

# NUKE INFO TOKYO

May/June 1991

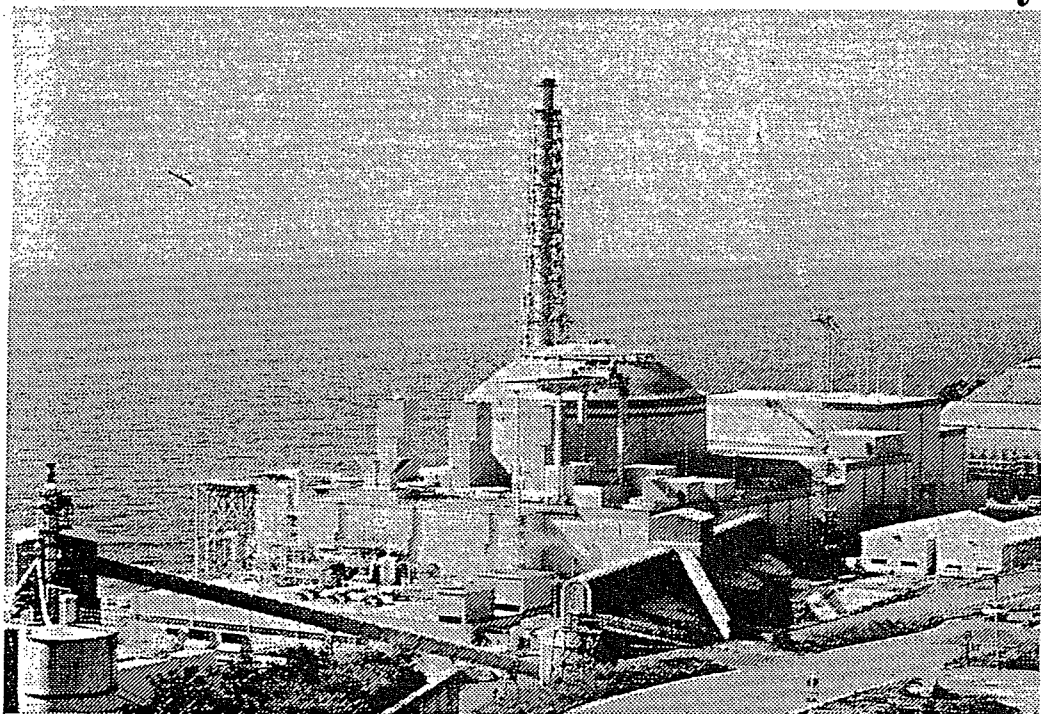
No. 23

96 Citizens' Nuclear Information Center

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## Japan on the Brink of a Pu Economy



Completed Prototype FBR Monju

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In the first overseas military mission for Japan since the end of World War II, the Maritime Self-Defense Force minesweeper squadron was dispatched to the Persian Gulf on April 26, '91.

Ever since the Gulf Crisis broke out last year, the Japanese government (Liberal Democratic Party) had been proposing the dispatch of the SDF to the Gulf, as if Article 9 of the Constitution had receded out of sight.

Two years ago, when the Diet discussed the question of the sea transport of plutonium from Europe,

some LDP members pushed strongly for MSDF warships to be sent to guard the shipment. But because of our peace Constitution, this immediately sparked off a bitter controversy among government agencies, politicians, and citizens. As a result, the government was forced to proclaim that Japan would not send the SDF to escort the plutonium shipment, but would instead send a Maritime Safety Agency escort vessel, which would be newly built at a cost of 20 bil. yen. Nevertheless, soon after, a confidential agreement was made within the government that if the MSA vessel should ever be considered inadequate, the question would be reviewed.

Now that the MSDF minesweepers have been dispatched with such ease, and considering that one of the strongest advocates of their dispatch was the Chairperson of the Federation of Economic Organizations, G. Hiraiwa, who is also the Chairperson of Tokyo Electric Power Co., it is difficult to avoid the conclusion that this move was intended to set a precedent for the smooth dispatch of the SDF on other overseas missions, such as escorting plutonium shipments. In fact an ex-Self Defense Agency Secretary, Mr. Yamazaki, in an interview with an energy-related magazine, declared that from the safety point of view plutonium shipments should be guarded by the MSDF.

