resulting from an interface reaction involving sodium, steel and oxygen. A major reason why the High Court found in the citizens' favor on this issue was the December 1995 sodium leak.

Although the liner was not breached, information that came to light as a result of that accident in regard to the abovementioned erosion phenomenon and the high temperatures reached clearly revealed the flaws in the original safety assessment. Monju has been closed since this accident.

The second flaw related to the steam generator. Here heat is transferred from the secondary sodium coolant to pipes with water and steam running through them. If water or steam were to leak out through holes in these pipes, there could be an explosive reaction with the sodium. The safety assessment considered only 'wastage' as a cause of any such leakage. It didn't consider the phenomenon of 'high temperature rupture'. This phenomenon has the potential to cause many more pipes to rupture than in the case of wastage. The fact that such a rupture could occur was demonstrated by a 1987 accident at the UK Prototype Fast Reactor, but this accident was covered up for many years.

The third flaw related to the potential for a reduction in primary coolant to lead to a loss of control over the reactivity of the core. The safety assessment failed to consider higher estimates that had been made of the energy which could theoretically be released and it discounted the possibility that such a situation could lead to a collapse of the core.

In overruling the Nagoya High Court's verdict, the Supreme Court looked at each of these alleged flaws and essentially concluded as follows:

1. It was not the role of NSC's safety assessment to assess the detailed design features of the steel floor liner. Matters such as thickness and other dimensions could be addressed at later stages of the approval process. NSC's role was to assess the 'basic design' only and at this stage it was sufficient to conclude that there would be a steel liner and that, in theory, specific dimensions could be selected that would prevent contact between sodium and the concrete floor in the event of a sodium leak.
2. There were a number of safety features that would act as a back up in the case of a high

temperature rupture in the steam generator.

3. Overseas examples of standards and analyses were proposed by the citizens as evidence that the Monju safety assessment underestimated the energy that could potentially be released, but these examples could not be generalized to Monju.

Hence, the Supreme Court concluded, it was not reasonable to conclude that the approval contained flaws that could not be overlooked, or that the approval was unreasonable.

What the Supreme Court didn't say was that Monju was safe to operate. It followed a very narrow line of argument designed only to confirm that NSC's safety assessment was "not unreasonable" and that it didn't "contain flaws that could not be overlooked". In doing so, it excluded indisputable design defects on the grounds that they were beyond the scope of this particular step in the safety assessment process, it failed to address serious doubts about whether safety systems would actually work as designed, and it ignored the clear similarities between the overseas examples and Monju. So regardless of whether or not the verdict could be justified on technical grounds, it did nothing to resolve the biggest obstacles facing Monju and the FBR program (identified above as safety, economics and plutonium breeding).

The lawyers representing the citizens have concluded that the decision was incorrect. They say it also exceeds the Supreme Court's authority. The Supreme Court is supposed to review the legality of the High Court's decision on the basis of the 'factual matters' presented to the High Court, but in this case it introduces new 'factual matters'. On June 28th the citizens lodged an appeal for a review of the decision. One would presume that their chances of success are not high, but it is easy to understand the feeling that, after coming so far, they should give it this one last shot.

However, as things now stand, this verdict will make it very difficult for future challenges to nuclear power plant licenses. It won't be enough to prove that the safety assessment failed to ensure that the reactor could in

fact be operated safely. It will be necessary to argue, from the standpoint of the safety reviewers themselves, that the approval was unreasonable. Whereas the Nagoya High Court demanded that the NSC safety review address all factors that could lead to a major accident and prove that such an accident could not occur, the Supreme Court left these judgments to the NSC experts. In that sense, it was a victory for the technocrats. It could be said that whereas the Nagoya High Court followed the precautionary principle, the Supreme Court threw caution to the wind.

As reported in News Watch 105, preparations have begun for modifications to Monju. These will include replacement of the temperature gauge which was the cause of the sodium leak accident in 1995. There will be opportunities before the scheduled restart in February 2008 to block the operation of Monju. The Fukui governor approved these modifications, but that doesn't mean that he won't be responsive to public pressure in future. Monju remains a very unpopular nuclear reactor. The Supreme Court decision has done nothing to alleviate public distrust, so the struggle goes on.

