
JAPANESE PLANS TO MAKE CARIBBEAN THE TOXIC THROUGHWAY FOR CLANDESTINE SHIPMENTS OF NUCLEAR WASTE AND PLUTONIUM

BRIEFING
APRIL 1999

GREENPEACE

In March of 1999, the Caribbean braced itself for an unexpected and unwanted storm of controversy: the clandestine passage of a British-flagged freighter carrying highly radioactive nuclear waste from France to Japan. The ship "Pacific Swan" was dubbed a "floating Chernobyl" and despite declarations of opposition from regional fora representing nations throughout the Caribbean, Japanese, British and French officials disregarded the sovereign will and rights of the region's inhabitants and plunged ahead with their dangerous and desperate shipment. Unfortunately, this transport is not an anomaly: if secret plans are realized, it appears inevitable that the Caribbean Sea will become the throughway for dozens and perhaps hundreds of nuclear waste and plutonium shipments between Europe and Japan.

This briefing paper provides information about new plans to make shipments of plutonium and nuclear waste from Europe to Japan. In addition, new plutonium contract negotiations are revealed -- contracts which could launch hundreds of additional plutonium and nuclear waste shipments through the Caribbean.

Ultimately, it is clear that decisive legal and political action must be taken by the peoples and governments of the Caribbean if these floating disasters are to be stopped. This paper provides recommendations for actions which, if implemented, could lead to a nuclear free Caribbean.



BACKGROUND

The nuclear waste and plutonium shipments which threaten the Caribbean are the outcome of Japan's ambitious program to procure plutonium. In order to acquire this plutonium, Japan has sent irradiated nuclear fuel from its nuclear power reactors to state-controlled "reprocessing" plants in France and Britain. At COGEMA's la Hague (France) and British Nuclear Fuel's (BNFL) Sellafield (UK) reprocessing factories, this irradiated nuclear fuel is chemically dissolved, and plutonium and contaminated uranium are removed from the other radioactive waste products contained in the spent fuel.

It must be noted that these reprocessing plants are extraordinarily dangerous and dirty facilities. Both Sellafield and la Hague have been plagued with significant accidents leading to serious contamination of workers, the general public and the environment. Sellafield is in fact the site of the worst European nuclear accident. In addition, both factories, as part of their standard operations, annually pump hundreds of millions of liters of nuclear waste into the Atlantic Ocean and Irish Sea. Liquid wastes have also entered terrestrial waterways, solid wastes stored or buried at the factories has leached out, and gaseous discharges from the plants' stacks have created widespread environmental contamination. Heightened levels of cancer-particularly childhood leukemia--have been identified around both la Hague and Sellafield.

In addition to the separated plutonium and uranium, reprocessing generates a tremendous volume of nuclear waste. A small proportion of this waste from reprocessing is mixed with glass and turned into blocks of highly concentrated radioactive waste. It is this so-called high level radioactive waste which has just begun to be transported from France to Japan via the Caribbean.

These glass blocks of nuclear waste are among the most radioactive materials ever produced. It should be noted that while an estimated 1,280,000 kg of this glassified "plutonium waste" will be transported to Japan in the next decade, this represents only a small proportion of the overall volume of nuclear waste generated by the reprocessing of the Japanese spent fuel. According to a document leaked to Greenpeace, current reprocessing contracts may require only some 3 -7 percent of the nuclear waste arising from reprocessing to return to the clients. If all the generated nuclear waste were to be returned to the clients, as some in France and Britain are demanding, thousands of

additional nuclear transports would be required; for example, British authorities have estimated that the return of clients' waste from the THORP reprocessing plant at Sellafield would require more than 19,000 transports.

In a sense, Japan's plutonium contracts create a new “triangular trade” ensnaring the people of the Caribbean: the spent fuel sent from Japan travels eastward through the region to Britain and France and in turn give rise to plutonium and nuclear waste shipments which will travel westward through the Caribbean to Japan.



TRANSPORT HISTORY

Throughout the 1980s and 1990s, the ships “Pacific Crane”, “Pacific Pintail”, “Pacific Sandpiper”, “Pacific Swan”, and “Pacific Teal”, operated by Pacific Nuclear Transport Limited (PNTL), have secretly carried shipments of highly radioactive spent fuel from Japanese reactors through the Caribbean Sea to the reprocessing plants in France and Britain. In all, thousands of tonnes of this highly radioactive material have been moved through the region without the knowledge and/consent of the enroute nations put at risk.

While spent fuel shipments are effectively completed under the current Japanese reprocessing contracts, the nuclear waste shipments caused by this reprocessing have only just begun.