To make things clear, the government was forced to announce again on 23rd April that they still intend to send the MSA vessel to escort plutonium shipments. A Plutonium Escorting Transport Division within the MSA was specially established on April 12, and the same day a Science & Technology Agency official was appointed to take charge of nuclear fuel transport.

The return of extracted plutonium to Japan is scheduled to begin next year. If it is returned by sea, each shipment will carry about 1 ton of plutonium and there will be

four shipments a year. Japan expects to receive about 40 tons of plutonium from Europe over about 12 years.

The government seems determined to complete preparations for the transport of plutonium. They claim they need the plutonium for Monju, the prototype FBR scheduled to go critical in the autumn of 1992. Construction of Monju was actually completed at the end of April, and the FBR started its overall function tests from the middle of May, without using nuclear fuel.

We can say that Japan is now standing at the brink of a plutonium economy, a turning point in the history of the Japanese nuclear industry.

However, neither the use of plutonium nor an FBR program is within sight of being realized worldwide, and so the enormous amount of plutonium, to be returned to Japan, will only be stockpiled, giving rise to the threat of proliferation.

It is ironic that Japan, the first country in the world to suffer the catastrophe caused by plutonium bombs in 1945, should now 46 years later choose to inflict on its own people an enormous "surplus" of civil plutonium. Japan is on its way to becoming the world's second plutonium economy giant, after France.

In view of this, we believe it is essential to hold an International Conference on Plutonium in Japan this year, to put an end to the international plutonium economy. We would like to invite all concerned people, including scientists, economists, analysts, and citizens from all over the world, to review thoroughly the entire issue of plutonium usage and in particular the questions of safety, economy, and proliferation. We have organized such a Conference, together with Greenpeace International, to be held from Nov. 2 to 4 of this year, in Omiya city, half an hour from Tokyo. We believe that presenting these issues to the whole world, and

in particular to the Japanese people, the nuclear industry, and the mass media, will have an immense impact on the movement to stop the plutonium economy.

### INTERNATIONAL CONFERENCE ON PLUTONIUM



Date & Time: Nov. 2-4, 1991  
10a.m.-5a.m.  
(10a.m.-3a.m. Nov. 4)

Place: Omiya Sonic City,  
International Conference Room  
Omiya-shi, Saitama Pref.

Expected Participants: 150

Admission Fee: ¥20,000 (including proceedings and simultaneous interpretation)

Organizers: GREENPEACE INTERNATIONAL /CITIZENS' NUCLEAR INFORMATION CENTER

Representative: Jinzaburo Takagi, Dr.

Expected Speakers: K. Z. Morgan/  
Damon Moglen/Helmut Hirsh/John Large/Jean Paul Schapira(negotiating)/Niels Morner/Paul

Leventhal/Tadashi Ishibashi/Manami Suzuki/Jinzaburo Takagi/Residents from Sellafield, Ireland, Panama/Plaintiffs and Lawyers involved in suits on N-fuel cycle facilities and FBR Monju, etc.

Themes: Effects of Plutonium on Human Body/Examination of programs for reprocessing, MOX, FBRs/Plutonium Control/Transportation of highly radioactive materials (Pu, spent fuel, HLW, MOX)/Opposition Campaigns, etc.

Any interested persons are welcome to participate. Please write to the Secretariat of the ICP for a reservation.

Address: International Conference on Plutonium; 4f. Yoshinobu Bldg., 2-10-11 Moto-Asakusa, Taito-ku, Tokyo 111, Japan

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## Plans for Pu Usage

Plans for plutonium usage are currently being discussed by the Japanese Atomic Energy Commission's Nuclear Fuel Recycling and FBR Development Advisory Committees. The development program envisages an FBR demonstration reactor being built after Monju, but plans are considerably behind schedule. Japan AEC is planning for commercial operation of FBRs to begin in the 2030s, but the electric power industry is very skeptical, claiming this will not be feasible until the middle or even the end of the next century.

