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Shutting Down the Liquid-Metal-cooled Reactor (LMR) Program Talking Points for Gibbons-O'Leary Lunch

I would like to talk with you about DoE's Liquid Metal Reactor Program. Formerly, the purpose of this program was to develop a plutonium breeder reactor.

Its new rationale is to lay the basis for a U.S. policy to reprocess light-water reactor fuel and burn the recovered plutonium in LMRs. However, reprocessing is against U.S. policy and the LMRs are expected to be so costly as not to be of interest to U.S. utilities. U.S. utilities would certainly not want to get into the business of reprocessing at every site, as is envisioned in the Integral Fast Reactor (IFR) program which is the current focus of DoE's LMR R&D program.

I would like to work with you to shut this program down as quickly and cheaply as possible. This may involve finding new, more worthwhile missions for the scientists at the Argonne and Idaho national laboratories.

My staff would be happy to work with yours on ideas for such initiatives. Your Office of Nuclear Energy is currently arguing for the completion of the demonstration of the IFR fuel cycle because it will, in any case, take three years to unload the blanket from the Experimental Breeder Reactor II at the Idaho National Engineering Laboratory. My staff suspects that it would be easy to greatly accelerate the defueling process. I would recommend that you have a study done of this by an independent group. My staff would be ready to meet with such a group.

Background. The LMR program is the residue of the 1970s plutonium-breeder reactor commercialization program.

Its current justification is to fission the long-lived plutonium and other transuranics in spent power reactor fuel.

However, even if the U.S. built no new light-water reactors (LWRs), 30-100 1-Gigawatt LMRs would be required at 50 to 100 % higher capital cost than LWRs. The total and perhaps even the incremental capital cost over the equivalent amount of LWR capacity would be more than \$100 billion.

The reduction of the transuranic inventory in spent fuel by a factor of one hundred would take hundreds of years since the transuranic inventory in an LMR fuel cycle is tens of times the quantity that it would fission annually. During these centuries the plutonium and other transuranics in the fuel cycle would be exposed to diversion to weapons, accidental dispersal and loss into process waste.

Implementation of such a program would be contrary to current U.S. policy, which opposes reprocessing and is targeted on the direct disposal of unprocessed spent fuel.

The program is currently in an ambiguous state. The focus of the R&D is demonstration of a fuel cycle that would involve metal instead of oxide fuel and separation of plutonium and fabrication of new fuel in a small fuel-cycle plant at each reactor site rather than centrally. The demonstration of this fuel cycle is being carried out at the Experimental Breeder Reactor II (EBR II) in Idaho and is programmed to be completed in FY 97.

Advocates of this program argue that it represents a small incremental cost of about \$100 million over the larger cost of defueling EBR II over the same period. However, we suspect that the defueling could be accomplished much more quickly and at much lower cost.

Senate supporters of the program oppose any shutdown at all and keep converting termination funds into operating funds. They also continue to vote to support a team at General Electric that is designing a large demonstration LMR that would be built with government support starting in the late 1990s.

This year the House passed a floor amendment that would have killed the LMR. A similar effort in the Senate was defeated narrowly, however, and the conference committee agreed on an increased funding level for the program.

Additional pressure on the administration to continue the program is coming from the Senate delegations of Illinois and Idaho where the R&D is being done and from the governor of Idaho who has leverage over DoE because naval-reactor fuel is stored in that state.