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Citizens' Nuclear Information Center

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NPT Review Conference

Japan's inconsistency: calling for nuclear non-proliferation while extracting plutonium



Scenes from a New York crowd
(Photos by Atsuko Nogawa)

The Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is being held at the United Nations Headquarters in New York from May 2nd through May 27th. Recent trends regarding the nuclear non-proliferation issue were introduced in the previous issue of NIT. To summarize the vital point of concern: with regards to the technology for uranium enrichment and plutonium extraction (i.e. reprocessing), there are limits to the possibility of drawing a clear distinction between military use and commercial use. The seriousness of this issue can be seen in the fact that successive reports voicing concerns on this issue have been released: for example, an experts' report, Multilateral Approaches to the Nuclear Fuel Cycle, commissioned by IAEA Director General ElBaradei (who is in the position of administering the commercial use of nuclear technolo-

gy); the UN's Report of the Secretary General's High-level Panel on Threats, Challenges and Change, and a report by the Carnegie Endowment for International Peace, Universal Compliance: A Strategy for Nuclear Security.

NPT Review Conference

On the opening day of the conference, Secretary General of the United Nations, Kofi Annan, speaking of uranium enrichment and

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reprocessing technology, warned:

"The [NPT] regime will not be sustainable if scores more States develop the most sensitive phases of the fuel cycle and are equipped with the technology to produce nuclear weapons on short notice - and, of course, each individual State which does this only will leave others to feel that they must do the same. This would increase all the risks - of nuclear accident, of trafficking, of terrorist use, and of use by states themselves."

IAEA Director General ElBaradei, in a statement similar to those reported in the media previously, emphasized the need for "better control over proliferation sensitive parts of the nuclear fuel cycle: activities that involve uranium enrichment and plutonium separation". In addition, ten nations, including Australia and Canada, submitted a document welcoming the abovementioned experts' report and recommending further exploration of issues and options for multilateral approaches to the nuclear fuel cycle.

At the time this article was written, the Conference had just begun. Speeches made by each country had just finished. Further developments are yet unknown. In particular, the US accusation that Iran is engaging in nuclear development under the disguise of peaceful use, and Iran's rebuttal that limitations to peaceful use violate the spirit of the NPT, are inviting disorder.

Nevertheless, as stated above, it can be said that the difficulty of distinguishing between military and commercial use of nuclear technology is a shared opinion. Materials on the conference are being published on the UN's NPT website:

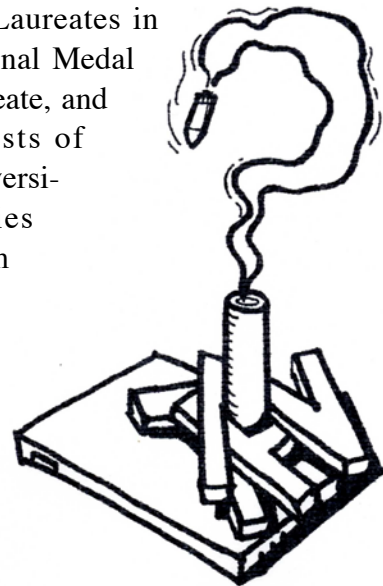
<http://www.un.org/events/npt2005/index.html>

UCS Declaration

On May 5th, soon after the start of the conference, the Union of Concerned Scientists (UCS) made an important declaration. This declaration, "A Call on Japan to Strengthen the NPT by Indefinitely Postponing Operation of the Rokkasho Spent Fuel Reprocessing Plant," questions Japan's commitment to strengthening

the NPT, given that operation of the Rokkasho Reprocessing Plant would produce eight metric tons of plutonium annually. The text of this statement can be viewed at the following URL: http://www.uscusa.org/news/press_release.cfm?newsID=481)

This declaration was signed by four Nobel Laureates in Physics, a National Medal of Science Laureate, and famous scientists of well-known universities. Signatories include William J. Perry (former U.S. Secretary of Defense), Peter Bradford (former Commissioner of the U.S. Nuclear Regulatory Commission), former high-



Cartoon by Shoji Takagi

ranking officials of the U.S. Departments of Energy, Defense and State of both Republican and Democratic administrations, and Directors Emeritus from both the Sandia National Laboratories and Lawrence Livermore National Laboratory. Other than the content, this declaration is also significant in that it was released from the United States, which, due to the threat of terrorism, is in a state of heightened sensitivity to the nuclear non-proliferation issue.

In addition to mass media representatives from Japan and around the world, scientists and people from NGOs also participated in the press conference for the release of this declaration. Professor Frank von Hippel (Princeton University) warned that, with Rokkasho operational, by 2020 Japan's domestic stock of plutonium could equal the U.S. stockpile of weapons plutonium. Hideyuki Ban, CNIC Co-Director and member of Japan's Long-term Nuclear Program Planning Committee, challenged the status quo of Japan's peculiar nuclear power policy. The participants seemed to react favorably

to this type of claim against Japan. It seems that there are quite a few cases of other countries utilizing to their favor the fact that despite being a non-nuclear weapon state, Japan is conducting reprocessing. If Japan were to accept this declaration, it would probably have a greater impact on the world than people imagine.

