



Department of Energy
Washington, DC 20585

April 16, 1997

Mr. John Greeves
U.S. Nuclear Regulatory Commission
Division of Waste Management
11555 Rockville Pike
Rockville, Maryland 20852

Dear Mr. Greeves:

On February 14, 1997, representatives from my office met with you and your staff on the definition of high-level radioactive waste and incidental waste for the purposes of developing a Department of Energy (DOE) directive on radioactive waste management. The directive will provide direction to Department employees and contractors for implementing the requirements of the Atomic Energy Act for managing the radioactive constituents of the Department's wastes.

An important element of that process is the identification of appropriate definitions for the various waste categories the Department manages. This is particularly important for high-level waste whose disposal remains under Nuclear Regulatory Commission regulation unless it is determined no longer to be high-level waste, through the incidental waste determination process.

Given these circumstances, my staff arranged a meeting with members of your staff to determine whether the Department's proposed definitions of high-level waste and incidental waste were consistent with the Commission's position on incidental waste determination. Enclosed is a set of meeting minutes prepared for that meeting. These have been discussed with your staff, and their comments have been incorporated.

As some of the discussions have a potential impact on DOE policy regarding some of its waste streams, we would like to have concurrence in these minutes. Please contact me on 202-586-0370 or Jay Rhoderick of my staff on 301-903-7211 if you have questions regarding this subject.

Sincerely,

Mark W. Frei
Acting Deputy Assistant Secretary
for Waste Management
Environmental Management

Enclosure

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cc:

J. Rhoderick, EM-35
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M. Bell, NRC
R. Weller, NRC
S. Gomberg, RW-50

Meeting Minutes
Nuclear Regulatory Commission Staff and Department of Energy Staff

On February 14, 1997, representatives of the Department of Energy (DOE) met with Nuclear Regulatory Commission (NRC) staff to discuss the definition of high-level and incidental wastes, for purposes of developing DOE 435.1, Radioactive Waste Management. A copy of the slides presented to the staff are attached to this note. Personnel in attendance included the following:

DOE

Marty Letourneau, EM
Ken Picha, EM
Steve Gomberg, RW
Ram Murthy, RW

NRC

John Greeves (part time)
Mike Bell
Rick Weller
Jennifer Davis
Neil Jensen

The most significant topics addressed during the discussions are documented below:

Policy Issues:

- 1) The NRC staff expressed a preference that DOE 435.1 categorize low-level waste (LLW) according to the classification in 10 CFR 61, since the NRC may eventually have to regulate DOE to their requirements. Their general consensus is that it would be easier if DOE already managed LLW according to that system.
- 2) The NRC staff was concerned that although the revised order does not address Spent Nuclear Fuel (SNF), it should recognize that if SNF is declared waste, then management requirements need to be addressed. This is especially important in light of the fact that 10 CFR 60 defines SNF as high-level waste (HLW), and the DOE HLW manual chapter is silent on SNF.

HLW/Incidental Waste Definitions:

- 1) Regarding the need to contact the NRC for specific determinations on incidental waste, the NRC staff noted they felt it was appropriate to continue to contact them for determinations on specific waste streams, when the Department has questions regarding appropriate classification. The staff noted that Savannah River Site and West Valley Demonstration Project had not obtained an NRC determination for the low-activity fractions separated from HLW. They did note that SR had requested assistance from the NRC in making an incidental waste determination for the residues in their HLW tanks. The NRC staff are using the request as an opportunity to consider some alternative criteria to that contained in the May 1993 NRC letter to DOE (Benero to Lytle), for application to component residual wastes. They noted they are considering the development of some generic criteria that could be applied more universally than to the low-activity fraction separated from HLW in Hanford double-shell tanks, for which they were developed.

- 2) As discussed above, regarding the three criteria in the current proposed definition, the NRC staff noted the most important criterion was whether the waste could satisfy the shallow land burial performance requirements of 10 CFR 61. If it could, then it could probably be considered incidental. The criteria for the waste having concentrations less than Class C is not so important, as that is tied to an intruder scenario. However, for Greater than Class C equivalent waste, a petitioner would need to make a case that sufficient engineering barriers were present to protect potential intruders, in order to dispose the waste as incidental/low-level waste. The SRS HLW tanks may provide sufficient protection from an intruder, because over 35 feet of grout would cover the immobilized waste. The adequacy of this barrier will be a part of the staff's overall waste classification evaluation, yet to be completed.

Their bottom-line position is that any disposal of incidental waste, originally derived from HLW, should be adequately protective of the public health and safety.

- 3) The NRC staff suggested that the definition of "incidental waste" should not be based on the specific examples of incidental waste discussed in relation to the 10 CFR 50, Appendix F definition of "high-level" waste as some of the examples (e.g., cladding hulls) would likely not satisfy the three criteria in the 1993 Benero letter.
- 4) The NRC staff provided guidance that the definition of incidental waste ensure adequate protection of the public health and safety and be sufficiently flexible to accommodate the three criteria noted above, until the Commission adopts some alternative criteria.

Performance Assessments:

- 1) The staff noted they were in the process of preparing guidance on the time of compliance to meet 10 CFR 61 performance requirements. They noted that this guidance position would show a time of compliance at 10,000 years. This is not consistent with current EH policy.
- 2) With regard to SR's recent justification for not needing to meet the intruder requirements for its closed HLW tanks, the staff noted that 10 CFR 61 does not permit assuming effective institutional controls beyond 100 years. This does not necessarily affect the adequacy of the SRS tank closure approach, because the staff will focus on the merits of the tank engineered barriers to protect the inadvertent intruder. The NRC has not yet made a determination regarding classification of residual tank waste at the Savannah River Site.