The current shipment of nuclear waste onboard the Pacific Swan is the fourth of its kind. The preceding three shipments all took different routes between France and Japan. The history of the preceding transports are as follows:



the first high level nuclear waste (HLW) transport occurred in 1995 on the “Pacific Pintail” which sailed to Japan via the East coast of South America, Cape Horn and the South Pacific;



the second transport occurred in 1997 on the “Pacific Teal” which sailed to Japan via the Cape of Good Hope, the Indian Ocean, Tasman Sea, and South Pacific; and



the third HLW shipment took place in 1998 on the “Pacific Swan” which sailed to Japan via the Caribbean Sea and Panama Canal.

A primary reason for the use of these different routes was that British, French and Japanese officials hoped to find a “path of least resistance”. Instead, they have been faced with protests and declarations from dozens of enroute countries condemning these ultrahazardous shipments.

Based on the decision to make the 1998 and 1999 transports via the Panama Canal, Greenpeace now believes that Japanese, British and French officials have established the course through the Caribbean as their route of preference. Given that the current 40 block shipment of nuclear waste is to be followed by the transport of some 3,000 blocks of nuclear waste from Britain and France, this amounts to a very real and pressing danger to the peoples and governments of the region.



NEW PLANS FOR PLUTONIUM SHIPMENTS

Greenpeace has learned that the Japanese government, in consultation with Mitsubishi, Toshiba and the power utilities TEPCO and KEPCO, is negotiating behind closed doors with Britain, France and the United States, to resume transporting highly radiotoxic, weapons-usable plutonium from Europe to Japan. These will be the first ever commercial-scale transports of fabricated mixed plutonium/uranium oxide (MOX) nuclear fuel from the plutonium separation factories in France and Britain to Japan. Under consideration, for the moment, is a transport from both Britain and France of an estimated 40 plutonium fuel assemblies containing a total of around 450 kilograms of highly radiotoxic, weapons-usable plutonium.

Although the transport of such material poses significant risks to the environment and public health, the governments refuse to conduct an international environmental impact assessment – as required under customary international law and the UN Convention on the Law of the Sea (articles 204, 205, 206) . While dozens of coastal nations will be endangered by the transports, their representatives will not be involved in route or emergency planning. Plans for salvage or damage limitation remain a mystery and no clear commitment has been made to liability or compensation for accidents.

In addition, although the combined cargo contains enough plutonium to construct more than 50 nuclear bombs, there will be no armed military escort vessel. Instead, the transporting nations intend to have two of their standard nuclear freighters, "Pacific Pintail" and "Pacific Teal", now carrying light armament, travel in tandem. Given that these freighters are slow, not particularly maneuverable and will not carry necessary military assets like helicopters, heavier armament, anti-missile defenses, or a dedicated security force/crew, it is clear that these plans are insufficient.

This inadequate security has been driven by two factors: cost-cutting, and the wish to make such shipments mundane. Given the financial problems of the Japanese government and nuclear industry, it is clear that officials are trying to cut back on the significant costs required for securing such massive amounts of weapons-usable plutonium. This was confirmed in a January 1999 statement by a Japanese Foreign Ministry spokesman, Katsutoshi Kato, who said: "considering costs, this way will be cheaper". At the same time, the Japanese government and industry are clearly uncomfortable with the message that they send by deploying an armed naval escort for the plutonium shipments. Put bluntly, while Japan wants to procure plutonium, they do not want to draw attention to the obvious military and security implications of such a program. At bottom, this plan places Japanese political and economic interests before those of global security and environmental protection.

Despite the appalling risks, this preliminary shipment of plutonium fuel could be the first of many. If plans proceed, some 40 tonnes of plutonium will be separated in reprocessing plants in France and Britain for transport back to Japan by 2010. If all of this plutonium were fabricated into plutonium fuel it would require as many as 80 sea shipments from Europe to Japan. Unless strenuous international opposition materializes, this first shipment of plutonium could well be the start of a new and frightening era of the international plutonium trade. Tragically, the people and the environment of the Caribbean are being set up as innocent bystanders caught in the middle of this deadly trade.



HUNDREDS OF ADDITIONAL SHIPMENTS

While the Japanese government is under mounting pressure to stop its plutonium program, Japanese utilities are considering a new generation of plutonium contracts. With their European clients renouncing new contracts, the British (BNFL) and French (COGEMA) plutonium companies are desperately trying to entice Japan to sign a new generation of reprocessing contracts covering the 2000-2010 period. BNFL and COGEMA are believed to be offering contracts under which Japan can send its highly radioactive spent fuel to Britain and France for storage for decades -- with or without reprocessing. Due to the desperation of the British and French to gain contracts to justify the massive costs of their plutonium facilities, they are effectively offering to become Japan's nuclear waste dump-site.

