SHIPMENT OF NUCLEAR BOMB MATERIAL FROM EUROPE VIA CAPE OF GOOD HOPE TO JAPAN

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On the 21st of July, two ships carrying a cargo of dangerous, weapons-usable plutonium fuel left Europe to sail around the globe, via Cape of Good Hope and the South West Pacific Ocean, to Japan. On board is nuclear fuel containing more nuclear weapons usable material than in the entire Indian and Pakistan nuclear weapons programmes.(1)

The two British flagged vessels, the Pacific Teal and the Pacific Pintail, will left Barrow in Britain and Cherbourg in France carrying the first commercial shipment to Japan of mixed-oxide (MOX) reactor fuel, made from plutonium and uranium. An estimated 446 kilograms of plutonium is contained in the 40 nuclear fuel elements – enough fissile material to construct at least 60 nuclear bombs.

The International Atomic Energy Agency classifies this plutonium fuel as a "category one" "direct use" weapons material, and estimates it would take just 1-3 weeks to convert into nuclear bombs.

The shipments mark a new and dangerous phase of Japan's nuclear industry; with the start of a pilot program to use plutonium fuel (MOX) in conventional nuclear reactors. These reactors were not designed to use plutonium fuel and its use will significantly reduce operating safety margins. Operators of plants in the United Kingdom and France hope to massively expand production of plutonium MOX fuel if Japan signs contracts based on a successful transport this year.

If the shipments are successful and MOX fabrication expands, then the international community faces as many as 80 such shipments over the next ten years, the spread of nuclear weapons material more widely than ever before, and raised tensions in one of the most politically volatile regions of the world – East Asia. Public health and the environment will be put at increased risk from radioactive pollution and nuclear accidents, as reactors use a fuel they were never designed to handle. As plutonium is highly radio-toxic, the shipments will also pose a danger to countries en-route.

ROUTE OF PLUTONIUM FUEL (MOX) SHIPMENT REVEALED

THE plutonium (MOX) fuel transport is being conducted for the electrical utilities TokyoElectric Power Company (TEPCO) and Kansai Electric Power Company (KEPCO). The plutonium has been produced from the reprocessing of nuclear spent fuel at two sites in Europe: Sellafield in northern England, operated by British Nuclear Fuels Ltd (BNFL), and la Hague in Normandy, France, operated by COGEMA.

The contracts for the plutonium fuel were signed on behalf of the Japanese utilities by Mitsubishi and Toshiba. Plutonium fuel for TEPCO was produced at Dessel in Belgium and transported by road to La Hague, it will be loaded in the Fukushima nuclear power plant. The plutonium fuel for Kansai was produced at Sellafield and will be shipped directly to the Takahama nuclear power plant. These pilot contracts are intended to test the technical, political and logistical feasibility of a plutonium MOX fuel cycle extending from Japan to France, Britain and Belgium.

UNDER increasing pressure to provide information about the secret plutonium shipment the Japanese, French and British officials revealed the route only after the departure of the shipment. The ships will round the Cape of Good Hope and then travel through the South West Pacific Ocean enroute to Japan. Previous nuclear shipments from Europe to Japan have used three different routes: through the Panama Canal; around Cape Horn; and around the Cape of Good Hope. The strong opposition of the Caribbean countries has made the Panama Canal route difficult. While, Chile's warning, in 1995, that it would fire on a nuclear transport if it came into its waters has also made the Cape Horn route politically difficult. The route around the Cape of Good Hope has become the path of the least resistance.

The plutonium transport's will thus endanger numerous African nations, including Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, Gabon, Congo, Zaire, Angola, Namibia, South Africa, Madagascar and the Mauritius Islands. It is estimated that the plutonium freighters will sail along the West African coast for the first half of August before entering the Southern Indian Ocean.

The demands of enroute nations for prior consultation and resolution of urgent safety, security and liability issues have been disregarded. Only vague details have been given about the the route and no guarantee given that the ships will not pass through the waters under jurisdiction of enroute nations has been made. Countries must now take all possible action to keep this shipment out of their waters and must do act to prevent further plutonium transports. Unless there is massive public opposition a further 80 plutonium shipments may be made over the next decade.

INADEQUATE SECURITY ARRANGEMENTS FOR THE VESSELS

THE freighters carrying the plutonium fuel, the "Pacific Pintail" and the "Pacific Teal", are operated by Pacific Nuclear Transport Limited (PNTL), which is owned by BNFL, COGEMA and the Federation of Electrical Power Companies of Japan (FEPCO). As a unique arrangement for this transport, the ships are on UK "government service". As international regulations require military security arrangements for cargoes of nuclear bomb-usable material, the ships are armed with 30 mm cannons and carry armed UK Atomic Energy Agency police, who normally guard plutonium sites in British.

A 1988 US Department of Defense threat assessment on plutonium shipments concluded that in order to "adequately deter theft or sabotage, it would be necessary to provide a dedicated surface combatant to escort the vessel throughout the trip". Even with an escort, it stated "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 United States, as the original supplier of the enriched uranium to Japan, is required to approve the transport arrangements for this plutonium shipment, under the 1988 United States-Japan Peaceful Cooperation. The agreement, includes the need for an armed government escort vessel. This was applied in 1992 for the transport of 1.7 tons of plutonium oxide from Europe to Japan, when the Akatsuki-maru was accompanied by the Japanese armed escort vessel, the Shikishima, a naval warship loaded with commando boats, machine guns and helicopters.

After years of lobbying in the United States, in particular the US State Department, the UK, France and Japan have succeeded in re-interpreting the requirements of the US-Japan Agreement to allow the transport to take place without a dedicated armed escort vessel.