There are also plans to build an ATR (Advanced Thermal Reactor) in Ohma, Aomori Pref., and this is scheduled to come on line by the end of fiscal 1999, but little progress has yet been made due to strong protests from local fishermen. In addition, as an interim means of

consuming some of Japan's enormous stockpile of plutonium until it is needed for use in FBRs, a MOX fuel option is planned. According to an unofficial report by the Recycling Committee's Working Group on the Plutonium Use Program, MOX fuel could be used in 4 LWRs (1,000MWe) by the end of the 1990s, and 12 LWRs by the year 2005.

However, some Committee members assert that not so much emphasis should be put on the use of MOX fuel because plutonium is basically intended for use in FBRs, and the R&D program should be targeted at this.

Furthermore, the electric power industry is not particularly in favor of using MOX fuel in LWRs. Although experiments have been done at Tsuruga 1 (BWR) and Mihama 1 (PWR) using small amounts of MOX

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## Recent Developments since the Mihama 2 Nuclear Accident

On February 9 a major accident occurred at Kansai Electric Power Co.'s (KEPCO) Mihama Nuclear Power Station Unit 2 (PWR, 500MWe), in which a steam generator tube ruptured. The previous issue presented a detailed report on this accident, but a number of other facts have since come to light. Following is our report (please refer to the previous issue for an account of events during the accident).

### Academic Symposium Held

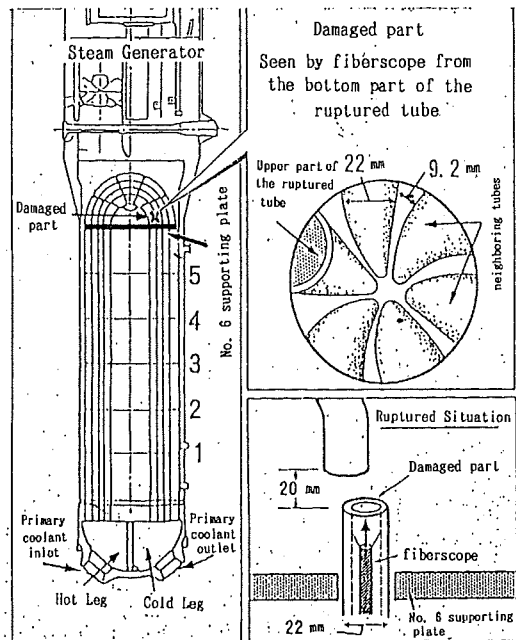
On March 31 an "Academic Symposium on the Mihama Nuclear Power Station Accident" was held at Tokyo University's Sanjo Kaikan Hall. This symposium was planned by an executive committee of five scientists critical of nuclear power, and featured an intense discussion by over 100 participants.

Three things became clear in the course of the symposium discussion. First, the water in the reactor boiled twice. Second, the action of the ECCS was inadequate. Third, there are serious doubts regarding KEPCO's explanation concerning the cause of the tube rupture.

### The Water in the Reactor Boiled

As the previous issue noted, it is thought that during this accident the precipitous pressure drop engendered by the accident caused the water to boil twice. During questioning in the Diet on March 27 the government admitted to the second boil, which occurred immediately after the ECCS had been shut down at 2:42 p.m. What is more, the chairman of the Nuclear Safety Commission, Mr. Hideo Uchida, made a statement in the Diet on April 1

which indirectly acknowledged the boil that occurred immediately after the 1:50 p.m. tube rupture. A boil does not necessarily signify fuel failure, but it is after all a serious matter for pressurized water reactors, which are not built with boiling in mind, and it is unknown what effect it would have on the fuel rods.



It was also ascertained that the operators were not able to adequately determine, at the time of the accident, whether or not boiling had occurred, and to what extent. We are told that core temperature data for the 10 minutes beginning with the rupture at 1:50 p.m. do not exist, and the explanation is that core temperature was a low computer priority. It is truly frightening that nuclear power plants are being operated without taking readings on even this kind of basic data.

