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℅ Citizens' Nuclear Information Center

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Recent Cost-cutting Trends Pose Dangers for Nuclear Power Plants

J. Takagi

Due to stiff competition from fossil-fuel power plants, the nuclear industry has taken a number of potentially lethal measures to reduce the operation costs of nuclear power plants. One measure taken has been to shorten the inspection period for plants. Another measure has been to maintain operation even under abnormal conditions where reactors should be stopped and inspected.

The dangers of such practices were illustrated by a recent event in the PWRs (pressurized water reactors) owned by Kansai Electric Power Company. On December 26, Ohi 2 (1,175 MWe) and Mihama 3 (826 MWe), were shut down at the recommendation of the Nuclear Safety Commission. The continued operation of the two units had been the target of protest by local residents since December 18, when another PWR, Ohi 1, had to be stopped manually due to unusual sounds in one of the steam generators. An investigation showed, as was suspected, that a fitting to the steam generator nozzle was about to drop off, and was vibrating.

This event was almost a repetition of the incident that occurred in September in the steam generator at Takahama 1, where the same kind of fittings actually dropped off and got sucked into a primary coolant pump, as well as into the reactor core. The fittings were not part of the original design of the plant. They were installed about one year ago without permission from the MITI (Ministry of International Trade and Industry), in order to enable inspection of steam generators while handling spent fuels. This was intended to shorten the period of inspection.

After the incident at Mihama 1 in September, a local anti-nuke group in Fukui Prefecture (Genpatsu Hantai Fukui Kenminkaigi) demanded that the Kansai Electric Power Company immediately stop operation of the other three PWRs, which had been subjected to the same type of engineering, and remove the fittings.

The utility company rejected the group's demand and continued operation, insisting that there were no safety problems with the fittings attached to the steam generators. Three months later, however, trouble with the fittings was actually observed in one of the three reactors, and all three reactors had to be shut down. This series of events

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Steam Generators with Corroded Tubes Continue Operation

One of the most serious drawbacks of pressurized water reactors (PWRs) are the steam generator tubes. These tubes corrode and crack easily. In a recent periodic inspection of the Takahama 2 reactor, 613 tubes were found to be damaged. This brings the total number of damaged tubes in this reactor to 2,435, which is 23.9% of the reactor's total 10,164 tubes. Usually, damaged tubes are plugged up. However, because of the high number of damaged tubes, the Kansai Electric Power Co. has been using the "sleeve-repair method" to take care of the corroded tubes. With this method, new tubes are inserted into damaged ones. The Takahama 2 reactor now runs with 1,471 plugged tubes, and 964 "sleeve repaired" tubes. The percentage of plugged tubes now stands at 14.5%, very close to the 15% plugging maximum set by the Nuclear Safety Commission.

The steam generator tubes constitute a vital part of the reactor's functions by separating the primary and secondary coolants. Heat is transmitted through these tubes. Any crack may therefore cause a serious radiation leak from the core of the reactor to the secondary system. When too many of these tubes are plugged during repair procedures, the heat-exchange capacity of the steam generator is reduced and the primary system runs the risk of overheating in the event of an emergency. Such a situation could lead to a meltdown. For these reasons, the Takahama 2 reactor should be stopped, or the steam generator system should be completely replaced.

As expected, however, Japanese power companies and the NSC (Nuclear Safety Commission) are not reacting to this situation in a responsible manner. The Kansai Electric Power Co. requested that the NSC's

Table: Damage of Steam Generator Tubes of PWRs

(as of end of 1987)

