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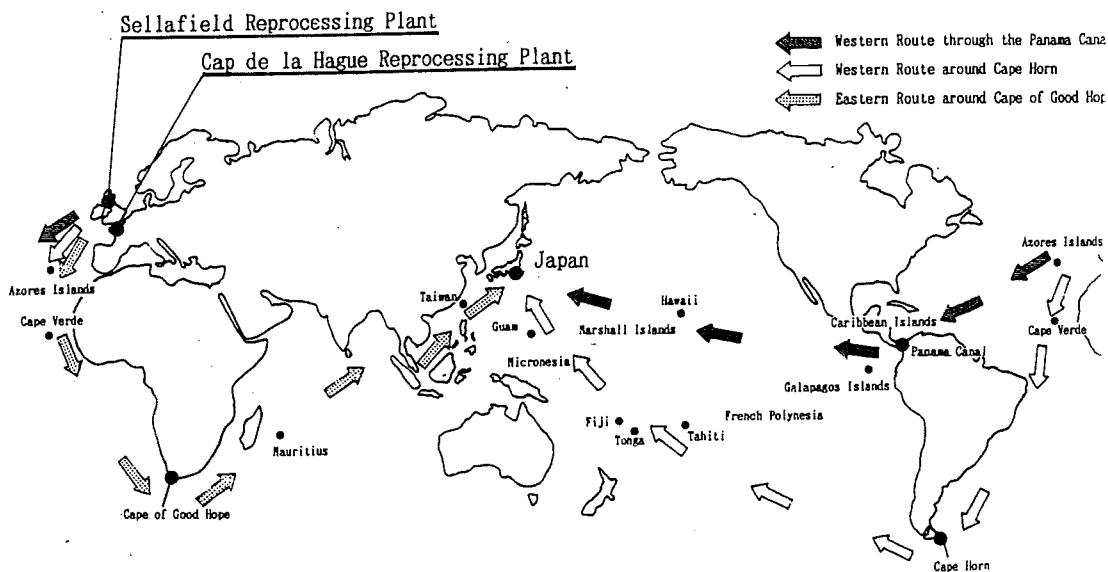
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The Dangers of Plutonium Shipments



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ECO Report Released

The shipping casks that are to be used for ocean voyages of highly toxic plutonium from Europe to Japan later this year are not certified to withstand fire, collision, and deep-immersion conditions that have occurred in serious accidents and attacks at sea, according to a new analysis by maritime safety experts that was released on April 8, 1992 in Tokyo, London, and Washington, by the Nuclear Control Institute and Greenpeace International. CNIC also participated in Tokyo. The report noted that the casks

are only certified to meet safety standards established by the International Atomic Energy Agency (IAEA)---standards that fall below conditions experienced in actual severe accidents and attacks at sea.

The two organizations requested the report by an independent firm of maritime safety experts after learning that the US government is not reviewing the safety specifications of the casks to be used by Japan to ship nearly 50 tons of the extremely toxic plutonium from France and England. The shipments, due to start this fall, will contain about one metric ton of plutonium each, and will take place 3 to 4 times a year. Research has shown that a speck of plutonium, if inhaled, can cause cancer.

An accident could affect people in Europe or Japan and, depending on the route to Japan, in South America, Africa, and the Pacific region, as well. Under the terms of the arrangement with the United States, Japan must prepare a contingency plan that includes making arrangements in advance with nations en route for emergency port calls in the event of trouble at sea. Possible routes include around South America or Africa, or through the Panama Canal.

The US government has responsibility as the supplier of the nuclear fuel from which the plutonium is separated. Because separated plutonium can be used to make nuclear weapons, the United States is reviewing a top secret security plan now being developed by Japan and France to protect the first shipment against hijackings by terrorists. Each shipment will contain enough plutonium for at least 125 bombs.

The report was prepared by ECO Engineering Inc. of Annapolis, Maryland. The firm has been operated since 1973 by former US government maritime transport experts and specializes in assessments and risk analyses of hazardous cargoes, including radioactive wastes, for government and commercial clients in the United States and other countries.

According to the report, "Based upon the documentation furnished, there is no substantive evidence to support any claim relative to the integrity of a cask exposed to the consequences of a maximum credible marine accident." The report noted a lack of information on how the nuclear transport ship and one armed Japanese escort vessel would be operated in congested waters near populated areas or in making emergency port calls after an accident or attack at sea.

"Thus," according to the report, "there is a risk of the release of plutonium in heavily trafficked waterways and ports where ship collisions are most likely to occur and where population centers tend to be located - both of which would increase the involuntary risk to the public."

