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Plutonium Surplus and Rokkasho Costs Soar

Table: Japan's Separated Plutonium Inventory (as of end of 1994)

FACILITY	AMOUNT OF PU (kg total Pu)	STOCKPILE(S) OR IN USE/READY FOR USE(U)
Reprocessing Plant	836	
As nitrate	710	S
Stored as oxide	126	S
Fuel Fabrication Plant	3,018	
Stored as oxide	2,032	S
Under test or processing	948	U
Completed fuel	38	U
Reactor Sites	498	
Joyo	6	U
Monju	15	U
Fugen	53	U
Critical assemblies	425	U
Overseas Reprocessors	8,720	
U.K.(BNFL)	1,412	S
France(COGEMA)	7,308	S
TOTAL	13,072	11,588(S)+1,484(U)

*Attribution of U and S is the author's judgement.

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In the 1994 AEC White Paper published on October 24, the Science and Technology Agency made public the inventory of japan's separated plutonium as of the end of 1994 (see the Table above). The Table clearly shows that last year the trend in increasing the plutonium stockpile continued, in spite of the stated "no stockpile" policy of the government. As of the end of 1994, the stockpile is 11.6 tons, which is an increase of 2.7 tons from the 8.9 ton stockpile

in 1993. The increase in the stockpile can be mostly attributed to the surplus in European reprocessors and this might make Japanese nuclear industry feel it is even more vital that the surplus plutonium in Europe be fabricated into MOX and sent back to Japan to burn in LWRs. Under the circumstances, official proposals by the utilities to the relevant local governments to burn MOX fuel in light water reactors are to be announced imminently. But at issue is the surplus of plutonium, not the shortage, and thus the wisdom of reprocessing policy should be questioned.

Coincidently on the same day the new plutonium inventory data was released, the front page lead article in the Asahi Shimbun reported that the entire Rokassho reprocessing plant design has to be reconsidered due to soaring construction costs and the redesigning could include cutting back on safety features. The basic story was not new to people familiar with the Japanese nuclear industry, but the timing of the headlines was extremely unfavorable to Japanese plutonium industry, because the wisdom of its large-scale plutonium commercialization program was questioned anew by the recent MIT report (Skolnikoff, Suzuki and Oye: International Responses to Japanese Plutonium Programs).

According to the Asahi report, though the official construction costs for the Rokkasho plant were announced as 840 billion yen by JNFL which is undertaking the project financed by the electric utilities, the cost estimate has soared and the current estimate is no less than 1.7 trillion yen. At current exchange rates, this is already several times the construction cost of European facilities of the same size. In the end the costs are likely to be much higher.

"Sources in the electric power industry stated, 'the rise in the construction cost will push up the cost paid by the electric power companies for getting the reprocessing done, and there is a risk that this will result in a rise in electric power rates."

The electric power industry's views are that, "Even at 1.7 trillion yen, the facility is too expensive. Safety was pursued to the point of making the facility too expensive, and, in order to achieve a substantial reduction in construction costs, extensive design changes will have to be made. Such as streamlining the construction which had originally been designed as two streams so as to avoid operation stoppage when problems arose. Even cutting back on safety features is considered necessary.

Safety concerns aside, it is believed that the whole redesigning and required relicensing process would delay the operational start of the plant by several years to 2005 or most probably far beyond that. While the construction of the plant started in 1993, work done until now has mostly been on the spent fuel reception and storage facility, and the main reprocessing facilities have still to be built. This means that what the utilities urgently need is the spent fuel storage facility and the final decision about the completion of the reprocessing plant could be put off indefinitely, if the industry comes to think that the reprocessing does not make sense. This possibility cannot be ruled out.

(Jinzaburo Takagi)

THE FAMOUS ARTIST, ACTIVIST IRI MARUKI DIES

Japanese painter and anti-nuclear activist Iri Maruki died of a stroke at his home in Saitama Prefecture on 19th October at the age of 94.

Maruki was born in Hiroshima in 1901. He helped to found the Arts and Culture Association in Tokyo in 1937 where he met his future wife Toshi Akamatsu.