On a separate note, in response to this declaration, signatures from well-known people in Japan are being collected. The aim of this effort is to bring together the voices of people working on peace and disarmament issues. Results of this effort will be released in a press conference planned for May 24th, during the final stage of the NPT conference. The press conference will be held at the same UN building in New York.

Conclusion

So what will be the response of the Japanese government? The Foreign Minister Machimura's statement regarding peaceful use makes a very weak impression compared to his assertions on nuclear disarmament and nuclear non-proliferation issues. This weakness results from the inconsistency between the claims regarding nuclear non-proliferation and the assertion that Japan alone may continue with the nuclear fuel cycle. By contrast, the document released by Australia and other countries emphasizes the need for a "nondiscriminatory approach".

If Japan continues to make assertions from the standpoint of a country victimized by nuclear weapons, it must sooner or later find a solution to the inconsistencies of its present situation. If Japan would, of its own accord, give up its claim to an "inalienable right" to reprocessing, the debate within the NPT Review Conference over the nuclear fuel cycle would become much clearer. Also, Iran and other countries would no longer be able to make strong assertions in the face of a bold move such as this by Japan.

Considering the failure of the fast breeder reactor program, the Rokkasho reprocessing project will only produce unnecessary pluto-

nium, the use of which is uncertain. Further, when compared with plutonium, uranium is neither highly priced nor is it scarce as a resource. Furthermore, the government also recognizes that direct disposal is economically less expensive when compared to reprocessing. The Rokkasho Reprocessing Plant is laden with great inconsistencies, not only from the viewpoint of nuclear power, but also, as made clear in the UCS declaration, from the viewpoint of nuclear non-proliferation.

Tadahiro Katsuta (CNIC)

Haiku for the Season

*a spider's thread
woven into silk
after the rain*

Setsuo Iida

Map of places mentioned in NIT 106



Pronounced aging of nuclear power plants

There are currently 53 operational nuclear reactors in Japan: 30 boiling water reactors (BWR) and 23 pressurized water reactors (PWR). Of these, nine (4 BWRs and 5 PWRs) commenced operations more than 30 years ago. In ten years' time, 31 (58%) will have been operating for more than 30 years.

Aging is already a major issue for these reactors and it will become an even more serious concern as time goes by. In this situation there are two possible choices. One obvious choice is to shut them down. The other is to continue to nurse them along.

Metals (mainly iron) make up the majority of the material used in reactors and the surrounding equipment. It is impossible to prevent these materials from degrading with age. Nuclear power plants (NPP) are operated in extreme and complex environments. Judgments about whether to close them or continue operating them rest on how one analyses material degradation. For reasons of cost, nuclear power companies and the Ministry of Economy Trade and Industry (METI) try to operate them for as long as possible. However, citizens are much more concerned about safety than cost. So a strictly neutral scientific and technological judgment is required. Unfortunately, neither the Nuclear Industrial Safety Agency, nor the Nuclear Safety Commission is strictly neutral. Since there is no one in those organizations who is willing to carry out a critical investigation, their judgments are inevitably one-sided.

When cover-ups of damage were revealed at the Tokyo Electric Power Company in August 2002, all 17 of TEPCO's reactors (all BWR) were forced to stop. Two years later, in August 2004, five people were killed and a further six injured in an accident at Kansai Electric Power Company's Mihama-3 reactor (PWR) (see page 8). Both of these incidents were the result of mistaken technical judgments. They nursed them along, all the time covering up or underestimating the problems; and none of the academics, technicians and researchers in the government safety agencies noticed that anything was wrong.

CNIC, being very concerned about this situation, continued to offer a critique of the government's attitude from a scientific and technical standpoint and established a research group to investigate the problems of aging nuclear power plants. Some problems discussed in that research group's recently published report are discussed below.

First, a new riddle has emerged regarding the mechanism of stress corrosion cracking (SCC) of stainless steel. In the 1970s technicians worried about the phenomenon of cracks appearing in stainless steel welds. This problem was solved - it was believed - with the development of stainless steel with a low carbon component. But before long it was noticed that the cracking problem hadn't gone away. It was recognized in the 1990s that the reason for this was a type of SCC which hadn't been noticed previously. It arose as a result of distortion at the time of manufacture and, even though power companies had no solution to the problem, they continued to operate their NPPs, while regulatory agencies turned a blind eye. This came to light when the TEPCO cover-up was revealed. This related to cracks in the reactor shroud and recirculation pipes. As was to be expected, similar problems arose at BWRs operated by other power companies.

This type of cracking begins at weak points in the metal. It proceeds from one crystal grain to the next and is called trans-granular SCC. Previously identified SCC proceeded along the boundaries between grains and was called inter-granular SCC. It is very difficult to discern the shape of these trans-granular cracks using ultrasonic waves and it is impossible to predict the speed at which the cracking will proceed. Technicians whose aim is to keep reactors running use existing models, but since the mechanism involved is different, there is no scientific basis for using these models, so the government's 'fitness-for-service rule' (better termed 'allowable defects standard') can't be relied on.

