

STA Begins Legal Action Against PNC



A rally against Tokai Accident held in Tokyo, for the 11 th anniversary of Chernobyl accident. (Photo by Akira Imai)

IN THIS ISSUE

STA Begins Legal Action Against PNC 1-3 Anti-Nuke Groups Around Japan: Union of Ibaraki Anti-Nuke Power Movements Δ The Situation at Rokkasho-Part 2 5-6 **Replacement Shrouds for Fukushima-I** 7-8 NEWS WATCH 9-10 Radioactive Waste Disposed of as Industrial Waste / NPP Expansion Plan / Strong Quakes at Sendai Reactors / Spent Fuel Management On Site/ Nuclear Industry In Asia/ Lungman NPP Ordered / Kushima Referendum Stopped?

The inexcusable cover up of the accident at the Tokai bituminization plant by the Power Reactor and Nuclear Fuel Development Co. (PNC) which is commonly called the "10:22 problem," led the Science and Technology Agency (STA) to take legal action against them. PNC had reported the accident to STA as legally required, and the report stated that workers employed by PNC went to the accident site at 10:22 a.m. and visually confirmed that the fire had been put out completely. However, this report was not true. This cover up was exposed at the hearing of the STA's investigation committee, by the plant workers

NUKE INFO TOKYO May / June 1997 No. 59

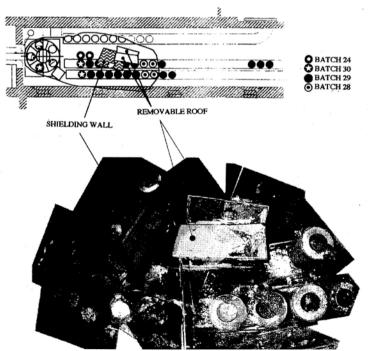
who extinguished the fire. One of the members of the investigation committee, who is from the Fire Research Institute of the Ministry of Home Affairs, had alleged previously that he wanted to hear about the fire directly from the mouth of its discoverer, so he and the chief investigator of the committee visited PNC to hear about it from those workers.

According to the hearing, PNC already knew on the day of the accident that the report confirming the fire had been checked to ensure it was extinguished, was false, but they did not amend the report. Moreover they tried to construct the "facts" to fit their lie. PNC chose two of the sub-contracted workers employed at the facility to attend the committee's hearing and tried to forced both of them to testify that they had confirmed the fire was extinguished at 10:22. But one of them refused to give false testimony at the hearing, thus exposing this cover up to the public. Even after that PNC still tried to convince the committee that it had happened because of a communication breakdown caused by a change over of work shifts.

STA, which is the regulatory authority for PNC, decided to take strong action in response to PNC's cover up, and on 18 April, STA filed a criminal complaint against PNC and three of the managers who supervised the bituminization facility, with the Ibaraki Prefectural Police. The charge was suspicion of a violation of the legally required duty to report accidents, as prescribed in Articles 67 and 80 of the Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

From the other side, the Citizens' Committee to Investigate the Tokai Accident, which was formed by local residents, also filed criminal complaints against PNC with the Ibaraki Prefectural Police, on 23 April, on the same grounds and also for the crime of drafting a false official document in breach of the Criminal Procedures Act.

Since STA began legal action, several more cover ups have been exposed to the public, however the worst of them is the discovery that PNC destroyed photographs of the accident scene. About two hours after the fire, fire fighters from Tokai-mura and two PNC staffers went into the accident site to investigate, the staffers took photographs of the scene. As they were taken right after the accident the photographs might have contained vitally important clues as to the cause of the fire, but unbelievably they were shredded along with the negatives.



Inside the cell at the accident site. From material released by STA's Tokai accident investigation committee

It's Time for Dissolution!

A lot of criticism is focusing on PNC's constitution which remained unamended even after the Monju accident. Many voices from the Japanese public have been raised, calling for the dissolution of PNC. Even within STA and the pronuclear faction the same sentiment has been expressed.

