

3. COMMENT DOCUMENTS AND RESPONSES

3.1 INTRODUCTION

This chapter presents the comments submitted to DOE during the public comment period on the Draft EIS, including the transcript of the public hearing held on the Draft EIS.

Comment letters are scanned copies of the originals, with the exception of e-mail transmittals, which were printed as received. One comment provided on a blue card was typed because the blue card did not reproduce well. Some comment documents are reproduced at a reduced scale.

Individual comments are marked in the right margin with a sidebar and given a unique alphanumeric identifier. Responses can be cross-referenced to each comment using the alphanumeric identifier. As appropriate, the response will provide references to specific sections of the Final EIS, particularly those sections that have been modified.

3.2 COMMENTS

Comments from six agencies and public groups, the public hearing comments, and three private individuals follow in this section. DOE responses are provided for each comment.

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3.2.1 Oak Ridge Site Specific Advisory Board



ORSSAB-1

Response to Comment ORSSAB-1

Comment noted. Specific responses to comments are addressed in detail below.



Oak Ridge Site Specific Advisory Board
Recommendations and Comments
on the Draft Environmental Impact Statement
for Treating Transuranic/Alpha Low-Level Waste
at the Oak Ridge National Laboratory, Oak Ridge, Tennessee,
DOE-EIS-0305-D, February 2000

RECOMMENDATIONS

Road Construction

The issue of a new road to the Transuranic (TRU) Waste Treatment Facility was raised at the February 1999 scoping meeting. At that time, DOE said it was moving forward on the road under a categorical exclusion. We find no categorical exclusion applicable to construction of a two-lane, 1.4-mile road (suitable for two vehicles or two tractor-trailers to pass) through undisturbed woodland. We believe that DOE violated the National Environmental Policy Act (NEPA) and its DOE NEPA Implementing Procedures [10 Code of Federal Regulations (CFR) Part 1021] by (1) not preparing an environmental assessment for the construction of the road or (2) not including construction of the road in the Draft Environmental Impact Statement (EIS) for Treating TRU/Alpha Low-Level Waste (DOE-EIS-0305-D). Since the road is completed, the Oak Ridge Site Specific Advisory Board (ORSSAB) recommends that DOE at least include the impacts of road construction in the cumulative impacts section of the final EIS.

Alternative 5

This comment is confined to Alternative 5 [treatment of the TRU waste by vitrification, cementation, or drying and storage of the resulting product at some unspecified location in Melton Valley for a long-term (indefinite) period of time (see Table 5-3)].

The public has been led to believe that TRU waste will be treated on site, and following treatment, the product will be transported to the Waste Isolation Pilot Plant (WIPP) for disposal [Records of Decision (RODs) for the WIPP Site-Wide EIS II (DOE 1998) and the Waste Management Programmatic EIS (WM PEIS) (DOE 1998c) and various public SSAB meetings]. We recognize that some of the treated remote-handled TRU waste may remain on site until waste acceptance criteria at WIPP are determined. However, such short-term storage of part of the treated TRU waste is qualitatively quite different from a decision to keep all treated waste in Oak Ridge indefinitely.

We find Alternative 5 unacceptable for the following reasons, and even if the assessment were adequate, we believe the public would reject long-term storage of TRU waste on site for these reasons as well:

- a feasible stewardship plan for long-term storage is lacking;
- the costs and funding of long-term monitoring and maintenance are not addressed;
- the effects on future land use and on community image are not correctly considered;
- the more expensive vitrification process would likely be required in order to decrease any impacts to human health and the environment during indefinite storage without maintenance.

ORSSAB-2

Response to Comment ORSSAB-2

DOE determined that a categorical exclusion was the appropriate level of NEPA review for the construction/relocation of the access road to the High Flux Isotope Reactor (Old Melton Valley Road) based on the requirements of 10 CFR 1021, Subpart D. DOE evaluated whether the proposed action would meet the conditions for applying a categorical exclusion found at 10 CFR 1021.410(b), i.e., that the proposed action fits within the classes of actions listed in Appendix B, that there were no extraordinary circumstances related to the proposal, and that the proposal was not connected to other actions with potentially significant impact. DOE determined that the proposed action did fit within categorical exclusions listed in Appendix B to 10 CFR 1021, Subpart D (i.e., B1.13 Construction/acquisition/relocation of on-site pathways, short on-site access roads/railroads; B1.11 – Fencing, no adverse effect on wildlife movement/surface water flow; and B1.15 – Siting/construction/operations of support buildings/support structures, e.g., security post). (Also, see next paragraph.) DOE also determined that the proposal did not present any extraordinary circumstances and was not connected to other actions with potentially significant impacts. While the road upgrades could provide access to the proposed Transuranic Waste Treatment Facility analyzed in this EIS, at the time the categorical exclusion was evaluated, the upgrades to the Old Melton Valley Road were needed to facilitate emergency access to the High Flux Isotope Reactor. As part of determining whether the proposed action fits the categorical exclusions, DOE evaluated whether the proposed

ORSSAB-3

action would meet all the integral elements listed in Appendix B, to 10 *CFR* 1021, Subpart D. A rare plant survey was performed for the access road upgrade. A copy of the categorical exclusion (CX-TRU-98-007) and the rare plant survey has been added to Appendix G of the Final EIS. As a result of the survey, DOE adjusted the location of the road to minimize, to the extent practical, the impacts to a State-protected plant species, the Pursh's Wild Petunia (*Rubellia purshiana*). DOE also evaluated whether the proposed action would pose a threat of significant individual or cumulative effects on environmentally sensitive resources such as archeological or historic sites, potential habitats for threatened or endangered species, floodplains, wetlands, Federally or State-designated wilderness areas, natural landmarks, wildlife sanctuaries, primer agricultural lands, or special sources of water such as sole-source aquifers. Based on this information, DOE determined that applying the categorical exclusions for upgrading the Old Melton Valley Road was appropriate.

The upgrades to the access road were listed in Table 5-1, as an action with the potential to contribute to cumulative impacts. The impacts associated with the upgrades to the access road were discussed in Sections 5.2, 5.3.2, and 5.5 of the Cumulative Impacts Chapter in the Draft EIS. In the Final EIS, additional discussion has been added to Sections 5.2 and 5.3.2, to describe how the Old Melton Valley Road upgrades potentially contribute to the cumulative impacts to ecological and water resources (i.e., siltation of White Oak Creek and White Oak Lake). The discussion of this action in Section 5.5 (related to air quality impacts) has been revised because construction of the access road is complete. Impacts from particulate matter emissions during road construction were evaluated quantitatively.

Response to Comment ORSSAB-3

DOE does plan to ship treated waste offsite for disposal as soon as the waste is treated. The description of Alternative 5

(Treatment and Waste Storage at ORNL) has been clarified to better reflect this intent. However, in considering its responsibility to protect human health and the environment, DOE believes it is reasonable, in accordance with the Council on Environmental Quality's NEPA regulations (40 *CFR* 1502.14) to analyze the impacts of potential storage of treated waste (e.g., in the event disposal capacity is unavailable).

In order to bound potential environmental impacts from storage of the treated waste while under DOE's control, the EIS presented impacts for a 100-year time period. Because it is inappropriate to rely primarily on institutional control for long-term protection, DOE customarily chooses 100 years as the limit for institutional controls in conducting an analysis of any of its activities on its sites. The analysis of loss of institutional control that is presented under the No Action Alternative in Chapter 4 for untreated waste would bound the potential impacts from loss of institutional control for treated waste in storage. However, in the event of long-term storage of the treated waste, DOE would monitor and maintain the waste as long as necessary.

The commentator indicated that the Treatment and Waste Storage at ORNL Alternative was unacceptable for several reasons, as discussed below. First, the commentator stated the EIS lacked a feasible stewardship plan for long-term storage. The Department is currently developing national and local stewardship reports and plans that will address details of DOE's stewardship responsibilities. Should the Treatment and Waste Storage at ORNL Alternative be selected, the scope of long-term stewardship activities related to the Treatment and Waste Storage at ORNL Alternative would be included as part of the local Oak Ridge Stewardship Plan.

Second, the commentator noted that the EIS lacked information about costs and funding of long-term monitoring and maintenance. The Department did not include information about costs or funding for any alternatives in the EIS because these issues are not part of the environmental review. In the ROD to be issued after the Final EIS is completed, DOE will

identify all relevant factors (such as economic, environmental, and other considerations) that were considered in deciding on an alternative.