He is most famous for the "Hiroshima Murals" that he and his wife painted together and for which they received the International Peace Culture Award in 1953. They were nominated for this years Nobel Peace Prize.

Pu Hold-UP at PFPF Still Controversial

On November 8, the Science and Technology Agency gave an extremely delayed response to an open letter of CNIC dated July 18 on the plutonium hold up and the possibly large quantity of MUF (material unaccounted for) at Tokai PFPF (Plutonium Fuel Production Facility) owned and operated by PNC (Power Reactor and Nuclear Fuel Development Corp).

In the response the STA admitted that the 70 kg hold-up of plutonium in PFPF which Washington-based Nuclear Control Institute first revealed in 1994, has not be perfectly cleared out. About half of the initial 68 kg hold-up had been recovered by March 1995 and this was confirmed by the IAEA, according to the agency. But the STA could not give a concrete figure for how thorough the clean up will be, saying only qualitatively that it will demand that PNC reduce the hold-up of plutonium "as much as is technically possible " in two years. This is far cry from the assurances government officials gave that hold up would be reduced to 15 % or 10 kg by the autumn of 1995.

The change in the STA statements strongly suggests that the PNC is still having no small difficulty in cleaning up the facility. On November 15, just a week after the STA's reply to CNIC, PNC announced its decision to build a new facility next to PFPF fuel production lines at a cost of 700 million yen ($7 million). It is a containment facility which is equipped with robots to clean out glove boxes and recover plutonium. Glove boxes with large hold-up will be moved one by one to inside the containment facility where the plutonium will be recovered by robots.

According to the Nov. 15 Mainichi Shim-bun wire news service reporting the PNC decision, the PNC has already reduced the hold-up to one-third(33%) and will be able to reduce it to the target value of 15 % as demanded by the IAEA using the new facility by the autumn of 1996. If this was really the case, the initial target value of 10 kg may be reached one year later than first explained by STA.

In addition to the confirmed hold-up, there has been another insider report which points out that there is an additional 40-50 kg of plutonium waste at PFPF which has been excluded from IAEA safeguard and thus should be regarded as MUF. STA denied the existence of such waste and MUF associated with the waste in its reply to CNIC. But STA admitted that new fences were constructed around the plutonium waste storage facility of PFPF for better protection of plutonium contained in the waste. The STA explained that they recently introduced a new system of plutonium measurement which they have developed jointly with the DOE in order to detect plutonium in waste and with this system there is the possibility that "plutonium can now be found in the waste". This may be the case. However, the construction of fences could also be interpreted to mean that the existence of plutonium in the waste necessitated the introduction of the new measurement system, as the insider reporter suggests.

All in all, we think that PNC is having great difficulty in recovering and controlling plutonium scraps generated during MOX fuel fabrication and has finally had to build a dedicated facility for the clean-up. The decision took time, and caused the long delay in the STA's reply to CNIC. There are still a number of unclear points in PNC's management of hold-up and MUF at PFPF. CNIC's tentative calculation based on AEC's annual White Papers suggests a difference of 36 and 9 kg of plutonium, between the calculated and measured inventory of plutonium at PFPF, respectively for 1993 and '94, which we think should be regarded as MUF. We did not receive a definite quantitative explanation for this from STA. We will keep watching the issue.

A Nuclear Boom in Asian Region

-The International NGO Forum on APEC was Held

On the 13th and 14th of November representatives of over one hundred NGOs from twenty two countries throughout the Asia-Pacific region gathered in Kyoto for a forum on one of the pressing issues of the day, the effects of any agreements that may be reached by the Asia-Pacific Economic Cooperation (APEC) Ministerial Meeting and the Informal Economic Leaders Meeting from 15th Nov, in Osaka. Although the agendas represented at the forum were varied, campaigners working in the fields of the social development, human rights and environment all attended to try to agree upon a common stance on APEC.