Philip White (NIT Editor)

Haiku for the Season

*on a stump
the silver thread
formed by a snail*

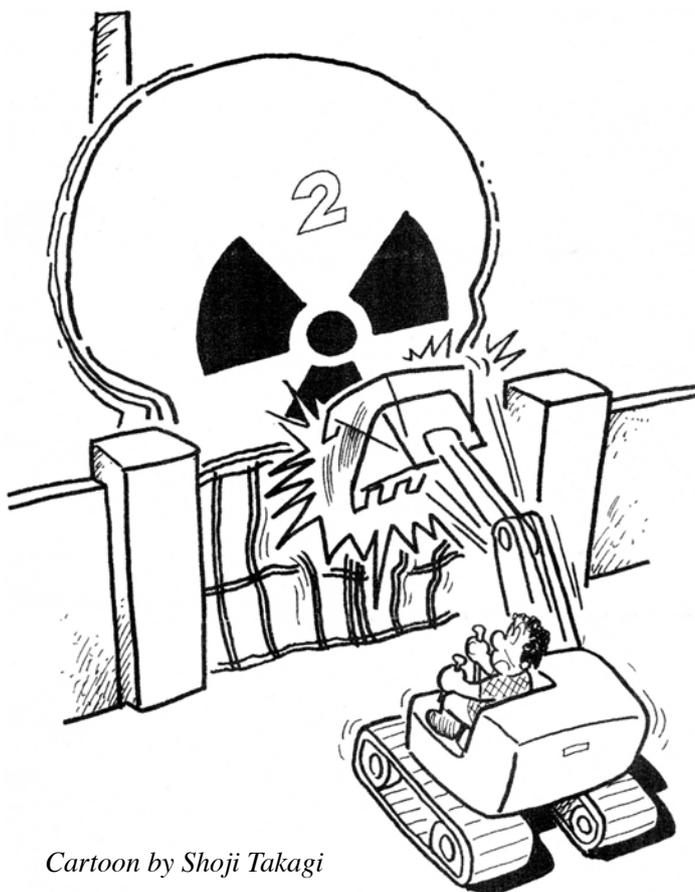
by Rumi Kamishima

No Nukes Asia Forum, Taiwan 2005

reconfirms declaration for nuclear phase-out and suspension of construction of Taiwan Nuclear Power Plant No. 4

The No Nukes Asia Forum (NNAF) was held from June 2nd to 8th in Taipei, Taiwan. There was a conference on the 4th and 5th and on the 7th there was a visit to the interim low-level radioactive waste storage facility on Orchid Island. The conference was sponsored by the Taiwan Environmental Protection Union (TEPU). Participants from countries other than Taiwan included nine people from South Korea from groups including the Korean Federation for Environmental Movement (KFEM) and Green Korea United (GKU), nine people from Japan and one person responsible for climate change issues from WISE Amsterdam. I only attended from the 3rd to the 5th, so this report will focus on that part of the forum.

June 3rd was devoted to study tours. In the morning we visited Taiwan Nuclear Power Plant No. 4 (NPP4), which is currently under construction. In the afternoon we visited NPP1 & NPP2. NPP4 is located at Lungmen, GongLiao Village, Taipei County. The most surprising thing for me was that erosion of Fulung Beach, the best beach in Taiwan, located in a national park, has become worse because of the construction of NPP4. The end of the bridge that goes down to the sand hill is already under water. We were told that in summer the beach used to attract bathers from all around the country, but now fewer and fewer people are coming. The local fisher people say that this is because the tides have changed as a result of the harbor built for NPP4. The day we visited, dredging was being undertaken offshore for the warm-water outlet from NPP4. According to the fisher people, as a result of the dredging the sea bed is covered with mud. This is devastating for the coral and makes it difficult for fish to survive. Also, fish don't come near because of the noise from the dredging. As a consequence the fish catch has fallen dramatically. The fisher people complained bitterly that these circumstances have forced them to do part-time work to earn cash. According to Taipower construction is 60% com-



Cartoon by Shoji Takagi

plete.

We were only able to see NPP1 & NPP2 from the outside. After this excursion, a group from NNAF, along with about 20 Taiwanese people, went to the Jin San Town Hall, where discussions were held between citizens and Mr. Tiang¹ from the town hall. Speaking for the citizens was Mr. Xu¹, a sturdy man of around 60. Apparently, a few years ago he took a shovel car to the front entrance of NPP2 and knocked it down. He was sentenced to a one-year prison term, suspended for five years. The five years isn't up yet, so he's still on a good behavior bond. Apart from such direct action, he also conducted a survey of deaths of residents based on family registers. He reported that of the 600 deaths in the five-year period from 1997 to 2002, 175 were from cancer, a much higher rate than in the past and nearly three times the average for the whole of Taiwan. This led him to believe that the cause of the high rate of cancer deaths in his town was radioactive emissions from

the nuclear power plant. This conviction led him to knock down the front gate.

The distribution of iodine tablets was also discussed. The government decided to distribute them to all residents within a 5km radius of NPPs, although it hasn't carried this out yet. This was an electoral policy agreement between TEPU and the Democratic Progressive Party (DPP). TEPU had demanded that they be distributed to people within a 32km radius, so they still have work to do to get their demands fully implemented.