Specifically, the report noted, while the IAEA standard is for a cask to survive a fire of 1,472 degrees Fahrenheit (800 degrees Centigrade) for half an hour, "shipboard fires routinely exceed 2,000 degrees Fahrenheit, or nearly 1,100 degrees Centigrade, and have an average duration of nearly one day, but often extend over a period of days and sometimes weeks." The study cited a number of specific accidents in which such fires have occurred.

In addition, although the IAEA standard requires that a cask survive immersion to a depth of 200 meters and collapse totally at 3,600 meters, the report noted that depths beyond 200 meters will be encountered along 75 to 90% of the plutonium ship's route.

"It also appears credible that the nuclear transport vessel could sink in sufficiently deep water to externally pressurize the cask to the point of collapse with subsequent release of the plutonium into the ocean," the study found.

The report also suggested that the casks could not withstand the enormous forces of a credible collision at sea. It pointed out that the relatively small size of the plutonium transport vessel causes "additional concern for its survivability following an accident." It noted that the vessel will be

exposed to "some of the more unforgiving areas (in terms of weather, wind and wave environments) of the oceans without any port calls between Europe and Japan" and that the large amount of fuel oil needed for the non-stop, 17,000 mile voyage also raises "added concern for fires should that fuel be ignited for any reason, including a ship collision or terrorist strike."

Regarding the terrorist threat, the report quoted from a US Pentagon study that warned that "...even if the most careful precautions are observed, no one could guarantee the safety of the cargo from a security incident, such as an attack on the vessel by small, fast craft, especially if armed with modern anti-ship missiles." The report cited the intense heat caused by the single EXOCET missile that hit and destroyed the HMS Sheffield during the British-Argentine Falklands war.

In releasing the report, Paul Leventhal, president of the Nuclear Control Institute, said: "On the basis of what we know, the plutonium sea-shipment casks are no better able to withstand a severe accident than the air shipment casks. It is irresponsible to ship tons of plutonium on the high seas unless people in Europe and Japan and in ports where emergency calls might have to be made along the way are assured that no plutonium will be released in any credible accident or attack."

The 'Pacific Crane,' the plutonium carrier, in Yokohama harbor, to be re-registered and re-named. (Photo by Greenpeace)

No Contingency Plans Arranged

According to a May 14 Reuters report, the Science & Technology Agency of Japan said Japan had made no contact with countries along the way about possible emergency port calls, nor did it plan to. This means that the Japanese government is not prepared for or anticipating any accident or trouble.

Moreover, the Japanese government and the United States may withhold the list of countries through whose waters the shipment passes, and those countries that may have agreed to provide emergency port calls, on the grounds of nuclear physical protection. The secrecy of these arrangements will keep the citizens of the countries en route unaware of the hazards to which they would be exposed if there should be an accident or trouble, even an explosion in the worst case, or if the ship arrived after such an event.

In order to warn the countries along the transport route, CNIC has sent letters together with the ECO Report, and Dr. Takagi's report on plutonium, to the governments of more than 70 countries likely to be along the routes. Simultaneously, CNIC has started a campaign asking the citizens of Japan and the whole world to write post cards alerting these governments. They are starting to receive reactions from some of the governments seriously concerned.



Moves by US Congress

Since the fuel was supplied by US, the US government still retains the right and responsibility to see after the plutonium separated from it. In other words, US can veto plutonium transport plan submitted by Japan if it is found to be 'inimical to US security interests.'

The American government briefed members of Congress on the plan at the end of March.

After the ECO Report was published, Rep. Neil Abercrombie of Hawaii recently proposed a measure to bar such shipments from US waters and ports until the US Nuclear Regulatory Commission certified that the casks were tested to withstand a maximum credible accident. The measure is a similar one to the Murkowski-Proxmire Amendment which barred air shipments of plutonium until a crash-proof cask was developed. Abercrombie's measure was approved by two committees as an amendment to the pending omnibus energy bill.

Reports of the reaction of Congress to the transport plan have been contradictory. The Yomiuri, on April 5, reported that the US government is demanding a full review of the plan, asserting that the single guard vessel Shikishima is not enough to protect the plutonium vessel. Then on April 13, Reuters quoted State Department spokeswoman Margaret Tutweiler as saying the US government is 'satisfied with the plan and will continue to work with the Japanese to ensure its full implementation.'

Since the US government holds the key to whether the mass transport of plutonium across the world takes place or not, the movements of the US Congress must closely be monitored. An opinion ad in the New York Times, due to be published at the beginning of June, will ask for the support of American citizens to put pressure on the US government.

