Alliance for Nuclear Accountability
Communities in the Crosshairs: Nuclear Weapons, Power & Waste Target Our Security & Environment
DC Days 2008 Fact Sheet
322 4th Street NE
Washington DC 20002
202/ 544-0217

PLUTONIUM DISPOSITION REMAINS IN DISARRAY: TIME TO TERMINATE MOX & SUPPORT VITRIFICATION

In spite of a decade of work on its program to eliminate surplus weapons plutonium, not a single gram has been disposed by the Department of Energy (DOE). By any standard, the program is a failure. Left unchanged, it will continue to suffer from chronic bad management, escalating costs, and technical uncertainties. A better alternative is for Congress and a new administration to put the disposition program onto the safer and less costly vitrification track.

DISPOSITION OF SURPLUS PLUTONIUM

In 2000, after a lengthy Environmental Impact Statement (EIS) process, the Savannah River Site (SRS) was chosen for the surplus plutonium disposition mission. The Record of Decision included a "dual track" approach of producing plutonium mixed oxide (MOX) fuel plus vitrification (mixing plutonium with high-level waste) for 50 metric tons of surplus plutonium.

The same year, the U.S. and Russia signed a Plutonium Management and Disposition Agreement that commits each nation to disposing of 34 metric tons of surplus weapons-grade plutonium. However, the program has now evolved into a MOX track and a risky proposal to process plutonium in the old H-Canyon reprocessing plant at SRS, where DOE also plans to reprocess spent research reactor fuel to remove highly enriched uranium.

VITRIFICATION LEAST COSTLY OPTION

For FY 2008, Congress provided only $1 million for plutonium vitrification. In its 2008 Budget Request, DOE has zeroed the entire program. Termination of vitrification could result in large amounts of plutonium being stranded at SRS. Earlier cost estimates that vitrification was the cheapest option probably still apply, especially given that costs for the MOX factory are sure to skyrocket further.

DOE has done some planning for a new facility that would be needed to turn the surplus plutonium into "pucks" that would then be placed within larger canisters filled with high-level waste. DOE has been successfully vitrifying high-level waste in the Defense Waste Processing Facility. This same plant would be used for vitrifying the surplus plutonium pucks without major complications or new waste streams that would be generated by MOX.

Recommendations

- Eliminate funding for the MOX program and direct DOE to halt construction of the MOX plant.
- Provide funding for plutonium vitrification and require DOE to vigorously pursue that option.
- Prohibit any use of the MOX plant for GNEP.

COSTS OF MOX ARE UNKNOWN

By FY 2006, Congress had appropriated almost $500 million to construct the MOX Fuel Fabrication Facility. In its FY 2007 Budget Request, DOE put the total project costs of the MOX Facility at $3.632 billion. The FY 2009 Budget Request has increased to more than $4.8 billion, with yet another revised cost estimate due this year. The MOX plant remains the largest single line-item project in the entire DOE budget. Just as for planned nuclear power plants, costs are likely to rise dramatically.

The Government Accounting Office (GAO) has been charged by the House and Senate Appropriations Committees "to monitor the construction and management of the MOX facility, and report on a quarterly basis on the progress of the fuel fabrication facility, regarding scope, cost and schedule changes and performance." Congress also directed that the National Nuclear Security Administration (NNSA) hand over the program to DOE's Nuclear Energy division to manage, but so far NNSA has refused to comply.

In spite of the unknown final cost of the MOX plant and continuous design changes to the facility, DOE has requested a whopping $487 million for construction of the facility in FY 2009, with more than $600 million requested for the overall MOX program. The budget reflects plans to ask for another $1.4 billion in construction costs alone over the next four years. MOX plant construction began in August 2007. However, interveners before the Nuclear Regulatory Commission (NRC), which is in charge of licensing, continue to seek a halt to construction, even though the continually shifting design makes intervention very difficult.

PROLIFERATION THREATS

The FY 2009 budget request adds another mission to the MOX program: research on fast reactor fuels for the Global Nuclear Energy Partnership (GNEP). Such a full-scale program could lead to wide-scale plutonium processing and use. It presents grave proliferation threats. The original mission of producing MOX from weapons-grade plutonium is evolving into making the MOX facility a cornerstone of the massively expensive and dangerous GNEP proposal.

UNRESOLVED TECHNICAL PROBLEMS

There are serious potential risks of explosions involving "red oil," a dangerous byproduct produced during manufacture of MOX fuel. There have been explosions at other facilities processing plutonium or uranium when a solvent interacted during the high heat processes. The unresolved problems could cause further redesign of the plant.

UPGRADES ARE DANGEROUS

Instead of using vitrification, DOE is considering use of the more than 50-year-old H-Canyon reprocessing facility at SRS for around 5000 kg of surplus plutonium. Such processing, being reviewed by DOE in an "alternatives analysis," could create great risk of a criticality accident in the H-Canyon, in the already stressed high-level waste tanks, or in the existing waste vitrification facility.