STA is trying to tackle these problems by establishing a committee to promote the reform of PNC. This is STA's response to the criticism that, as STA is PNC's regulatory authority it must fulfil its duty to account for why this accident happened and ensure that something like this never happens again. The committee will announce its reform plan within this June. In addition, STA has selected the consultants, Arthur Andersen Co. of the U.S.A. to conduct an independent third party investigation into PNC's operation.

Until STA's reform committee makes its findings public judgement must be reserved. However, from inside of the government, there is growing support for the diversification and private management of PNC. PNC's duties can presently be divided into the enrichment of uranium, reprocessing, including the production of MOX fuel, and the development of a fast breeder reactor and high level waste disposal technology. The role of PNC is to develop those new technologies and transfer them to private enterprises. With this objective, the enrichment of uranium is already being done by Japan Nuclear Fuel Ltd. (JNFL), which is also presently building the reprocessing plant at Rokkasho (see this and last issue of NIT for details of Rokkasho). Also, for the disposal of high level waste, there is a plan to organize an enterprise body by the year 2000 and hand PNC's technology over to it (It is certain that the disposal plan will have a very rough ride even if an enterprise body is organized). But of all PNC's duties, the development of a fast breeder reactor is the one that has really run into trouble. The development of a demonstration reactor which is supposed to follow the prototype reactor will be organized mainly by the electric utilities with the Japan Atomic Power Co. Ltd. (JAPCO) a semi-governmental corporation, serving as the coordinating body. But the proposed demonstration reactor is mostly different in design from Monju, the prototype. Because of this it was clear that the transfer of technology from government to private hands would be very difficult, but the accident at Monju in December

1995 was the final blow. Now, such a technology transfer is impossible and the government will have to bear the burden of developing a demonstration reactor. Those of the opinion that PNC should be diversified and privately managed say that tasks within PNC's remit, which are already done by private enterprises should be transferred to those enterprises and the development of a fast breeder reactor should continue to be the responsibility of the government. The government's counter-argument is, "Is it possible to get the public trust for such a development under PNC's management?" Whatever the arguments one way or the other, it is obvious that, in the face of growing criticism of the plutonium utilization policy among citizens, the diversion and private management of PNC can never be a solution to this problem.

Far From the Truth

On 8 May, STA reported on the progress of its investigation into the causes of the accident. This report is a summary of everything that they have found to date and has been termed an interim report. In brief the report's findings are; The fire was started by inflammable gas and this gas might have been produced by changes in the operational conditions. The facility had been operating with lower amounts of liquid waste and asphalt, to reduce the amount of bituminized waste produced, for several days before the accident. However the report is not specific about the cause nor does it reveal much information about the investigation. The cause cannot be specified, because the necessary data is defective. For example, there is no analytical data available on the liquid waste that caught fire, which is probably due to the fact that only the pH was checked. The facility was contaminated by radiation, and also many instruments were destroyed by the blast, therefore it is taking a long time to collect and analyse the new samples. Some documents were lost to the explosion and PNC are having to take photographs of all the collected documents page by page, because they are contaminated with radiation and cannot be used. It is also possible that PNC may be hiding some of the unreleased data on purpose. Whatever the truth of the situation, finding the cause of the accident will take very long time.

(Hideyuki Ban)

ANTI-NUKE GROUPS AROUND JAPAN: Union of Ibaraki Anti-Nuclear Power Movements



National rally against the Tokai accident , in Tokaimura, 12 April 1997. (Photo by Akira Imai)

On 27 August 1957, JRR-1 (water boiling type reactor) at Tokai-mura, Ibaraki Prefecture, which had been imported from the U.S.A., went critical. It was the first reactor criticality in Japan. 40 years have passed since then and Tokai-mura has grown into such a big center for Japanese nuclear power that mail with only the name and no exact address will still be delivered.