Too Much Plutonium

Why is Japan taking such a huge risk in

transporting this highly toxic and dangerous material? The STA says it is for the operation of the proto-type FBR Monju, due to go critical next March. It can be said that these plutonium shipments are going to take place just to sustain Japan's energy policy, threatening the whole world in the process.

However, the actual situation today can best be summarized in the words of William J. Dircke, the deputy director general of the IAEA in the speech he made at the Japan Atomic Industrial Forum's Annual Meeting held at the beginning of April. He said there would be 110 tons of fissile plutonium extracted from civil spent fuel stockpiled by the year 2000. "As a result of nuclear fuel reprocessing, and potentially as a result of nuclear weapons dismantling, in the foreseeable future, the supply of plutonium will far exceed the industrial capacity to absorb plutonium into peaceful, commercial nuclear industrial activities."

Faced with such a reality, even the head of the Power Reactor & Nuclear Fuel Development Corp. (PNC) had to say at the Foreign Correspondents Club of Japan on 20th April that "there is no urgent need to further breed, or increase, the volume of plutonium," and suggested that Japan "should shift the direction of its technology from 'breeder reactors' to 'fast reactors.'" This statement was really a surprise, since this would mean a remarkable shift in Japan's nuclear policy, which was to reprocess all its spent nuclear fuel and recycle the extracted plutonium in the plutonium cycle, so that Japan would have its own energy source and become energy independent.

Now that Japan is the only country heading towards a plutonium cycle both the former Soviet Union and the United States are looking at Japan as a huge market for the stockpile of plutonium from their dismantled warheads. Japan may be heading to become the world plutonium center.

Series 3: Japan's Nuclear Industry Nuclear Plant Exports

No Japanese manufacturing company has ever exported nuclear power plants as a main contractor. Considering that Japan was seventh in the world to begin nuclear power generation and has the third largest number of reactors in operation, this may seem rather peculiar.

There are probably a number of reasons why this is so. First, Japanese manufacturers have constructed nuclear power plants under licence from American companies. They have maintained this arrangement mainly because they have found it less risky. They seem to feel more secure supplying the parts to an American company which acts as the primary contractor. And Japanese manufacturers have been very active in parts exports, as the table shows. Neither MITI (Ministry of International Trade and Industry) nor the

utilities favor the present situation, because accident at plants where Japanese parts are used could affect nuclear policy within Japan. The utility companies frequently question the technical reliability of parts made by Japanese manufacturers.

However, manufacturers have recently started to make stronger efforts to export, partly because they cannot get contracts within Japan. In March this year, Mitsubishi Heavy Industries switched its contract with Westinghouse from a licensee to one of a cross-licence agreement. Mitsubishi became the main contractor together with Westinghouse and Ansaldo when they tendered for a contract to build nuclear power plants in Indonesia. It could also become the major contractor in UK if a new APWR project goes ahead (see News Watch).

Major exports of nuclear power plant parts

Year	Manufacturer	Delivery	Items of export
1971	Toshiba	Browns Ferry 2,3 (USA)	pressure vessel
1972	Toshiba	Ringhals 1 (Sweden)	pressure vessel
1975	Hitachi	Hope Creek 1 (USA)	pressure vessel
1975	Hitachi	Chinshan 1,2 (Taiwan)	container
1978	Hitachi	Leibstadt (Swiss)	parts of reactor
1986	Mitsubishi Heavy Industries	Qinshan (China)	pressure vessel

First Step to Commercializing Alternative Energy

by Jin Ohara

Japan's electric companies had never before purchased surplus electric power from decentralized energy sources, which consist mainly of natural energy, but the nine electric companies all announced that they would begin to do so from April, '92. What is more, the purchase price is the world's highest, particularly for photovoltaic and wind-generated power. For these two types of power, the power companies will pay the same as they charge consumers for electricity. One might say this is the same as running the electric meter backwards. The purpose is to popularize photovoltaic and wind generation; in the future, when these sources have attained a commercial level, purchase prices will be lowered.

Since fuel cell generation is thought to have already attained a commercial level, the purchase rate was set at the same level as that for power generated from municipal waste incinerators, and the same goes for purchases from cogeneration.

According to Tokyo Electric's calculations, assuming an average home consumes 400kWh of power per month, a family's electric bill would be cut approximately in half if it generated 200kWh with photovoltaic equipment with an output of 2kW, consumed 100kWh at home, and sold the remaining 100kWh as surplus to the electric company.

However, even without the cost of connecting to the power grid, the system will cost about ¥3 million, which means cost reduction efforts by manufacturers and a policy for assistance by the national government will be needed to make the purchase system work effectively.