Third, the commentor noted that the EIS did not correctly consider the effects on future land use and on community image. The impacts on future land use from the Treatment and Waste Storage at ORNL Alternative are addressed in Section 4.1.6 of the EIS. With regard to impacts on community image, it is well established that the perception of risk of adverse impacts (such as speculation about negative community image) is outside the sphere of topics that are subject to examination under the NEPA. How factors that may contribute to community image are interpreted depends on the value system of individuals. DOE does note, however, that storage of the treated waste onsite under the Treatment and Waste Storage at ORNL Alternative would present less of a threat to public health and safety, and the environment, than the untreated waste would currently present. Further, DOE is not accepting large volumes of off-site waste but rather is treating existing on-site waste to reduce risk, as this waste may have to be stored at ORNL.

Fourth, the commentor indicated that without maintenance, vitrification of the waste would likely be needed in order to decrease any impacts to human health and the environment during the storage period under the Treatment and Waste Storage and ORNL Alternative. The EIS analyzed treatment using any one of the three technologies (i.e., low-temperature drying, vitrification, and cementation) before storage of the waste onsite. Each of these treatment approaches would treat the waste to meet land disposal restriction (LDR) standards under the Resource Conservation and Recovery Act (RCRA), in case the waste would need to be stored onsite before transport offsite for disposal. Maintenance and surveillance would be an integral part of DOE's storage efforts under the Treatment and Waste Storage at ORNL Alternative, regardless of the treatment technology used. DOE will ensure that the treated waste, using any of the treatment technologies, would either be compatible with the container type proposed in the EIS, or DOE will, as laboratory data become available, determine the type of container that would be needed.

Finally, the commentor also suggested that the Treatment and Waste Storage at ORNL Alternative be deleted from the EIS or be modified to cover only 30 years. As noted above, DOE is required to evaluate all reasonable alternatives for a proposed action, and because DOE believes it is reasonable to consider storage, the Treatment and Waste Storage at ORNL Alternative has been kept in this evaluation. Section 2.7, which describes Treatment and Waste Storage at ORNL, explains that DOE assumed a maximum 100-year institutional control period for analyzing the Treatment and Waste Storage at ORNL Alternative and presented impacts cumulatively over that time. To help the commentor understand differences between the impacts presented in the Draft EIS and those for a 30-year timeframe, or on an annual basis, a brief description of how the impacts would differ is provided below.

- Impacts on utility usage and involved workers from the surveillance and maintenance of stored waste would increase linearly with time under the Treatment and Waste Storage at ORNL Alternative. Considering a 30-year timeframe as compared to a 100-year timeframe would show lower impacts for both utilities and worker exposure. For example, utility usage for the Treatment and Waste Storage at ORNL Alternative over a 30-year timeframe would total 1.5 million gallons of water and 750 MW of electricity. By comparison, utility usage for the Treatment and Waste Storage at ORNL Alternative over a 100-year storage timeframe (excluding processing usage) would total 5 million gallons of water and 2,500 MW of electricity.
- In terms of involved worker exposure, the EIS estimates that an average of five workers per year would be used to perform maintenance and surveillance during on-site storage. Assuming the 100 mrem annual administrative limit, the annual dose to the worker population is 0.5 person-rem resulting in 2E-04 latent cancer fatalities (LCFs), and the total dose to the involved worker population over a 30-year timeframe is 15 person-rem, resulting in 6E-03 LCFs. By comparison, over a 100-year timeframe, the involved worker exposure is estimated to result in a total dose of 50 person-rem

and 2E-02 LCFs. Health impacts to non-involved workers and the public, beyond those described in Section 4.10.7 for the treatment processes, are not expected from the on-site storage of the treated waste pending off-site disposal.

- The analysis in the EIS indicates that other impacts from the proposed action (e.g., land use; ecological, water, and air resources; and accidents) are not expected to be different when analyzed under a 30-year timeframe as compared to a 100-year timeframe, because most impacts would be associated with the waste treatment process.

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Thus, ORSSAB recommends that:

- Alternative 5 be deleted from the final EIS or be altered to provide for only short-term (temporary) storage in Melton Valley for a period of no more than 30 years,
- the final EIS find the current Alternative 5 unacceptable, or
- the inherent problems associated with Alternative 5 be fully assessed in the final EIS.

The retention of an alternative that includes long-term (permanent) storage of TRU waste on site is also likely to be costly in terms of public trust.

GENERAL COMMENTS

ORSSAB is inclined to agree with selection of the preferred alternative of low-temperature drying for the Melton Valley Storage Tank wastes (sludge and supernate) and segregation for the solid wastes [contact-handled and remote-handled TRU/alpha low-level heterogeneous debris], assuming that the relative differences in impacts of the alternatives for the proposed action remain as presented.

That the preferred alternative will actually achieve Resource Conservation and Recovery Act land disposal restriction standards in the event that WIPP is not accepting remote-handled TRU waste in time to meet the Tennessee Department of Environment and Conservation Commissioner's Order is of somewhat concern. It is understood that testing is underway, with results possibly not available until after a ROD is reached selecting the alternative.

Throughout the document, the subject of the WM PEIS and its associated ROD is addressed in the future tense. These references should all be revised to reflect the fact that the ROD has been issued, and the impact of that ROD should be described.

The issues of extraction of buried waste for treatment and transportation on the Oak Ridge Reservation (ORR) need to be addressed in some detail. Relying on other documents for this documentation does not allow the reader to understand the operations. It is a common observation that interface problems between two systems, e.g., transportation and facility, are often the most problematic aspects of a waste handling operation.

We would like to know if the three treatment options have ever been used on a large scale for materials similar to these waste. History shows that there are always unanticipated problems associated with start up of new technologies. If the technology is unproven, that should be acknowledged, and discussion of how to handle unexpected problems should be included.

The document, in general, is not particularly user-friendly. It does not meet the expectations of the public in regard to other public documents from the Environmental Management (EM) Program. In fact, there are enough simple errors in the Executive Summary alone (see the following specific comments) that it leads one to question if there are more complex errors buried in the technical sections; i.e., the non-technical errors lead to a question of overall credibility.

SPECIFIC COMMENTS

Page viii: Page numbers of Sects. 9, 10, and 11 are wrong. They should be 9-1, 10-1, and 11-1 respectively.

ORSSAB-3

(cont.)

ORSSAB-4

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ORSSAB-10

Response to Comment ORSSAB-4

Comment noted.

Response to Comment ORSSAB-5

DOE determined that it would be prudent to treat wastes to achieve LDR standards in the event DOE cannot ship the waste offsite as intended and interim on-site storage is required.

The purpose of the testing mentioned by the commentor is to help ensure that the waste treated by the Low-Temperature Drying Alternative would meet Waste Isolation Pilot Plant (WIPP) requirements.

While low-temperature drying does not itself accomplish LDRs, as it functions only to remove water from the waste, treatment is done by treatment of the waste with additives to convert the heavy metals to less leachable compounds. This would result in a waste stream that can meet LDRs.

Response to Comment ORSSAB-6

When DOE issued the Draft TRU Waste Treatment EIS, the ROD for low-level waste under the *Waste Management Programmatic Environmental Impact Statement* (WM PEIS) had not yet been issued. The analysis in the TRU Waste Treatment EIS is based on disposal of low-level waste at the Nevada Test Site (NTS). As a result, the analysis in the TRU Waste Treatment EIS would not change. Low-level waste resulting from the treatment processes would be certified by DOE for disposal at the Nevada Test Site selected in the *Record of Decision for the Department of Energy's Waste Management*

Program: Treatment and Disposal of Low-level and Mixed Low-level Waste; Amendment of the Record of Decision for the Nevada Test Site (DOE 2000).

Response to Comment ORSSAB-7

Discussion of the impacts from accidents related to the exhumation, handling, and on-site waste transport have been added to Section 4.8 (specifically, Sections 4.8.1.1, 4.8.1.2, 4.8.3.1, 4.8.4.1, 4.8.5.1, and 4.8.6.1). Also see response to comment NM-1 in Section 3.2.7.

Response to Comment ORSSAB-8

By “large scale” for materials similar to these wastes, DOE assumes that the commentor means a scale comparable to the proposed project and wastes that exhibit comparable radiological content and matrix characteristics. Several examples of existing technologies are provided below:

- **Drying**
 - The Hanford’s 200 Area evaporator (near Richland, Washington) routinely processes sodium nitrate solutions to a dry solid consistency.
 - The Palo Verde Nuclear Generating Station (outside Phoenix, Arizona), dries and packages the evaporator concentrate and tank sludge.
 - The Three-mile Island – 2 Evaporation Project (near Harrisburg, Pennsylvania) evaporated and dried water containing boron, sodium, corrosion products, and sludge.