The mayors of Tokai-mura all used to say that "There are no anti-nuclear groups in our village," but this was before anti-nuclear movement became active in response to the plutonium transportation by the Akatsukimaru in 1992. A member of the management at the PNC spoke out saying that one of the causes of the fire and explosion accident, in March this year, at PNC's Reprocessing Facility in Tokai-mura was the indulgent attitude of the governments of Ibaraki Prefecture and Tokai-mura toward PNC and nuclear power, as a result, PNC freely took advantage of the local governments' tolerance. While those in power were busy looking after their own interests, what were the ordinary people in the village doing?

In the late 1960s, local residents were determined to oppose the construction of the Tokai Reprocessing Facility, because of the possibilities of nuclear leaks and accidents, and also the possibility of the facility being appropriated for military use. The Ibaraki Prefectural Assembly, as well as cities like Hitachi and Katsuta which are adjacent to Tokai-mura, were organizing anti-nuclear activities with their residents and local governments together. But, by the 1970s, because of the deals that had been made between those in power in government and industry, without the participation of local residents, those local governments dropped their anti-nuclear activities one after the other. So it fell to the local people like farmers, fishermen, members of labor unions and reformist parties to become the center of the anti-nuclear movement.

At that time, the focus of the anti-nuclear activities changed from the reprocessing plant to big nuclear power plants, and the fight was taken to the courts. The citizens' movement might seem to have shrunk, but led by the younger generation, the anti-nuclear campaigners are still fighting, using study meetings and the court battles to carry their message about the dangers of nuclear power to the public. Within the anti-nuclear movement, originally roused to action by the Chernobyl accident, these young people have become the core organizers of many new grass-roots citizens' groups in Ibaraki Prefecture. But the activities of these groups could not stop the many nuclear facility that were constructed and are now operating around Tokai-mura, Ibaraki Prefecture. Recognizing this failure, these different groups finally got together to form the "Union of Ibaraki Anti Nuclear Power Movements." The Union united them all to take on and stop the nuclear facilities one by one by citizens' coalition.

Today, 40 years after a reactor went critical for the first time in Japan, those grass-roots activities have finally begun to influence the local government of Tokai-mura. The government that allowed Ibaraki Prefecture to become Japan's center of nuclear power by inviting so many nuclear facilities to set up in Tokai, is now having to take them very seriously.

(Kenji Matsumaru)

The Situation at Rokkasho -Part 2

This is second part of a two part report on the current situation at the Rokkasho Nuclear Fuel Cycle Facility. In the last issue NIT looked at the Uranium Enrichment Plant and the LLW Repository Center. In this issue the HLW Management Facility and the Reprocessing Facility will be covered. All these facilities are operated by Japan Nuclear Fuel Ltd. (JNFL). Some of Japan's major companies as well as the ten major utility companies in Japan have shares in JNFL.

HLW Management Facility

As a part of the Reprocessing Plant the HLW Management Facility, was built on the reprocessing site. However, the application for an operating permit was submitted separately in March 1989 and now it operates independently.

The permit was issued in March 1992 and construction began the following April. This facility was needed to store vitrified high level waste (VHLW) that was to be returned from overseas. The construction was completed just before the VHLW was transported to Aomori in the Spring of 1995.

This facility is able to hold 1,140 glass logs of VHLW. STA has announced that about 7,100 tons of spent fuel would be reprocessed abroad and that as many as 3,500 or so glass logs of VHLW would be transported back to Japan. So it is likely that this facility will be expanded in the future. At the facility the glass logs are stored vertically, nine to a cylinder and are cooled by the natural circulation of air around them.

On 26 April '95, 28 glass logs of VHLW were transported by the French reprocessing company COGEMA, from France to Japan by ship via Cape Horn, around South America. The danger of this long distance trans-portation was publicized world wide and all the countries along the transport route ended up refusing the shipment passage through their Exclusive Economic Zones (EEZs).