Second, the Mihama-3 (PWR) accident revealed the phenomenon of carbon steel pipe

thinning. The cause of this accident was the fact that the thickness of the pipes went unchecked for many years. The power company and the regulatory agencies failed to notice this. From a scientific point of view the phenomenon of pipe thinning is basically understood. What is not understood, however, is when, where and to what extent the thinning will occur. This is because of the complex conditions associated with the operation of NPPs. It is a technical difficulty. It is very doubtful whether experience and management could ever compensate for this weakness. If the top priority is safety, frequent checks will be necessary. The cost will rise out of all proportions and power companies will abandon nuclear energy.

Third, a problem of particular concern for PWRs is 'pressurized thermal shock' (PTS). This is caused by so-called 'underclad cracking' (UCC). It seems that this occurs at the time of welding stainless steel on the inner walls of the pressure vessel. Under great hydraulic pressure and heat shocks the pressure vessel can be destroyed suddenly. PTS thus has the potential to cause major accidents. Originally the life of nuclear power plants in Japan was thought to be 30-40 years. Now attempts are being made to extend this to 60 years. Consequently, technical investigations are being carried out with a view to developing

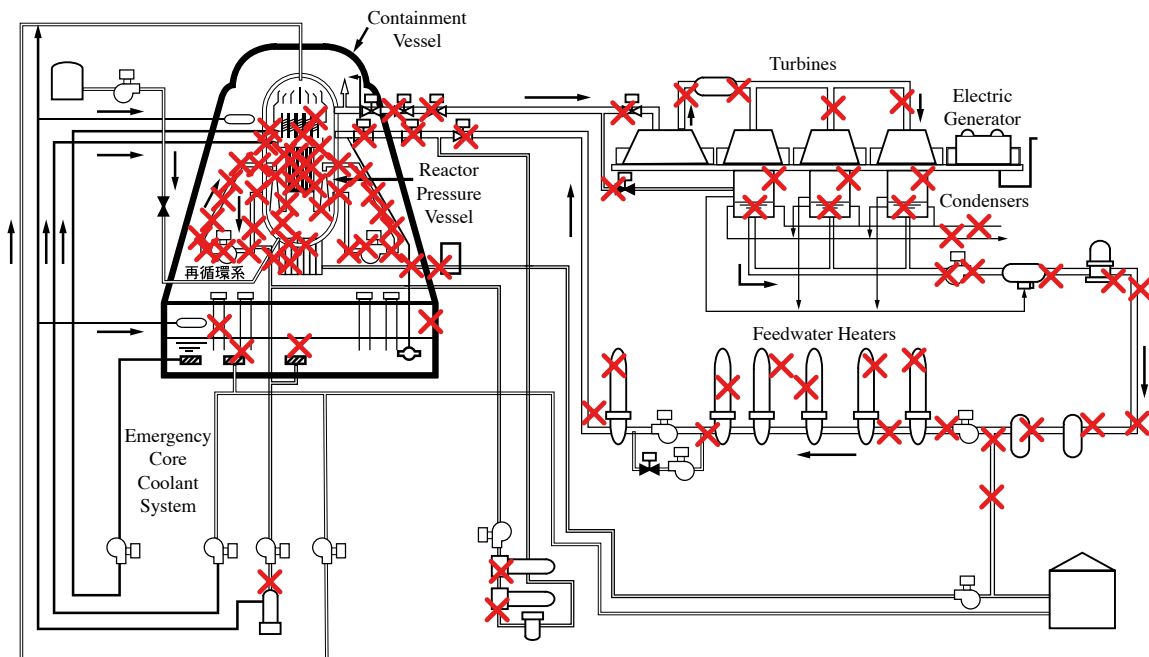
responses to the problems of aging power plants. However, no scientific or technical investigations are being carried out in regard to UCC. It is being treated as if it was unrelated to aging. But for the five PWRs that have been operating for over 30 years, PTS is a matter of great concern.

In recent years many types of accidents and faults have occurred at NPPs in Japan. In the case of BWRs, there are too many to list in full, but the following are a few examples: damage to fuel rods, cracks in the cladding of fuel rods, cracks in the shroud, cracks in the nozzles of recirculation pipes, cracks in the core spray spurger, fatigue cracking in thermal sleeves, rupture of residual heat removal system pipes, damage and rupture of recirculation pumps, cracks in the control rod drive mechanism tube, thinning of feedwater heater pipes. Much the same could be said for PWRs. For more details, NIT subscribers who read Japanese should read the full report (Roukyuuka suru genpatsu - gijutsu wo tou, CNIC, March 2005). We would like to thank the Takagi Fund for supporting this project and enabling us to publish this report.

Yukio Yamaguchi (CNIC Co-Director)

Note that the schematic diagram of a BWR shown below is riddled with 'x' marks. These show the locations of faults and accidents that have occurred in BWRs.