The whole thing started, because NGOs in Thailand and Indonesia suggested in May that NGOs in the Asia-Pacific region should take action against APEC in Japan. The International Forum was organized by the NGO Forum on APEC formed by Japanese NGOs, citizens groups, and labor unions. Though APEC may have a wide ranging impact, there has been no opportunity for people to get involved in its decision making, for example, NGOs were not allowed to participate.

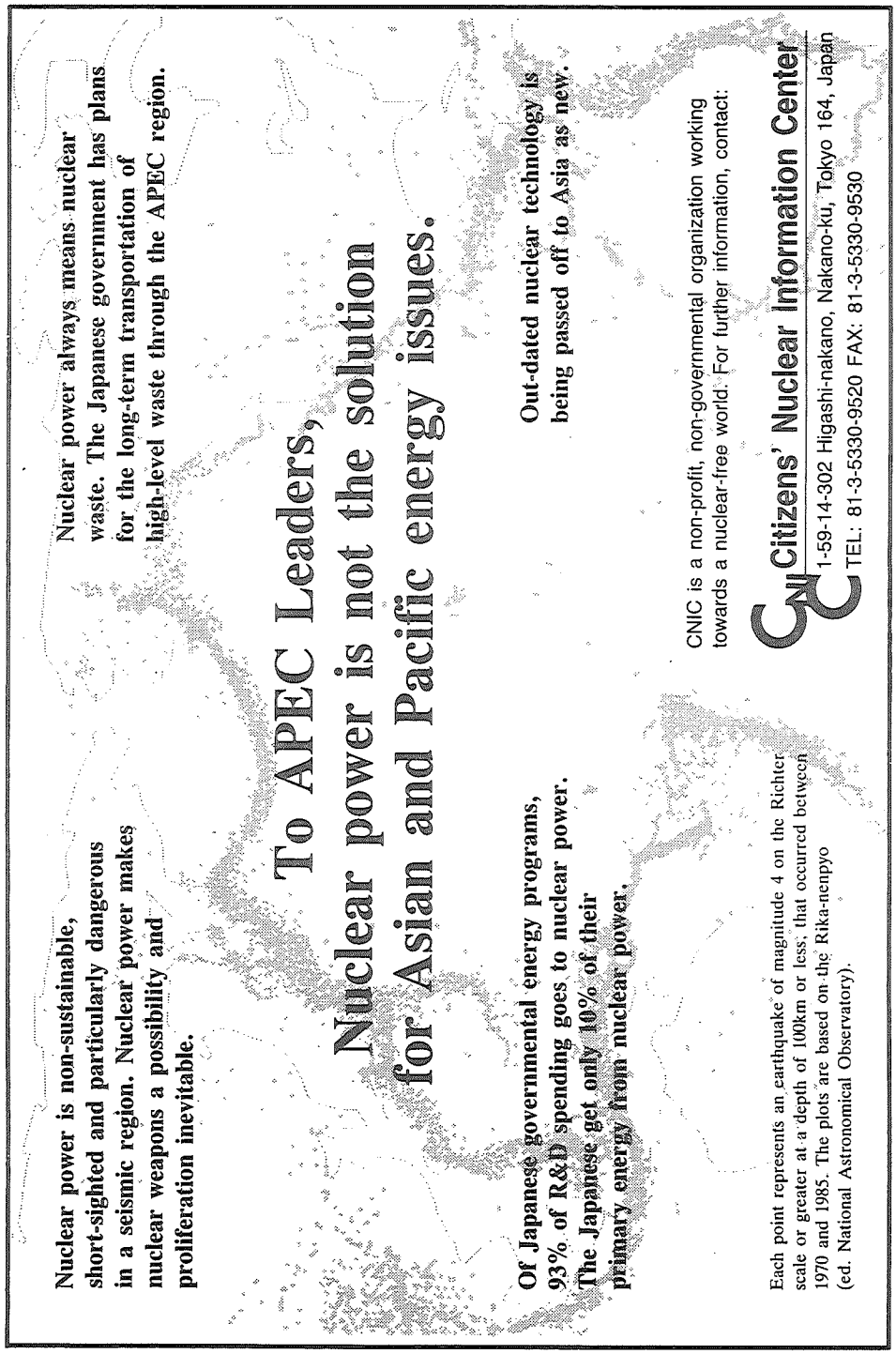
APEC is a plan to liberalize trade and investment throughout the Asia-Pacific region by the mechanism of eliminating tariffs and barriers to foster economic cooperation. It was started in 1989 and intends to open, unregulated trade between the member nations by 2010 for the developed nations and 2020 for the developing nations.