The safety of the VHLW produced by COGEMA has been questioned and several problems have been pointed out. CNIC commissioned Dr. Ed Lyman, then of Princeton University and now of the Nuclear Control Institute (NCI) in Washington D.C., to conduct a study on the safety of VHLW. In his report of the study's findings, Dr. Lyman pointed out that the steel that the canisters containing the VHLW are made of, could become sensitized which could induce corrosion. The report recommended that the steel used should be changed to prevent this. In fact when the first shipment of 28 logs were checked before storage, one of them was found to be contaminated with a high level of cesium-137. This showed that the steel the canisters are made of is obviously inadequate for the job. Neither STA nor JNFL have ever given a clear explanation for the contamination. VHLW is supposed to be stored in this facility for approximately 30 to 50 years and yet the safety of the waste for that time clearly cannot be quaranteed.

The second transport, carrying 40 logs, took place in March this year, via the Cape of Good Hope. Even though a different route was taken this time, many countries that were concerned about the safety of this dangerous transport, called for the cancellation of the shipment or refused the ship passage through their EEZs. VHLW has been transported to Japan twice, on both occasions various nations expressed strong opposition. The transport should not be continued without solving the safety problems of VHLW, the containers for the transport, or the transport itself. The proper safety measures should be taken first and then the necessary information should be immediately released to the public.

It has been announced that the third transport, of 60 logs, will take place by March 1998. According to information obtained by CNIC, 100 to 300 logs will be transported every year, in two shipments per year, from

NUKE INFO TOKYO May / June 1997 No. 59

now on.

Reprocessing Plant

As for the Rokkasho Reprocessing Plant, an application for a construction permit for a throughput of 800 ton HM was submitted in March 1989 the permit was issued in December 1992 and construction started in April 1993. 15% of the plant has been built so far, but the construction plan was changed drastically and the newly redesigned section is presently being checked. The major change is to reduce the number of lines for plutonium and uranium purification from two to one. Also the number of HLW and LLW tanks will be reduced. The completion of the plant and the start of operations are officially planned for 2003, but it is likely that it will be delayed substantially.

The construction plan of the Rokkasho Reprocessing Plant has been delayed by many years. The accidents at Monju, and at Tokai Reprocessing Plant have made a reconsideration of the Japanese plutonium utilization plan necessary. The general public as well as the governor of Aomori have started to question the safety and the necessity of the Rokkasho Reprocessing Plant. In 1996, after construction had already started, a major change in the construction plan was proposed due to economic difficulties. However, the Japanese government and the utility companies are still clinging to the nuclear fuel cycle plan. The main reason for this is that they do not want to give up having the reprocessing plant to use for spent fuel storage.

The main part of the plant has hardly been started, but the spent fuel storage pool with the capacity of 3,000 ton HM is finished. The spent fuel to be reprocessed abroad has almost all been shipped, so the utility companies plan to have transported about 2,000 ton HM of spent fuel there by the time the construction is completed.

Spent Fuel Storage Issue

In Japan 51 reactors are currently in operation and about 1,000 ton HM of spent fuel is produced each year. Therefore even if the transport of the spent fuel to Rokkasho takes place as planned, the amount of stored spent fuel at every nuclear site will keep increasing. The table shows the amount of stored spent fuel at each site. It's Japan's policy to reprocess all spent fuel to recover the plutonium, but the storage of the spent fuel that cannot be reprocessed is becoming a big problem. The Japanese government and the utility companies have already started to consider the possibility of increasing the storage capacity at each site and of building a central storage facility. (Masako Sawai)

				li and an and a second final and		
company	plant	reactor type	full cor e loading	yearly reloading	spent fuel stored	storage capacity
Hokkaido	Tomari	PWR	100 (tU)	30 (tU)	140 (tU)	550 (tU)
Tohoku	Onagawa	BWR	160	40	70	570
Tokyo	Fukushima I Fukushima II Kashiwazaki-Kariwa	BWR BWR BWR	580 520 660	150 140 170	680 840 660	1,510 1,700 2,030
Chubu	Hamaoka	BWR	420	110	430	1,290
Hokuriku	Shika	BWR	60	20	30	180
Kansai	Mihama Takahama Ohi	PWR PWR PWR	160 290 360	50 100 120	150 510 270	510 1,490 1,320
Chugoku	Shimane	BWR	170	40	140	600
Shikoku	Ikata	PWR	170	60	170	700
Kyushu	Genkai Sendai	PWR PWR	190 140	60 50	130 430	770 760
JAPCO	Turuga Tokai II	BWR&PWR BWR	140 130	40 30	320 160	630 420
	Total		4,240	1,210	5,120	15,010