Schematic diagram of a Boiling Water Reactor showing locations of major accidents



The decline of nuclear energy - as seen in

The Ministry of Economy Trade and Industry's (METI) Agency for Natural Resources and Energy (ANRE) has released the Electric Power Supply Plan for the 2005 Business Year (1 April 2005 - 31 March 2006). Table 1 below shows the Nuclear Power Development Plan.

Once again, other than the plants currently under construction, most of the planned nuclear power plants are postponed another year. Ohma hasn't been postponed this time, but last year it was postponed for two years. In the case of Higashidoori-2 at both Tokyo Electric Power Company (TEPCO) and Tohoku Electric, last year's plan already included a postponement of three years. Last year Tsuruga-2&3 were postponed by two and three years respectively. This year they are postponed a further one year. No clear progress can be seen at TEPCO and Kansai Electric Power Company (KEPCO) has no new reactors planned at all.

In the next ten years to 2014, eleven new reactors are scheduled to commence operation (total 14,720 MW). As was expected from last year's plan, Hamaoka-5 (1,380 MW) commenced operations in January this year, bringing the number of operational reactors to 53 (total 47,122 MW). In the plan for this business year, Tohoku Electric's Higashidoori-1 is scheduled to commence operations in October, which will bring the total to 54

operational reactors. Hamaoka is a problem from the point of view of earthquakes and Higashidoori will be the first new reactor since the scope of liberalization in the electric power sector was expanded, so it can be expected that these reactors will increase the burden on power companies more than ever.

With the exception of Hokuriku Electric's Shika-2, it can be seen that the prospects are not good for the construction of large reactors of the 1,350 MW scale. Tohoku Electric's Higashidoori-2 and TEPCO's Higashidoori-1&2 plans were changed to ABWRs (1,385 MW). Increased power input means more warm waste water. The reason given for the postponement is that the resulting negotiations with the fishing industry are proving difficult. However, in reality they are probably concerned that these large reactors will produce a power surplus.

Besides nuclear, the following new power supplies are scheduled to be brought on line in the next ten years: 12,050 MW thermal (7,920 MW LNG, 4,100 MW coal, 30 MW oil); and 2,390 MW hydro (250 MW reservoir type hydro, 2,140 MW pumped storage type hydro).

Tadahiro Katsuta (CNIC)

Table 1: Nuclear Power Development Plan (1)

Power Company	Location	Power (MW)	Commence(d) Construction	Commence Operations	Status (2)	Comment (3)
Hokkaido Electric	Tomari-3	912	Nov. 2003	Dec. 2009	Under Construction	
Tohoku Electric	Higashidoori-1*	1,100	Dec. 1998	October 2005	Under Construction	
	Namie Odaka	825	2011	2016		Postponed 1 year
	Higashidoori-2*	1,385	2011	After 2016		Postponed 1 year
TEPCO	Fukushima I-7	1,380	April 2007	Oct. 2011		Postponed 1 year
	Fukushima I-8	1,380	April 2007	Oct. 2012		Postponed 1 year
	Higashidoori-1*	1,385	2007	2013		Postponed 1 year
	Higashidoori-2*	1,385	After 2009	After 2015		Postponed 1 year
Hokuriku Electric	Shika-2	1,358	Aug. 1999	March 2006	Under Construction	
Chugoku	Shimane-3	1,373	September 2005	March 2011 (2010 bus. year)	Undergoing Safety Assessment	Postponed 9 months
Electric	Kaminoseki-1	1,373	2009	2014	Basic Plan Approved	Postponed 1 year
	Kaminoseki-2	1,373	2012	2017	Basic Plan Approved	Postponed 1 year
J-Power	Ohma	1,383	Aug. 2006	March 2012	Undergoing Safety Assessment	
Japan Atomic	Tsuruga-3	1,538	May 2007	March 2014	Undergoing Safety Assessment	Postponed 1 years
Power Company	Tsuruga-4	1,538	May 2007	March 2015	Undergoing Safety Assessment	Postponed 1 years
Total	15 Reactors	19,688				

1. Table made by CNIC, based on Electric Power Supply Plan for 2005 Business Year (1 April 2005 – 30 March 2006), Agency for Natural Resources and Energy, March 2005

2. As at April 2005. Process moves from the Basic Plan, to the Safety Assessment, before commencing construction.

3. The postponement is taken from the scheduled date for the commencement of operations in last year's plan.

(*Please note that the Tohoku Electric and TEPCO Higashidoori reactors are at different power plants. Both companies are building or plan to build power plants in Higashidoori. Very confusing!)