### Inadequate ECCS

We are told that immediately after the scram in the Mihama 2 accident the emergency core cooling system (ECCS) kicked in and prevented a loss of coolant. However, we now know for sure that actually the ECCS was overcome by primary system pressure, and thus it could not function adequately. According to the description of the high-pressure injection pump function characteristics, which KEPCO submitted in response to questioning in the Diet about mid-March, this pump stops working at about 100 kg/cm<sup>2</sup>G, and during the actual accident a pressure of about 100 kg/cm<sup>2</sup>G existed for over 30 minutes. It was the three make-up pumps that supplemented the insufficient ECCS injection. There is also a problem with the fact that one of the two ECCS high pressure injection pipes is attached directly to the reactor pressure vessel. When, due to the operation of the ECCS, cold water suddenly enters the pressure vessel while the reactor is running, this can weaken the pressure vessel walls. The phenomenon known as brittle deterioration of the pressure vessel is a part of the problem in the accident at Mihama 2.

### What Caused the Rupture?

We are told that the major cause of the steam generator tube rupture is that an anti-vibration bar (AVB) had been incorrectly installed. Since the AVB was not in the correct position, they say, the tube vibrated several hundred thousand times over a long period of time, and the tube ruptured due to metal fatigue (high cycle fatigue). However, judging by the cross section photographs this explanation is dubious. The relatively small number of striations seen along the ruptured surface strongly suggests that the tube rupture was not caused by metal fatigue due to long-term vibration. It appears that the tube ruptured due to a more direct cause occurring in the near past.

### Plugged Tubes Damaged



Additionally, an inspection of nearby tubes which had been plugged at the time of the 1975 inspection revealed the presence of holes and indentations making bulges on the inside (see photo). Secondary coolant had been leaking into the pipes with holes.

### Other Facts Still Concealed

At this time the core cover has been removed and an inspection of the fuel rods has begun, but KEPCO has still made no public announcement as of the end of May, when this manuscript was written. There have also been no reports from the Ministry of International Trade and Industry or the Nuclear Safety Commission. The government and KEPCO are trying to deal with this accident as a matter that involves only Mihama 2, to keep it from affecting other PWRs.

We will present further news on the accident as reports on the core condition become available.

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### PLANS FOR PU USAGE

fuel in the nuclear fuel assemblies, the power companies claim that "it is still unknown whether the reactor core would be safe if a higher percentage of MOX fuel were used," and that "it is not economically feasible."

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## Anti Nuke Who's Who

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Aileen Smith  
(Photo by Fusayoshi KAI)

Aileen Smith lived in Minamata with her husband Eugene Smith from 1971 to 1974 to witness the ordeal of Minamata Disease -mercury poisoning- patients and the villainous conduct of the polluting company and the Japanese government. In 1975 their photographs were published as a photo documentary book, MINAMATA which helped make the problem known to the rest of the world.

The Three Mile Island accident in 1979 motivated Aileen to become active in the nuclear power issue. She has made eight trips to the site and has stayed there for a total of one year, meeting with as many as 250 local residents and interviewing them with her co-worker Hajime Nakao.

Aileen found that the U.S. government has been simply ignoring the victims' cry and the general public is also indifferent since the media hasn't carried their stories much. And the scientists are far removed from reality. Not a single scientist has ever worked with the victims and farmers in the area. Aileen has talked to a number of people suffering from various diseases including cancer and yet

she knows that the current cancer survey would probably show no evidence of increase since neither scientists nor government officials are trying to find out what is actually happening at the site.

The accident at Mihama Unit 2 in Japan occurring this February was significant especially to Aileen since she had been concerned about the fact that so many steam generator tubes of PWRs in Japan are damaged. In January 1989 she had the same dream five times for three days in a row, all showing rupture of tubes. She then obtained enough information to educate herself and started to give lectures about dangers of the damaged tubes, using for demonstrating purposes a two meter long water hose, etc.

Last fall Aileen realized the importance of informing the Kyoto prefecture residents about the impending danger and started to work on the Kyoto prefectural government with fellow activists. Kyoto prefecture is located just south of Fukui prefecture where 10 PWR reactors are in operation. Most of these reactors have serious problems with steam generator tubes.

Aileen and her fellow activists were surprised to find that most members of the Kyoto Legislature were ignorant about the danger of damaged tubes and nuclear power in general. So they had to talk to the members one by one and to educate them, spending day in and day out, making the lobby of the legislature their base of operations, to show how crucial this issue was. In October 1990 they managed to have the legislature issue a resolution asking the Japanese government to replace damaged steam generators promptly.