Spent Fuel Stored and Storage Capacity in Japanese LWRs

Shroud Replacement A World First in Recklessness

TEPCO Opts to Replace Shrouds

The Tokyo Electric Power Co. (TEPCO) announced on 26 March that it intends to replace shrouds (the partitions around the cores of nuclear reactors) on several reactors at Fukushima I.

During the last two or three years, checks have turned up aging-induced damage in the equipment and structural elements inside reactor pressure vessels at Fukushima I. TEPCO may believe that replacing the shrouds and all the equipment around them will solve all the problems caused by the aging of core structural elements, but the situation is probably not that simple.

Slated for replacement are the type SUS304 stainless steel shrouds of reactors 1, 2, 3, and 5 of the six reactors at Fukushima I. TEPCO will not replace the shrouds of reactors 4 and 6. This is perhaps because TEPCO and the manufacturers decided that as these two shrouds are made of type SUS304L, a kind of stainless steel with a lower carbon content than type SUS304, they are less susceptible to damage.

TEPCO says that once the technical requirements have been cleared up, it will begin replacing the shroud of Fukushima I-3 as part of the soon-to-begin periodic inspection for FY 1997 (this reactor will also be the first to be loaded with MOX fuel under the government's MOX utilization plan). The replacement plan then calls for the replacing of the shrouds of reactors 2, 1, and 5, in that order, with all four to be finished by FY2000. This is a very tight schedule, but it is probably an indication of the seriousness of the situation.

"Band-Aid" Solution too Inadequate to Ensure Safety

Shrouds are cylindrical enclosures that totally envelope reactor cores, and measure 4.5-5.5 meters in diameter and 6-7 meters in height and with walls about 5 cm thick. They have to support about 100 tons, which is their own weight plus that of the overlying lattice plate and steam dryer.

A shroud is a vital component because it controls the flow of coolant in the core, which means it controls the reactor output. Furthermore, in case of an accident, earthquake, or other such event, it protects the core so that fuel assembly positioning is not damaged or changed.

As shrouds are made by welding together several dozen stainless steel plates, they contain many horizontal and vertical welds. At over 20 nuclear power plants in the U.S., Germany, and other countries, many stresscorrosion cracks have been discovered along such welds. Likewise in Japan, an inspection in 1994 revealed a large crack around the total circumference of the shroud of Fukushima I-2, along the weld of its center ring. Although this reactor is still operating, TEPCO has merely jury-rigged the shroud to keep it together by fitting a bracket around it.

It is quite doubtful that the bracket alone would allow the shroud to withstand the stress resulting from an earthquake or accident. What is more, affixing something that was originally not part of the reactor design conceivably presents dangers because the bracket might come loose and fall off. The deterioration of similar bracket has been reported at Nine Mile Point-1 reactor in the U.S.A.

The reason behind TEPCO's decision to replace this shroud is probably that it is worried about the inadequacy of this jury-rigged solution.

Workers' Radiation Exposure

It is quite doubtful that replacing these shrouds will be a solution. New shrouds could make the reactors more fragile because their systems would then comprise both old and new components, thus compromising safety owing to the mismatch. Nevertheless, it is the replacement work itself that will be an even bigger problem.

NUKE INFO TOKYO May / June 1997 No. 59

To begin with, shroud replacement was not anticipated at the reactor design stage. Therefore, just as when replacing the steam generator of a pressurized water reactor, shroud replacement would likely end up being a largescale construction project involving, among other things, cutting openings in the reactor container and the outer wall of the power plant building in order replace the old shroud with the new one.