- Solidification
 - The Oak Ridge site solidified supernate liquids from the MVSTs at ORNL into concrete monoliths.
 - The Hanford, Rocky Flats, and Savannah River sites have solidified large quantities of high-nitrite wastes using hydraulic cements over the last 20 years.
- Vitrification
 - The Savannah River M-Area processes high-level wastes.
 - The Fernald, Ohio Minimum Additive Waste Unit processes low-level wastes.
 - The West Valley (New York) Vitrification Plant processes high-level wastes.

Response to Comment ORSSAB-9

Comments on the Summary and other parts of the Draft EIS are addressed individually below. Editorial corrections have been made in the Final EIS. The process flow charts were clarified and explanatory footnotes were added to Tables S-3 and 2-6 to make the document more user friendly. DOE recognizes that the Draft EIS contained errors as noted by the commentor. A thorough quality assurance/quality control (QA/QC) review has been conducted of the Final EIS (technical and nontechnical) to address these concerns.

Response to Comment ORSSAB-10

The page numbering in the Table of Contents has been corrected.

- Page S-1: The map of the ORR does not show the city boundaries of Oak Ridge, although it implies that it does visually. Change per the Site Specific Advisory Board recommendation on the topic, R04/01/98.10, *Accuracy in Describing Relationships Between ORR, City of Oak Ridge, and Surrounding Populated Areas* (see attachment), as agreed to by DOE-EM. Same comment on page 1-1.
- Page S-2: Line 7, add "EPA" to the list of those who have a high priority for cleanup.
- Page S-3: Second paragraph, last sentence - This implies complete, item-by-item characterizations of all solid waste to determine the presence of Resource Conservation and Recovery Act materials. Is this intended? If so, is it addressed in the technical analysis.
- Page S-3: Sect. S1.2.2, first sentence - Is 30 percent of the legacy tank waste still in Bethel Valley? The impression is that most of the Gunite Tanks have been cleaned out.
- Page S-5: First paragraph - With all the cited documents requiring disposal of these wastes, how can alternatives 1 and 5 be considered?
- Page S-6: Third paragraph - First reference to WM PEIS ROD in the future tense.
- Page S-7: Last sentence above photograph - To what standards will decontamination and decommissioning (D&D) be conducted? Who is responsible for any residual contamination at the facility site?
- Page S-8: Preferred alternative is "Drying" not "During."
- Page S-9: First paragraph: What are the "specified waste acceptance criteria?" Are they established now? They could have large impacts on performance, costs, etc.
- Page S-10: Sect. S1.4.2.2 does not mention the impacts of the facility access road. We believe that the use of a Categorical Exclusion is not proper for this action.
- Page S-10: Second paragraph, first sentence should read "...evaporating the free liquids and drying the TRU mixed waste sludges..." You cannot evaporate sludges which include solids.
- Page S-11: Figure S-5 does not agree with descriptive text. It does not show the option of supernate transfer of the evaporator before mixing/sampling, nor does it show condensate reuse in sludge retrieval.
- Page S-11: Second paragraph - The topic of retrieval and delivery of solid wastes to the facility needs to be treated in this EIS.
- Page S-12: First paragraph - What happens if DOE does not find the compacted waste to be certifiable? Must it be recycled, and is the facility capable of that?
- Page S-12: Second paragraph - The conversion of units has an error. If 10,833 m³ = 3,843,546 ft³ then 5,550 m³ does not equal 19,423 ft³ or vice versa.
- Page S-18: Table S-1 - This table is difficult to compare with other numbers in the text. Also, is D&D waste from the facility included? Does such waste go to the on-site disposal cell?

ORSSAB-11

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ORSSAB-23

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ORSSAB-26

Response to Comment ORSSAB-11

The purpose of the map referenced by the commentor was to show the location of the proposed treatment facility site in relation to ORNL, other DOE plants in the area, and the City of Oak Ridge. Figures S-3, 1-1, and 2-1 have been modified as requested to show the city boundary.

Response to Comment ORSSAB-12

DOE acknowledges that cleanup at the ORR is a high priority for EPA. The ORR is listed on the National Priorities List (as of November 1989). Text in Sections S1.1 and 1.1 was modified.

Response to Comment ORSSAB-13

The degree of characterization required for the solid waste would be driven by the project's RCRA permit and the applicable disposal site's waste acceptance criteria (WAC), which do not require item-by-item characterization.

Response to Comment ORSSAB-14

The Draft EIS presented a snapshot in time. The inactive tanks at ORNL are undergoing waste retrieval operations, which are scheduled to be completed by the end of fiscal year 2001.

Response to Comment ORSSAB-15

Under NEPA, the No Action Alternative must be evaluated (40 *CFR* 1502.14). DOE is also obligated to evaluate all reasonable alternatives (40 *CFR* 1502.14). DOE believes that Treatment and Waste Storage at ORNL is a reasonable alternative under NEPA because of the possible need for interim storage. Also see the response to comment ORSSAB-3.

Response to Comment ORSSAB-16

Text in Section S1.4.1 modified.

Response to Comment ORSSAB-17

For the Low-Temperature Drying Alternative, decontamination and decommissioning (D&D) would be performed in accordance with a plan that would be proposed by the Foster Wheeler Environmental Corporation (Foster Wheeler) and approved by DOE. Although specific standards have not been identified, Foster Wheeler is responsible for removing contamination to pre-project levels per stipulations in the contingent contract with DOE.

Response to Comment ORSSAB-18

Typographical error in Section S1.4.2 corrected.

Response to Comment ORSSAB-19

The specified WAC are established now. The WAC for WIPP and NTS involve physical, radiological, and chemical characterization data requirements for TRU and low-level waste respectively. These WAC's are available at:

<http://www.wipp.carlsbad.nm.us/library/caolib.htm>, and

<http://www.NV.DOE.gov/programs/envmgmt/rwap/ntswac.htm>.

Response to Comment ORSSAB-20

As discussed in the response to comment ORSSAB-2, DOE determined that the upgrade of the Old Melton Valley Road could be categorically excluded.

Response to Comment ORSSAB-21

The intent of the text is to indicate that supernate and liquid in the sludges would be dried, leaving a solid waste. Text in Section S1.4.2.2 modified.

Response to Comment ORSSAB-22

Comment noted. The figure is a simplified diagram of the process. The EIS discussion is more detailed than the figures might suggest in some cases.

Response to Comment ORSSAB-23

Discussion and analysis of exhumation, handling, and on-site transportation have been added to Section 4.8.

Response to Comment ORSSAB-24

DOE certification is to ensure the treated waste meets the appropriate WAC of the disposal facility. DOE's contract with Foster Wheeler, if exercised, states that waste must be treated to meet the WAC. If it does not, Foster Wheeler would be required to retreat the waste.

Response to Comment ORSSAB-25

Text in Section S1.4.2.2 has been corrected.

Response to Comment ORSSAB-26

The total TRU and low-level waste volumes reported in Table S-1 are derived from the alternative-specific waste volumes presented in Tables 2-1 (low-temperature drying), 2-2 (vitrification), and 2-3 (cementation). The total waste volume estimates presented in Table S-1 include alternative-specific waste streams entitled primary, secondary, and D&D. The Table S-1 total volumes do not include sanitary wastewater or nonhazardous waste (e.g., construction debris). D&D waste is included. Depending on the contaminant levels and other characteristics, D&D waste would be disposed of at locations appropriate to its disposal. TRU-contaminated D&D waste would be shipped to WIPP and is included in the transportation impacts evaluated in Section 4.8 of the Final EIS. Likewise, low-level waste may be shipped to the NTS; D&D waste with hazardous constituents would likely be sent to Envirocare in Utah, and uncontaminated construction debris and sanitary waste would go to local landfills. DOE does not plan to dispose of any D&D wastes from this project in the on-site disposal facility.

Page S-19: Add to the difficulties with the Idaho National Engineering and Environmental Laboratory the fact that there is an agreement with the State of Idaho not to ship such waste to that state.

Page S-20: Sect. S1.6.3 - Fauna list is probably not inclusive, e.g., skunk, possum.

Page S-22: Sect. S1.6.9 - Water is supplied by the City of Oak Ridge Water Treatment Facility, not DOE.

