

# NUKE INFO TOKYO

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6 Citizens' Nuclear Information Center

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## Outlook for 1992

### A Year of Plutonium Issues

What will happen to nuclear energy in Japan in 1992? In a word, 1992 can be called "the year of plutonium." A number of plutonium-related events are scheduled to take place this year. Chronologically listed, they are:

(May): Transportation of initial load fuel for FBR Monju from Tokai to Tsuruga.

Autumn?: Publication of AEC's new long term development and utilization program for nuclear energy.

October: Monju goes critical.

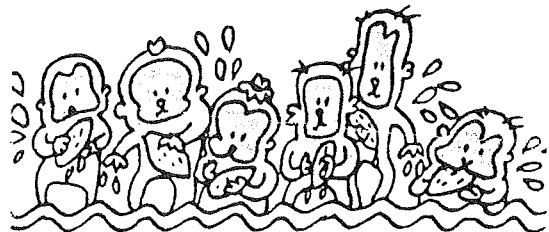
Start of construction of Rokkasho reprocessing plant.

December: Ohma ATR construction plan to be laid before the EPDCC (Electric Power Development Coordination Council).

Although some items on the list are likely to be behind schedule, there is a remarkable concentration of plutonium-related events this year, which is closely related to Atomic Energy Commission policy as reflected in its new long term program expected to be issued in the autumn. Based on the report on plutonium recycling (see NIT No.25) published last summer by AEC's Nuclear Fuel Recycle Committee, the new long term program

#### IN THIS ISSUE

Annual White Paper on N-Energy	3
Radon Contamination at Ningyotoge	4
Series: Japan's Nuclear Industry I	6
ICP Gets Wide Press Coverage	7
Anti-Nuclear Group	8
NEWS WATCH: China's First N-	9
Power/Ohmi 3 Start Operation/U-Enrichment Begins at Rokkashomura/N-Powered Mutsu Ends Voyage/Worker's Exposure Suit Rejected/New Steam Generator for Mihama 2/Japan-US Joint Research for Next Generation Reactor/Workers Exposed to Pu/Resolution to Refuse Depleted Uranium	



From "the hundredth monkey" 1992 - the year of the monkey

envisages the large scale production and utilization of plutonium becoming the core of Japan's energy policy in the next century.

In line with the AEC's policy, the Fast Reactor Total System Study Committee, an advisory board under the Science and Technology Agency, published a report at the end of last year suggesting that the government take the lead to the development of demonstration FBRs. The conventional government strategy for the utilities to take the lead has had to be changed, due to the reluctance of the utilities to spend money on FBRs. The report envisages construction of three demonstration FBRs after Monju by 2030 when the committee expects FBRs to be commercialized in Japan.

However, concern is now growing in Japan about this plutonium program, with the International Conference on Plutonium (see NIT No.26) and anti-nuclear citizens' groups are now considering various protest actions, particularly against transportation of the Monju fuel by land, and against the shipment of extracted plutonium from Europe.

### MITI's New Offensive

Also worthy of special mention is the new offensive by MITI (Ministry of International Trade and Industry) to

promote nuclear plant siting. Despite MITI's strong pro-nuclear policy, approval of new reactor sites has now been suspended for five years due to the growth of anti-nuclear awareness after the Chernobyl accident. MITI is going to take new measures this year to cope with the difficulty of siting.

First, MITI has set up an advisory committee for the siting of nuclear power plants. The committee, which has 19 members including scholars, local bigwigs and a famous pro-nuclear woman writer, will report to the prime minister by the end of this year on possible measures to facilitate plant siting. The government has also decided to substantially increase nuclear plant-related grants in the 1992 budget bill. This enables MITI to increase by 50% the subsidies to towns and villages neighboring nuclear plants, thus making sitings more attractive to local communities in terms of local finance. The effectiveness of these measures, however, is generally regarded as questionable, because they may evoke even stronger reactions from local anti-nuclear movements.

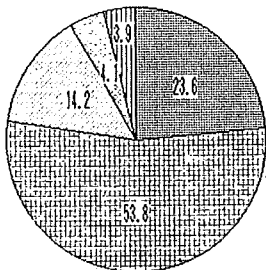
\*Other events expected in 1992:

February: Rokkasho uranium enrichment plant to start operation.