In general, the replacement would entail the following procedure; First, removing the pressure vessel cover and then removing components including the steam dryer, moisture separator, and fuel assembly. With water still in the reactor, cutting the shroud and lifting it out with a crane. Draining the water, lowering the new shroud into the reactor, and then welding it in place. TEPCO thinks that with the additional tasks of decontamination, shielding installation, and the like, it will be a major construction job requiring about one year.

Probably the biggest problem will be the exposure of workers to radiation. Even a simple consideration of the operations involved in shroud replacement alone shows that remote control robots would be inadequate for some tasks, which could be carried out only by humans. Even if the work site is decontaminated by removing radioactive dirt, and scale with chemicals, to reduce workers' exposure, and shielded with lead "blankets" and plates, heavy exposure to radiation will be unavoidable. There is a danger that they would reach, or even exceed, their dosage for a whole year even if they work for only a short time.

Another concern will be disposing of the shrouds, jet pumps, and other items removed, as well as the chemicals used for the decontamination, all of which will constitute a large amount of nuclear waste.

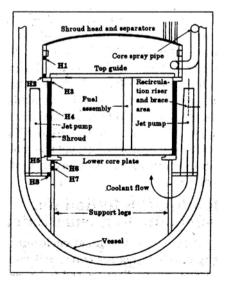
Don't Replace, Decommission!

There isn't a single nuclear power plant in the world that has gone so far as to replace the shroud in order to continue operating. There was a plan to replace the shroud at the Wuergassen plant in Germany, but it was canceled and the reactor was decommissioned in 1995. One reason for the cancellation was that misgivings over safety could not be resolved even by shroud replacement. Another was economics. Preussen Elektra, which operated the plant, reasoned that even if the shroud were replaced and the reactor prepared for resumption of operation, it could only be operated for the seven or eight years more permitted by the state government, which did not make economic sense.

In the case of Fukushima I, TEPCO suddenly announced, with no prior consultation, that the shrouds were to be replaced. Hardly any information was given on safety, economy, or the reasoning behind the decision to replace them.

As the shroud problem created an awkward situation, TEPCO rushed to develop a "technique" to fix just this specific problem so that reactor operation can be resumed. And if more problems arise, they will deal with them in the same haphazard way. How long do they intend to keep those reactors running? Ultimately they will be forced to replace even the pressure vessels. Society will no longer sanction such methods. At the very least, electric utilities must make such decisions after unbiased assessments of both safety and economy have been made.

(Tihiro Kamisawa)



H1-8 are the welds that go around the shroud



Radioactive Waste Disposed of as Industrial Waste

The Nuclear Safety Commission (NSC) decided on 13 May to begin creating standard values for "the clearance level" for radioactive waste so that 98-99% of the huge amount of waste generated when reactor decommissioning begins will not be treated as radioactive. The Special Committee for the Safety Standards of Radioactive Waste, under the NSC, will discuss the matter and is scheduled to give its conclusions following a further year of deliberation.

At the end of March 1998, the Tokai reactor (GCR, 165 MW) will become the first Japanese commercial reactor to be decommissioned. In the years following this, many reactors are due to come up for decommissioning. The NSC has taken this measure with the new situation in mind. Cleaning workers who deal with non-radioactive industrial waste have voiced concern that radioactive waste may be imposed on them.

Nuclear Power Plant Expansion Plans Move Ahead

The Electric Power Development Coordination Council (EPDCC) in a meeting held on 27 March decided to include Hamaoka 5 (ABWR, 1,380 MW) of Chubu Electric Power Co. and Shika 2 (ABWR, 1,358 MW) of Hokuriku Electric Power Co. in the national electric power development basic plan, and concrete preparations for construction have begun. Construction of both reactors is planned to begin in 1999 after completion of state safety inspections and awarding of reactor construction permits by the government.

With regard to the construction of Shika 2, it was already decided that state cooperation to the local governments for local development measures given in "reward" for the construction, would be expanded to cover a wider region. The EPDCC meeting was held with the prior agreement of the prefectural government for the decision.