The international conference was held on the 4th. It took place at the same venue as the 2002 NNAF (National Taiwan Normal University). The main themes were the Kyoto Protocol, which came into effect in February this year, nuclear industry trends, and the anti-nuclear energy movements of the participating countries. From Japan, I reported on the Kyoto Protocol and the Japanese nuclear industry, Kagoshima University professor, Takeo Hashizume, reported on wind energy and Kashiwazaki City Councilor, Tadao Yabe, reported on Japan's anti-nuclear energy movement.

Kwanghoon Seok of Green Korea United reported on the situation of South Korea's nuclear industry. At the moment there are twenty reactors operating in South Korea with four more under construction; and the government has decided to build a further twelve reactors. However this will be more difficult than before because of the citizens' awareness of the dangers associated with nuclear power. As discussed below, public opposition has prevented the storage of radioactive waste outside nuclear facilities. Consequently, low, medium, and high-level wastes are all stored on site, (the high-level waste being spent fuel). Korea Electric Power Company has a nuclear liability fund (5-6 won/kWh) to cover management and disposal, but has been criticized for using this to cover construction costs. South Korea's electric power supply currently includes 38.7% nuclear, 38% coal and 15.4% natural gas, but the plan is to increase the nuclear portion to 46.9% by 2017.

Seonghwa Lee, a young activist from KFEM, reported on the movement against the plan to build a waste disposal site in Buan. (In fact, all the South Korean participants were young.) Ms Lee is a very energetic activist and spoke passionately from her experience living and campaign-

ing for several months in Buan. Her passion was infectious and everyone at the meeting loudly applauded when she showed a photo of the town square in Buan filled with candle light from candles held by over 10,000 Buan residents.

From Taiwan reports were heard from Gloria Hsu, Jiau-Hua Chen, Shin-Min Shih, and Tse-Luen Lin. Their reports focused on the NPP4 reactor and the national referendum movement. So far there have been four citizen-organized local referenda on NPP4. All were organized as grassroots, citizen-based democracy ballots, either by TEPU, or by the Association for Promotion of Referendum on NPP4 after it was established in 1994. In each case there was a majority against the NPP4 reactor. The trend was that the areas nearer to NPP4 had a bigger majority against it. However, since these ballots had no legal basis, the government rejected the results.

DPP was founded in 1986, the year before the Sedition Law was repealed. From its founding DPP opposed building new nuclear power plants and party policy actively promoted the introduction of renewable energy. During the 2000 general election, DPP made a public commitment to the residents of GongLiao that if it won the election it would terminate construction of NPP4. However, the Constitutional Court decided that stopping construction was unconstitutional, so construction continued. Since then, the Association for Promotion of Referendum on NPP4, led by TEPU, has organized three waves of a '1,000-mile march'. The marchers visited every corner of the country appealing for a national referendum. As a result, in June 2003 President Shui-Bian Chen announced at the government's 'National Conference on a Nuclear Free Country' that a national referendum on NPP4 would be held to coincide with the 2004 presidential election.

However, in December of the same year the Taiwan parliament established the Citizen Voting Law. This law requires parliament to decide whether national referenda will be held and to determine their content. Although DPP won the presidential election and therefore formed the government, the opposition Nationalist Party (Kuo Min Tang, (KMT)) still holds a majority in parliament. Another obstacle is that the law requires more than 50% of eligible voters to vote