Page S-22: Sect. S1.6.10 - It is not clear whether these data (Table S-2) are for 1997 or for the period of plant operation. Also, should this operation not be separated from Oak Ridge National Laboratory (ORNL) calculations since there are two different contractors?

Page S-23: Sect. S1.6.13 - Intuitively, the number of 7,500 people seems to be low for 5 miles from the center of ORR. It may be true for 5 miles from the center of ORNL.

Page S-28: Table S-3 (Transportation) - There is no mention of the transportation of D&D waste, or of on-site transport of wastes to the facility.

Page S-32: Paragraph 5 - Is ground disturbance fugitive emission from the EM Waste Management Facility spoils pit included? If not, why?

In Sect. 4.7.3, the air quality impacts of the low-temperature drying alternative are presented with a conclusion that the proposed emissions are below the State of Tennessee limits for air permitting exemptions. This assumption and recent changes in the regulations cited along with any consequences of ORNL being issued a Title V Operating Permit under the Clean Air Act during this time frame should be more closely evaluated. Continuous sampling that will be required for at least some radionuclides is not discussed.

Appendix B provides emissions and materials balance data for the preferred alternative and the vitrification and the cementation alternatives. Generally for radionuclides and metals, the methodology of Appendix D to 40 CFR Part 61 – Methods for Estimating Radionuclide Emissions – is applied. The procedure involves multiplying the amount used by a factor which depends on the physical state of the radionuclide (1 for gases, 10³ for liquids and particulate solids, and 10⁴ for solids). Additional adjustment factors are provided for effluent controls. For high-efficiency particulate air (HEPA) filters (plural), an adjustment factor to emissions of 0.01 is provided for particulate radionuclides. There may be some question, even though the factor is conservative, that it may be applied for each of multiple HEPA filters in series. Appendix D to Part 61 also states that if any nuclide is heated to a temperature of 100°C (212°F) or more that it must be considered a gas. The temperature of the low-temperature drying alternative is not apparent from any process descriptions in the document except in response to a question from the public scoping meeting summarized in Appendix A.3, where it was said to be 180–190°F. The temperature for vitrification is expected to be higher; therefore, the uncontrolled radionuclide emissions would be the amounts used in the process unless an additional assumption is made and validated. The Appendix D approach to calculating metals emissions may be questionable for mercury and possibly other metals with volatility such as lead. Finally, the basis for assumed inlet particulate concentrations (in grains per cubic foot) reaching the exhaust system HEPA filters is not clear. Citation of additional data in terms of percent or fraction carryover from the process may be a helpful benchmark.

For the vitrification alternative, the treatment flow diagram (Figs. S-7 and 2-8) is presented in an over-simplified manner if a selective catalytic reduction unit is included for control of NO_x emissions.

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ORSSAB-35

ORSSAB-36

Response to Comment ORSSAB-27

DOE is not currently legally prohibited from shipping waste to Idaho National Engineering and Environmental Laboratory (INEEL) to be treated so long as the waste is treated and leaves INEEL within a specified time period; however, additional concerns related to shipping waste to INEEL are addressed in Section 2.8.1.

Response to Comment ORSSAB-28

Text in Section S1.6.3 has been modified to be more inclusive.

Response to Comment ORSSAB-29

The Summary and related sections in the Final EIS have been modified to indicate that the City of Oak Ridge Water Treatment Facility would provide water.

Response to Comment ORSSAB-30

The table presents human health data from the ORR Site Environmental Report for 1997, to characterize the affected environment. Table S-2 does not include data for the period of plant operation because the facility has not been built. DOE believes the data are appropriately presented because information from both ORR and ORNL is presented, and the proposed facility would be located at ORNL on the ORR.

Response to Comment ORSSAB-31

There are approximately 7,500 people within a 5-mile radius of the proposed treatment facility at ORNL. Text in the Summary and related sections in the Final EIS have been modified.

Response to Comment ORSSAB-32

On-site waste transportation is addressed in Tables S-3 and 2-6 and Section 4.8 of the Final EIS. See response to ORSSAB-26 for D&D waste.

Response to Comment ORSSAB-33

Yes. The Environmental Management (EM) Waste Management Facility spoils pit emissions are part of the environmental baseline in the Affected Environment (Section 3.7).

Response to Comment ORSSAB-34

DOE will comply with air quality laws and regulations in force at the time, should the proposed facility be constructed and operated. At the present time, Foster Wheeler has a Permit to Construct an Air Contaminant Source for the TRU Waste Treatment Facility (Permit #950877P) granted by TDEC on March 24, 1999. The permit requires monitoring and testing per 40 *CFR* 61.93(a) + (b). Monitoring is “continuous” per the regulation cited. Even though the projected air emissions would be below the state standards, TDEC required a permit for this facility. Emissions from the proposed facility would be so low that for practical purposes the facility would not affect ORNL’s Title V permit.

Response to Comment ORSSAB-35

DOE believes the methodology used is appropriate and conservative for particulate emissions (radiological or metals). High-efficiency particulate air (HEPA) filters can be used in series to achieve a very high (>99.97%) efficiency; however, for purposes of impact analysis, DOE assumed a 99% efficiency. The preferred alternative is a Low-Temperature Drying Alternative in which drying is accomplished at less than 100°C or less than 212°F. This temperature does not justify the consideration of non-gaseous radionuclides as gaseous. The temperature of vitrification is much higher; however, there is a gas-cooling liquid scrubber system with associated high-efficiency mist eliminator that removes liquid droplets from the scrubber and cools the gases to less than 100°C before final HEPA filtration. This cooling process permits the use of the HEPA filter efficiency for impact analysis.

Response to Comment ORSSAB-36

Comment noted. As noted in the response to ORSSAB-22, the flow diagrams are presented in a simplified manner and additional detail is provided in the text.

RECOMMENDATION 10, DATED 4/1/98

ACCURACY IN DESCRIBING RELATIONSHIPS BETWEEN OAK RIDGE RESERVATION, CITY OF OAK RIDGE, AND SURROUNDING POPULATED AREAS

BACKGROUND

ORR borders Knox and Loudon counties and lies almost entirely within the City of Oak Ridge. The basic situation has not changed since the city incorporated in 1959, though some areas have been annexed and the populations of nearby areas continue to rise. Many documents prepared for DOE-ORO speak in some way of the distance from the reservation to nearby Oak Ridge and reflect other cities as dots on compressed maps. While occasional flaws are anticipated in draft documents, populations near the reservations need to be properly represented.

RECOMMENDATION

ORREMSSAB recommends that DOE-ORO EM routinely notify contractors of the actual geographic boundaries of the ORR and the City of Oak Ridge. On an appropriate scale, the geographical extent of nearby cities should also be shown. Accuracy is required in describing the relation of operations on the ORR to any municipal entity.

As for properly representing the relationship of any ORR release points to the surrounding population, basic population maps need to be prepared. Broader scale maps showing the smallest census units could be shaded to illustrate the varying population density. Enlarged fine-scale maps could roughly represent streets and/or dwelling units, providing

approximate shading related to population. At every map scale an appropriate wind rose should be printed, obtained at a stated position and altitude, to indicate the prevailing air movement patterns. In any case the reader should be encouraged to appreciate the density of the nearby population. Streams should also be clearly indicated.

DOE RESPONSE,
DATED 4/29/98

DOE has advised all the DOE Oak Ridge programs of the Board's request to make proper references to the City of Oak Ridge boundaries and populations near the reservation on future DOE maps. Additionally, all contractor and subcontractor organizations will be provided a copy of the Board's recommendation.

See response to comment ORSSAB-11.

3.2.2 City of Oak Ridge

CITY OF
OAK RIDGE



OFFICE OF THE MAYOR

POST OFFICE BOX 1 • OAK RIDGE, TENNESSEE 37831-0001

April 11, 2000

Dr. Clayton Gist, Waste Management
Integration Team Leader
U. S. Department of Energy
Oak Ridge Operations
55 Jefferson Avenue
P. O. Box 2001
Oak Ridge, TN 37831

**DOE's Draft Environmental Impact Statement for
Treating Transuranic (TRU)/Alpha Low-Level Waste at
Oak Ridge National Laboratory**

Dear Dr. Gist:

Enclosed is a memorandum to the Oak Ridge City Council from Ellen D. Smith, Chairperson of the Environmental Quality Advisory Board of the City of Oak Ridge, transmitting the Board's comments on the above-referenced Environmental Impact Statement.