Strong Quakes Continue Around Sendai Nuclear Plant

Severe earthquakes continue to hit the area around the Kyushu Electric Power Co.'s Sendai Nuclear Plant in Kagoshima Prefecture in Kyushu. The local people have been worried as the power company has not suspended operation of the plant.

On 26 March, 3 and 5 April, strong earthquakes jolted Sendai City. Although quake activity quietened for a time, tremors also occurred on 13-14 May. On to the Japanese intensity scale of 0 to 7, the first three registered between upper-5 and lower-5, and the latter two registered a lower 6 and a 4 (only intensities 5 and 6 are subdivided into upper and lower intensities). There have also been numerous aftershocks.

Kyushu Electric Power, however, claims that as the nuclear plants are built on solid rock, the tremor was not felt as strongly. It registered 71 gal, equivalent to around intensity 4, while on the earth surface it registered a lower-6 on the Japanese intensity scale and therefore it was not necessary to suspend operation. Making light of an earthquake, however, is a very risky business.

Management of Spent Fuel on Plant Sites Approved

The Association of Cities, Towns and Villages with Nuclear Power Plant Sites decided during its annual general meeting held on 24 April that the decision whether to approve storage of spent fuel on plant sites would be left in the hands of each municipality concerned.

The council had maintained the principle that spent fuel must be moved to reprocessing facilities and opposed storage on the plant sites. The council, however, had to recognize that the reality of the situation was that the amount of spent fuel generated now exceeds the amount moved. In the future, each municipality concerned will have to make decisions on such issues as the building of a storage pool, and a move has already seen among municipalities to approve the storage in exchange for taxation on the stored fuel.

Nuclear Industry Spreads into Asia

At the end of April, Hitachi, Ltd. established Dalian-Hitachi Baogen Machinery and Equipment Corp., a joint Sino-Japanese venture, in Dalian, China.

Hitachi received a blanket order to manufacture the secondary systems for the third phase construction of two 700MW CANDU reactors for the Qinshan nuclear plant site, and the joint venture for their manufacture was established. Hitachi is said to be considering the import of these systems into Japan due the low cost of manufacture.

Lungmen Nuclear Plant Ordered

Concerning Taiwan's Lungmen nuclear plant, for which U.S. General Electric Co. (GE) made a successful contract bid, it has been decided that Toshiba will build Lungmen 1 and Hitachi Lungmen 2. The order was placed by the Taiwan Power Co. and both the reactors will be ABWRs of 1,350 MW output. Toshiba will build the special recirculation pumps, designed to be fitted internally within the reactor, of Reactors 1 and 2 and Hitachi will manufacture the control rod drive mechanisms. Construction of Lungmen 1 is scheduled to begin in January 1998 and Lungmen 2 in January 1999. Although the major contractor is GE, this is the first time that Japanese firms have themselves received orders from abroad for the construction of nuclear reactors

Kushima's Referendum Stopped?

A referendum which was scheduled to be held to question the pros and cons of the planned construction of a nuclear plant in Kushima City, Miyazaki Prefecture, is facing difficulty. In the previous issue of Nuke Info Tokyo, News Watch reported that Kyushu Electric Power Co. had announced its intention to reconsider the plan. In response to this the city council, however, cut the budget for the referendum and transferred it to a reserve fund (the revision bill passed on 21 March). The mayor who was elected on a campaign platform that included a referendum, stated that he would not ask the council to redeliberate the issue, claiming the anti-nuclear group had virtually won.

* * * *

NUKE INFO TOKYO is a bi-monthly newsletter that 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 \$50/year or 5,000 yen/year, subscriber \$30/year or 3,000 yen/year). The subscription fee should be remitted from a post office to our post office account No:00160-0-185799, HANGENPATU-NEWS. We would also appreciate receiving information and newsletters from groups abroad in exchange for this newsletter. (In the case of sending the subscription fee from abroad, please send them by international postal money order.)