Plant	Mw_e	Start of operation	Total number of tubes	Plugged tubes	Percentage plugged	Permissible[1] plugging percentage	"Sleeve-repaired" tubes[2]
Mihama 1	340	Nov. '70	8,852	2,227	25.2%	28%	0
Mihama 2	500	July '72	6,520	392	6.0%	20%	41
Mihama 3	826	Dec. '76	10,164	144	1.4%	15%	0
Takahama 1	826	Nov. '74	10,164	534	5.3%	18%	90
Takahama 2	826	Nov. '75	10,164	1,471	14.5%	18%	964
Takahama 3	870	Jan. '80	10,146	1	0.0%	-	0
Takahama 4	870	June '80	10,146	0	0.0%	-	0
Ohi 1	1,175	Mar. '79	13,552	1,859	13.7%	18%	1,174
Ohi 2	1,175	Dec. '79	13,552	103	0.8%	18%	8
Ikata 1	566	Sep. '77	6,776	191	2.8%	-	14
Ikata 2	566	Mar. '82	6,764	0	0.0%	-	0
Genkai 1	559	Oct. '75	6,776	896	13.2%	15%	835
Genkai 2	559	Mar. '81	6,776	1	0.0%	-	0
Sendai 1	890	Jul. '84	10,146	0	0.0%	-	0
Sendai 2	890	Nov. '85	10,146	0	0.0%	-	0

Note: 1) "Maximum permissible fraction of plugging" according to the safety review by NSC.
2) Reparation by insertion of inner tubes.

"maximum permissible fraction of plugging" be raised from the present 15% to 18%. The NSC readily agreed to this request. Similar negotiations have taken place at other plants as well. The maximum plugging fraction at the Mihama 1 reactor, for example, was raised from the original 20% to 25%, and then again to 28%. As shown in the table below, damaged tubes in the steam generator systems are causing serious problems in many plants in Japan.

Tube damage is thought to be caused by a phenomenon called "intergranular stress corrosion." There is no way to really stop this damage, except to stop the reactor itself. People living near nuclear power plants are deeply concerned, as reactors with these problems are allowed to continue operation. □

RECENT COST-CUTTING TRENDS...

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has proven that the concerns of local residents have been well based.

Also at issue in Japan now are the plans to operate nuclear power plants at varying power levels, between 50% and 100% capacity. The utility companies wish to cope with the excessive capacity that plants have during night hours. This type of operation requires complex procedures, and increases the probability of errors. The frequent change of power levels will also damage the fuel.

Safety considerations are taking a back seat in the nuclear industry, as the above examples show. But public awareness is growing about these risks. Remarkable in this respect is the recent protest against the load following test planned at Ikata 2. A signature collecting campaign undertaken by a group in Oh-ita has rapidly drawn nation-wide attention. Six hundred thousand of signatures were collected in a two month period. What kind of impact this awareness can have on the nuclear industry is the subject of the National Rally against Nuclear Power, to be held in April of this year. □

Third National Anti-Nuke Rally in Tokyo Expects to Draw Thousands

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Anti-nuke groups throughout Japan agreed in November of last year to hold a national anti-nuke rally in Tokyo on April 23 and 24 of this year. This will be the third national event of this kind to take place in Japan. The first national rally was held in 1975, and the second was held in 1983. These two rallies were mostly organized and attended by leaders of the citizens' groups in Japan that live near nuclear reactor sites. The major goals of these events were to give activists a forum for exchanging experiences, as well as to discuss ways to increase participation in the anti-nuke movement. Since then, however, the situation has changed in the anti-nuke movement. The impact of the Chernobyl accident on the Japanese people has been very significant and has resulted in the rise of a number of new citizen's anti-nuke groups. This new surge of participation in the movement was even stronger in 1987, and is showing no signs of waning. The rally planned for April will be an epoch-making one in that all of these new groups will be together in one place for the first time.

One of the major aims of this rally is to mount pressure against the government and the nuclear industry to stop pushing the present nuclear energy policy. Demonstrations and direct protest to government officials will be encouraged. A general survey, taken after the Chernobyl accident, showed that the majority of Japanese people opposed the new construction of nuclear plants. If these latent voices are heard and expressed in concrete action, the anti-nuclear movement will, we believe, be much stronger.

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NFIP (Nuclear Free and Independent Pacific) Passes a Resolution Opposing the Japanese Nuclear Waste Dumping Plan

The 5th Nuclear Free and Independent Pacific (NFIP) conference was held from November 9th to 14th in Manila, the Philippines. The theme of the conference was, "for the Advancement of the Pacific Peoples Struggles for Self-determination and Peace."