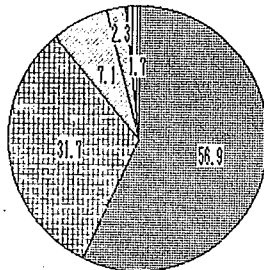
Start of construction of Kashiwazaki-Kariwa 7.

December: Start of shipment of low level radwaste to Rokkasho LLW repository.

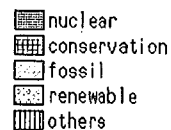
Energy Research Expenditure in 1990  
Private companies      National institutes and universities



sum: ¥349.2 billion



sum: ¥565.8 billion



# Annual White Paper on Nuclear Energy Published

In October 1991 the Atomic Energy Commission released its Annual White Paper on Nuclear Energy and in December the Nuclear Safety Commission released the Annual White Paper on Nuclear Safety. Let's take a look at how these two reports presented the accident at Mihama 2 (PWR, 500MW), in which there was a rupture in the steam generator tubing (see NIT Nos. 22 and 23).

The section of the Annual White Paper on Nuclear Energy entitled "Operational Status of Nuclear Power Plants," does not give Mihama the slightest mention. All it does is list the number of reports issued on breakdowns and trouble during the year. The only section in which Mihama appears is "Present Status and Tasks Concerning the Understanding and Cooperation of Citizens Toward Nuclear Power." Furthermore, the report avoids the use of the word "accident," instead referring to the incident as "tube damage." It goes on to emphasize that "In the main the safety features operated as designed, and engineering safety was maintained," and hopes to gain the understanding of citizens in that respect.

Still, the statement by the report that nuclear power represents "a potential danger in that it may affect the public living nearby" is apparently the first such acknowledgement since 1957, when the first Annual White Paper on Nuclear Energy appeared.

So what about the Annual White Paper on Nuclear Safety? As indicated by its nickname, "Safety Propaganda White Paper", the report has since its first appearance in 1981 relentlessly stressed the safety of nuclear power. But this year it dedicates many pages to the Mihama accident, and shows that it takes the accident seriously.

However, the whole issue is rife with problems. To begin with, since the Nuclear

Safety Commission is still examining the appropriateness of MITI's (Ministry of International Trade and Industry) November 1991 final report on the Mihama accident, there is as yet no final conclusion. But despite this the Safety White Paper endorses the MITI position on the accident's cause. The view is that had the anti-vibration bars been properly installed according to the design, the break would not have occurred. Hence the accident is explained away as a "special case." Members of the local Mihama Town Council (in which a majority of the members are pro-nuclear and conservative) have expressed many doubts about, and criticism of, MITI's explanation.

Second, the Annual White Paper on Nuclear Safety offers a detailed explanation of the way in which plant licensing is conducted, and stresses that the Nuclear Safety Commission's safety regulations are faultless. The posture of the Commission -- whereby it only examines the safety of a reactor's basic design, and will accept no responsibility if the reactor was not built in a way that satisfied the basic design -- is enough to make a person wonder why the Commission even exists.

The Annual White Paper on Nuclear Safety, like the Annual White Paper on Nuclear Energy, concludes that "neither the integrity of the core nor that of the reactor vessel were impaired by the accident, and one can almost totally ignore the effects of radiation released into the environment." The attitude of these publications, which considers it more important to advertise safety than to learn a lesson from the accident, could be described as paving the way for the next major accident. Accidents are frightening, but the attitude of the regulating authorities, as seen above, is even more frightening.

# Radon Contamination Caused by Ningyotoge U Mines by Yoshihira Doi

It was only in August, 1988, that it was revealed for the first time that Japanese mines were causing radioactive contamination of the environment and nearby residents. 200,000 m<sup>3</sup> of uranium tailings were found to have been left at the ex-mine, owned by the Power Reactor and Nuclear Fuel Development Corporation (PNC), near Ningyotoge at the prefectural border of Okayama and Tottori.

As reported in NIT No.10, Mr. Koide Hiroaki of the Research Reactor Institute, Kyoto University, and a group of volunteers conducted a joint study at the Katamo district near the Togo mine on the Tottori side of Ningyotoge, and proved scientifically that the soil, water, vegetation, and crops had been contaminated by uranium mine tailings. Since then volunteers with the help of scientists including Mr. Koide have conducted another series of studies on radon gas, the main cause of lung cancer and the most serious threat from the uranium mine. The following are some of the results of these studies.