As the Asia-Pacific nations have become major economic powers they have consumed more and more energy. At the same time the nuclear industries have watched their domestic markets begin to dry up and are now looking to Asia for new business. In fact the Asian nations all have plans to expand their nuclear power generating base. This time the explicit promotion of nuclear power was toned down at the APEC Meetings, but the papers prepared by the Japanese government for APEC meetings say that they want to promote the construction of nuclear power plants in the Asian region. The series of reports and analyses about Asian energy issues released by the Japanese government since last spring have all demanded that Japan cooperate with Asian nations in promoting nuclear power. All of them propose that Japan export "safe" nuclear power plants and the "hi-tech" know-how to operate them. These government efforts are very closely linked to the industry's interests.

In a surprising move, the Japan Atomic Industry Forum applied to attend the NGO Forum claiming to be an NGO representative, and sent papers saying "There are some misunderstandings about waste from nuclear power plants. All useful things might produce waste". This amply demonstrated where their special interests lay, wholly with the pro-nuclear lobby in the Asian-Pacific region. With regards to that lobby, we put an opinion ad against nuclear power plants and their export throughout the region in the Japan Times of Nov 16, 1995 (see next page). It is important that the nuclear industry be stopped for their interests are not those of the rest of the region.

The main agendas of the International Forum were development and human rights, with the nuclear or environmental issues playing second fiddle. There were some exceptions. One was supporting the objections of the poor and the aboriginal peoples of the Asia-Pacific region to having their homelands and traditional territories used for waste repositories. Another was the adoption of a resolution against French and Chinese nuclear testing.

The creed of free trade and investment that APEC propounds has the potential to destroy the environment and the social systems of the region's local communities. We must keep a close watch on APEC and be ready to raise our voices in protest.



CNIC Urge STA to Investigate the VHLW Leakage

The 28 glass logs of high-level waste (HLW) returned from France were put into the storage facility in Rokkasho-mura, Aomori Prefecture on 11 and 12 October. Citizens' Nuclear Information Center (CNIC) submitted some questions to the Science and Technology Agency (STA) primarily concerned with the inspection data on the logs. We recently received a response.

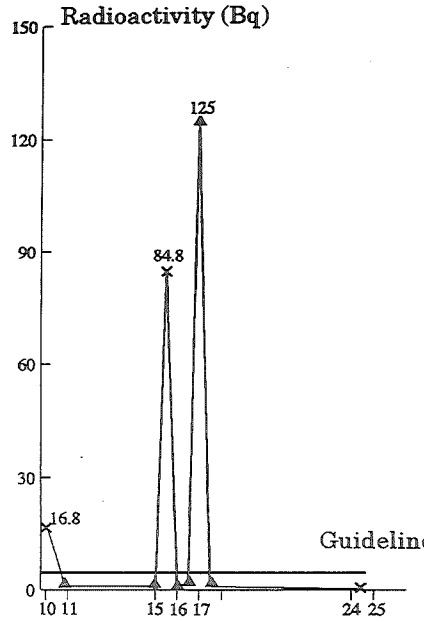
STA did not release the confinement inspection data on "glass log 1985C," the canister of which has possibly been contaminated (see NIT NO. 49). Readings from nine measurements were released on this log: three measurements by STA, and six by Japan Nuclear Fuel Ltd. (JNFL) (see graph; the figures are all for cesium, as ruthenium was below the detectable threshold). It is obvious from the released data that measurements were performed repeatedly until readings which were within the guideline value were obtained. Moreover, the data refute the assertion of "high readings in initial measurements," which JNFL and STA use as the grounds to claim the absence of leaks. In particular, the non-release until now of the highest reading of 125 Bq Cs-137 (about 28 times the guideline value), which was obtained in the seventh test, was a deception played upon Aomori Prefecture and its citizens, who seek the release of such information. It will be the source of many future problems.