Meanwhile Kansai Electric Power Company, the operator of the reactors in Fukui, persistently argued that the tubes would never rupture and showed no signs of listening to the citizens' groups urging that it was only a matter of time before they would, and cause serious

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## 5th Anniversary of Chernobyl

On April 26th, exactly 5 years to the day since the Chernobyl accident, we presented 765,000 signatures to the Diet requesting the establishment of a Nuclear Phase-Out Law. The number of signatures when added to those presented a year previously, now totals approximately 3,300,000. Unfortunately, however, our petition was not even discussed during the Parliamentary session. Thus, the Diet has failed to take up the issue for the second year running.

It is the first time in the history of the anti-nuclear movement that this many signatures have been collected, but 3.3 million signatures is still not sufficient to penetrate the 'wall' of the Diet. On the other hand, the petition campaign provided a common ground for the nationwide, antinuclear movement which was broadened by the new concept of nuclear phase out. We will now continue to put pressure on the Diet.

On the eve of April 26th, activists gathered from all parts of Japan to discuss the various ways of continuing the movement. Some stressed the necessity of pressuring local governments as well as the Diet. Others spoke of the need to replace the present Electric Utility Industry Law which has been the helping handmaiden of nuclear development in Japan with new laws such as a Law for the Effective Use of Electricity and a Law to Promote the Development of New Energy.

On Sunday, April 28th, No-Nuke rallies were held in many places throughout Japan. 600 people including many children gathered at a park in Tokyo. They were welcomed by weather and a clear spring sky. A first-hand report was given by a resident living near Mihama nuclear power station (where there was recently a serious accident involving the rupture of a tube which transmits heat to generate steam).



One group exhibited a model steam-generator and succeeded in replicating the accident using butane gas.

The participants then went on to stage a demonstration in the streets. The march was livened up by a black percussionist who unexpectedly joined the parade from the crowd and played his drum all the way.

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problems. Then the accident at Mihama happened.

The other thing Aileen is concerned about is the prototype fast breeder, Monju, located also in Fukui. The construction is almost complete and the overall function testing has begun this month. The actual start-up is scheduled for October of next year. She feels not only Monju but also the whole plutonium issue could become a major threat to the Japanese public and the world's environment. A vitally important issue, Aileen believes that everybody should be concerned about it and a variety of actions can be taken to stop it.

# Significant Incidents at Nuclear Plants

(Jan. - Jun. 1990)

date	plant	short description of event
Jan. 3	Fukushima II-1	Reactor scram due to erroneous function of oil level meter at recirculation pump motor shaft bearing.
Jan. 5	Tsuruga 1	Automatic stoppage of emergency diesel power supply for high pressure injection pumps during function test.
Feb. 3	Tokai I	Failure in fuel handling due to loosening of fuel assembly handle; reactor stopped manually.
March 8	Ohi 2	Damage to steam generator tubes found during inspection.
March 13	Takahama 4	Damage to steam generator tubes found during inspection.
March 29	Takahama 4	5 primary coolant pump vane fitting bolts found cracked during inspection.
March 29	Mutsu (N-powered ship)	Malfunction of reactor reactivity meter.
March 30	Mutsu	Reactor scram due to loss of power supply (during power raising test).
April 1	Mutsu	Control rod drive failure due to malfunction of neutron detector (during power raising test).
April 12	Mutsu	Reactor shut down manually due to control rod operating lever (during power raising test).
April 14	Mutsu	Reactor scram due to malfunction of main feedwater pressure sensor (during power raising test).
April 29	Hamaoka 2	Alarm at reactor protecting circuit due to switch failure (reactor operation continued).
May 26	Mihama 2	Damage to steam generator tube found during inspection.
May 28	Fukushima I-2	Damage to emergency diesel generator.
May 28	Mutsu	Reactor scram due to primary coolant flow drop (during preparation for test voyage).
May 30	Fukushima I-6	Condenser tube leak; power suppressed.
June 8	Tokai I	Condenser tube leak; power suppressed.
June 11	Fukushima II-1	Reactor stopped manually due to recirculation pump bearing damage.
June 12	Fukushima II-4	Reactor stopped manually due to recirculation pump bearing damage.
June 16	Fukushima II-4	Reactor stopped manually directly after restart due to further recirculation pump bearing damage.
June 24	Tokai I	Rise in coolant gas (carbon dioxide) radioactivity level due to pin hole in fuel rod cladding.
June 29	Takahama 2	Damage to steam generator tubes found during inspection.