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Major Incidents at Nuclear Facilities April 2004 - March 2005			
Date	Company	Facility	Incident Description
4 May 04	KEPCO	Ohi-3	Discovered boric acid near nozzles on the reactor head and cracks in the base of the control rod drive mechanism tube during a periodic inspection.
8 June 04	JAPCO	Tsuruga-1	Automatic scram due to sudden closing of turbine control valve.
10 June 04	KEPCO	Ohi-1	During periodic inspection, top of refueling water storage tank deformed and broken while filling the reactor cavity with water in order to remove fuel.
16 June 04	TEPCO	Kashiwazaki-Kariwa-5	Power output reduced to 980 MW (89% of full output) due to reduction of insertion pressure of one control rod.
21 June 04	JNC	Tokai Reprocessing Plant	During operation of reprocessing facility, discovery of Americium 241 etc. contamination on wall of the analysis building (alpha: 555 Bq / square cm).
21 June 04	TEPCO	Kashiwazaki-Kariwa-1	Power output reduced to 800 MW (73% of full output) due to reduction in vacuum in condenser.
5 July 04	KEPCO	Ohi-1	During periodic inspection, discovered thinning at elbow section downstream of the main feedwater isolation valve in the secondary system. 3 out of 4 loops were thinner than the regulatory requirement of 15.7 mm.
14 July 04	KEPCO	Ohi-1	Leak from around a patched part of a return line to the refueling water storage tank.
9 Aug 04	KEPCO	Mihama-3	Rupture of A loop condensate pipe in secondary system. Large scale release of steam results in death of 5 workers and injuries to 6 others. Automatic scram due to imbalance in flow of coolant in steam generator.
6 Sep 04	KEPCO	Takahama-4	Damage to steam generator tubes discovered during inspection of tubing of all 3 steam generators. In locations where tubes are bent into a U shape, the thickness of the outer surface was reduced by 20% or more in a total of 339 tubes.
10 Sep 04	Kyushu	Sendai-1	Damage to steam generator tubes discovered during inspection of the 10,096 tubes currently in use in the 3 generators. Cracks were discovered in 5 tubes on the hot leg side of the tube sheet and tube expanded area. Where tubes are bent into a U shape, thinning of the outer surface was discovered in a total of 287 tubes.
21 Sep 04	Hokkaido	Tomari-1	Damage to steam generator tubes. During inspection of 6,764 steam generator tubes of the 2 generators, thinning of the outer surface was discovered in 56 tubes.
29 Sep 04	TEPCO	Fukushima I-2	Manual shut down due to trip of coolant recirculation pump (loop B).
25 Oct 04	KEPCO	Mihama-1	Inadequate thickness of pipes downstream of auxiliary feedwater flow adjustment valve (B) in turbine drive auxiliary feedwater system.
15 Dec 04	Kyushu	Sendai-2	Damage to steam generator tubes. During inspection of the 10,127 tubes in the 3 steam generators, thinning was discovered on the outer surface of 426 tubes.
21 Dec 04	Chubu	Hamaoka-1,2	Crack discovered in stack shared by Hamaoka 1 & 2.
24 Dec 04	Shikoku	Ikata-1	Crack discovered in stack of auxiliary building during periodic inspection.
18 Jan 05	JAPCO	Tsuruga-2	Damage to steam generator tubes. During inspection of the 13,524 tubes in the 4 steam generators, thinning was discovered on the outer surface of 475 tubes.
4 Feb 05	KEPCO	Mihama-1	Manual shut down due to leak from drain pipe cap of steam room for 1A moisture separator and heater.
24 Feb 05	Tohoku	Onagawa-1	Manual shutdown on 25th due to fears of possible leak following discovery of increase in frequency of replenishment of nitrogen to containment vessel.
19 Mar 05	KEPCO	Mihama-1	During patrol of basement level 1 of auxiliary building it was discovered that 3 bolts had broken and fallen down from number 1 manifold cover of charging pump B of the chemical volume control system. One broken bolt was also discovered on number 2 manifold cover.

This year we have only listed significant incidents which must be reported by law.

TEPCO: Tokyo Electric Power Company

KEPCO: Kansai Electric Power Company

JAPCO: Japan Atomic Power Company

JNC: Japan Nuclear Cycle Development Institute

Hokkaido, Tohoku, Chubu, Kyushu and Shikoku all have 'Electric Power Company' added to their names.

(Japan's two other nuclear power companies, Hokuriku and Chugoku Electric Power Companies, escaped mention this year.)

US company may take uranium-contaminated soil from Japan

On June 12th the Japan Nuclear Cycle Development Institute (JNC) announced that it is considering sending 290 cubic meters of 'uranium-contaminated soil' to the US. This 'soil' has been left abandoned near Ningyo Toge², near the border of Tottori and Okayama Prefectures for over forty years.

JNC has sounded out a private uranium refining company in the US about taking this 'uranium-contaminated soil' off its hands. JNC refuses to divulge the name of the US firm to whom it hopes to send the soil, but data regarding radioactivity and soil quality have already been sent to the company. JNC hopes to sign a contract this summer and send the soil overseas this year. It is expected that transport and processing will cost over 600 million yen. JNC had referred to this 'uranium-contaminated soil' as 'suteishi', which literally means 'thrown away waste rock'. However, now that it is thinking of sending it the US to be refined, it has changed the term to 'junkoseki'. This translates roughly as 'quasi-ore'. No doubt JNC is eager to present its merchandise in the best possible light to potential buyers, but the reality is that it is radioactive waste and, as such, is unlikely to be welcomed by the American public.

There is a question about whether or not this uranium is covered by the Japan-US Nuclear Energy Agreement, but regardless of the judgment made on this, approval is certainly required from both the Japanese and US governments. A license is required for import to the US and information regarding this will be published on the Nuclear Regulatory Commission's document system, ADAMS, so once a contract is signed, and before the material is sent to the US, the name of the receiving company will become public.

The precise location of the soil is the Katamo District of Yurihama Town, Tottori Prefecture. It was originally excavated by a pre-

decessor of what is now JNC. The immediate predecessor of that organization was the Power Reactor and Nuclear Fuel Development Corporation (PNC), but the organization that carried out the uranium excavation was an even earlier incarnation known as the Atomic Fuel Corporation. In any case, all three incarnations are the same government owned organization.