The criteria under which radioactive cesium and radioactive ruthenium were chosen as the nuclides measured in the confinement tests are: (1) they are volatile, (2) they are present in large quantities, and (3) they are easy to measure. Strontium and cerium, which are present in comparatively large quantities, were excluded because it is difficult to measure them. The only nuclides measured are those that are easy to measure. Furthermore, the meager amount of ruthenium and its relatively short half-life point to problems with its effectiveness as an indicator.

It is clear that the present method of confinement inspection, which virtually limits measurements to Cs-137, cannot diagnose all the various kinds of contamination possible in canisters. It is possible that these logs are contaminated by other nuclides that have not been measured. And the matter of toxicity makes it necessary to measure nuclides, such as strontium. Unless a larger number of nuclides are measured, it will be impossible to determine the ways in which contamination arises. CNIC noted the possibility of leaks from the interior of "glass log 1985C" and requested that the cause be ascertained, but STA and JNFL glossed over the matter by calling it "surface contamination." Still, nothing has been found to explain the contamination's cause. Even when the surface contamination is relly the case, STA should make inquiery about the method of quality control.

In the permit to store the logs at the facility, the STA says of its system for testing returned wastes that on this occasion special pains were taken to test all 28 logs because they were the first such shipment to Japan. In view of the contamination in this shipment, all logs of future shipments should definitely be tested. But STA says this is under consideration, and is suggesting the possibility of some changes. It is anticipated that the result will be sample testing, in which the number of tested logs will be reduced, or changes in test content.

In relation to the next shipment, JNFL has submitted an application to Aomori Prefecture to store 96 logs by March 1996. But given the host of problems that have come to light,



including the safety of glass log transport, the ways used to test them, and the useful lifetime of the storage facility. The storage schedule alone must not be given precedence over other considerations.

Confinement Inspection on 1985C
(Bq · Cs-137/hr · confinement)

× Measurement by STA

▲ Measurement by JNFL

Guideline value (4.5Bq)

Date of Measurement (in August)

DISMANTLED PLUTONIUM FOR JAPANESE FBR CONTRIBUTES TO WORLD PEACE??

Some of the plutonium from dismantled Russian nuclear weapons can be consumed in Japan's nuclear reactors, claimed Tokyo University Professor Atsuyuki Suzuki at the "Global 1995 Conference" that was held this September in Versailles, France. Suzuki holds an number of posts including one on the Nuclear Fuel Recycling Program Specialist Subcommittee of the Atomic Energy Commission (AEC), and has considerable influence in government and industry. In that sense, his statement is not an irresponsible, indiscreet remark, but rather a comment of great significance.

Suzuki estimates that dismantled Russian nuclear weapons will yield five tons of plutonium yearly, and that Japan can purchase and burn two tons of that. According to him, "Public opinion in Japan draws a clear line between the military and commercial uses of nuclear power, so Japan could burn the plutonium from nuclear weapons only in government-operated reactors." Specifically, those would be the ATR Fugen (165 MWe) and the FBR Monju (280 MWe). These two reactors are both in the research and development stage (both are prototypes), and not commercial. But the idea that these reactors, unlike commercial reactors, can use plutonium from dismantled nuclear weapons means that it does not matter if Fugen and Monju are associated with military use. Suzuki's statement could very well fuel suspicions that Japan is developing nuclear weapons. (Suzuki's quotes are all from the October 9 issue of Nuclear Fuel.)

Suzuki also said, "In view of global accords and demands calling for making a positive contribution to efforts for nuclear disarmament, public opinion in Japan will probably approve a program like this." But it is far from certain that the best way to dispose of plutonium from dismantled nuclear weapons is to burn it in nuclear reactors. Disposal after mixing with liquid high level waste and vitrying the mixture will be a better option. If the decision is made to consume this plutonium in reactors, this would result in a supply-demand imbalance unless we stop extracting new plutonium from the spent fuel of commercial N-plants.