The NFIP is a network of movements in the Pacific. The first conference was held in 1975 in Suva, the capital city of Fiji. The second was held in 1978 in Ponape, Micronesia. In those days, the NFIP mainly focused on the struggles against French nuclear testing at Mururoa Atoll and US testing in Micronesia.

At the third conference in 1980 in Hawaii, the focus of the NFIP was shifted to the issue of independence and self-determination, and a Peoples' Charter for a Nuclear Free Independent Pacific was adopted. The Charter combines the nuclear issue and the independence issue as follows;

"the political independence of all peoples is fundamental to attaining a Nuclear Free Pacific;...

nuclear tests in the Pacific and the resultant radiation constitute a threat to the health, livelihood and security of the inhabitants;...

nuclear tests and missile tests are the major means by which the armaments race maintains its momentum;...

the presence of nuclear weapons, nuclear reactors, nuclear powered vessels and nuclear wastes in the Pacific endangers the lives of the inhabitants;"

The Pacific Concerns Resources Center (PCRC) office in Hawaii was also set up at the third conference as a steering body of the NFIP network.

The fourth conference was held in 1983 in Port Villa, Vanuatu, and the independence and self-determination issue was stressed even more strongly.

Prior to the fifth conference in Manila, several incidents crucial to the Pacific occurred: the coup in Fiji, the violent attack on the supporters of the nuclear free constitution in Belau, and the implementation of the referendum in New Caledonia without any consultation with the Kanak people. These three issues were the main topics discussed at the conference.

The resolutions, relating to Japanese nuclear policy are as follows;

Resolution No.8: Resolution on Nuclear Waste Dumping in the Pacific

> ...the 5th NFIP Conference demands that the Japanese Government not use economic measures against Pacific Island countries to silence their governments from opposing nuclear waste dumping actions or to gain approval for such actions.

Resolution No.9: Resolution on Nuclear Power in Indonesia

The 5th NFIP Conference:

1. Notes with alarm the inauguration in August 1987 of a nuclear research facility at Serpong near Jakarta and further notes the signalling of Indonesian Government plans to construct a commercial nuclear reactor in Java within the next 10 years;

Resolution No.24: Resolution on the London Dumping Convention 1988

The 5th NFIP Conference resolves to:

1) Encourage Pacific Governments who are not members of the London Dumping Convention to join;

2) Encourage Governments of all Pacific Nations to attend the London Dumping Convention with the objective of ensuring that there will be no future radioactive waste dumping into the marine environment.

(T. Funada)

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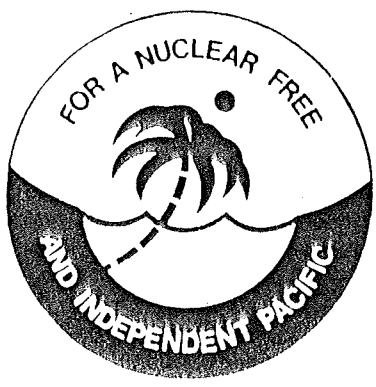

Pacific Still Regarded as Nuclear Dustbin

At the end of the December '87 session, the US House and Senate conferences named Yucca Mountain, Nevada, as the site of the first U.S. dump for highly radioactive nuclear waste. Another option will be the Marshall Islands in the Pacific. Marshall President Amata Kabua has for years proposed storing U.S. nuclear wastes in either the Bikini or Enewetok lagoons. Both were used by the United States as nuclear bomb test sites in the 50's and are still heavily contaminated. Amata Kabua even presented the idea to Japanese officials as well.

Western Pacific Waste Repositories Inc. (WPWR) in Nevada made a contract in 1986 with a representative from the Marshall Islands to build repositories on Erikub Atoll for the disposal and storage of hazardous industrial wastes from the United States. It is not stated in the contract whether nuclear wastes are included or not, but it seems very likely.

Meanwhile the United States and Japan are putting all their efforts into an attempt to change the open-ended moratorium on nuclear waste dumping at sea, which was adopted at the London Dumping Convention (LDC) in 1985. One of the things they are doing is to prepare a report for this year's LDC, for which a group of experts are conducting various studies on the following subjects.