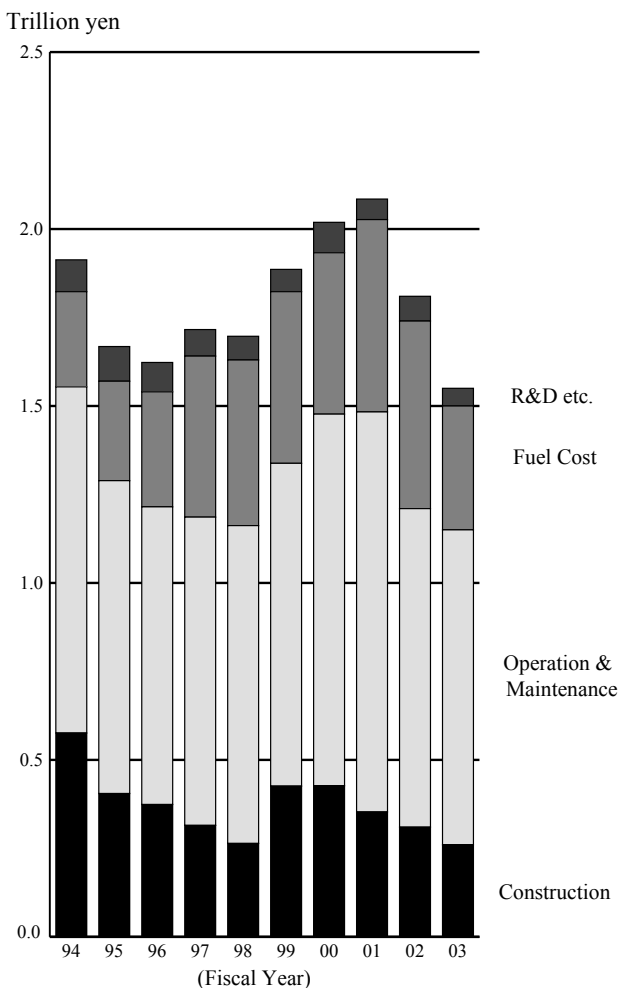
Data: Recent Trends in Japanese Nuclear Industry

On February 4th the Japan Atomic Industrial Forum, Inc. (JAIF) released a report on the state of the nuclear industry as at the end of the 2003 business year. According to the report, the nuclear component of electric power industry expenditures had decreased for two consecutive years. At 1.555 trillion yen, it was the lowest figure in the past 15 years. The same can be said for nuclear manufacturing sales. 1992 was the high point at 2.241 trillion yen, but since then it has been in decline. In 2003, at 1.448 trillion yen, it was just 65% of the 1992 figure.

The report predicts that the decline will continue in 2004 and 2005. It predicts an increase in 2008, but this is probably just wishful thinking.

Reactor equipment and machinery sales in the 2003 business year were up 5% on the previous year, but outstanding orders were down 6%, representing a four year downward trend. This suggests

Figure 1: Changes in electric utilities' expenditure

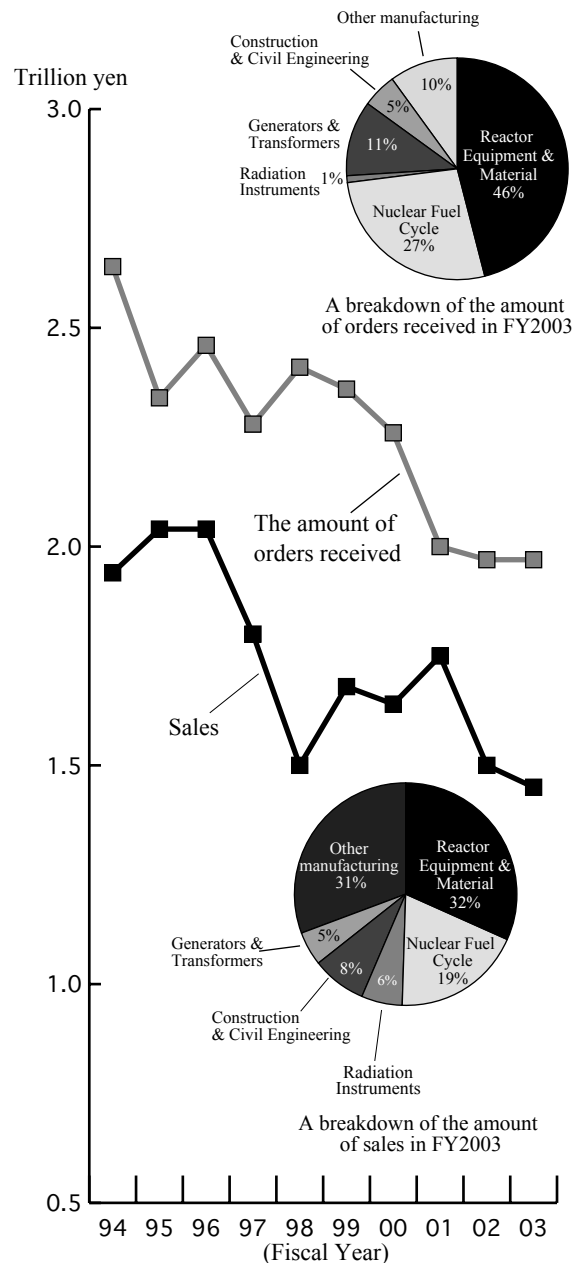


that sales will decrease in future.

