SECRET SHIPMENT OF NUCLEAR BOMB MATERIAL FROM EUROPE TO JAPAN

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DURING the week beginning July 12th, two ships carrying a secret cargo of dangerous, nuclear weapons-usable plutonium fuel will leave ports in Britain and France and sail around the globe to Japan. On board will be fuel containing more plutonium than in the entire Indian nuclear weapons program.(1)

The two British flagged vessels, the Pacific Teal and the Pacific Pintail, will leave 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. Given the safety and security risks posed, such shipments will significantly endanger enroute nations. While the probability of a transport accident may be low, the consequences for the environment and public health could be devastating.

ROUTE OF PLUTONIUM FUEL (MOX) SHIPMENT KEPT SECRET

THE plutonium (MOX) fuel transport is being conducted for the Japanese electrical utilities Tokyo Electric Power Company (TEPCO) and Kansai Electric Power Company (KEPCO) by Britain and France. 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. These two sites are the largest producers of plutonium on the planet. Combined, they have in storage more than 100 tonnes of plutonium -- more than in the US nuclear weapons stockpile. The contracts for the production of the plutonium fuel were signed on behalf of the Japanese utilities by Mitsubishi and Toshiba. Plutonium fuel for TEPCO has been produced at Dessel in Belgium and transported by road to La Hague prior to sea shipment to Japan, where it will be loaded in the Fukushima nuclear power plant. The plutonium fuel for Kansai has been produced at Sellafield and will be shipped directly to Japan for loading at the Takahama nuclear power plant. These pilot contracts are intended to test the technical and logistical feasibility of a plutonium MOX fuel cycle extending from Japan to France, Britain and Belgium.

The route the shipment will take, remains a closely guarded secret by Japanese, French and British authorities and the operating companies. The nations along the various potential routes have not been informed nor asked for their permission for the shipment to travel through their regions. Given that more than fifty countries around the globe protested earlier Japanese plutonium and nuclear waste shipments, the transporting countries have a strong interest in keeping the enroute nations uninformed.

Based on previous transports of high level nuclear waste from Europe to Japan and a shipment of plutonium in 1992, the imminent plutonium fuel shipments can be expected to take one of the following three routes from Europe to Japan:

- south along the west coast of Africa, around the Cape of Good Hope, across the Indian Ocean and north through the Tasman Sea and South Pacific (the route of the 1992 Akatsuki Maru plutonium shipment)

- west across the Atlantic Ocean, through the Mona Passage, across the Caribbean Sea, through the Panama Canal and across the Pacific (this was the route of high level nuclear waste shipments of 1998 and 1999)

- southwest across the Atlantic, along the east coast of Latin America, around Cape Horn and northwest across the Pacific (this was the route of the first high level nuclear waste shipment to Japan in 1995)

Assuming that the two and a half month voyage is made without mishap, the two freighters will enter Japanese waters and unload their plutonium cargoes in the private harbours which service the Fukushima and Takahama reactors.

INADEQUATE SECURITY ARRANGEMENTS FOR THE VESSELS

THE two freighters carrying the plutonium fuel, the “Pacific Pintail” and the “Pacific Teal”, are both 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 government service” to the UK. Because international regulations require military security arrangements for cargoes of nuclear bomb-usable material, the ships will be armed with 30 mm cannons and carry armed UK Atomic Energy Agency police, which normally guard British nuclear weapons facilities.

A previous shipment of plutonium from Europe to Japan in 1992 was accompanied by a Japanese naval escort that included a warship loaded with commando boats, machine guns and helicopters. However, because the nuclear industry wants to cut costs and portray the upcoming shipment as a routine commercial transport rather than a proliferation threat, the two civilian vessels will act as an escort for each other. This arrangement is clearly inadequate to deter any determined physical attack and in fact creates more hazards by storing ammunition and explosives together with large quantities of fuel oil and plutonium on the same vessel.

A 1988 US Department of Defense threat assessment report 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. The security requirements of the shipment of plutonium from Europe to Japan, according to the 1988 United States-Japan Peaceful Cooperation

Agreement, include the need for an armed government escort vessel. This was applied in 1992 for the transport of 1.7 tons of plutonium from Europe to Japan, when the Akatsuki-maru was accompanied by the Japanese armed escort vessel, Shikishima.

Following this most controversial of transports, the Japanese and UK government and their plutonium industries re-assessed the security arrangements for the next plutonium shipment, now imminent, and developed the current plan for no dedicated armed escort. After years of clandestine lobbying in the United States, in particular the U.S. State Department, the UK and Japan succeeded in re-interpreting the requirements of the U.S.-Japan Agreement to allow the transport to take place without a dedicated armed escort vessel. Instead two plutonium transport vessels will escort each other.

The United States government approval for this plan, despite Congressional concerns, is due to the U.S. 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.

PLUTONIUM – THE BASIC INGREDIENT OF A NUCLEAR BOMB

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

Plutonium is produced as the uranium fuel in a nuclear power reactor becomes irradiated -- bombarded by neutrons -- some of the uranium is changed into plutonium and remains contained in the irradiated or ‘spent’ nuclear fuel. 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. This 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.

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 the industry is now proposing burning plutonium mixed with uranium (MOX) in conventional, light water reactors.

The nuclear 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. However 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 Nuclear Weapons Establishment at Aldermaston 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". The U.S. Department of Energy’s Office of Arms Control and Non-Proliferation also acknowledged this point in a 1997 report: "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, suggest that the industry and governments involved are simply 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 that were designed to carry spent 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 years 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 United States 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 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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