(1) Wider political, legal, economical, and social aspects of nuclear waste dumping at sea;

(2) land-based options and the cost and risk associated with these options;

(3) whether it can be proved that radioactive wastes or other radioactive materials dumped at sea don't

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Anti-Nuke Who's Who

Ms. Yuriko Shimizu of Tokyo

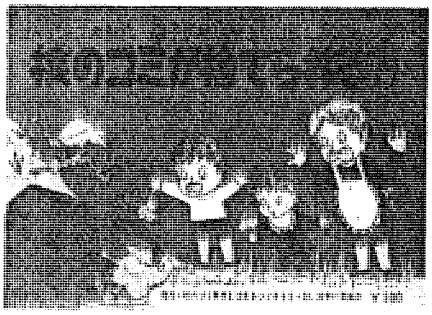
Ms. Yuriko Shimizu has produced 18 picture books for children in the last twelve years, while raising her own three children. Four of her 18 books are on the nuclear energy issue. The rest of them are on various social problems, such as food additives, chemical detergents, children's addiction to TV and family computers and the chemical disaster in Bhopal, India.

When Yuriko got married, she wanted to earn some money on her own, so she wouldn't need to be totally dependent on her husband's income. So she decided to resume picture book production, which, before marriage, she had been doing as a volunteer with her colleagues after work. This time she was all by herself, having to do everything, not only the production but also the distribution of the books. It was also the first time she had ever done illustrating. She was so concerned about various social problems, that she just started doing it without thinking too much about it. One good thing about doing this work was that it was something she was able to do at home, being a housewife and a mother at the same time.

The first picture book she produced at home was about the nuclear energy issue. She was pregnant with her first child then and concerned about all the problems nuclear power plants could cause. It was twelve years ago and most Japanese people still considered nuclear energy to be a safe, cheap, and necessary source of energy. That was what the government and the utility companies told the public.

Yuriko Shimizu wanted to tell the children and mothers the truth. However, it was not easy for her to sell this first book, since the nuclear energy issue was not something that ordinary housewives and mothers would talk about in their daily life. She realized that she needed to write about other issues as well, which housewives could relate to a little more easily than the nuclear issue.

Now the situation has changed, mostly due to the Chernobyl accident, and quite a few women with small children have become concerned about the radioactive contamination of foods imported from Europe. Yuriko's picture books on nuclear energy and radioactive wastes from the nuclear plants are selling well these days. The one on wastes has sold as many as 18,000 copies.



Yuriko believes that anyone can draw pictures and the more she/he does, the better the pictures become. She often encourages other housewives and mothers to become concerned about social issues and to do something about them. She thinks mothers can do meaningful work while staying home and raising children, as long as they really hope to be a part of society. □

ANTI-NUKE GROUPS ACTIVE AROUND JAPAN

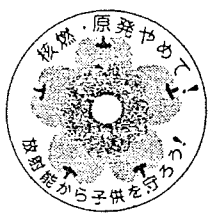
Apple Blossom League

Apple Blossom League is a network of women's groups which are trying to stop the plan to build a series of nuclear fuel cycle plants in Rokkasho-mura, Aomori prefecture. The planned facilities are a reprocessing plant, uranium enrichment plant, and low-level waste storage plant.

Our network was only formed in September last year. The name of the League comes from the fact that Aomori is one of the major apple-producing prefectures in Japan. Our symbol color is the color of apple blossoms, light pink. The members of the League are women who have been actively opposing the plan since the prefectural government accepted it three years ago. Some of us have organized lectures, given by anti-nuke experts, and others have placed ads in the local newspapers.

A month after the League was set up, we had our first demonstration, the Women's Demonstration to Protect Our Children from Radiation. About eighty people turned up for the march. Although it was only a small group, we are hoping to grow bigger, in the belief that continuous effort will give us strength.