Orders for new reactors went into sudden decline after 1980. Even if orders were made, they were at rock bottom prices. These reduced prices were passed on to subcontracting parts makers. There were even cases of companies refusing to make parts for nuclear power plants. It seems that subcontractors are beginning to worry that if this trend continues, it will no longer be possible to build nuclear power plants.

Baku Nishio (CNIC Co-Director)

Figure 2: Changes in nuclear industry's sales and orders



Final Reports on Mihama-3 Accident: Critical Facts Remain Unclear

1. What was the Mihama-3 accident?

Nearly a year has passed since a pipe ruptured in the secondary system of Kansai Electric Power Company's (KEPCO) Mihama-3 reactor (PWR, 826 MW, 1976~). The 9 August 2004 accident killed five workers and injured six others (see NIT 102 and 103).

2. Official Investigations

(a) In August an investigation committee was set up within an agency of the Ministry of Economy Trade and Industry (METI) with a secretariat provided by the Nuclear and Industrial Safety Agency (NISA). This investigation committee delivered an interim report on 27 September 2004. It met ten times and was disbanded after handing down a final report on 30 March 2005.

(b) Two companies which were directly involved, KEPCO and Mitsubishi Heavy Industries (MHI), submitted reports to NISA on March 1st. A third company, Nihon Arm Co. Ltd., was not requested to submit a report.

(c) In August another investigation committee was set up under the auspices of the Nuclear Safety Commission (NSC). This committee delivered an interim report on 20 October 2004. It met eleven times and was disbanded after handing down a final report on 22 April 2005. It is fair to think of this as a rubber stamp to the NISA report.

(d) The Fukui Prefecture Police Department carried out several searches of KEPCO's Wakasa branch office and the Mihama Power Plant. However, it didn't search the head office in Osaka. At this stage, no KEPCO employees have been charged.

3. Explanation of the accident

NISA confirmed KEPCO's account that the accident was caused by erosion corrosion of the carbon steel pipe, downstream from an 'orifice'. The presumed reason why this was so pronounced in the A loop, compared to the B loop pipe, was that strong whirling currents occurred at the header where the A loop pipe branched off from the main condensate pipe. The loss of water is estimated to have been 885 tons. KEPCO reported that it could have reduced the loss of water, but NISA doubted that reducing the loss of water

would have had any effect on rescue operations.

As reported in NIT 102, valves in the auxiliary feedwater pump failed to open. KEPCO believes the cause to be that the pressure downstream exceeded the pressure upstream of these valves. It says it will replace the valve springs with stronger ones. This was a very primitive design error.

The fact that steam entered the central control room, next door to the turbine building was not revealed publicly until December. KEPCO reported this to Fukui Prefecture in December and the NISA investigation committee published the information in March 2005. However KEPCO already knew this on the day of the accident. The fact was reported to NISA in October 2004. KEPCO believes this occurred because of the inadequacy of seals around cables leading into the control room. NISA has ordered checks of valves and seals at all other power plants.

4. Failure to include pipes on the inspection list

The secondary system was subject to operator inspections. (After 2003 these became 'periodic operator inspections'.) The maintenance of pipes was carried out under guidelines after 1990, but these guidelines actually resulted in a reduction in the number of inspections. Under the guidelines, the area downstream of orifices (the location of the rupture) was subject to monitoring of the remaining life of the pipe, but MHI failed to include the part in question on the list. In MHI's March 1st report it stated that it believed the causes of this were excessive reliance on veteran staff, changes to a large quantity of skeleton diagrams, and monotonous repetitive work. None of the reports explain why the same omission at Tomari-1 (Hokkaido Electric), Tsuruga-2 (Japan Atomic Power Company (JAPCO)), Takahama-4 (KEPCO) and Mihama-1 (KEPCO) was rectified and the location checked, but not at Mihama-3.

KEPCO made the new claim in its March 1st report (without providing any evidence to back it up) that after the pipe thinning problem was discovered at Ohi-1 (July 2004) it noticed that the location of the Mihama-3 accident had not been inspected. The NISA and NSC reports both fail

to answer the questions of when KEPCO became aware that the pipe had not been inspected, when it became aware that some locations had not been included on the inspection list, and whether remaining life expectancy assessments had been made. Given that these were fatal lapses, people have every right to expect a full, honest and comprehensible account of the accident.

5. Operator management of pipes

Pipes less than the minimum necessary thickness are non-compliant with the technical standards. KEPCO and NISA report that at each of the Mihama, Ohi and Takahama plants reactors were operated with pipes which had been assessed as having less than one year's life left, or with pipes that were assessed as being below the regulation thickness. These pipes were not changed at periodic inspections, despite these assessments.

NISA also noted that other power companies had postponed changing pipes. Something that is not mentioned in NISA's report is the fact that other companies measured pipe thicknesses at the straight part of pipes near elbows and recorded these as measurements of elbows, even though the elbows were never actually measured. The Mihama-3 accident was a corollary of this informal, self-controlled system of pipe management.