In 1988 abnormally high levels of radioactivity were discovered on the exposed soil (see history table). After a long running court case, in October 2004 the Supreme Court ruled that a total of around 3,000 cubic meters of soil must be removed. Of this, the radioactivity of around 290 cubic meters is relatively high (yearly dose exceeding the limit of 1 millisieverts under mining regulations). It is this which JNC is considering sending for processing and storage to a company in the US.

When JNC failed to take immediate action after the Supreme Court verdict, the local council sought an enforcement order. Tottori District Court ordered JNC to remove the 290 cubic meters with relatively high radioactiv-

Date	Developments
1955	Japan's first uranium bearing ore found at Ningyo Toge.
1958	Atomic Fuel Corporation begins excavation at what is now Yurihama Town (then Togo Town).
1963	Operations closed down.
1988	Discovery of abnormally high radioactivity in exposed soil.
1990 (Aug.)	Agreement between PNC and the local district council regarding removal, but the proposed destination in Okayama Prefecture refuses to accept it.
2000 (Nov.)	The local council launches a legal case for removal of all 3,000 cubic meters.
2002 (June)	Tottori District Court finds in favor of the local council.
2004 (Feb.)	Matsue branch of Hiroshima High Court rejects JNC's appeal.
2004 (Oct.)	Supreme Court rejects JNC's appeal.
2004 (Dec.)	The local council demands an enforcement order. Tottori District Court orders JNC to remove 290 cubic meters by 10 March 2005, or pay 750,000 yen per day there after as a penalty. The remaining 2,710 cubic meters must be removed by May 2006, with a penalty of 50,000 yen per day beyond that date.
2005 (Feb.)	JNC announces that it will remove the soil to another district in the same town, where it owns a facility, but Tottori Prefecture prohibits this.
2005 (Mar.)	Penalty begins to accumulate.

ity by March 2005. Failing this, JNC must pay the local citizens 750,000 yen per day after this date. As at July 13th the penalty has reached 93,750,000 yen. The remaining 2,710 cubic meters must be removed by May 2006, after which JNC will incur a further penalty of 50,000 yen per day. JNC is a government corporation and 80% of its budget comes from the government, so this penalty is being funded by tax payers' money.

In November last year JNC announced that as a temporary measure it would transfer the soil to another site about a kilometer away in a different district, but still in Yurihama Town. However, this plan met strong local opposition and Tottori Prefecture blocked the move under the Prefectural Natural Parks Ordinance. In the whole Ningyo Toge area there is 420,000 cubic meters of abandoned material excavated during the development of this uranium mine. Furthermore, elevated levels of radioactivity have been found in paddy fields etc. in the area.

In the light of the vexed history surrounding this case, JNC's latest plan can be seen as a desperate attempt to pass the problem onto someone else, the further away the better. However, if public opposition in the US blocks the plan, JNC will be back where it started and the old adage will be proven true once again, namely that the nuclear industry is like a house without a toilet, and nothing smells fouler than radioactive waste.

Philip White (NIT Editor)

1. The soil in question was excavated in order to get to a uranium ore seam. Apparently the ore from the seam itself has been removed, but the soil etc. through which they bored to get to the seam was abandoned, despite the fact that it contained elevated levels of uranium. The purpose of the boring was to ascertain whether a viable uranium mine could be established. As it turned out, the quality of the uranium ore was low, so the mine and the excavated material were abandoned.
2. 'Toge' is a Japanese word meaning 'mountain pass'.

Continued from page 5 in order for the result to be valid. For practical purposes, this makes a national referendum impossible.

At the NNAF conference, TEPU members explained that they will demand that the law be changed. The tenacious campaign against NPP4 continues, but one detects signs of tiredness in the local anti-nuclear group in GongLiao. We heard how Taipower takes advantage of the parlous situation facing the fishing industry by threatening and bribing, hoping to split the opposition. I was reminded that there is little difference wherever one goes when it comes to state power riding roughshod over the wishes of the people. The local people have not given up, but the movement seems to be gradually changing.

Hideyuki Ban (CNIC Co-Director)

1. We aren't sure if this is the correct romanized spelling of their names.

Continued from page 9 pool. This led to delays in the uranium trials.

As a result of the latest leak, JNFL has announced that for the time being no more spent fuel from power plants around the country will be loaded into the pool. This was unavoidable, since the burnable poisons pit is connected to the rest of the pool. Following the reoccurrence of leakage from the spent fuel pool, numerous questions were raised in the Rokkasho Village Council about JNFL's quality control system. Also, the Nuclear Fuel Cycle Facilities Neighboring Towns Liaison Council, comprising Rokkasho Village's neighboring towns (Misawa City, Noheji Town, Yokohama Town, Tohoku Town and Higashidori Village) sent a letter of protest to JNFL saying that the safety measures at the facilities were inadequate. Citizens' groups are demanding that the uranium trials be suspended.