Suzuki said that "The Japanese public will be happy to pay the cost," but his proposal has not been made in Japan. It is only because Japan's media informed the public of the Nuclear Fuel article that they finally found out about this absurd proposal. (Baku Nishio, CNIC)

Anti-Nuke Who's Who: Shimahashis

Michiko Shimahashi, left
Masahide Shimahasi, right
Michiko is holding a picture of their son.
(Photo by Kenji Higuchi)

Michiko Shimahashi had led an ordinary life in Yokosuka City, Kanagawa prefecture, bringing up two children with her husband. But her life changed radically when she found herself living in the shadow of the nuclear industry. It began when her son started working for the Chubu Electric Power Co. (CEPCO) after he graduated from a technical high-school.

Her son, Nobuyuki, joined the Kyoritsu Plant Construction Company which is a subcontractor of CEPCO in March of 1981 when he was 18 years old. He worked at the Hamaoka nuclear power plants in Shizuoka prefecture where he inspected measuring instruments. His job called for him to work inside reactors during their periodic inspection.

Hamaoka 1 (BWR, 540MW) started operations in 1976, 2 (BWR, 840MW) in 1978, 3 (BWR, 1,100MW) in 1987, 4 (BWR, 1,130MW) in 1993. He had worked under the reactors most years.

The Shimahashis sold their house at Yokosuka, and had a new one built near the nuclear power plants to live with Nobuyuki in their old age. But in September 1989 just after the parents moved to Hamaoka, the tragedy that would strike their lives began. Nobuyuki had been sick in bed alone for some weeks suffering from a high fever. Michiko took her son, whose body was covered with breeding spot, to the hospital in town. There it was discovered that his leukocyte count was abnormally high. The diagnosis at the university hospital was chronic myleogenic leukemia. Michiko tried to the best of her ability to help her son. Although they hoped to operate to improve his condition, he lacked the physical strength to undergo major surgery. Nobuyuki died aged 29, in October 1991. At the end Michiko had to wipe the blood pouring from his mouth.

She was not convinced by the reason given for her son's death, she could not accept it. She pored over books on nuclear power plants and radiation. "As his mother I cannot regret his death enough. If I had known much more about his work and its dangers, or heard his distress more clearly, I wonder if it he might not have died..... I deeply regret my ignorance." So that her son would not have died pointless she made a statement to the Japanese government urging them pay compensation for the work related deaths at nuclear power plants. Such recognition was given in 1993, but to date just 3 cases have been recognized in Japan. Many workers have been exposed, but the electric utilities have silenced them to prevent them making statements.

"Is it be accepted that there is a type of work in which workers have to die through no fault of their own? I want us to be the last bereaved family to weep for such a loss." She wants like to protest about the dangers of N-plants throug-hout the whole of Japan.

(Masako Sawai, CNIC)

NEWS WATCH

S. KOREA AXES PLAN TO BUILD N-WASTE FACILITIES ON AN ISLAND

On 9th October, S. Korean Government finally confirmed the existence of two active faults under the Kulop Island, the tiny island sited 90km southwest of Seoul city, where they decided to build the spent nuclear waste storage and low-level waste disposal facilities. The unstable geological situation of the island has been repeatedly pointed out, so even some members at the Radioactive Waste Management & Planning Mission had raised objections to the Kulop Island as a site. One of active faults at the bottom of the sea penetrated just under the island, and it will affect the Tokjok Island next to the Kulop island, selected as a site for nuclear institutes as well.

Although they had been promoting the plan to build nuclear waste facilities by saying "we haye no extra room for nuclear waste", now they say that temporary waste storage at each nuclear site will continue to be used for another 14 years. They call out the local governments to be a guinea pig for the nuclear complex, so the plan was set back to square one.