The government intends to build all these three facilities in one small area. One of the facilities, the storage plant, will eventually hold as many as three million drum cans of radioactive wastes. This itself is quite dangerous, but there is another serious problem in this project, which is the location of these facilities. Misawa, one of the largest US bases in Japan, is located very close to Rokkasho-mura and fighter planes are quite often seen flying in this area. In addition,



earthquakes shake the area frequently. It is extremely foolhardy to try to build dangerous facilities like these in the vicinity of a busy air base.

We hear that a high rate of children's cancer and leukemia has been found near Sellafield, U.K., where a reprocessing plant went into operation some thirty years ago. We believe this kind of tragedy should never occur again.

The Japanese government and the Governor of Aomori didn't spend much time, discussing the issue before making the decision to go ahead with this serious and complicated project. We are quite angry at the government and the governor, and are planning to start a petition on a large scale. We hope to collect signatures not only in Japan but also in other countries, since there are no national boundaries as far as radiation is concerned.

We, women, desperately feeling the need to protect life, have come together and formed the Apple Blossom League. We hope more and more women from other parts of Japan, and even other parts of the world, will work together to put a stop to nuclear power plants as well as the nuclear fuel cycle. □

NEWS WATCH

Former Nuclear Plant Worker Still Seeking Compensation

On November 20, the Osaka High Court dismissed an appeal made by Mr. Kazuyuki Iwasa, who was seeking to overturn the district court ruling that denied him compensation for a work-related radiation injury.

Mr. Iwasa, now 64 years old, was a one-time subcontracted worker at the Tsuruga nuclear power plant in Fukui Prefecture. On May 27, 1971, he went into a containment building that houses the No.1 reactor to bore a small hole in a pipe of the reactor cooling system, during regular maintenance procedures. About a week later he noticed inflammation of the skin around his right knee, and ever since he has been suffering from radiodermatitis. He filed the damage suit with the Osaka district court in April 1974, and submitted a certified written diagnosis by a doctor from Osaka University Hospital. The diagnosis stated that he was suffering from radiodermatitis and that this had resulted in lymphatic edema, which is an abnormal accumulation of fluid on the knee. Despite this the court ruled against him in March 1981.

The recent high court ruling, which was made six years after Mr. Iwasa first appealed, states that although there was a resemblance between the condition reported by the plaintiff and radiodermatitis, there was no "solid evidence presented to confirm his claim." As well as fully upholding the lower court's decision, the high court also ruled that the plaintiff's failure to show exactly when he noticed symptoms of the inflammation made it impossible to determine whether working at the nuclear power plant had anything to do with the disease. The court undermined, or ignored, new testimonies and evidence presented during the six-year long review to support Mr. Iwasa's claim.

The damage suit filed by Mr. Iwasa is the only case ever brought to court by a former nuclear power plant worker claiming to have suffered from a radiation-caused disease, and demanding compensation as provided for by the Nuclear Energy Damage Compensation Law.

Mr. Iwasa and his lawyers are now appealing the Osaka High Court's decision to the Supreme Court. Mr. Iwasa has renewed his determination to "fight to the last." This legal struggle is significant because it has been exposing the very poor working conditions that are imposed on workers in nuclear power plants in Japan. It has also helped to further turn public opinion against the nuclear power industry. □

Indonesia Postpones Nuclear Plant Project

Indonesia's first commercial nuclear plant project (see Oct.'87 issue) may be postponed. Nihon Keizai Shinbun (Japan Economic Newspaper) reported on October 24 last year that the Indonesian government had disclosed this news to prospective foreign contractors, including Mitsubishi Heavy Industries (MHI). MHI, however, announced that it is continuing its efforts to go ahead with the project, since Indonesia has not yet abandoned the plan. □

World Symposium on Nuclear Safety Countered by Anti-Nuke Demonstrations

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The International Symposium on Nuclear Safety, sponsored by the Japanese Nuclear Safety Commission, was held in Tokyo from December 8 to 10. Citizens' groups from all over Japan met to protest the symposium's pro-nuclear message.