Masako Sawai (CNIC)

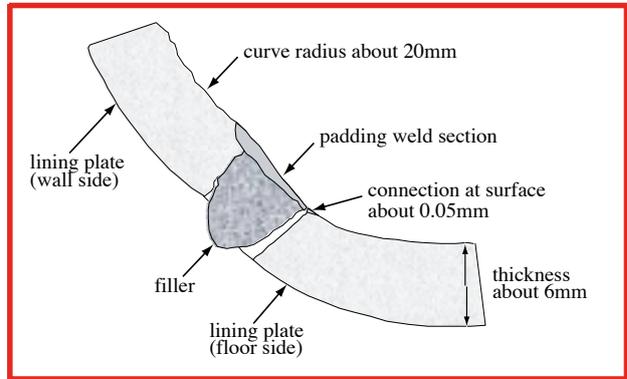
1. Burnable poisons are materials that have a high neutron absorption cross section. To control large amounts of excess fuel without adding additional control rods, burnable poisons are loaded into the core.

Rokkasho Reprocessing Facility: Another leak from spent fuel pool

On June 8th it was confirmed that there had been yet another leak from the spent fuel storage pool at the Rokkasho Reprocessing Plant (Figure 1). The location of the leak was a corner of the burnable poisons¹ treatment pit for PWR spent fuel. According to a report released by Japan Nuclear Fuel Ltd. (JNFL) on July 12th, two holes, almost connected to each other, were found where padding had been faultily welded, contrary to the approved procedures (Figure 2).

The whole reprocessing facility is currently undergoing uranium trials (see NIT 104). So that trials using mock-up fuel could also be carried out in this pit, from January to May this year, water was drained from the pit and equipment used to cut the burnable poisons was adjusted. The leak was confirmed a few days after the pit had been refilled with water. It is believed that the holes appeared while these adjustments were being carried out. This is plausible, because a stress analysis showed that the weld would not withstand a weight of 100kg applied around 50mm from the weld. During the most recent inspections, this area was checked for signs of post-weld grinding. (Grinding after welding tends to lead to problems later on.) However, nothing was found, perhaps because the surface where the

Figure 2: Cross section of location of hole in burnable poisons pit

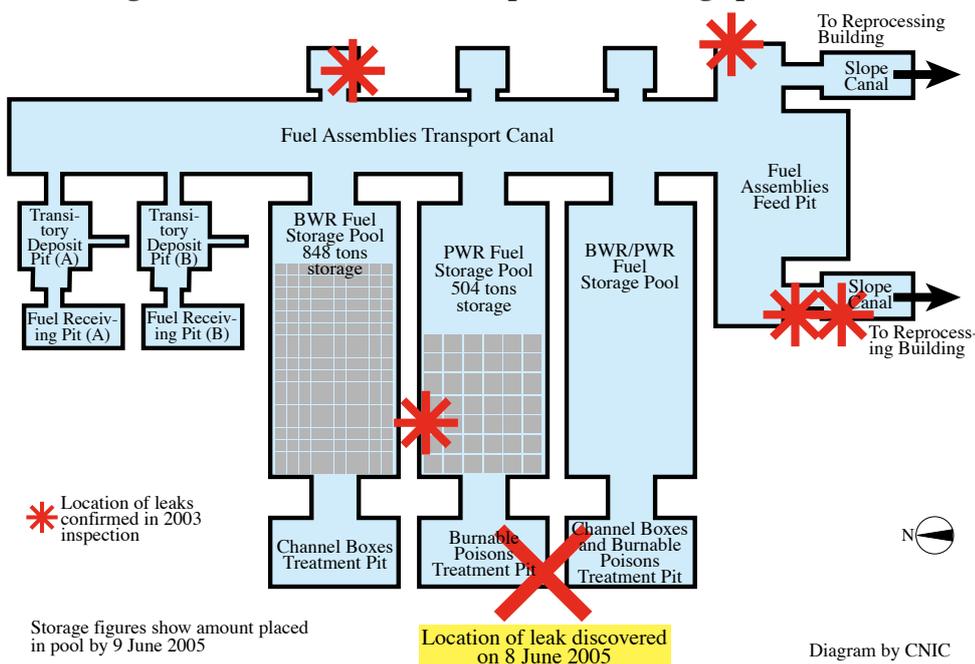


leaks occurred was curved.

JNFL has adopted the position that leaks are bound to occur over time. The regulating agency, the Nuclear and Industrial Safety Agency, has suggested that it might be sufficient to monitor small leaks (for example, up to 10 liters per hour) without rushing to fix them immediately. Instead, what they should be focusing on is the shoddy workmanship and poor quality control which causes leaks to occur. The government's inspections system is also called into question once again as a result of this incident.