The Oak Ridge City Council, during its regular meeting on April 10, 2000, received the memorandum and attachment for the record and directed that they be transmitted to the Department of Energy as comments from the Environmental Quality Advisory Board.

Very truly yours,

David R. Bradshaw
Mayor Pro Tem

jb

Attachment

cc: Ellen D. Smith

ENVIRONMENTAL MANAGEMENT
DIVISION, FILE CODE NUMBER

DOE ENVIRONMENTAL MANAGEMENT
DIVISION CORRESPONDENCE
LOG NUMBER
61284

CITY OF
OAK RIDGE



April 5, 2000

POST OFFICE BOX 1 • OAK RIDGE, TENNESSEE 37831-0001

To: Honorable Mayor and Members, Oak Ridge City Council

From: Ellen D. Smith, Environmental Quality Advisory Board *K & T E S.*

Subject: DOE EIS for Treating Transuranic Waste and Alpha Low-Level Waste at ORNL

The Environmental Quality Advisory Board (EQAB) has reviewed the Department of Energy (DOE) Draft Environmental Impact Statement (EIS) for Treating Transuranic (TRU)/Alpha Low-Level Waste at Oak Ridge National Laboratory (ORNL).

DOE proposes to build a TRU waste treatment facility in the Melton Valley area and to use the facility to treat TRU and alpha low-level radioactive and mixed waste currently stored in the Melton Valley Storage Tanks and other ORNL waste management facilities. Very small amounts of waste from other DOE sites might also be accepted for treatment, following additional review. Under DOE's preferred alternative, wastes would be treated primarily by drying. After treatment, the wastes could be shipped offsite for disposal; the TRU waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico and the alpha low-level waste (LLW) to the Nevada Test Site (NTS).

EQAB supports the implementation of the proposed action. Successful completion of this project would benefit our community by eliminating the environmental liability and potential risks associated with the legacy wastes it would treat. According to the EIS analyses, the community would not experience significant adverse environmental impacts from operation of the proposed facility. For example, radioactive releases to the air would be minimized by use of HEPA filters.

However, we have some concerns about the EIS, as detailed in our attached comments:

- The EIS may understate some potential impacts from the proposed waste management operation.
- The EIS does not effectively communicate the need for the project or fully disclose the magnitude of the potential adverse consequences in Oak Ridge if wastes must remain in storage. Wastes would need to be kept in storage either if the project is not completed (the "no-action" alternative) or if WIPP and NTS are unable to receive Oak Ridge's treated wastes for disposal. This is not a theoretical concern: although WIPP is open, it is not yet authorized to receive remote-handled TRU waste and there is some uncertainty as to its capacity to handle all of DOE's TRU waste.

We recommend that our comments be submitted to DOE to aid in preparing a final EIS that better presents the implications of the proposal.

cc: Paul Boyer, City Manager
Amy Fitzgerald, City of Oak Ridge
Susan Gawarecki, Local Oversight Committee

COR-1

Response to Comment COR-1

Comment noted.

COR-2

Response to Comment COR-2

DOE has added an analysis of waste exhumation, handling, and on-site transport in Section 4.8 and expanded analysis in Chapter 4 to address impacts after loss of institutional control. See responses to comments below.

COR-3

Response to Comment COR-3

See response to comments COR-6 and COR-7.

**Environmental Quality Advisory Board Comments on
DOE Draft EIS for Treating Transuranic (TRU)/Alpha Low-Level Waste
at Oak Ridge National Laboratory**

Major Concerns

1. Some of the primary potential impacts to the environment and general public from the proposed treatment action seem to have been overlooked by this draft EIS because the scope of the analysis is unduly restricted. The action that is considered in the EIS seems to begin when the waste is "delivered by DOE" to the TRU Waste Treatment Facility. As a result, the proposed action as defined in the draft EIS fails to capture a significant component of the overall risk that bringing the ORR's inventory of TRU waste to proper disposition will entail. This is the risk involved in getting highly radioactive wastes (particularly solid wastes, which are approximately 40% of the total inventory proposed for treatment) to the treatment facility: retrieving wastes from storage or burial and transporting them to the facility. It may have been assumed that this part of the process does not require NEPA review because waste is transported routinely on-site at ORNL, but the retrieval of waste containers in various conditions after many years of storage may involve significant hazards. Only 30% of the waste has been characterized, so there is a potential for encountering unexpected hazards in retrieving and transporting it. A particular concern is the exhumation of buried remote-handled wastes in containers of unknown integrity after as much as, or more than, 25 years of interment – this is definitely not routine. Once waste arrives at the treatment facility, there is a possibility that the facility operator (Foster Wheeler) could refuse to accept it for treatment if it does not meet waste acceptance criteria. The possible need to manage wastes that are not accepted for treatment creates an additional set of safety and environmental concerns.

The potential impacts of the proposed waste treatment action cannot be meaningfully evaluated if the evaluation is restricted to the piece of the action that would be undertaken by Foster Wheeler in the proposed waste treatment facility. DOE's EIS must consider the potential impacts of the entire DOE action to manage these wastes, not just that part of the action that would be done at the proposed Foster Wheeler treatment facility. The transfer of waste to the facility is integrally connected to the proposed treatment action, so the final EIS needs to address the potential environmental consequences of this process. Analysis should include (1) routine exposures to workers and the public, (2) the probability and consequences of potential accidents, and (3) safety and environmental consequences associated with management of any wastes that are not accepted by the facility.

2. The EIS fails to effectively communicate the need for this action. The document emphasizes the legal mandates that would not be met in the absence of this action, but it says little about the adverse consequences that might ensue if DOE does not take action. In particular, the analysis of environmental impacts reported in Chapter 4 and elsewhere does not convey the seriousness of the potential impacts of the "no action" alternative, the contrast between the proposed action and "no action," or the potential consequences of "treatment and waste storage at ORNL" (which is what would happen if the WIPP and NTS are unable to receive the treated waste).

There appear to be several reasons that the EIS analysis fails to effectively convey the seriousness of these impacts. One reason is that potential exposures to contaminated water are not

COR-4

Response to Comment COR-4

DOE has included discussion and analysis of exhuming, waste handling, and on-site transportation in the Final EIS.

COR-5

Response to Comment COR-5

With regard to solid waste, Foster Wheeler can refuse waste that does not conform to the waste characteristics in its contract or permits (e.g., its RCRA Permit). Foster Wheeler and DOE are developing WAC that are clear and well-communicated and contingency plans should any waste be rejected. In the event that any waste is rejected, DOE would implement appropriate corrective measures for ensuring waste acceptance and treatment. These measures may include actions required by DOE (external decontamination, repacking, etc.) or if appropriate, modification of the Foster Wheeler contract to accommodate out-of-scope activities.

COR-6

Response to Comment COR-6

The discussion and analysis associated with exhumation, handling, and on-site transportation of waste have been evaluated and added to Tables S-3, 2-6, and Section 4.8 of the Final EIS. This new analysis includes:

- Routine and accident exposures and consequences to workers and the public are addressed here, as are safety and environmental concerns.
- The probability and consequences of potential accidents.

Contingency plans will be developed to manage any wastes that are not compliant with the facility acceptance criteria.

COR-7

evaluated for drinking water sources located more than one-half mile from the facility, so impacts to downstream water users are ignored. Another reason is that analysis is arbitrarily truncated after 100 years. These types of arbitrary limitations on the scope of the analysis do not result in a useful assessment. To help decision-makers and the public appreciate the potential adverse impacts of not implementing this proposal or of not being able to ship the wastes offsite, the final EIS needs to fully assess the potential consequences of the no-action alternative and of "treatment and storage at ORNL." This includes assessing potential consequences for a longer period of time (including consequences after the cessation of active maintenance and failure of institutional controls) and assessing the potential population-level consequences to people who live downstream and drink water or eat fish from the Clinch and Tennessee Rivers.

Under the no-action alternative, waste trenches would continue to leak, releasing additional contamination to Melton Valley groundwater and eventually to surface streams that would carry it offsite. The EIS notes that strontium-90 would continue to leak into groundwater and White Oak Creek, but it should also acknowledge that the release rates could increase over time and that longer-lived transuranic radionuclides would also reach surface waters (groundwater concentrations of americium-241 and curium-244 reportedly range up to 5,940 pCi/L near the buried wastes) and be carried downstream to offsite populations. Although exposures to individual members of the public probably would be negligibly small due to dilution, total population exposures and resulting health effects could be much larger and need to be explored.