Such a government policy was initiated in April. It consists in a subsidy system for photovoltaic and fuel cell generation. Two-thirds of the total installation cost for

photovoltaic power will be subsidized and one-third the cost for fuel cells. These are both very high-rates of subsidy. During FY 1992 it is expected there will be 13 subsidized projects for photovoltaic and 14 for fuel cells, with the Ministry of International Trade and Industry (MITI) having budgeted nearly ¥1.5 billion. MITI has provided assistance for the installation of photovoltaic cells on the Shinkansen platform roof of Tokyo Station in order to demonstrate the technology. However, there is still no subsidy program for private homes.

On the other hand, housing companies are now selling homes equipped with solar panels. East Japan Housing Co. has fitted some of its model homes at housing display centers with solar thermal water heaters and solar panels. This has already been done at 10 of its 100 display centers throughout the country, and says it will soon increase the number to 30. Misawa Homes Co., Ltd. plans to begin the sale of "eco-energy homes" next spring. Apparently the eco-energy home integrates solar panels with the roof, and provides 85 percent of home power consumption by generating 4-5kW. The cost of such a house is ¥35 million, ¥5 million higher than usual, but the company says the extra cost will be recovered in 10 years.

Should the national and local governments enact assistance programs, such homes would certainly sell. While solar panels are expensive, they would become cheaper with higher production engendered by more widespread use. When MITI's Sunshine Project was initiated in 1974 solar panels cost over ¥20,000 per watt, but by 1990 this had dropped to ¥650, just one-thirtieth of the cost. It is said this will fall to ¥100-200 in the near future.

"Eco-Energy Homes" with solar panel roofs.

As we can see from the fact that 660 wind power generators made by Mitsubishi Heavy Industries have been exported to California, Japan has attained the highest technological level in wind power. Wind power does not enjoy widespread use in Japan only because the initial investment is high. If there were a program by which initial investments could be quickly recouped, we would be seeing more windmills.

The electric companies have finally begun turning their attention to the development of wind power. Last year Tohoku Electric built a wind farm with five 275kW windmills, and this year Hokkaido Electric has plans for four more. The latter will be built in the village that is home to the Tomari nuclear power plant, on a site overlooking the plant. Last year, Suttsu

town built a group of five windmills with a 20.5kW maximum output on the seashore opposite the Tomari plant to supply heat to the town's middle school. But in the summer when there is no need for the heat, they have to leave the windmills idle because Hokkaido Electric does not purchase the electricity. This problem, however, will be solved by the new system that began in April.

First-generation phosphoric acid fuel cells are already at the practical use stage, and demonstration tests are already underway on large cells with capacities up to 5MW and 11MW. The electric power industry's goal is to bring fuel cells with a total capacity of 1,000MW on line in the year 2000. The industry's capacity goals for photovoltaic and wind power are 50MW and 10MW, respectively.

Anti-Nuke Groups

Active Around Japan

Plutonium Free Future: Overseas Movement Takes Off

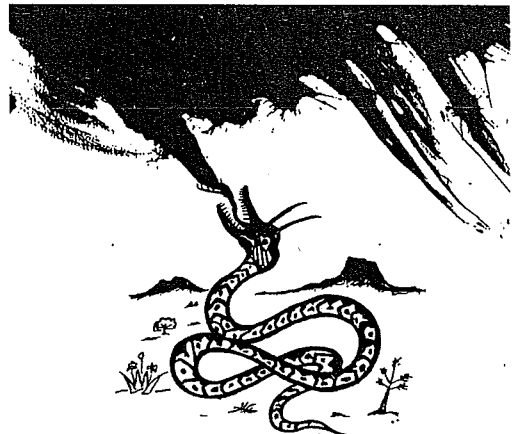
An environmental group called "Plutonium Free Future" was formed in Berkeley, California by a group of Japanese people living in the San Francisco Bay Area, and their American friends in January 1992. The founding members include internationally famous artists Mayumi Oda, Kazuaki Tanahashi, and Kiyoshi Miyata. Their campaign, called "Global Alert on the Civilian Use of Plutonium," has gained support from scientists and concerned citizens.

The mission of PFF is to raise awareness in the international community with regard to the dangers of the civilian use of plutonium. Plans by the USA and the former USSR to dismantle some of their nuclear warheads raise the possibility that these military plutonium will be defined as being for "peaceful use." PFF warns that the civilian use of plutonium could be extremely hazardous to the environment and human life.