## Measurement of Radon Gas from the Ground

The first four studies were conducted between November 1990 and June 1991. The method, devised by Mr. Fukushima Shozo and Ms. Mito Asae from the science faculty of Osaka University, was to select three tailing sites in the Katamo district and an uncontaminated control site, and to

cover a certain amount of soil with plastic sheeting for 24 hours to collect the radon gas escaping from the soil. The radon was then passed through a dehydration trap and absorbed in charcoal cooled by dry ice. The amount of radon 222 was then measured using a germanium semiconductor detector.

The results were as follows: The level of radon escaping from the ground was 95,000 Bq/m<sup>2</sup>.hr at the ex-storage shed for uranium ore in the Katamo district, 42,000-35,000 Bq/m<sup>2</sup>.hr at the bank of the No.1 pit pile yard, but only 130-60 Bq/m<sup>2</sup>.hr at the control site, a crop field with no mine tailings. The tailings sites had up to 900 times the radon level of the ordinary site. It can therefore be assumed that the tailings sites and nearby air are contaminated by radon escaping from the ground.

## Measurement of Radon Gas in the Air

In August, 1991, levels of radon gas in the air were measured at the four sites in the Katamo district. Air at a height of 1 meter was collected with an absorbing pump into a plastic bag. Radon levels were again measured after passing the air through a dehydration trap and absorbing it in charcoal.

The radon concentration of the air at the ex-shaft entrance of No.1 pit in the tailings area was 89,000 Bq/m<sup>3</sup>, some 18,000

times higher than the average level for Japan, 5 Bq/m<sup>3</sup>.

A level of 1,060 Bq/m<sup>3</sup> was measured at another tailings area further down and 17.2 Bq/m<sup>3</sup> was recorded at a village in the Katamo district, 1.5 km down from the tailings, confirming that the whole area has been contaminated by radon.

Volunteers conducted another three studies, designed by Mr. Koide, between December 1990 and August 1991, to measure radon levels in the air. This time, they used a slightly easier method, fixing up a passive radon monitoring case with charcoal in a bamboo basket at a height of 1 meter and leaving it for 24-28 hours. Radon levels were then measured with a germanium semiconductor detector.

The result was astonishing. At the No.1 pit shaft, with the entrance left open, the radon concentration was as high as 22,000-7,200 Bq/m<sup>3</sup>. PNC hurriedly blocked the entrance with sandbags but even after that the level remained at 14,000 Bq/m<sup>3</sup>. These levels are 24,400-1,440 times the average level. Even at the village in the Katamo district, the radon concentration was 17 Bq/m<sup>3</sup> while indoor levels in some of the houses were 32-23 Bq/m<sup>3</sup>. This shows that the air of the whole area has been contaminated by radon gas.

The general trend in radon levels found by Mr. Koide's method was quite similar to that found by Mr. Fukushima's & Ms. Mito's: All the studies show that radon gas from the No.1 pit shaft and the tailings yard has travelled down the mountain slope all the way to the village, and contaminated the whole area.

### Demands for Complete Removal of Tailings

The highest permissible level of radon concentration in the air under Japanese law is 1,000 Bq/m<sup>3</sup> for occupational radiation workers in radiation control areas. And

any area with a level of over 300 Bq/m<sup>3</sup> of radon has to be declared a control area.

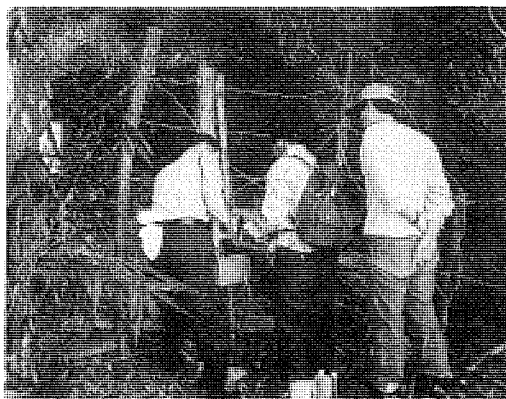
The tailings yard in the Katamo district is communally owned by local residents who go in there once in a while for various reasons. The yard is not PNC property, nor has it been declared a radiation control areas.