There have been large-scale leaks from the same spent-fuel storage pool in the past. Those leaks also resulted from faulty welding. A leak detector attached to the pool detected leakage in July 2001, but the leak wasn't publicly confirmed until January 2002 (NIT 88, 95). By April 2003, 291 faulty welds, including six actual leaks, had been located. As a consequence, major repairs had to be carried out. At the time, six locations in the burnable poisons pit where this latest leak occurred were repaired. For over a year, spent fuel could not be loaded into the

Figure 1: Leaks discovered in spent fuel storage pool



Storage figures show amount placed in pool by 9 June 2005

Anti-Nuclear Who's Who:**Hiromitsu Toyosaki: *Marshall Islands: Nuclear Century***

a book review by Tetsuo Maeda (Journalist)

Not many people devote half their life to writing a single book. Life is too short to operate on that basis. Most writers are like butterflies, flitting from one flower to the next.

This year Hiromitsu Toyosaki completed his book *Marshall Islands: Nuclear Century*. It is a mammoth 1,262 pages in Japanese. He started it when he was 31 and it took him 28 years to complete. One is filled with admiration at his will power and persistence. Many people continue to write about their memories of Hiroshima and Nagasaki, but, as the title suggests, 'Hiroshima' is not the main theme of this book. Indeed, most of the people who are the subject of this book are not Japanese at all. They are the hibakusha¹ scattered all over the world.

What was it that drove him to write such a book? I believe it was because he heard the cries of the hibakusha. Their faint, but intense voices reached his ears and he was unable to ignore them. Or rather, he set out on his long journey to find out about the world of the post-Hiroshima hibakusha in order to assuage the discomfort that their voices aroused in him. He wanted to show the world the hideous truth that lay behind the euphemistic theory of 'arms control', namely the nuclear north-south problem.

He began collecting information in 1978 about the hibakusha from the Bikini Atoll nuclear tests. Twenty years after the nuclear tests people were still suffering as a result of residual radioactivity. This information had a deep impact on him. His course was set by the new surprises he received at a meeting held two years later in Washington DC. The meeting was convened by citizens' groups in 1980 and was called the Citizens' Hearings for Radiation Victims in Washington. The testimonies that he heard there resonated deeply for him. There were testimonies from people who became radiation victims at all stages of

the nuclear development process: from nuclear veterans, from victims of nuclear tests, from uranium miners, workers in



factories producing nuclear weapons and people working at nuclear power plants, and also from indigenous people - American Indians and Inuit.

Hiromitsu Toyosaki's book traces his journey from its beginnings in the Marshall Islands, right up to the North Pole and down to the 'Great South Land', the land of the Australian Aborigines. He is a journalist and as such his gaze is always at ground level (though few Japanese are as tall as he is). Unlike international political scientists, he doesn't look down from above. He listens to the stories of the old people, researches the current situation and records the damage caused by the nuclear industry. One important aspect of his work is that he doesn't simply compile hibakusha witness accounts. He presents the whole picture, checking carefully against official documents obtained under Freedom of Information Law. The combination of the diachronic description provided by official documents with the synchronic perspective provided by hibakusha testimonies makes for a persuasive chronicle of the nuclear age. This book is a very appropriate offering for the 60th anniversary of the bombing of Hiroshima.

1. Hibakusha: atomic victims, victims of nuclear radiation

NEWS WATCH

Pluthermal plan for Shimane-2

As active trials at the Rokkasho reprocessing plant approach (scheduled for December this year), electric power companies are under pressure to give details of their pluthermal plans¹. In June Chugoku Electric Power Company was preparing to submit a request to local governments for an expression of 'prior understanding' regarding the implementation of pluthermal at Shimane 2 (BWR, 820 MW). On June 9th the company conveyed its intention to Shimane Prefecture and Matsue City, but on the 17th it was revealed that the flow of water increased around a mechanical seal in the reactor's recirculation pump, and on the 18th the reactor was manually stopped. After changing the seal, power generation was resumed on the 28th, but submission of a request for prior understanding was postponed.

While Shimane Prefecture appears likely to accept the plan, the Mayor of Matsue City is adopting a more cautious attitude. The Shimane nuclear power plant is located in Kashima Town, but Kashima was merged with other towns into Matsue City, making the Shimane nuclear power plant the only NPP that is located in a prefectural capital.

1. 'Pluthermal' refers to the use of MOX fuel (mixed oxide of plutonium and uranium) in light water reactors.

Mitsubishi Heavy Industries shipped reactor vessel head to U.S. NPP

On June 27th, Mitsubishi Heavy Industries, Ltd. (MHI) shipped a replacement reactor vessel head, which had been ordered by Alabama Power Company for the Joseph M. Farley No. 2 reactor (PWR, 839 MW). Since 2002, MHI has received several orders from the U.S. for replacement reactor vessel heads for Westing-

house PWRs. This latest one was the 10th.