Japan could well choose to sign such contracts which would provide them with temporary nuclear waste storage and generous stocks of plutonium. In all, new contracts could be at least as large as those Japan signed in the past -- namely in the range of over 7,100 tonnes of irradiated nuclear fuel. The signing of contracts covering this massive volume of fuel could in turn lead to hundreds of irradiated nuclear fuel shipments, and hundreds of resulting plutonium and nuclear waste return shipments.

The government and industry claim that such large quantities of plutonium are needed for its future nuclear power program, but the facts reveal that there is neither technical nor economic justification for plutonium use. Rather, Japan's plutonium program has collapsed since the early 1990's with growing stockpiles of weapons-usable plutonium.



SAFETY HAZARDS

Despite the staggering environmental and public health risks posed by nuclear shipments, safety measures have been seriously undermined by cost-cutting and secrecy. Inadequate design, testing and construction of the transport containers, weak materials, insufficient emergency planning and the lack of liability coverage suggest that the industry and governments involved are unwilling to pay the cost of making anything but their profits safe. Further, they try to cover up these inadequacies by attempting to make their transports in secret without the knowledge and/or agreement of the populations put at risk and the regulatory authorities charged with their protection.

The primary safety system involved in retaining the deadly radioactivity of the plutonium and nuclear waste shipments is that of the transport containers or "casks". European transboundary nuclear "cask" transports have effectively come to a grinding halt following revelations of complacency and secrecy in which the commercial

interests of the nuclear industry have been put before public safety. Despite being aware of continued levels of flask surface contamination, over many years, many hundreds of times higher than the 4 Bequerels per square centimetres laid out in international regulation, the European nuclear industry in conjunction with its so-called regulators maintained routine transports to and from Sellafield and La Hague. Industry and the regulators have knowingly made contaminated transports between France, the UK, Germany, Belgium, and the Netherlands.

Following revelations about the contamination cover-up in the media last May such transports were suspended in France, Germany and Switzerland. While the Swiss and German bans remain in place, France restarted its domestic transports in July after Electricite de France (EdF) presented a plan for ensuring that future shipments would be clean.

However, it has since been revealed that 9 “casks” have been found to be contaminated. One, sent from the Bugey PWR station to La Hague, had several areas of serious contamination of up to 1,036Bq/cm². Such is the extent of the failure of the current regime that the flask left Bugey on the February 22 after two separate monitoring teams gave it a clean bill of health only for inspectors at La Hague’s rail head terminal at Valognes to find the contamination.

Remarkably, it has become increasingly clear that economic considerations have compromised quality control and have cut safety margins to the point where there are not only problems with these containers under normal conditions but there are strong indications that serious accidents could overwhelm safety systems and lead to the calamitous discharge of radioactivity into the environment.

The international nuclear industry maintains that the shipping casks themselves will withstand serious accidents, protecting the public and environment. These claims do stand hold up under the light of scientific scrutiny. The standards recommended by the International Atomic Energy Agency (IAEA) for the design and testing of transport containers are not adequate in view of the potential effects of serious fires, collisions and sinkings at sea.

For example, the IAEA recommends designing and testing casks to withstand an 800 degree C fire burning for up to 30 minutes. But fires at sea burn for an average of 20-23 hours at temperatures in excess of 1,100 degrees C. With the upcoming plutonium shipments, which will be made on freighters carrying live ammunition and enough fuel to steam for up to 20,000 kilometers, these theoretical testing conditions prove inadequate to real-life circumstances.

Similar inadequacies exist in the impact and immersion tests for the transport containers. These glaring shortcomings have lead independent experts to suggest that “marine accidents involve significant forces and outcomes that appear to exceed the limits of the standards to which the casks are designed. There is no substantive evidence to support any claims relative to the integrity of a cask exposed to the consequences of a maximum credible marine accident.”

The IAEA itself has categorically stated that containers can be built which would entail zero risk to the public -- the nuclear industry just doesn’t want to spend the money. According to the IAEA: “It would be relatively simple to specify a performance test for a package that would guarantee that no package would ever fail in an accident situation. Such a performance test would reduce public risk from transport of radioactive material or radiation exposure to zero but would exact a tremendous economic toll from world economies.” Of course, the “world economies” that the IAEA is referring to is in fact the profit book for the international nuclear industry -- not the economies of the potentially effected enroute states upon whose economies a nuclear transport accident would play true havoc. For the IAEA, which is charged with encouraging the growth of the nuclear industry, profits are clearly more important than safety. Protecting the nuclear industry simply takes precedence over protecting the true economic and environmental concerns of people put at risk around the globe.