At the symposium's opening session, Keisuke Misono, chairperson of the commission, painted a bright future for nuclear power and emphasized the need for public confidence in this industry. The official intent of the symposium was to present a discussion on nuclear safety regulations by experts. The real intent, however, was to further promote nuclear power and other nuclear technology, such as food irradiation and medical RI, to third world countries. Due to the declining domestic demand for nuclear power, the nuclear industry is actively pursuing expansion abroad. Representatives from Japan, China, South Korea and Indonesia, as well as from the International Atomic Energy Agency (IAEA), participated in the symposium.

At the same time, citizens' groups, including the Forum for Plutonium Studies,the Consumers' Union of Japan, and Anti-Nuke Information held a meeting opposing the symposium and the export of nuclear technology. The South Korean Youth Council for Anti-Pollution sent a message to the meeting, calling Japan's promotion of nuclear technology "dirty national egoism."

On the first day of the three-day symposium, 20 anti-nuke activists demonstrated in front of the building where the symposium was held. They carried banners and leafleted the participants of the symposium. Demonstrators were, however, forced to move by the police soon after they had started. □

Protestors Rally against Plans to Air-Transport Plutonium

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A rally was held on December 19, in Misawa City to protest Japan's plans to transport its reprocessed plutonium by air. Japan sends its spent fuel to reprocessing plants in Britain and France, and intends to begin flying it back to Japan by the mid-1990's.

A US air base is located in Misawa, next to a commercial airport. This, and the fact that Misawa is located near Rokkasho Village, where construction of a reprocessing plant is planned, and where plans for the construction of a plutonium storage facility are suspected, make Misawa a likely candidate for receiving the plutonium at its airport. The other prospective airport is Narita Tokyo International Airport.

At the rally, two speakers talked about the dangers of the air-transport of plutonium. Another speaker pointed out that at present there are not even any plans for the use of this plutonium, although the plans for its transport have been approved.

"Ohma," an advanced thermal reactor in the planning, provides an example of the lack of foresight in utilizing the reprocessed plutonium. Ohma is supposed to require a considerable amount of plutonium, a fact which has not even been included in the government's Basic Development Plan, for electric power. □

PACIFIC STILL REGARDED AS NUCLEAR DUSTBIN

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cause any harm to life or any significant damage to the marine environment.

The Seabed Working Group (SWG) of the Organization for Economic Cooperation and Development/Nuclear Energy Agency, consisting of the United States, Japan, and other "nuclear" countries, are conducting research on the seabed emplacement of high level nuclear wastes. At present LDC prohibits the "disposal at sea" of high level nuclear wastes. However, the nuclear super-powers insist that seabed emplacement should not be covered by the LDC. All these issues will be discussed at this year's LDC.

By the year 1990, the number of nuclear waste drums in Japan will reach a million. If ocean dumping is allowed, Japan will dump as much as 100,000 curies per year.

The amount of high level nuclear waste to be disposed of by the United States alone by the year 2000 could reach 10,000 cubic meters, or 40,000 torpedo-shape canisters. If the subseabed method of disposal is allowed, as many as a million canisters will be dumped.

The Pacific islanders and their governments have been consistently trying to stop all these sea dumping plans proposed by the superpowers, in every possible way. Recently the Nuclear Free and Independent Pacific Conference in Manila has repeatedly adopted a resolution opposing the dumping plans.

(Y. Shimizu)

THIRD NATIONAL ANTI-NUKE RALLY IN TOKYO EXPECTS TO DRAW THOUSANDS

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Thus, we are hoping to show our strength by drawing as many as 10,000 people at the rally.

At this time, there will be other rallies and demonstrations around the world, as people remember the second anniversary of the Chernobyl accident. We see our rally as a part of this world-wide protest against nuclear energy, and we hope to exchange communication with groups throughout the world.

1988 National Rally Steering Committee
c/o Citizens' Nuclear Information Center

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NUKE INFO TOKYO is a bi-monthly newsletter which aims to provide foreign friends with up-to-date information on the Japanese nuclear industry, as well as on the movements against this industry in Japan. Please write to us for subscription (subscription rate: $60/year). We would also appreciate receiving information and newsletters from groups abroad in exchange for this newsletter.

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