The volunteers who measured the radon levels are demanding that PNC promptly remove the tailings, and say that leaving the area with such a high concentration of radon is a criminal act in a constitutional state like Japan.

The Katamo district council, representing twenty households, has been demanding the complete removal of the tailings since the radon contamination was revealed in 1988. In August 1990, they made an agreement with PNC that PNC would remove 3,000 m<sup>3</sup> of the total 16,000 m<sup>3</sup> of tailings.

However, the Okayama prefectural governor opposes PNC bringing in the tailings from the Katamo districts in Tottori prefecture, to PNC's Ningyotoge plant which is in Okayama prefecture. PNC is now trying to shelve the agreement with the Katamo district council, using this difficulty as an excuse.

I am aware that it is not scientifically correct to compare radon concentration levels in the air determined by different methods. However, in order to show how extraordinarily high were the levels measured by Mr. Fukushima, Ms. Mito, and Mr. Koide, I have attempted to compare these levels with Japan's average outdoor level of 5 Bq/m<sup>3</sup>.



# SERIES: JAPAN'S NUCLEAR INDUSTRY

Since the Japanese nuclear industry is quite complicated and difficult to understand from the outside, we will set out on a new series introducing the structure and system of the nuclear industry and the manufacturers and companies connected with it.

## Electric Utilities

In Japan there are two kinds of electric utilities, general and wholesale. The wholesale companies sell electricity to the general companies. The term 'electric power company' is commonly used by consumers to denote general electric utilities.

The largest wholesale electric utility is Electric Power Development Co., Ltd., which is a 67% government-owned company. Other wholesale companies include Japan Atomic Power Co., Ltd. which owns 4 nuclear power plants (2,783 MW in total), local governments with hydro electric power plants, and several joint concerns operated by large electricity consumers, such as steel manufacturers, and general electric utilities.

Japanese general electric utilities have the following main features;

- a) They are private companies.
- b) Their business is limited to sales of electricity.
- c) Companies both generate and distribute electricity.
- d) They have a legal obligation to supply electricity to consumers.
- e) The supply area is fixed and there is no competition between suppliers.
- f) Tokyo Electric and Kansai Electric are the two largest private companies in Japan, and the largest private electric companies in the world.
- g) They do not import or export electricity.
- h) It is very rare for electric companies to buy electricity generated independently.

## Major Electric Utility Companies

(FY1990 or March, 1991 present)

Electric Companies	Capital (1 bil yen)	Supply Areas (km <sup>2</sup> )	Capacity of Electricity Generation				Amount of sold Electricity (GWH)
			Hydro	Thermal	Nuclear	Total	
Hokkaido	114.0	78,412	1,093	3,079	579	4,752	20,455
Tohoku	249.1	79,550	2,384	7,230	524	10,138	53,245
Tokyo	670.4	39,500	6,032	28,121	12,396	46,550	219,942
Chubu	369.6	39,131	3,625	15,975	2,480	22,079	99,795
Hokuriku	117.0	12,285	1,794	2,162	-	3,956	21,249
Kansai	484.8	28,679	6,029	17,941	7,408	31,378	120,585
Chugoku	183.1	32,178	2,282	5,882	1,280	9,444	42,911
Shikoku	145.6	18,442	1,120	3,171	1,132	5,423	20,231
Kyushu	236.3	42,165	2,320	8,716	2,898	13,934	55,794
Okinawa	7.4	2,255	-	1,015	-	1,015	4,725
E.P.D.C.*	70.6	-	7,086	4,654	-	11,740	39,584

\* Electric Power Development Co.

# International Conference on Plutonium Gets Wide Press Coverage

The International Conference on Plutonium received wide press coverage before, during, and after the event. It was reported not only in the Japanese media, but also in foreign newspapers such as the New York Times, Wall Street Journal, Guardian, International Herald Tribune, and New Scientist.

The message that all of these articles stressed can be summarized in just one sentence: the Japanese plutonium utilization policy is considered abroad as a grave nuclear proliferation threat.

Later on, the press started to carry comments on the issue from the nuclear industry side.

On Nov. 29, Fukui Newspaper printed an article on the decision of the Science & Technology Agency (STA) to conduct a survey on how plutonium issues are viewed in USA, UK, France and other countries. Plutonium issues include the transport of plutonium from Europe to Japan, the Japanese plutonium utilization program, and the Japanese spent fuel reprocessing project. STA has entrusted the survey to Japan Atomic Industrial Forum Inc., which is to interview dozens of overseas specialists and government officials and produce a report in 1 to 2 years.