PLAN OF CONSTRUCTION OF N-PLANTS IN KUSHIMA FROZEN

Kyushu Electric Power Co. (KEPCO) on 30 Nov., its decision to freeze the plan to build N-plants in Kushima, Miyazaki Prefecture, due to the anti-nuclear movement. KEPCO was supposed to build the biggest nuclear power plants in Kyushu region, 4 1350MW PWRs.

The plan to build the new nuclear power plants was revealed in February 1992. Since then, KEPCO had actively campaigned for public acceptance. They set up a rest house for their employees and citizens, and released pamphlets about nuclear power to the residents.

The anti-nuclear movement has rallied against the plan, and in October 1993, the City Council passed an ordinance to hold a referendum on the plants. The mayor approached about the plan by KEPCO was resigned because of bribery in the late of 1992.

In an election held at the end of April, all of anti-nuclear candidates won and the anti-nuclear faction numbered half of the council members at a stroke.

HAPHAZARD NUCLEAR ACCIDENTS REPEATEDLY OCCUR

Incredibly haphazard accidents have repeatedly occurred at nuclear power plants in Japan. During an operation to draw out the control rods at Tokai GCR (166 MW) one rod dropped back into the reactor. At the plant a wire rope is used for control rod operations, and an operator is said to have cut the rope by mistake, thus causing the accident.

At Ohi 1 (PWR, 1,175MW), on October 27, a valve on the reactor condenser was mistakenly opened during operation at full output, reducing out put it for 17 minutes. It was an easily avoidable error, the control room staff had meant to open the condenser valve of Ohi 2 (PWR, 1,175MW) which was undergoing a routine inspection at the time. There is no guarantee that a similar but far more serious accident might not occur at a facility. Such a mistake could easily happen due to the use of common equipment in many reactors.

AOMORI PREFECTURE INVITES ITER

Aomori Prefecture has begun the move to invite the International Thermonuclear Experimental Reactor to be built there. On March 17, Rokkasho village council adopted a petition to invite the ITER. On October 18, the Aomori Prefectural Council, adopted a statement inviting the ITER to be sited in Aomori. At the press conference held on October 23, the governor announced the decision, and on October 25 visited the Science and Technology Agency, the Ministry of International Trade and Industry, and the Federation of Economic Organization to request that the ITER be granted a building permit in the prefecture.

ITER has been jointly developed by the U.S., Russia, EU and Japan, and in July this year an interim draft report on the engineering design was submitted to the Board of ITER. It is reported that there are some moves in the U.S., France, Germany and Sweden besides Japan, to be the site of the reactor. In Japan Hokkaido has expressed its willingness to invite it to be set up in Tomakomai city, so has Nakacho, Ibaragi Prefecture.

A REFERENDUM TO QUESTION THE N-PLANT POSTPONED

The Maki town council in Niigata Prefecture on June 26 passed a bill of ordinance on a referendum to question the planned construction of a nuclear power plant (See NIT No. 48), the referendum was due to be held by October 15.

On October 4, however, the town council passed a revised bill of ordinance, according to which the timing of the referendum was left to the mayor's discretion. The revised bill was proposed to the council by the mayor who had accepted the petition of the nuclear promoters. The pro-referendum faction and the opposition are of comparative strength in the council. The ayes and nays were equally divided and the chairman cast the deciding vote in favor of the revised bill.

This would postpone the referendum virtually indefinitely. Therefore, the resident organization which had hoped to make the referendum a reality decided to launch a campaign to oust the mayor who did not appear to respect the will of the residents. They intend to replace the mayor and have their referendum.

YONGGWANG 4 STOPPED

Korean Electric Power Company (KEPCO) stopped Yonggwang 4 nuclear power plant on 23 Sept., due to a leakage of radioactivity from damaged nuclear fuel rods that was detected.

According to the Korean Science and Technology Agency, KEPCO found a leakage of radioactivity from the 1st coolant system at Yonggwang 4 which had started to generate electricity, as a test, last June for the peak in the summer time. But they continued to operate the reactor, and the highest radiation rate which counted was 0.47 micro Ci / ml, 600 times the normal level. They announced that the date for starting operation, supposed to be next spring, might be delay because of the accident.

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