Neutron flux detector containing highly enriched uranium lost

On June 24th it was revealed that a small neutron flux detector missing at Kansai Electric Power Company's (KEPCO) Takahama-3 reactor (PWR, 870 MW). The instrument is about 5 cm long and 5 mm in diameter. 1.7 mg of highly enriched uranium is painted onto the inside of the instrument. It was purchased in January 2003. Due to a problem with the cable, it had been stored unused with the tip cut off. It is highly possible that it was discarded when a new one was purchased, as it had been put in a polyethylene bag for unflammable radioactive waste. KEPCO is now looking for the missing instrument, checking drums of radioactive waste.

Confidential nuclear information posted on internet

On June 23rd the Mainichi Shimbun reported that a large quantity of information had been posted on the internet from a virus infected PC used by an employee of a Mitsubishi Electric Corporation subsidiary. The company was contracted to undertake inspections at both nuclear and thermal power plants. It seems that the leak occurred through the Winny file-swapping program which, when infected by a certain virus, uploads files to the internet. Apparently the leaked information did not include information related to the protection of nuclear materials, but it did contain reports on regular inspections, including photos of the inside of plants and lists of names of workers. There were also e-mail messages discussing how to conceal problems at a thermal power plant from the electric power company.

Mitsubishi Electric (along with other com-

panies) had only just declared a corporate security control pledge. The pledge was made in February this year.

Stop Press: Another similar incident occurred just as NIT 107 was going to press. Again the leak seems to have occurred through the Winny program, but this time the leak came via a virus infected PC belonging to a worker at the Nuclear and Industrial Safety Agency. Newspaper reports suggest that the contents of the leak were similar to the previous leak.

Initial Safety Assessment for Ohma reactor Completed

The Nuclear and Industrial Safety Agency (NISA) completed the initial safety assessment for the Ohma reactor (ABWR, 1,383 MW) on June 16th. J-Power plans to construct the reactor in Ohma Town, Aomori Prefecture. Stating that it had found no safety problems, NISA submitted a request to the Nuclear Safety Commission for a double check. The Ohma reactor is the only reactor for which it is planned to use MOX fuel in the entire core. It is also the only nuclear power plant where a portion of the land in the reactor site remains unsold. (There are other similar cases where the reactors are still in the planning stage and the safety assessment process hasn't yet started.) A parcel of land has not been sold in protest against the construction.

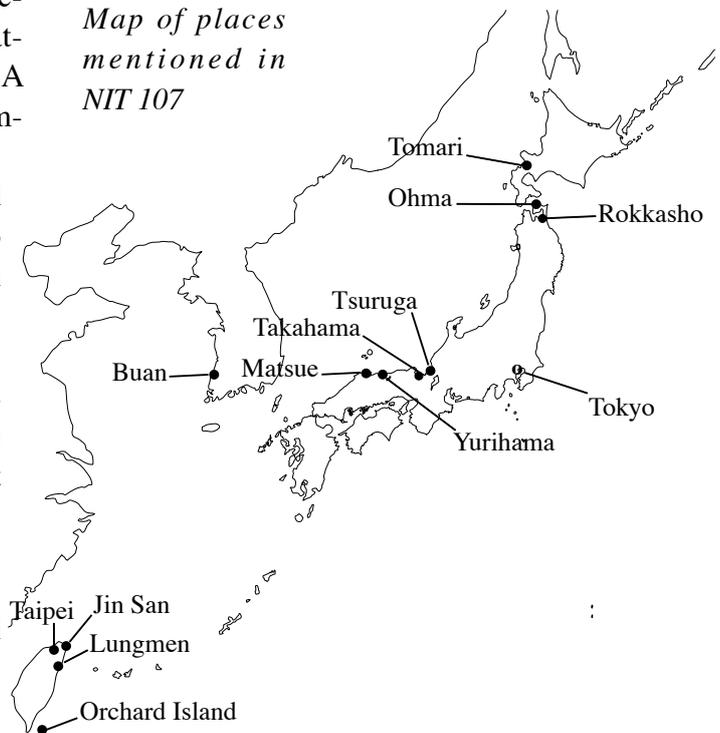
People entered Tomari NPP to gather bamboo-shoots

Since 9.11, Japan too has strengthened security measures at nuclear power plants. Riot police with automatic weapons are stationed at all of Japan's NPPs. Staff of private security companies patrol the sites and guard

the entrances. At sea the Japan Coast Guard's patrol boats guard the surrounding area. All of this is carried out on a round-the-clock basis.

Nevertheless, it emerges that in May both this year and last year people broke into the Hokkaido Electric Power Company's Tomari nuclear power plant (two PWRs, 1,158 MW in total), climbing over the 2.5-meter high barbed-wire fence to gather bamboo shoots and other edible wild plants. As a result of this year's break in, 24 people have been charged with trespass. Though not confirmed, it is hard to believe that there haven't been other break-ins of this nature.

Map of places mentioned in NIT 107



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