In both the no-action alternative and "treatment and storage at ORNL" there would be continuing radiation exposures to workers involved in surveillance and maintenance activities. The consequences of exposures to workers involved in continued storage need to be explored.

It is probably incorrect to say that the no-action alternative would have "no land use impacts" (as stated in Sections 4.1.3 through 4.1.6). While the action alternatives would eventually return the treatment facility site and tanks area to some other land use, under the no-action alternative the current waste storage areas could never be returned to another use.

There are undoubtedly other potential consequences from No Action that need to be explored more fully in the final EIS.

3. EQAB members expressed concern about the quality of the EIS presentation. Reviewers who were not already somewhat familiar with this proposal found that the EIS did not "stand alone" to inform them about the proposal and the need it is intended to address. An EIS should be able to stand alone, and it should not rely on technical jargon to communicate concepts. Also, members noted many writing errors in the EIS, a few of which are described in our specific comments. These flaws need to be corrected in the final EIS.

Specific Comments

Page xv, Acronyms and Abbreviations – Acronyms that are used in the EIS but do not appear on this list include LLW (low-level waste), CH (contact-handled), RH (remote-handled), MVST (Melton Valley Storage Tanks), SS (stainless steel), and WIPP (although WIPP SEIS-II is defined).

Page S-2, Section S1.2.1 – The waste types listed here do not include contact-handled (CH) mixed waste, but this waste type is mentioned in section S1.3.

COR-7

(cont.)

COR-8

COR-9

COR-10

COR-11

COR-12

COR-13

Response to Comment COR-7

Water-related human health information for exposure pathways is addressed in Section 3.10.1. This section has been clarified to indicate that residential wells are across the Clinch River from ORO and are hydrologically separate from the Melton Valley Watershed. DOE evaluated drinking water sources in the EIS at East Tennessee Technology Park (ETTP) and Kingston, Tennessee, under reasonable worst-case accident conditions. The predicted results to human health and biota are discussed in Section 4.11.

Analysis of impacts of the No Action Alternative has been expanded to include impacts after loss of institutional control, assumed to occur, for analysis purposes, after 100 years. Analysis and discussion of impacts associated with ecological resources, surface water, and human health after the loss of institutional control are included in Sections 4.3, 4.5.1, and 4.10, respectively. Impacts after loss of institutional control for the Treatment and Waste Storage at ORNL Alternative are bounded by impacts under the No Action Alternative after the loss of institutional control, because the waste would have been treated.

Response to Comment COR-8

Text in Section 4.5.1.2 has been modified to address the 14,000 curies of activity in the trenches.

Response to Comment COR-9

Sections 4.10.3 and 4.10.7 address the impacts from exposure to the workers for the No Action and Treatment and Waste Storage at ORNL Alternatives, respectively.

Response to Comment COR-10

In Section 4.1.2, the EIS states that No Action would result in no change to the existing land or land-use classification during institutional control. DOE measured land use impacts by physical changes to the land or changes to land use classification. After loss of institutional control the land would be permanently committed to waste storage.

Sections 4.1.3 through 4.1.6 deal with various action alternatives (not No Action) and identify land-use impacts for these alternatives. DOE agrees with the comment that under no action this land would be permanently committed to waste storage.

Response to Comment COR-11

DOE recognizes that the Draft EIS contained errors as noted by the commentor. DOE has conducted a thorough QA/QC review of the FEIS to address these errors.

DOE appreciates the commentor’s concern about the ability of the EIS to stand alone. DOE routinely summarizes and incorporates analysis and results from other NEPA documents in accordance with Council on Environmental Quality regulations (40 *CFR* 1502.21), in order to be efficient and reduce paperwork. To provide a more comprehensive evaluation of the impacts of the proposed action, the EIS now incorporates new analysis for on-site waste transportation and long-term effects after loss of institutional control.

Response to Comment COR-12

These acronyms have been added to the acronyms and abbreviations list.

Response to Comment COR-13

Comment noted. It is not known if any of these wastes are mixed wastes. Section S1.3 acknowledges the possibility that some of the contact- and remote-handled solids may contain mixed waste.

Page S-8, Section S1.4.2 – In the title of Alternative 2, "During" should be "Drying."

Page S-9, next to last paragraph in Section S1.4.2 – This is one of several discussions of possible contingencies if the WM PEIS record of decision (ROD) on LLW disposal selects a disposal site other than NTS. These discussions should be revised to reflect the fact that the ROD has been issued, selecting the NTS as the site for centralized disposal of DOE LLW and mixed waste.

Page S-9, last paragraph in Section S1.4.2 – Please specify where and how additional RCRA treatment would be done, so that the impacts of this treatment can be evaluated.

Page S-11, second paragraph – This paragraph says that alpha low-level waste would be compacted for a 50% volume reduction. The significance of this percentage figure is unclear. Is this the minimum volume reduction, maximum volume reduction, or simply the volume reduction efficiency that was assumed for the purpose of analysis?

Page S-12, last paragraph – The total project duration is stated to be 11.5 years, with a treatment time of 5 years. Is there any provision to allow acceleration of the project to coordinate with WIPP schedules or if containers are found to be more-deteriorated than expected?

Page S-13, last paragraph; page 4-56, first line – Here and elsewhere, it is stated that the facility would have an off-gas system, including HEPA filters, that would remove "over 99%" of the off-gas particulates. This suggests that the proposed facility and alternatives would be equipped with standard HEPA filters, rather than state-of-the-art extreme HEPA filters with greater design efficiency. The EIS should evaluate the potential benefits and impacts (such as increased cost and energy use) of improving filtration efficiency by using state-of-the-art HEPA filters (such as EHEPA filters) to further reduce releases of radionuclides.

Page S-28, Table S-3 - In the Climate and Air Quality row, it is probably accurate to say that "minor emissions" are predicted for all treatment alternatives, but the emissions are not the "same" for all alternatives. Please describe how air emissions differ between the different alternatives.

Page S-29, Table S-3 - Under "Human Health, the no action alternative is described as "risk to public to be negligible." The word "negligible" begs definition – risks may be very small during the several-year period that it would take to treat the wastes, but risks from no action would be much higher over the long term.

Page S-31, Table S-3 - These shorthand descriptions of accident scenarios and their impacts are very difficult to follow.

Page 2-11, first paragraph in Section 2.4.2.1 – Please indicate whether the double-contained above-ground pipeline would be equipped with sensors to detect leakage.

COR-14

Response to Comment COR-14

This correction has been made in Section S1.4.2.

COR-15

Response to Comment COR-15

Text in Section S1.4.2 has been modified to reflect the fact that the ROD has been issued.

COR-16

Response to Comment COR-16

Macroencapsulation of RCRA wastes would be performed at the proposed TRU Waste Treatment Facility. (Figure S-6 and Section S1.4.2.2 describe RCRA treatment.)

COR-17

Response to Comment COR-17

The 50% volume reduction figure is a performance requirement as stipulated in Foster Wheeler's contingent contract with DOE and was used for purposes of analysis in the EIS.

COR-18

Response to Comment COR-18

There is some capacity to accelerate or at least shorten the project, particularly the length of operation. The project's start of waste processing in late 2002 is designed to coincide with WIPP's projected capacity to begin to accept remote-handled waste from Oak Ridge. Therefore, we do not expect to accelerate the start date at this time.

COR-19

Response to Comment COR-19

Use of extreme high-efficiency particulate air filters (a term used by the commentator which DOE interprets to mean a HEPA filter with higher collection efficiency than a standard HEPA filter) and other technology improvements is not precluded. For purposes of the impacts analysis (Section 4.7), standard HEPA filters are assumed because this approach results in a conservative, bounding analysis.

COR-20

COR-21

COR-22

COR-23

Response to Comment COR-20

In the Climate and Air Quality section (Section 4.7), “minor emissions” are predicted for all treatment alternatives, even though the emissions would not be the same. With the appropriate air pollution control equipment, including the sequential HEPA filters, it is likely that emissions would be similar. Although the differences in emissions are small, the volatile organic emissions would probably be slightly higher for the Low-Temperature Drying Alternative than either the Cementation or Vitrification Alternative because drying would release the organics by volatilization. Particulate emissions would probably be highest with the Cementation Alternative since cement is high in particulates. Nitrogen oxide emissions would probably be highest with the Vitrification Alternative because the high temperature of vitrification would tend to produce more nitrogen oxide.

