

January 22, 2001

Andrew R. Grainger
NEPA Compliance Officer
Savannah River Site
Building 742-A, Room 185
Aiken, SC 29802

Dear Mr. Grainger:

NRC staff have reviewed the U.S. Department of Energy's (DOE) "Savannah River [SR] Site High-Level Waste [HLW] Tank Closure Draft Environmental Impact Statement [EIS]," and have prepared the following list of comments on the document.

1. **Comment:**

None of the NRC recommendations from its review appear to have been incorporated.

Basis:

NRC staff performed a review of the DOE-SR methodology for determining that residual tank waste met the incidental waste criteria. The results of the review are summarized in the June 30, 2000 letter and associated technical evaluation report (TER) (letter from W. Kane/NRC to R. Schepens/ DOE-SR, June 30, 2000). Staff recognizes that the Draft EIS was in preparation at the same time as the NRC review was being performed.

Recommendation:

NRC staff suggests incorporation of its recommendations in the Final EIS and supporting performance assessment(s).

2. **Comment:**

There is no cost-benefit analysis provided for the alternatives.

Basis:

No cost-benefit analysis has been provided. Only order of magnitude estimates are provided on page 2-9. A cost-benefit analysis (including rad-worker exposure) for the various alternatives would be useful for comparison. It would prove particularly useful in comparing the "Fill with Grout" and "Fill with Saltstone" alternatives. If the "Fill with Saltstone" alternative were selected, normal saltstone activities at the Saltstone Manufacturing and Disposal Facility in Z-Area would be decreased. It is not apparent in the Draft EIS that the cost analysis (discussion on pages S-10, 2-5) for the "Fill with Saltstone" alternative takes into consideration the cost-savings from decreased usage of the Saltstone Manufacturing and Disposal Facility in Z-Area and construction of fewer disposal vaults, nor

does it appear to balance worker exposure from filling tanks with saltstone against the worker exposures that would have occurred at the Z-Area facility.

Recommendation:

Provide a thorough cost-benefit analysis in the Final EIS to aid in comparison of alternatives.

3. Comment:

There is no discussion of the waste form meeting Class C concentration limits as required by DOE G435.1, Section II.B, "Waste Incidental to Reprocessing." (See also comment 5.)

Basis:

The third criterion in DOE G435.1 for Waste Incidental to Reprocessing is that, "the waste 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 61.55." Not only is this requirement never discussed, it is also conspicuously absent from direct quotations of DOE G435.1 (Text Box page S-9, page S-17, Text Box page 1-11, page 2-2, page 7-5 etc.).

Recommendation:

Provide an analysis of the residual tank waste with respect to this criterion, or provide a rationale for alternative waste classification as discussed in DOE G435.1, Section II.B(2)(a)3.

4. Comment:

The Waste Incidental to Reprocessing analysis provided in the Draft EIS is inconclusive.

Basis:

There are three incidental waste criteria in DOE G435.1. The second requires "the waste meet safety requirements comparable to the performance objectives set out in 10 CFR Part 61...." One of the performance objectives is protection of an inadvertent intruder. The Part 61 intruder is a resident farmer (with a well), which would place the farmer near the tank farms (i.e., the 1m or 100m wells). The dose limit for an inadvertent intruder is 500 mrem/year. It appears from the information provided in this Draft EIS, that a resident farmer on H-tank farm would receive ~ 100 rem/yr from 1m well (+20% for other sources (pages 4-47 and C-24)). Pages 2-28 and 4-34 state that the 1m and 100m well doses are extremely conservative due to modeling assumptions. In addition, there is a complete absence of any discussion in the Draft EIS of the third criterion, which requires that the waste 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 61.55.” The Class C concentration limits were developed to protect an inadvertent intruder, which is particularly important because the intruder performance objective is the one that is not met.

When NRC staff reviewed the DOE-SR methodology for meeting the incidental waste criteria, the information we were provided indicated that a resident farmer intruder would be protected at F-tank farm. The methodology also indicated that Class C concentration limits could not be met for all tanks, however, a rationale similar to the provisions in 10 CFR 61.58 was provided. (10 CFR 61.58 states that, “[t]he Commission may... authorize other provisions for the classification... of waste on a specific basis, if, after evaluation, or the specific characteristics of the waste, disposal site, and method of disposal, it finds reasonable assurance of compliance with the performance objectives in subpart C of this part.”) Based on the information provided, NRC staff concluded that “the methodology for tank closure at SRS appears to reasonably analyse the relevant considerations for Criterion One and Criterion Three of the incidental waste criteria. DOE would undertake cleanup to the maximum extent that is technically and economically practical, and would demonstrate it can meet performance objectives consistent with those required for disposal of low-level waste. These commitments, if satisfied, should serve to provide adequate protection of public health and safety (June 30, 2000 letter).” In addition, staff recommended that DOE-SR develop site-specific concentration limits.

The information currently provided in the Draft EIS does not conclusively support the Waste Incidental to Reprocessing determination, for two of the three criteria listed in DOE G435.1.

Recommendation:

(1) Perform an updated performance assessment which does not artificially skew the 1m and 100m well results (i.e., provides a more realistic analysis). However, if these results show a drinking water dose greater than 416 mrem/year (500 mrem/year ÷ 120%), the 10 CFR Part 61 resident farmer intruder may not be sufficiently protected.

OR

(2) Provide sufficient rationale for extended institutional controls, and explain how they would provide protection to an inadvertent intruder comparable to that provided by the performance objectives in 10 CFR Part 61.

5. Editorial Comment:

This document needs more technical editing.

Basis:

There are many mistakes in the document, including spelling, grammar and misuse of terms, for example:

On page 3-5, it states that, “[t]he mineralogy of the sands and pebbles primarily consists of quartz and feldspars.”

On page 1-10, the document abbreviates the National Research Council as “NRC;” however, the list of Abbreviations (and later sections of the document) use “NRC” to mean the U.S. Nuclear Regulatory Commission.

Recommendation:

The Final EIS should be more closely edited.

If you have any questions on this letter, please contact Jennifer Davis, of my staff, at (301) 415-5874, or bjd1@nrc.gov.

Sincerely,

/RA/

Thomas H. Essig, Chief
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Assessment Branch
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and Safeguards

