

January 30, 2006

MEMORANDUM TO: Chairman Diaz  
Commissioner Merrifield  
Commissioner Jaczko  
Commissioner Lyons

FROM: Edward McGaffigan, Jr. /RA/

SUBJECT: REGULATION OF REPROCESSING FACILITIES

There are indications that the Department of Energy will announce some sort of initiative regarding potential development of domestic proliferation - resistant reprocessing technologies for deployment at some indeterminate time in the future. We need to prepare for our licensing role, if this occurs.

The Commission has not thought seriously about licensing of a reprocessing facility since the Commission terminated the Generic Environmental Impact Statement on the Use of Mixed Oxide Fuel in Light Water Reactors (GESMO) proceeding on December 23, 1977.

This termination resulted from President Carter's April 7, 1977, decision to defer indefinitely the commercial reprocessing and recycling of plutonium produced in U.S. nuclear power plants.

This termination had also been presaged by President Ford's October 28, 1976, statement on nuclear policy in which he stated: "I have concluded that the reprocessing and recycling of plutonium should not proceed unless there is sound reason to conclude that the world community can effectively overcome the associated risks of proliferation. . . The United States should no longer regard reprocessing of used nuclear fuel to produce plutonium as a necessary and inevitable step."

President Reagan in an October 8, 1981, nuclear energy policy statement lifted the indefinite ban which previous administrations had placed on commercial reprocessing activities in the United States. President Reagan went on to state that he would pursue elimination of "regulatory impediments to commercial interest in this technology, while ensuring adequate safeguards." He also stressed the importance of the private sector taking the lead in developing commercial reprocessing services.

To my knowledge no private sector entity ever stepped forward to express an interest in licensing a reprocessing facility and the Commission took no action to reduce regulatory impediments to reprocessing in response to President Reagan's call.

Almost a quarter century later we now have serious governmental interest in development of proliferation-resistant reprocessing technologies. However, no private sector entity has expressed an interest in taking the lead in deploying such technologies, if successfully developed. So it is not clear at this time whether a potential applicant for an NRC license would come from the private sector or the public sector (e.g., the Department of Energy (DOE) or a new government - chartered corporation like the Tennessee Valley Authority).

The Atomic Energy Commission licensed the West Valley reprocessing facility under 10 CFR Part 50 and the newly formed Nuclear Regulatory Commission was conducting the Barnwell reprocessing facility licensing proceeding under Part 50 until its termination. Part 50 was designed for licensing of commercial light water reactors, not reprocessing facilities. While I have not examined these licensing proceedings, I can only imagine that large numbers of exemptions were needed.

As regulators our job is not to judge the policy merits of pursuing a domestic reprocessing capability. Our job is to provide a fair and workable regulatory framework under which such a facility could be licensed while achieving reasonable assurance of adequate protection of public health and safety and the common defense of security.

I propose that we direct the staff to provide a conceptual design of a licensing process for a reprocessing facility (and possibly associated co-located facilities) by the end of 2006. I believe that the design should include features of the recently revised Part 70 (such as submission of an integrated safety assessment) and Part 52 (a one step construction authorization and operating license (COL) hearing process, a design certification process and an early site permit process). I think that it is particularly important to flesh out a design certification process early on because it will be at the design stage where potentially thorny issues, such as safeguards (facilitating IAEA safeguards activities), security (for a Category I facility), ease of decommissioning, handling of waste streams (presumably at a co-located vitrification facility with ultimate disposal in a geologic repository), handling of the reusable fuel stream (presumably at co-located fuel fabrication and possibly reactor facilities) and safety issues peculiar to the design, can best be addressed. The licensing process will also have to deal with requirements for decommissioning funding assurance, operational funding assurance, financial protection under the Price-Anderson Act, and undoubtedly numerous other matters which will arise.

I see this initial conceptual design of a licensing process as an inter-office undertaking, with perhaps NMSS in the lead, but NRR, NSIR, RES and OGC all having significant roles. The NRC historian in SECY can help the staff understand the previous 1970's licensing proceedings conducted by the AEC and NRC at West Valley and Barnwell. The Advisory Committees on Reactor Safeguards and Nuclear Waste could also help in defining the issues most important to licensing, inspecting, and ultimate decommissioning of reprocessing facilities (and related fuel-cycle facilities). As I stated in my vote on ACNW's 2006 priorities, our national experience in operating large-scale reprocessing facilities without extraordinary back-end decommissioning costs is unblemished by success (at Hanford, Savannah River, and West Valley). The British face similar problems at their retired facilities, as undoubtedly do other nations. We and our successors on the Commission need to ensure that any future reprocessing facilities are regulated from cradle to grave to preclude such outcomes for future generations of Americans. I personally believe that we can do so by setting the right safety and security requirements and holding the licensee to those requirements throughout the life of the facility. By doing this we can also respond to President Reagan's almost quarter-century old call to eliminate unnecessary regulatory impediments to private sector interest in this technology. But we also may discover that only the public sector could assume the risks involved in this enterprise.

Obviously, in developing the conceptual framework the staff should involve stakeholders, both the public and DOE, as extensively as possible, including workshops and making drafts available for comment on our website. This will be the first step in a years-long process that will need to be paced to a realistic date for receipt of a design certification, early site permit or COL application. I plan to seek resources for the effort in the mid-year reprogramming which should be before the Commission in March.

My goal is to spur a public discussion of this matter among the Commissioners, and then through the staff with DOE, other government Agencies and the public.

SECY please track.

cc: L. Reyes, EDO  
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