6. Future management of piping

Japan Society of Mechanical Engineering is in the process of drafting standards for management of pipe thinning. These are scheduled to be ready in September and they will be adopted as administrative standards. On 18 February 2005 NISA issued a notice to power companies regarding requirements for management of the thickness of pipes at nuclear power plants for the period until JSME's standards are ready. Each power company may be revising their own pipe management guidelines, but since no information has been made public, the situation might not have changed at all. The first step should be to make public the current situation.

7. Future system of inspection of nuclear power plants

On March 22nd Fukui Prefecture's Nuclear Safety Experts' Committee demanded that NISA include the following in its final report: "clarification of the government's involvement and respon-

sibility in the pipe management system" and "the fact that 'hard-side' safety measures and safety regulations are the basis [of nuclear safety]". However, NISA states in its report that it will "also make companies' thorough performance of 'soft-side' safety assurance activities the object of safety regulations" and "aim to increase companies' independent maintenance management capability for the plant as a whole."

The preventative plan submitted by KEPCO to the investigation committee in March only addressed organizational management issues. At the time, KEPCO's President intended to continue in his post. Given that his management was part of the problem, the plan was fundamentally flawed from the start. In the face of strong criticism, he has now agreed to resign his post of President at the end of June. On March 28th KEPCO released a management efficiency plan, which probably reflects its true intentions. It states, "The management environment facing the company will become more severe...We will aim for a long-term reduction in costs through efficiencies in facility maintenance, brought about by a review of the time between inspections and the scope of maintenance work."

In December 2004 another committee was established within a METI agency. This committee is charged with investigating the problem of aging of nuclear power plants. It released an interim report in April and aims to produce a final report by August. Basically, it will recommend life extensions for nuclear power plants.

While NISA's report proposes to "increase companies' independent maintenance management capability", there is no reason why government agencies and utilities should be exclusive players in this. Instead of relying on checks by government agencies, it should be possible to take a leaf out of Germany's book and have an independent civilian organization carrying out independent checks. Building such a capacity would seem to be a natural response to the Mihama-3 accident, but the concept of such a 'third party' system of inspection seems to have been far beyond their field of vision

Satoshi Fujino (CNIC)

Group Introduction:**The Chernobyl Children's Fund, Japan**

By Takayuki Kodera*

The Chernobyl Children's Fund, Japan, was founded in 1991 by photojournalist, Ryuichi Hirokawa. On numerous times following the 1986 accident, Mr. Hirokawa photographed on location, where he met children suffering from leukemia and thyroid cancer. He started up aid activities in Japan in response to appeals from the mothers of these children. The movement started with the belief that aid should respond to the requests of local people to the greatest extent possible and it spread to thousands of citizens in Japan. Since the fund's founding fourteen years ago, a large quantity of medical and health supplies has been sent to Ukraine and Belarus. Mr. Hirokawa has now retired to the position of Advisor, and a Board of Directors (Chaired by Minoru Suzumura) manages the organization.



I myself am also a member of the Board of Directors and visited hospitals and aid groups in Minsk and Kiev this spring. It is difficult to obtain necessary medicines in both countries in the midst of progressing inflation and economic crisis. At every hospital I was told of the gratitude felt for the medical supplies sent by the Fund and asked for further aid. I also met with children who had undergone operations for thyroid cancer. These young people are swayed back and forth between hope for the future and uncertainty about their health. The Children's Fund also conducts a Foster Parents' Program and scholarship aid. These connect Japanese citizens directly with these children. I realized the importance of continuing to build up links between citizens that will be sustained over the long term.

At the school and sanatorium Hope 21, located in the suburbs of Minsk, children who live in contaminated towns come for one month to study while rehabilitating. The government of Belarus, German NGOs, and the Children's Fund jointly

provide funding for this facility. Children from contaminated areas with a variety of illnesses come to eat safe food, undergo physical examinations and treatment, and nurture their hopes for life through fun activities. As I watched the smiling faces of the children there, I felt the importance of nurturing this hope (see the photo of children from Gomel.). The Children's Fund also built the sanatorium "South" on the Black Sea coast in Ukraine, to support the rehabilitation of children in the summer.

The Children's Fund sends out newsletters four times a year to its several thousand supporters to collect support for these activities. Further, a support campaign is conducted every April, this year's gathering drawing 700 participants in Tokyo. We also sponsor charity concerts in many locations by Nataliya Gudziy. Nataliya became a victim of radiation at age 6 in the town of Prypyat, which is very near Chernobyl. She later studied music and is now active in Japan as a singer. The Office of the Ryuichi Hirokawa Photo Exhibitions also cooperates in collecting donations through holding photo exhibitions of Chernobyl. Even in Japan, Chernobyl is being forgotten as an event of the past, but we are determined to steadfastly continue our campaign. We would also like to hold exchanges with Chernobyl support groups from all over the world. Please feel free to contact us at any time.

