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Comments on the Draft Environmental Statement, NUREG-1767  
From Donald A. Orth, March 24, 2003

The Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, NUREG-1767 Draft Report for Comment, lacks sufficient information on design bases to judge the operability of the facilities, general safety, and validity of projected off-site effects of accidents. It is recommended that the DEIS contain a detailed evaluation of the proposed facilities against guidances for radiological facilities, painstakingly established over a period of years, some 25 to 35 years ago. These include design criteria, technical specifications, and ANSI Standards as discussed later. It is true that the proposed facilities are not fuel processing plants and not all parts are to be licensed, but many of the operations are the same as in such plants and should meet the same licensing requirements. Also, the DEIS does not make apparent if there has been a detailed technical review of the designs themselves, rather than just presentation of information from the consortium to be responsible for construction and operation.

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To satisfy these points, the Statement should provide evidence that the proposed projects have received an adequate technical review to support stated conditions of routine performance, possible accidents, and their off-site effects. As examples of past reviews of facilities that were to be licensed by NRC, special Subcommittees of the Advisory Committee on Reactor Safeguards were established, with knowledgeable consultants, for the GE Midwest Fuel Reprocessing Plant, the Allied General Barnwell Plant, and the extensive hearings on the Generic Environmental Statement for Mixed Oxide, (GESMO). To aid in the reviews, the ACRS had subcommittees develop both General Design Criteria and Contents of Technical Specifications to provide bases for review of fuel processing plant proposals during the late 1960's and early 1970's. Also, by 1971 the American national Standards Institute had a proposed standard for nuclear fuel reprocessing facilities, N101.5.5-1971, and more detailed guides were developed in following years. Evaluation of the Mixed Oxide Facility and associated operations against the ACRS and ANSI standards would increase confidence that a comprehensive review has been made.

A specific example of need for technical details is the analysis of criticality in the operations, which is treated only with the statement that a generic accident is being considered, with no description of what "generic" means. Actual criticalities have varied substantially, Note that information from past incidents involving both plutonium and uranium are pertinent. The majority of incidents have involved solutions and have resulted in both short duration reactions and continuing reactions that finally were extinguished by loss of moderator. Pertinent descriptions of the "generic" incident should include the bounds and bases for the assumed number of total fissions, peak pulse, and duration of the incident. A discussion of the observed differences between solution and solid incidents also should be given. In essence, it should be shown that the design provides criticality controls against all foreseen

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accidents but also will mitigate consequences in case of the kinds of incidents that have occurred.

The Barnwell licensing action and the GESMO work <sup>were</sup> was terminated by order of President Carter, but still shows the kind of attention that seems warranted for these new facilities. Note that the former Environmental and Waste Management Subcommittee of the ACRS was split off to become the Advisory Committee on Nuclear Waste, again to provide a technical review of proposed waste operations, including Yucca Mountain. If there is concern that facility details should be held confidential under current world conditions, then appropriate committees still could be established, possibly again under the ACRS, with cleared consultants from the complex or retired community, as before, with still final unclassified reports.