In a series of articles in the Denki Shimbun (Electric News, the journal of the electricity industry) titled "The Use of Nuclear Power and Nuclear Non-Proliferation in the Post Cold-War Period, Mr. Kumao Kaneko, the former chief of the Nuclear Section of the Foreign Ministry, wrote about the plutonium issue and had this to say about the International Conference on Plutonium: "Now that Germany and France have slowed down their plutonium utilization programs due to the problems that have arisen, the Japanese

program seems more conspicuous. Consequently, it is being attacked by environmentalists and anti-nuclear activists around the world.

"The International Conference on Plutonium held in Omiya at the beginning of November, 1991, was representative of this trend. There seems to have been quite a significant and impressive discussion of the issue, judging from what I have heard from people who attended the Conference, and from reading its Proceedings. There was certainly a lot to learn from the Conference, and I hope the Japanese nuclear industry will not just pass it off as being limited to the point of view of anti-nuclear activists. I hope they will be humble enough to listen to their message and try to understand how seriously the whole world views the Japanese plutonium utilization program.

"Even if Japan has no covert interest in developing nuclear weapons what would it do if the neighboring nations proposed to follow the same course and extract plutonium themselves? We must understand that many countries are watching closely what course Japan takes, and what its intentions are. Much more so than we have tended to imagine."

The Denki Shimbun also carried interviews with the Deputy Chairman of the Atomic Energy Committee and the managing Director of the Power Reactor and Nuclear Fuel Development Corp., in which both stressed that plutonium would be used solely for peaceful purposes and never for weapons. Japan should contribute to the world by developing an efficient plutonium surveillance system. "The really important thing is to convince USA that PNC technology is reliable in terms of nuclear non-proliferation."

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# Anti-Nuke Groups

## Active Around Japan

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### Iwanai Citizens' Group to Study Nuclear Power Plant Issue

Initially, the Iwanai Fishermen's Cooperative halted construction of Tomari nuclear power plant for 12 years after the Japanese government, Hokkaido government, and Hokkaido Electric decided to construct it at Tomari village, April, 1969.

However, when in 1981, the Fishermen's Coop decided to change their policy and accept the plant under some conditions, the Iwanai Citizens' Group to Study the Nuclear Power Plant Issue (representative H. Sato) decided to carry on the anti-nuke struggle as the first local residents' group.

The Chernobyl accident had a great impact on the Japanese anti-nuclear movement. Tomari was the first reactor to test operate and go into commercial operation after the accident and the anti-nuclear movement grew rapidly.

Iwanai citizens' group was in the vanguard of the local opposition movement and in just one year, 1988, we gathered numerous local residents to more than 20 meetings which we held independently.

The All-Hokkaido Coalition of Labor Union and the consumers' cooperative "Seikatsu Club" joined together to collect signatures with the aim of legislating for a referendum which would ask all Hokkaido citizens whether they approved or disapproved of the Tomari nuclear plant. A lawsuit was also filed by 50,000 plaintiffs to suspend operation of the plant.

However, supported by the powerful nuclear policy of the Japanese government,

Hokkaido Electric shipped in nuclear fuel to the reactor in 1988, started test-operation, and finally achieved their goal of starting commercial operation.

However in 1991, less than a year after commercial operation began, vast numbers of cracks were found in the stationary blades of the turbines of Tomari 1 and 2 reactors.

Because of this, a consumers' group in Sapporo City decided not to buy milk produced in the Iwanai area. The targeted dairy manufacturer immediately notified the Hokkaido agricultural cooperative that they would not buy milk from dairy farmers in the Iwanai area. But, the Hokkaido government and Hokkaido agricultural coop threatened this manufacturer that milk would not be supplied to them from any other area, forcing them to withdraw their notification and keep purchasing milk from Iwanai.

This event brought about a serious conflict between producers and consumers within the anti-nuclear movement, and highlighted the different positions of people living near the site and people from the cities.

Our group, nevertheless, wants to raise awareness of this issue with all those concerned about nuclear power around the country and search for ways of unifying workers in the primary industries with people in the cities, in the struggle against nuclear power plants.