**Takayuki Kodera is Vice Chairperson of the Board of Directors of the Chernobyl Children's Fund, Japan*

*Children's Fund Office Fax: 81-3-5376-7890
<http://www.smn.co.jp/cherno/index-e.html>*

NEWS WATCH

10th shipment of High-Level Radioactive Waste

One hundred twenty-four canisters of high-level radioactive waste (HLW) returned from France arrived on April 20th at the storage facility of Japan Nuclear Fuel Limited (JNFL) in Rokkasho-mura, Aomori Prefecture. This was the 10th shipment, bringing the total number of canisters which have been returned from France to 1,016. The total number to be returned from France is said to be about 1,350. Shipments from the U.K. are scheduled to begin in FY2007. The total number of HLW canisters from the U.K. is reported to be about 850, but it may increase to about 1,000 canisters. In addition to high-level radioactive waste, TRU (transuranic) waste is also scheduled to be returned, but the U.K. has proposed to Japan that in the place of the TRU waste, HLW with an equivalent 'integrated toxic potential' be returned.

In any case, two more HLW shipments from France and eight or nine shipments from the U.K. are planned. The transport of TRU waste from France is predicted to begin in FY2013 and to be completed within 10 shipments. In the case where TRU waste is not substituted with HLW, there may be as many as 37 TRU waste shipments from the U.K..

The anxiety of the people living along the coasts of the transport routes will continue.

Application for permission to construct MOX plant

JNFL filed an application with the Minister of Economy, Trade and Industry on April 20th for permission to construct a MOX fuel processing plant next to the reprocessing plant which is now under construction in Rokkasho-

mura, Aomori Prefecture. The plan is to start construction in April 2007 and to complete it in April 2011. The annual MOX fuel production capacity would be about 130 tHM and the construction cost is estimated at 120 billion yen. MOX powder (plutonium 50% and uranium 50%) will be carried in from the reprocessing plant through an underground trench. This will be diluted with depleted uranium, and be processed into MOX fuel with the required plutonium content. The annual amount of plutonium to be handled will be about eight tons (fissile component being about five tons).

At a hotel in Aomori City on April 19, the day before the application was submitted, representatives of Aomori Prefecture, Rokkasho-mura and JNFL signed a basic agreement for the construction. It was three years and eight months since JNFL had made a request for cooperation in August 2001. If you exclude the period during which consideration of the MOX plant application was suspended because of fraudulent work at the reprocessing plant, the prefectural and local governments accepted the MOX plant construction plan in less than one year.

There is no clear prospect for the use of this MOX fuel.

Shika Nuclear Power Plant suspended due to a fallen transmission line tower

On April 1st there was a landslide in Hakui City, Ishikawa Prefecture. The landslide brought down a 500 kV transmission line tower. The transmission line is to transmit the electricity generated at Hokuriku Electric Power Company's Shika Nuclear Power Plant to Kanazawa City, in the center of Ishikawa Prefecture. Shika-1 (BWR, 540 MW), having

nowhere to send the electricity it produces, was manually shut down. It was finally restarted on April 22nd, when the transmission line was restored.

Shika-2 (ABWR, 1,358 MW) is currently under construction, and fuel loading began on April 26th. It is planned that it will go critical for the first time at the end of May, begin power generation in July and start commercial operation in March 2006. If Shika-2 had been in operation, there would have been a much larger amount of power (1,898 MW) with nowhere to be transmitted. The accident revealed the vulnerability of non-distributed power systems, which directly transmit power from large power sources to a consuming area via high-voltage cables. However, other power companies transmit from even bigger power sources over long distances using extremely high voltage cables.

Construction Approved for Shimane-3 Reactor

On April 26th the Minister of Economy, Trade and Industry approved the construction of Chugoku Electric Power Company's proposed Shimane-3 reactor (ABWR, 1,373 MW). The proposed site of the reactor is Matsue City in Shimane Prefecture. The name of the town was Kashima-machi, but at the end of March seven municipalities, including the former Matsue City, were merged into the new Matsue City. As a consequence, this will be the first time a nuclear plant has been located in a prefectural capital.

The application for the construction license was filed in October 2000. The final approval

was made after the Nuclear Safety Commission double checked the results of an examination conducted by the Nuclear and Industrial Safety Agency (April 2004) in terms of safety and the Atomic Energy Commission confirmed that the use would be strictly restricted to peaceful purposes, and that the accounting basis was sound. (These checks are actually just a formality).

According to the plan, construction will start in September and commercial operation will begin in December 2011.

Two Nuclear Bills Passed the House of Representatives

Two nuclear bills, whose contents include raising funds for the operation, dismantling and eventual disposal of the Rokkasho Reprocessing Plant, introduction of a clearance system and strengthening of nuclear material safeguards (see NIT 105), passed the House of Representatives on April 26th. They were then sent to the House of Councilor, which approved them on May 13th.

With regard to the reuse of radioactive waste which is 'cleared', for some time after the bill is passed, such waste will be used inside the power plants themselves. The people in the movement against these bills have expressed their intention to press ahead with their campaign to prevent these wastes from being moved out of the companies' premises.

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