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From: R. John Starmer, Section Leader
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Subject: PRELIMINARY REVIEW OF ADVANCE COPY DRAFT
ENVIRONMENTAL ASSESSMENT (EA) FOR WEST VALLEY

As requested, the Division of Waste Management (WM) has conducted a preliminary review of an advance copy of the Draft EA for Disposal of Project Low-Level Waste at West Valley, New York. The comments present general concerns with some of the concepts presented in the Draft EA but, due to time limitations, may not address all the issues. It is understood that the WM staff will be afforded the opportunity to conduct a thorough review of the Draft EA when the "formal" document is distributed.

/s/ R. J. Starmer

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Enclosure: Comments

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1) Application of 10 CFR Part 61 to the review

The staff has reviewed the "advance" Draft EA against the requirements of 10 CFR Part 61 (near-surface disposal of low-level radioactive waste). Since it is DOE's intent that "the facility conform to performance criteria specified in Part 61," (Advance Draft EA, p. 3-14) staff assumed it was appropriate to evaluate the draft document against 10 CFR Part 61. The following comments and observations were produced by WM staff.

- A) If DOE intends to "conform to the performance criteria specified in 10 CFR Part 61," it should indicate it's intent to conform to: the entire regulation or; portions of the regulation. If the intent is to conform to portions of 10 CFR Part 61, those portions should specifically be cited. This will clarify the context in which Part 61 should be considered in any further evaluation.
- B) It will be difficult to demonstrate that the specified site can meet the Part 61 technical requirements for siting (Subpart D, §61.50), and subsequently difficult to ensure the long-term stability and predictability of the site (Subpart C, §61.44). Therefore, staff suggests considering an alternate location within the WYNSC or re-evaluating the remaining options available for alternative actions.
- C) Although it is understood that much of the site design is still conceptual, more specific information should be provided to ensure: 1) an effective monitoring system is in place (Subpart D, §61.53) and; 2) proven engineering measures have been incorporated to ensure that site erosion will be minimized through the long-term (Subpart D, §61.51).
- D) Inappropriate application of the PRESTO Model (see comment 2C) precludes any judgement as to whether the environment will be protected from unacceptable releases of radioactivity (Subpart C, §61.41).
- E) Reliance on on-going active maintenance throughout institutional care, especially in regard to pumping of drain water and maintenance of surface water control features, may jeopardize fulfillment of the performance objective addressing long-term stability (Subpart C, §61.44). A fundamental tenet of NRC's LLW management program is to develop a disposal system that promotes long-term performance while requiring little to no active maintenance.

- 2) The following are general observations/suggestions of WM staff concerning some of the concepts presented in the Draft EA:
 - A) Staff recommends including a more thorough presentation of the hydrogeological characteristics of the site. This should include potentiometric maps and cross-sections indicating hydraulic gradients within and between the significant hydrogeologic units. Of particular importance is the weathered till zone, the discussion and characterization of which was not included in the document. This hydrogeologic information should be clearly defined in the groundwater modeling section in terms of determining input values, boundary conditions and current hydrologic conditions. As it stands now, the proposed designs of the trenches and tumulus, which appear to depend heavily on the modeling results, cannot be assessed. Furthermore, caution should be exercised when utilizing FEMWATER to determine groundwater velocities because it utilizes a non-standard technique to calculate groundwater fluxes. Subsequently, interpretation of groundwater conditions (especially in a layered system) may be erroneous.
 - B) The groundwater quality and related geochemical characteristics of the site area should also be included in the Draft EA.
 - C) The impact analysis relies heavily on the use of the PRESTO-EPA code. However, this code was not designed for the type of analysis conducted. The code should be used to compare alternative methods of managing and disposing of low-level waste using generic sites and general scenarios. It should not be used for site-specific application. Additional comments:
 - 1) Page xvi of the PRESTO-EPA-POP Methodology Manual states that "....the code... was not designed for site-specific application." Therefore, application of this model to the site should be justified. The numerous input values and assumptions that are required by PRESTO should also be justified in terms of how they were estimated or calculated. As an example, the Kd values used do not appear to be conservative and the method by which they were determined is not presented. Also, the chemical effects of the geologic materials, groundwater, and waste on the site performance, have not been adequately considered. Biotic effects have not been thoroughly addressed in terms of microorganism behavior that could affect trench chemistry (e.g., bacterial sulfate reduction changing redox conditions).

- 2) The staff questions the assumption in the risk assessment methodology (Advance Draft EA, p. G-75) that no water enters the waste during institutional control despite the history of "bathtubbing" in the trenches at the adjacent, state-owned commercial site. Although it is recognized that an engineered trench cap will be in place to divert precipitation, consideration must also be given to groundwater infiltration via the trench floor and walls.
 - 3) Finally, the theoretical and mathematical foundations of the PRESTO Model are not presented as to how they simulate the physical processes that are important at the West Valley site. This is critical in determining the adequacy of the impacts analyses.
- D) The comparison made in the EA to generic sites as alternatives is not convincing because of the sparse level of detail presented. Considering the vague nature in which the western and regional disposal facility were analyzed in conjunction with the level of detail provided on all of the alternatives, several questions may arise on the preferred action (more detail should be provided on the alternative actions).
 - E) Separate impact analyses should be provided for trench and tumulus disposal. Since much of the tumulus design is conceptual, it is premature to present conclusions on the performance of the facility.
 - F) West Valley Demonstration Project should provide a performance assessment that considers the TRU source term at West Valley site. Note that this TRU source term was not considered in Final Environmental Statement for 10 CFR Part 61.
 - G) The illustration depicting a "typical trench cross section" (Figure 3-2, p. 3-5) contains braced trench walls. Without a detailed discussion on the intended use of these braces (short-term or long-term use), it is not possible to consider the implications of brace failure (i.e., potential long-term stability problems that could lead to trench cap failure).
 - H) The schematic of the aboveground disposal unit (Figure 3-3, p. 3-9) depicts the unit as being oriented in a horizontal position which would promote ponding/retainment of water. The unit should be slightly pitched in order to provide for drainage away from the waste.

- I) The appendix does not include a reference to the appropriate local building codes. All applicable codes should be referenced.
- J) Comments on Rip Rap:
 - 1) Information should be included which will assure that the rip-rap will be adequate to provide long-term intruder protection.
 - 2) Precast, man-made concrete elements are of questionable durability. Rock durability studies should be used to select the best rip-rap.
 - 3) Rip-rap may enhance infiltration rates.
- K) The statements regarding tumulus stability and integrity are too sweeping and vague and should be quantified.
- L) Detailed discussion should be provided for purpose of clarifying how the side slopes of the tumulus will be compacted without crushing waste containers on the periphery.