The immediate focus of PFF is to stop Japan's plutonium utilization and transport program. They are informing the public of the danger of global-scale contamination and working with environmental and peace groups throughout the world. They urge people to make this a top-priority environmental issue. PFF states: It is vitally important that all people who are concerned about the future of the earth be informed of Japan's plutonium fuel program. The Japanese people must mobilize and voice their opposition if they are to force their government to reverse its plutonium policy. At this point

international awareness and pressure are critical to awakening and alerting the Japanese public. We appeal to you. Help from people throughout the world is crucially needed.

PFF has been asking American people to write to their President and Secretary of State to disapprove Japan's plutonium transport from Europe, as the Nuclear Cooperation agreement between the two nations gives the US government the right to veto it. PFF members and supporters have written to members of Congress asking them to hold hearings on this issue. Also at PFF's request, people in different countries are starting to send letters addressed to the Japanese public, the Emperor, and the Prime Minister on the global dangers of Japan's plutonium energy program.



The logo of Plutonium Free Future: "the Rainbow Serpent in the Earth guards the powers that are beyond human control. Attempts to disturb its sleep will cause rainfalls of doom, - an Aboriginal Australian myth."

NEWS WATCH

MHI to build Belgian SG

Mitsubishi Heavy Industries has recently been unofficially commissioned by SEMO of Belgium to manufacture three steam generators. The new generators are to be used in the replacement of all the steam generators of Tihange-1 (PWR, 920MW). The operation of replacing the generators is not included in Mitsubishi's contract.

Report on Simplified Disposal of Waste from Scrapped Reactors

The Nuclear Safety Commission on April 23 issued a report on methods of disposing of the heavy machinery and concrete waste produced when decommissioning nuclear reactors. In response to this report, the Science and Technology Agency is to revise laws and regulations on waste disposal.

According to the report, large items of machinery will be disposed of underground after measures have been taken to prevent contamination from spreading. Concrete wastes whose radioactive concentration does not exceed the new limit can be buried as they are, provided they are covered with soil to a depth of more than 1.5 meters.

Information on Transport of Nuclear Materials to Be Kept Secret

The Science and Technology Agency on April 18 instructed nuclear-related companies not to publicize any information

regarding the transport of nuclear materials, including the dates and routes, and requested local authorities to cooperate.

The measure has been taken in preparation for the scheduled transport of plutonium from Europe and that of the first load of plutonium fuel for FBR Monju (280MW). It will also prevent information on uranium fuel transport from being publicized, as it has until now. Some local authorities have used PR cars to warn local citizens when nuclear materials are transported but such activities will be outlawed under the new rules.

Construction of HLW Storage Site Starts in Rokkasho

Construction of a storage site for the high level waste that will be brought back from the UK and France started on May 6 in Rokkasho-mura, Aomori Prefecture. This is supposed to be an intermediate storage site, yet candidate sites for final disposal are still to be selected.

Meanwhile, Tokai-mura of Ibaraki Prefecture is soon to receive HLS samples (only 100g vitrified waste) and JAERI(Japan Atomic Energy Research Institute) is to conduct a safety test.

MHI to Conduct FS for Large UK PWR

Mitsubishi Heavy Industries (MHI) has recently been commissioned by BNFL of the UK to conduct a Feasibility Study for a large PWR (1200-1400MW). MHI had previously been commissioned by BNFL to do a feasibility study for a 600MW PWR,

but the plan was postponed. Meanwhile plans to construct a large PWR have surfaced instead. It is still not quite certain whether the plan will go ahead. If the plant is constructed, there will be three possible alternatives: 1. the same type of plant as Sizewell B (1182MW) which is now under construction - WH would likely be commissioned. 2. a 600MW PWR - Mitsubishi would likely be commissioned. 3. 1200-1400MW APWR - Mitsubishi would likely be commissioned.

Nuclear Industry Recruitment Measures

The Japan Atomic Industrial Forum, Inc. on March 27 published a report entitled "Problems Faced by the Nuclear Industry in Recruiting Long-term Employees." Fewer and fewer people are applying for jobs in the nuclear industry, since its prospects are no longer bright, and there is now a serious personnel shortage. The report discusses

solutions to the problem, and proposes approaching educational institutions, and using new segments of the labor force such as women, foreigners, and the elderly.

PNC Participates in US Research on Decontamination Technology

It was revealed on May 7 that PNC (Power Reactor and Nuclear Fuel Development Corp.) would participate in the development of technology to eliminate radioactive contamination. The technology is to be developed at the International Research Institute on the Environment which was set up this spring at the Hanford nuclear facility of the US Department of Energy. Since the technology may be used for military purposes, the Science and Technology Agency has asked PNC to be careful it does not overstep the limits imposed by Japan's Atomic Energy Act.

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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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