The United States government approval for this plan, despite Congressional concerns, is due to the US not wishing to confront its political allies over such sensitive issues, and the failure of the Clinton Administration to apply an effective and consistent nuclear non-proliferation policy.

This new arrangement, designed to not only cut costs but to aide the industry in describing the transport as a routine commercial enterprise, is clearly inadequate to deter any determined physical attack. Additionally, it increases the transport risks by storing explosive ammunition together with large quantities of fuel oil and plutonium on the same vessel.

PLUTONIUM – THE BASIC INGREDIENT OF A NUCLEAR BOMB

PLUTONIUM is a highly radio-toxic element, all but non-existent in nature, is produced in nuclear reactors. Inhalation of a single microgram, smaller than a speck of dust, can cause fatal lung cancer.

It is the most highly prized fuel—or fissile material—for making nuclear weapons, and has been an essential fuel driving the nuclear arms race over the last half century. Given its long half-life, some 24,000 years, once produced, plutonium remains a deadly environmental contaminant and a potential fuel for nuclear weapons virtually forever.

Produced as the uranium fuel in a nuclear power reactor becomes irradiated -- bombarded by neutrons -- some of the uranium is changed into plutonium. In the case of “military production reactors” this process of plutonium production is maximised, but all conventional nuclear power reactors produce plutonium.

In order to access this plutonium for nuclear weapons purposes, the nuclear weapons states developed a very dirty and dangerous chemical separation technology known as “reprocessing”. Through this process, the spent fuel is chopped up, chemically dissolved and the plutonium is separated out of the resulting stew of highly radioactive, long-lived nuclear waste. The process involves massive routine discharges of radioactivity to the air and sea, tremendous risks of explosions, radioactive releases, and worker exposure.

The two largest commercial reprocessing plants in the world are located at Sellafield in the United Kingdom and la Hague in France. Together they hold over 100 tonnes of separated plutonium.

The nuclear industry’s original plan was to use plutonium in “fast breeder reactors” which would breed, or generate, more plutonium than they used. With the technical and economic collapse of these breeder reactors world-wide, the plutonium reprocessing industry faced a dead end. So it is now proposing burning plutonium mixed with uranium (MOX) in conventional, light water reactors.

The industry claims that extracting plutonium from the MOX fuel is a technically complicated process that thus reduces the risk of its diversion into nuclear weapons programmes, or the risk of seizure by terrorists.

In reality, fresh plutonium MOX fuel can be handled with little difficulty and plutonium can be extracted in any reasonably well-equipped laboratory using standard chemical processes. Dr Frank Barnaby, a nuclear physicist who worked at the UK's Aldermaston Nuclear Weapons Establishment between 1951 and 57, says: "If a terrorist group acquired MOX fuel, it could relatively easily chemically separate the plutonium and fabricate a nuclear explosive".

In a 1997 report, The U.S. Department of Energy’s Office of Arms Control and Non-Proliferation also acknowledges: "Nevertheless, it is important to understand that fresh MOX fuel remains a material in the most sensitive category because plutonium suitable for use in weapons could be separated from it relatively easily".

A NUCLEAR ACCIDENT THAT CAN’T HAPPEN?

ALTHOUGH an accident involving the release of even a small fraction of the plutonium contained in one of these shipments could have devastating results for the environment and public health, safety

considerations have been seriously jeopardised by cost-cutting and secrecy. Inadequate design, testing and construction of the transport containers, insufficient emergency planning, and inadequate liability coverage show that the industry and governments involved are unwilling to pay the cost of making anything but their profits safe.

The plutonium fuel is to be carried in type-B nuclear transport flasks which were designed to carry spent nuclear fuel. Under IAEA regulations such flasks are designed to withstand a drop of nine meters on to an unyielding surface (13 metres/second), being engulfed in fire at 800 degrees C for 30 minutes, and immersion at a depth of 15 metres for eight hours. Transports can be by road, rail, sea or air.

Regardless of the transport mode, the design specifications of the flask can be easily exceeded. For example, a fire raged aboard the ferry *Moby Prince* for over 45 hours and exceeded 1,000 degrees C after it collided with an oil petroleum tanker, the *Agip Abrozzo*, off the Italian port of Livorno in 1991. According to the International Maritime Organisation (IMO), on average, shipboard fires burn for 23 hours at sea and 20 hours in port, while the US Department of Energy admits that petroleum fires can exceed 1,000 degrees C.

Under existing liability agreements, there is no certainty that compensation would be paid to enroute states in the event of an accident. At best, international conventions and other arrangements may provide some compensation, but no assurances exist whatsoever that the full costs of health, environmental and economic damages would be paid to victims in enroute states.

CONCLUSION

UNLESS international opposition puts a stop to future shipments of plutonium fuel around the world, a new and deadly phase in the Japanese nuclear cycle will be established. The proposal to use plutonium (MOX) fuel in conventional reactors -- a proposal intended to justify the survival of the plutonium programmes of Britain, France and Japan – will create dangerous nuclear proliferation and environmental risks. The shipments therefore undermine international non-proliferation objectives and put the health and security of millions of people in danger. The only way forward is to stop the reprocessing of plutonium and cancel plans for the use of MOX fuel in nuclear reactors globally.

Unless this occurs, growing stockpiles of "civil" plutonium will soon rival military stockpiles, and international attempts to agree an effective and verifiable ban on the production and use of plutonium and other fissile materials will be fatally undermined.

(1) The current plutonium stockpile of India is estimated to be 350kg and the plutonium-equivalent of Pakistan's stockpile, 67.2kg, giving a total of 417kg, according to a 1999 report by David Albright of the Institute for Science and International Security, based in Washington D.C. Albright was a member of the United Nations weapons inspection team in Iraq.

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