Path Forward

- 1) The Office of Waste Management will initiate discussions with NRC staff/management to schedule a briefing on the DOE Order 435.1 process and the order itself. This will be initiated sometime in March 1997.

- 2) For the review copy of DOE 435.1, the Department has modified its definition of HLW and incidental waste to be consistent with the outcome of these discussions. That definition will also be incorporated in an issue paper accompanying the order on the definition of HLW and incidental waste.

DEFINITION OF HIGH-LEVEL RADIOACTIVE WASTE

Ken Picha
Marty Letourneau

OFFICE OF WASTE MANAGEMENT

FEBRUARY 14, 1997

PURPOSE OF MEETING

- **OBTAIN STATUS OF DISCUSSIONS WITH INDIVIDUAL DOE SITES ON DETERMINATIONS OF INCIDENTAL WASTE**
 - **EXPECTATIONS FOR PROCESS TO BE USED FOR OBTAINING NRC DETERMINATIONS ON INCIDENTAL WASTE CLASSIFICATIONS**
- **DETERMINE WHETHER PROPOSED CRITERIA FOR MEETING INCIDENTAL WASTE ARE CONSISTENT WITH CURRENT NRC POLICY**
- **DISCUSS THE DEFINITION OF INCIDENTAL WASTE BY CITATION AS CONTAINED IN 10 CFR 50, APPENDIX F**

BACKGROUND

- DEFINITION OF HIGH LEVEL WASTE TO ASSIST IN PREPARING DOE DIRECTIVE FOR RADIOACTIVE WASTE MANAGEMENT
 - WHAT ACTIVITIES MUST HLW CHAPTER ADDRESS
 - IDENTIFY INTERFACES WITH OTHER WASTE TYPES
 - ELIMINATE OTHER CANDIDATE HLW FORMS FROM HLW SECTION
- DEVELOP CRITERIA TO ALLOW HLW TO EXIT FROM REGULATION BY NRC
 - USE EXISTING REGULATORY POSITIONS AS BASIS

STATUS

- DOE DIRECTIVE
 - CAPTURES DEFINITION CONTAINED IN ISSUE PAPER
 - INCIDENTAL WASTE IS EITHER LLW OR TRU AS APPROPRIATE
- DOE SITE ACTIVITIES
 - HLW FACILITY CLOSURE
 - * SRS, HANFORD, WEST VALLEY
 - LOW ACTIVITY COMPONENT SEPARATED FROM HLW
 - * SRS AND WEST VALLEY RECEIVED DETERMINATION FROM NRC
 - * HANFORD RECENT REQUEST FOR DETERMINATION TO NRC

PROPOSED ORDER LANGUAGE

- **DEFINITIONS:**

High-Level Waste: Highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly from reprocessing, and any solid waste derived from such liquid that contains fission products in concentrations that require permanent isolation or other materials which the Nuclear Regulatory Commission has determined require permanent isolation is defined as high-level waste. Waste that results from reprocessing spent nuclear fuel and that meets the definition of “incidental waste,” as defined in this section is not high-level radioactive waste and is no longer under regulatory authority of the Nuclear Regulatory Commission for disposal.

Incidental Waste: Spent nuclear fuel reprocessing plant waste that meets the intent of the “incidental waste” description included in the promulgation of Appendix F, 10 CFR 50 *Domestic Licensing of Production and Utilization Facilities* is defined as incidental waste. These incidental wastes are the result of reprocessing plant operations and include but are not limited to materials such as ion exchange beds, sludges, contaminated laboratory items, (clothing, tools, and equipment), radioactive (fuel) hulls, and other irradiated and contaminated fuel structural hardware. Incidental wastes also include reprocessing wastes that:

- (a) have been processed, or will be processed, to remove key radionuclides to the maximum extent that is technically and economically practical;
- (b) will be incorporated in a solid physical form at a concentration that does not exceed the applicable concentration limits for Class C low-level waste as set out in 10 CFR 61 *Licensing Requirements for Land Disposal of Radioactive Waste* and;
- (c) are to be managed, pursuant to the Atomic Energy Act, so that safety requirements comparable to the performance objectives set out in 10 CFR 61 *Licensing Requirements for Land Disposal of Radioactive Waste* are satisfied. Incidental waste is stored, treated and disposed of under DOE’s regulatory authority for low-level, mixed low-level, or transuranic wastes, as appropriate.

PROPOSED ORDER LANGUAGE (Cont'd)

- INTERFACES

DOE/Office of Environmental Management—Nuclear Regulatory Commission Interface: An interface exists between the DOE/Office of Environmental Management and the Nuclear Regulatory Commission in determining whether specific volumes of waste, managed as high-level waste, may be designated Incidental Waste, as defined in this chapter. Such “negative determinations” with respect to high-level waste result in the Nuclear Regulatory Commission no longer having licensing jurisdiction over the waste and allow these wastes to be stored, treated and disposed of under DOE’s regulatory authority for low-level, mixed low-level or transuranic wastes, as appropriate. The DOE has consistently solicited the Nuclear Regulatory Commission’s agreement, up to this time, that both separated low-activity waste streams and residual wastes left in high-level waste tanks, following cleanout, are not high-level waste but Incidental Waste. Continuation of soliciting the Nuclear Regulatory Commission’s agreement for such negative determinations is not a requirement of this chapter but is left to the discretion of the Operations or Field Office Manager as to whether such interface with Nuclear Regulatory Commission is warranted.