# NEWS WATCH

## Nuclear Inspection Plans

Both the Foreign Ministry and the Science and Technology Agency have established organizations, composed of outside experts, to make plans to examine ways of strengthening the nuclear inspection system. Plans submitted by the two organizations will be combined into a Japanese plan which will be proposed at the IAEA's Board of Directors' Meeting to be held in June. This kind of development is quite new in Japan and has been styled a "post war international cooperation activity," but its purpose remains obscure. We suspect it is designed to set up the conditions for nuclear exporting.

## Reprieve for N-Export to Indonesia

A group of citizens opposing the export of nuclear reactors to Indonesia had a meeting with officials from the Ministry of Foreign Affairs on May 10 regarding the Official Development Aid requested by the Indonesian government to conduct a site feasibility study. The officials said that the request came in March last year and they rejected it in June. The reason was that they were unable to identify an urgent need to build nuclear power stations in Indonesia in terms of electricity supply. They also found that the Indonesian government had involved safety and nuclear proliferation issues.

## Nationwide Campaign against Mitsubishi Kasei

Asian Rare Earth Co. is a joint venture set up in Malaysia by Mitsubishi Kasei Corp. to recover rare earth from thorium-containing ore. Not only have Mitsubishi's mining operations resulted in workers being irradiated, but the firm has contaminated the environment and exposed local people to the hazard of irradiation by dumping its waste in the area.

To expose Mitsubishi's activities in Malaysia a group of concerned people, including a woman working for Mitsubishi Kasei, staged a nationwide campaign from April 25 to May 8.

Two local residents and a member of a consumer organization from Malaysia were invited to Japan to participate. They visited Mitsubishi Kasei and met with officials to demand that the company stop its hazardous operation. Citizens' meetings were also held in Tokyo, Osaka, Okayama, Kita-Kyushu and Minamata.

## Japan Concludes N-Power Cooperation Pact with USSR

The governments of Japan and the Soviet Union signed a nuclear power cooperation pact on April 18, committing the two nations to exchange information and experts on both nuclear power plant safety and radioactive waste treatment and disposal. In addition a memorandum was signed by the Japanese and Soviet foreign ministers stipulating

that the two countries will cooperate to conduct a survey on the damage inflicted on local people by the Chernobyl accident and on the treatment of its victims.

## Residents Informed of Planned Replacement of Steam Generators

On April 25 Kyushu Electric Power Co. informed Saga Prefecture and the town of Genkai of its decision to replace the steam generators of Genkai 1 in fiscal year 1994, due to the high rate of damage to its steam generator tubes. On May 10, Kansai Electric Power Co. also informed Fukui Prefecture and the towns of Ohi and Takahama that it will replace the steam generators of Ohi 1 and Takahama 2 in the near future.

## First Legislation Passed Refusing Introduction of Radioactive Waste

On March 15, Yubara Town

Council in Okayama Pref. unanimously passed a bill prohibiting the introduction of radioactive waste into the community. The legislation is the first of its kind. Over the last 5 years there have been a number of moves to build a high level waste dump site in the prefecture.

A few days before, on March 12, Toyotomi Town Council in Hokkaido passed a resolution against the research institute planned to be built in the neighboring town of Horonobe for the study of high level waste storage and disposal.

## Peel-Off Damage to Fuel Clads at Hamaoka

Chubu Electric Power Co., which operates Hamaoka 1, announced on March 20 it had discovered peel-off damage on the surface of 78 fuel clads including the clads of the five fuel rods found to be leaking during the ongoing regular inspection, which started in June last year. An increase in the radioactive iodine concentration of the reactor water was detected toward the end of March 1990.

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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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