Response to Comment COR-21

Human health risks for the No Action Alternative under the period of institutional control conditions are small. The risks to the public and non-involved worker would be negligible under the No Action Alternative because if the waste is not treated, there will be no emissions, and, therefore, there would be minimal risk to everyone but involved workers (2E-02 LCFs). Since the waste will be inspected and monitored on a routine basis, the risk of contamination or leakage is small. Under accident conditions (Section 4.11), however, the risks to human health are estimated to be much higher (11 LCFs).

Analysis and discussion has been added to address human health impacts after the loss of institutional control (Sections 4.5 and 4.10). The risk to the public from the No Action Alternative would be significant over the long term (Section 4.10.3).

Response to Comment COR-22

A detailed discussion of these scenarios is presented in Section 4.11. Tables 4-28, 4-29, 4-30, and 4-31 provide detailed information on the accident scenarios. In addition, a text box has been added to Tables S-3 and 2-6 to improve clarity.

Response to Comment COR-23

The pipe would be equipped with sensors to detect a loss of containment.

Page 2-16, second bullet in list of bullets near bottom of page – Not many readers are likely to understand what is meant by “cold cap” in the statement “a cold cap would be maintained on the molten glass.” Technical concepts should be explained in plain English wherever possible.

COR-24

Response to Comment COR-24

Text in Section 2.5.2 has been clarified to define cold caps.

Page 3-45, Table 3-13 – Because some of the ambient air quality data in this table are from nonlocal sites that are near sources of criteria air pollutants, Oak Ridge air quality is probably better than the table suggests. For nitrogen dioxide, please replace or supplement the measurement from A.E. Staley’s Loudon plant with values measured in Oak Ridge. The EPA AIRS database gives an annual average NO₂ value of 0.006 ppm for a station at 1500 Bear Creek Road in Oak Ridge (report obtained from <http://www.epa.gov/airsdata/momals.htm> , showing data extracted on January 28, 2000). When no data are available for locations near site, please say so and tell us whether the data that are reported are considered to be representative of the Melton Valley site. Please point out that the “Roane County” lead measurements in the table are from Rockwood. The Rockwood lead data are probably particularly unrepresentative of Oak Ridge, because the measurements were made near an important emitter of airborne lead. Similarly, the carbon monoxide data from Knox County come from a city street in downtown Knoxville and do not represent conditions in Oak Ridge. The lower carbon monoxide values measured at A.E. Staley in Loudon and included in the AIRS database are probably more similar to conditions in Oak Ridge.

COR-25

Response to Comment COR-25

These background data are TDEC data and were also used as representative of the ORR in the recently issued *Final Environmental Impact Statement, Construction and Operation of the Spallation Neutron Source Facility*, DOE/EIS-0247 (DOE 1999c). Table 3-13 has been modified to acknowledge that lead data were taken from Kingston, Tennessee, and carbon monoxide data were taken from Knoxville.

Page 3-73, last item on page. The first author of this report is named “Dreier,” not “Drier.” This also needs to be corrected in the text where the reference is called out.

COR-26

Response to Comment COR-26

Corrections have been made.

Page 4-18, Section 4.5.2.7 – The first sentence does not make sense and should be revised. It is not evident that impacts to groundwater quality can be avoided by not pumping groundwater.

COR-27

Response to Comment COR-27

Pages 4-54 to 4-60, Section 4.10 – This section contains extensive information on the potential human health impacts of the three alternative treatment technologies, but it provides very little comparative information about the impacts of the no-action alternative, and it says very little about the additional long-term impacts from storing treated wastes if they cannot be shipped off-site for disposal. The FEIS should provide comparable information on all alternatives. For example, for the no-action alternative and long-term storage of treated wastes, estimate the collective dose to the worker and offsite populations from surveillance and maintenance and from exposure to contaminants released from stored wastes. For the no-action alternative, provide estimates for the duration of the treatment process and for longer time periods such as 100 years and 1000 years. (For long-term storage, only the longer-term estimates are appropriate.) It would also be informative to provide comparative estimates of exposures and health effects to residents who move onto the site near the waste storage area.

COR-28

Text has been modified in Section 4.5.2.7 to indicate no groundwater is being pumped under any of the alternatives and there are no releases to groundwater; therefore, no negative impact to groundwater quantity or quality would be expected. The removal of the TRU waste from the trenches would have a beneficial impact on groundwater quality.

Page 4-56, Section 4.10.3 – This section gives a quantitative estimate of latent cancer fatalities (LCFs) resulting from involved-worker exposure under the no-action alternative, but there is no indication of where the estimate comes from. How many workers would be involved? What are their estimated doses? Where are these values derived or discussed?

COR-29

Response to Comment COR-28

No Action Alternative—The dose and corresponding risk to the involved worker population under normal operating conditions during the institutional control period were estimated to be 50 person-rem over the 100-year period and 2E-02 LCF. There would be minimal risk to the non-involved worker and the off-site population since there will be no emissions and the waste will be routinely inspected and monitored.

For the No Action Alternative, there is no “duration of the treatment process” since wastes are not treated. Impacts are presented for a 100-year institutional control period, and new impacts analyses are presented in Chapter 4 for a period after loss of institutional controls (approximately 10,000 years). In Sections 4.5.1.2, 4.5.2.2 and 4.10.3, the Final EIS provides a qualitative discussion of potential health effects to persons affected by long-term releases. Impacts could be significant if wastes are not treated.

Treatment and Waste Storage at ORNL Alternative—The total risk would depend on the treatment process used, but impacts would be less than the No Action Alternative in which wastes are left untreated. DOE intends to ship the waste offsite as soon as practical after waste treatment. However, this EIS analyzes long-term storage impacts for the No Action Alternative after the loss of institutional controls. The impacts from No Action are expected to bound the impacts of the Treatment and Waste Storage at ORNL Alternative because the wastes would be treated and better contained.

Response to Comment COR-29

The LCF to the involved worker was calculated by assuming that 5 workers each receive the 100-mrem annual administrative control limit every year for 100 years, multiplied by 4E-04 LCF/rem. Five workers is approximately the number currently involved in maintenance and surveillance activities at Solid Waste Storage Area 5 North (SWSA 5 North) and the MVST area. Text in Section 4.10.3 has been modified to better explain how these calculations were derived.

3.2.3 Oak Ridge Reservation Local Oversight Committee



April 14, 2000

Dr. Clayton Gist
Waste Management Integration Team Leader
U. S. Department of Energy
P. O. Box 2001
Oak Ridge, TN 37831

Subject: Draft Environmental Impact Statement (DEIS) for Treating Transuranic (TRU)/Alpha Low-level Waste at the Oak Ridge National Laboratory in Oak Ridge, Tennessee (DOE/EIS-0305-D)

Dear Dr. Gist:

The Citizens' Advisory Panel (CAP) of the Local Oversight Committee (LOC) has carefully reviewed the subject Draft EIS. The CAP supports the preferred alternative of Low Temperature Drying.

We have a number of concerns about the quality of the DEIS and how well it documents DOE's decision. Attached are our comments, which should lead to a more mature Final EIS should DOE choose to incorporate the suggestions. Because there has been intensive stakeholder evaluation of the DEIS, the CAP is submitting only our general comments. The CAP fully endorses the specific comments submitted by the City of Oak Ridge Environmental Quality Advisory Board as transmitted by the Oak Ridge City Council.

The LOC is a non-profit regional organization funded by the State of Tennessee and established to provide local government and citizen input into the environmental management and operation of the DOE Oak Ridge Reservation. The Board of Directors of the LOC is composed of elected and appointed officials from the City of Oak Ridge and the seven counties surrounding and downstream of the ORR, and the chair of the CAP. The CAP has up to 20 members with diverse backgrounds who represent the greater ORR region and who study and make recommendations on DOE Environmental Management technical and policy issues.

Sincerely,

Norman A. Mulvenon
Chair, LOC Citizens' Advisory Panel

cc: LOC Document Registry
LOC CAP
LOC Board
Leah Dever, Manager, DOE ORO
Steve Kopp, Chair, ORSSAB
Earl Leming, Director, TDEC DOE-O
Joe Sanders, General Counsel, TDEC
Camilla Warren, DOE Section Chief, Federal Facilities Branch, USEPA Region 4
Carey Borgstrom, Director, NEPA Oversight, DOE HQ

ENVIRONMENTAL MANAGEMENT
DIVISION. FILE CODE NUMBER

1210

DOE ENVIRONMENTAL
DIVISION. FILE CODE NUMBER

01316

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LOC-1

Response to Comment LOC-1

Specific comments are addressed in detail below.