Rather than address the problems, Japan, France and Britain are trying to veil their actions in secrecy. Despite past assurances, nations along the transport routes are not being notified about the proposed route or even about operational, emergency or salvage functions that the enroute states could be forced into in foreseen or unforeseen circumstances. In turn, although official estimates suggest that a nuclear transport accident could cost billions of dollars in damages, there is no liability plan. In addition, the countries involved in these transboundary waste and plutonium shipments are dividing responsibility for the transports among different governmental and private entities, thereby making it difficult to identify a specific company or government that would be liable for damages stemming from an accident. Put bluntly, those involved are looking to cover their tracks and hide their true involvement in case of an accident.



It is very difficult to evaluate the effects of a serious nuclear transport accident. Given the tremendous number of variables involved, including the nature of the accident, weather conditions, and proximity to land, many different scenarios are possible, all involving many different kinds and levels of damage.

Nonetheless, it can be said that a serious accident involving a plutonium or nuclear waste transport which resulted in a long-duration, high-intensity fire and the eventual sinking of the damaged cargo could result in significant, long-term radioactive contamination of the environment. For example, should a collision lead to impact and fire damage of the transport containers and their contents, radioactive material could be released into the environment. While weather conditions would effect the direction and diffusion of the radioactivity, the heat and air currents caused by the fire would loft the radionuclides into the air, forming a plume of radioactivity. Humans and animals downwind of the accident would fall victim to fallout and inhalation of radioactive particles.

Fallout would also cause radioactive contamination of food and water supplies. In a report by Dr. Edwin Lyman of the Nuclear Control Institute, it is suggested that a damaged and sunken waste shipment “could cause chronic exposure to the public far in excess of standards set by the international community.” Even the nuclear establishment itself has reached such a conclusion: in a 1988 analysis, the OECD Nuclear Energy Agency found that an accident involving vitrified high level nuclear waste makes “coastal transportation accidents unacceptable”. Perhaps given the Caribbean’s distance from their coasts, Britain, France and Japan see these concerns as irrelevant.

Ultimately, communities affected by such an accident would face mass evacuations and/or massive decontamination efforts. At the same time, local and regional fisheries, agriculture, and tourist industries would be undermined if not destroyed by public fears about radioactive contamination. As the Chernobyl reactor explosion has shown, the effects of nuclear disasters are broad-based and must be assessed in terms of future as well as present generations. Given that the nuclear materials involved in these transports would remain a deadly environmental contaminant for tens if not hundreds of thousands of years, the impacts of a transport accident are almost too great to imagine.



CONCLUSION

It is clear that significant and unjustifiable risks are involved in the transport of nuclear waste and plutonium. It is also clear that the safety arrangements for these transports do not pass serious technical review nor do they provide guaranteed protection of the environment and public health. Additionally, by conducting these transboundary waste and plutonium shipments in secrecy, without the knowledge and consent of nations along the transport route, the countries and companies involved show disregard for national and international rules of conduct. Finally, the growing trade in weapons-usable plutonium cannot be restrained by the inadequate and ineffective non-proliferation agreements currently in place. This trade poses a serious threat to international attempts to stop the spread and development of nuclear weapons.

For the nations of the wider Caribbean region, this issue represents an all too real and pressing danger. Having voiced concerns and opposition through national and regional declarations, the nations of the region must conclude that unless they take more concentrated, binding and effective political and legal action, they face a future of dozens if not hundreds of clandestine nuclear transports from which they gain nothing but could lose everything.

The Nations of the Caribbean Should Consider the Following Actions:



Demand the immediate cessation of such transports until pending completion and evaluation of a comprehensive environmental impact assessment which must be conducted by the transporting states but with the full involvement and agreement of potential enroute nations.



Countries should pass laws excluding such shipments from the waters under their jurisdiction.



Countries should work together to enact regional, legal instruments prohibiting such shipments from the waters under their combined jurisdiction.



Countries should demand that the talks to be convened at the UN Conference on Disarmament towards a Fissile Materials Ban should include an immediate prohibition on the separation and use of all plutonium. Such a ban would stop the engine which drives the nuclear waste and plutonium transports.



In the face of imminent transports, countries should make individual and joint declarations condemning these transports and demanding that they not enter into or transit through surrounding waters.

For further information:
Damon Moglen, Greenpeace
International,
on the MV Greenpeace
++871-624453210
Shaun Burnie, Greenpeace
International,
Amsterdam
++31-20-523-6257