## NEWS WATCH

### China's First Nuclear Power Generated at Qinshan 1

Qinshan 1, China's first nuclear reactor (PWR, 300 MW), began power generation on December 15, and started supplying electricity. This reactor was built with parts imported from various countries including Japan, and has been styled "a patchwork power plant." Prior to the commencement of operation Japanese experts had been sent to instruct Chinese operators.

### Ohi 3 Starts Operation

Kansai Electric Power Co.'s Ohi 3 (PWR, 1,180 MW) began commercial operation on December 18, bringing the total number of reactors in operation in Japan to 42 (including the ATR Fugen) and the combined output to 33,404 MW.

### Uranium Enrichment Begins at Rokkashomura

Trial uranium enrichment began on December 11 at the enrichment plant at Rokkashomura, Aomori Prefecture, as natural uranium was poured into a centrifuge. Full-scale operation is scheduled to begin in February.

### Nuclear-Powered Mutsu Ends Experimental Voyage

The n-powered ship Mutsu returned to Sekinehama port in Mutsu, Aomori Prefecture on December 12, having completed all

its required tests at sea. Soon after Mutsu left on its maiden voyage in 1974, in the face of strong opposition from the local fishing community, a radiation leak was reported and the ship remained idle until 1990. In the meantime, the government decided in 1985 to scrap the ship. This final voyage, therefore, was a mere face-saving exercise for the government which was able to show that it had got some test results.

The project, with an initial budget of ¥6 billion, ended up costing the government more than ¥100 billion.

The Mutsu is to be converted to a marine observation ship after its reactor is removed.

### Worker's Exposure Suit Rejected

On December 17, the Supreme Court rejected an appeal by a worker exposed to radiation during work in a nuclear reactor, demanding compensation for his radiation sickness. The plaintiff is 68 year-old Mr. Kazuyuki Iwasa. He found his knee swollen and had a constant sensation of tiredness after working at Tsuruga nuclear reactor, operated by the Japan Atomic Power Co. Ltd. in 1971. He was diagnosed as having a radiation-induced dermatitis. He took the company to court in 1974, but his suit was rejected by both the Osaka Local Court and Osaka High Court. The plaintiff's side lost the case when it was unable to prove the dermatitis had actually been induced by radioactive contamination.

## New Steam Generator for Mihama 2

Kansai Electric Power Co., whose Mihama 2 suffered a tube rupture in the steam generator in February 1991, applied to the Minister of International Trade and Industry on December 20 for permission to exchange two steam generators. The actual work will begin in February 1994 and take about six months. It will cost about 20 billion yen, 6 billion yen of which will be contributed by Mitsubishi Heavy Industries to take responsibility for the accident.

## Japan-US Joint Research for Next-Generation Reactor

It was revealed on December 10 that five Japanese utility companies, including Tokyo Electric, had set up a joint research committee with Toshiba, Hitachi, and GE of the US and started research into a next generation reactor. The object is to improve the ABWR and the basic concept for the new design is to be completed during fiscal 1992.

## Worker Exposed to Plutonium Exceeding Annual Dosage

On January 9, two workers at the Power Reactor and Nuclear Fuel Development Corporation (PNC's) Tokaimura Chemical Processing Facility were engaged in washing pipes for plutonium and uranium mixed liquid when they were heavily contaminated by inhaling leaked plutonium. Their estimated levels of exposure were 878 mSv. and 559 mSv. at the bone surface, both of which are in excess of the annual dose limit of 500 mSv.

## Resolution to Refuse Depleted Uranium

PNC asked Okayama prefecture for permission to carry out an experiment at Ningyotoge conversion plant to convert depleted uranium, recovered through reprocessing, into uranium hexafluoride (see NIT No.26).

The town assembly of Yanahara, near Ningyotoge, on December 20 passed an unanimous resolution refusing the admission of depleted uranium into Okayama prefecture and demanding cancellation of the experiment.

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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 a subscription (subscription rate: supporting subscriber \$40/year or 5,000 ¥/year, subscriber \$20/year or 3,000 ¥/year). The subscription fee should be remitted from a post office to our post office account No:Tokyo 6-185799, HANGENPATU-NEWS by postal money order. We would also appreciate receiving information and newsletters from groups abroad in exchange for this newsletter.

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