LOCAL OVERSIGHT COMMITTEE CITIZENS' ADVISORY PANEL
COMMENTS ON THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT (DEIS)
FOR TREATING
TRANSURANIC (TRU)/ALPHA LOW-LEVEL WASTE
AT THE OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE

General Comments

1. The document has an unusually large number of errors and inaccuracies. It does not measure up to the editorial standard that the public has come to expect from DOE's Environmental Management program. The quality of the document needs to be improved by adding clarity without excessive technical jargon and making the necessary corrections of errors and inaccuracies, many of which are the same ones the CAP has commented on in past NEPA documents.
2. There is a substantial lack of information on the transportation of all waste currently in storage to the treatment facility. Of special concern is the waste from the trenches of SWASA 5 North. The analysis seems to start when the waste is "delivered by DOE" to the TRU Waste Treatment Facility. This waste is in a variety of containers from concrete casks through metal barrels to wooden boxes. The variable integrity of these containers after many years of interment presents possible unexpected hazards during retrieval and transportation. The final EIS should adequately address potential hazards of the entire DOE action, not just the treatment facility portion. Further analysis should include exposures to workers as well as the public, potential accidents, and the management of wastes not accepted by the Foster Wheeler treatment facility because of failure to meet the waste acceptance criteria.
3. DOE has not presented a compelling rationale for the need to take any action with regards to the TRU wastes, although those who have followed the process are aware of the importance of the TRU Waste Treatment Facility with respect to DOE's plans for cleanup of the reservation. However, to otherwise uninformed stakeholders, the "no action" alternative does not appear unreasonable. This alternative should be evaluated with considerably more attention to detail, including the negative consequences of the failure to treat and dispose of Oak Ridge Reservation's TRU waste.
4. In general, the DEIS does not include enough detail to support the preferred alternative nor to appropriately evaluate the environmental and health impacts of the alternatives. The document needs to explain the outside circumstances that might drive DOE to a particular decision—including the Melton Valley Record of Decision, waste acceptance criteria at the Waste Isolation Pilot Project (WIPP), and if disposal options at WIPP become otherwise restricted. The scope of the DEIS seems unreasonably limited by assumptions such as restricting analysis of groundwater impacts to downstream water users only (White Oak Creek and the Clinch River are waters of the state and must meet standards appropriate to their potential uses) and limiting the analysis period to only 100 years. The EIS must clearly evaluate all of the alternatives with respect to a longer period of time appropriate for the radionuclides in question, and properly assess potential impacts on people who live downstream with access to the water and fish. In addition, the list of potential consequences seems incomplete: other impacts should be evaluated in the final EIS.

LOC-2

Response to Comment LOC-2

Errors and inaccuracies have been corrected in the Final EIS. A thorough QA/QC review has been conducted of the Final EIS (technical and nontechnical) to address these concerns.

LOC-3

Response to Comment LOC-3

DOE has revised the EIS (Section 4.8) to include the impacts from the exhumation, handling, and on-site transportation of wastes. Available information on the inventory of the SWSA 5 North area (casks in trenches, casks in bunkers, and B-25 boxes and drums in the metal buildings) would be transported to the proposed treatment facility. For the 23 trenches at SWSA 5 North, only casks would be retrieved.

LOC-4

Response to Comment LOC-4

DOE has clearly indicated that the No Action Alternative is not compliant with the TDEC Commissioner's Order regarding waste removal. Further, the EIS documents the adverse environmental impacts, especially the severe consequences associated with an accidental release of wastes from the MVSTs. The continuing releases of radionuclides from SWSA 5 North and impacts from those releases are discussed in Chapter 4. As described in Chapter 4, DOE has analyzed the impacts that would occur if institutional control ended, which is assumed for purposes of analysis to be after 100 years.

LOC-5

LOC-6

Response to Comment LOC-5

Impacts of the various alternatives are analyzed in Chapter 4. DOE has added additional analyses in Chapter 4 to address longer impacts after loss of institutional control under on the No Action Alternative and the Treatment and Waste Storage at ORNL Alternative, and on on-site waste retrieval and transport. In addition to health risks and other impacts discussed in Chapter 4, DOE has a legal driver (the Tennessee Department of Environment and Conservation Commissioner’s Order to ship waste—see Sections S1.4.2.1, 1.3, 4.6.2, and 8.3). Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documentation has also indicated the need to address waste in Melton Valley (see Sections S1.3 and 1.3). Regarding the WIPP site, DOE has determined that this site is the disposal location for TRU waste.

The commentor was also concerned that DOE did not have sufficient information to support the preferred alternative. The designation of the Low-Temperature Drying Alternative as the preferred alternative was based on both the results of the procurement process for treatment of TRU waste and the impacts analysis presented in the Draft EIS. During the procurement process, DOE obtained proposals from qualified bidders on several treatment processes. DOE selected the low-temperature drying proposal during the procurement process as the preferred technology based on a combination of environmental and cost considerations. The analysis in the Draft EIS showed that low-temperature drying would have lower waste volumes, less utility usage, fewer transportation shipments, and lower associated transportation risks than other action alternatives.

Response to Comment LOC-6

Impacts of the alternatives are presented and compared in Chapter 4. DOE has added to the EIS an analysis of impacts after loss of institutional control, assumed for this analysis to be 100 years. Impacts to biota, surface water, groundwater, and human populations are addressed in Sections 4.3, 4.5.1, 4.5.2, and 4.10 of Chapter 4.

Downstream water users are identified at both the ETTP and in Kingston, Tennessee, and the human health consequences of accidental waste releases are evaluated in Section 4.11. DOE has added on-site transportation analysis and impacts associated with loss of institutional control. The EIS addresses all impacts expected from implementation of the No Action and all action alternatives.

3.2.4 State of Tennessee Department of Environment and Conservation



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DOE OVERSIGHT DIVISION
761 EMORY VALLEY ROAD
OAK RIDGE, TENNESSEE 37830-7072

April 12, 2000

Dr. Clayton Gist, Waste Management Integration Team Leader
US Department of Energy
Oak Ridge Operations
PO Box 2001, EM-921
Oak Ridge TN 37831

Dear Dr. Gist

Document NEPA Review: Draft Environmental Impact Statement (EIS) for Treating Transuranic (TRU)/Alpha Low-Level Waste at the Oak Ridge National Laboratory, Oak Ridge, Tennessee.

The Tennessee Department of Environment and Conservation, DOE Oversight Division (TDEC/DOE-O) has reviewed the subject document in accordance with the requirements of the National Environmental Policy Act (NEPA) and associated regulations of 40 CFR 1500-1508 and 10 CFR 1021 as implemented.

General Comments

In consideration of the treatment alternatives, TDEC supports the preferred alternative of the low-temperature drying method for the treatment of the Melton Valley Storage Tanks wastes (sludge and supernate) and segregation and compaction for the solid wastes (contact-handled and remote-handled TRU/alpha low-level heterogeneous debris). This alternative is presented as the most economical with respect to the resources needed for transportation and disposal, as well as the minimum impact to the environment.

It should be noted that the No Action Alternative is not a viable option due to a TDEC Commissioner's order requiring the initiation of shipments of the RH-TRU wastes to WIPP by January 2003.

Specific Comments

Page S-12, Section S1.4.2.2, Low-Temperature Drying Alternative

The text does not explain where the total amount of waste volume would come from. The conversions from square meters to square feet are not consistent, and the figures do not match the information on the chart on page S-18.

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TDEC-1

Response to Comment TDEC-1

Comment noted.

TDEC-2

Response to Comment TDEC-2

The Final EIS acknowledges that the No Action Alternative (as well as the Treatment and Waste Storage at ORNL Alternative) is not compliant with the TDEC Commissioner's Order (Sections S1.4.2.1, 4.6.2, and 8.3). It should be noted that the Treatment and Waste Storage at ORNL Alternative would not be compliant either.

TDEC-3

Response to Comment TDEC-3

Text has been added to Section S1.4.2.2 to indicate that the total volume of waste is the sum of primary, secondary, and D&D waste. Waste volume conversion errors have been corrected. Typically DOE used English units, converted to metric units, and rounded up. Table S-1 identifies the new storage space required for TRU and low-level waste only, since other wastes would not require special storage. Therefore, all waste volumes described for each treatment alternative are not provided in Table S-1, only those for TRU waste

and low-level waste. See Table 2-1 for a listing of all waste streams.

Page 1-10, Section 1.7, References, Third Reference

The sentence that has "tot he" should be changed to read "to the."

TDEC-4

Response to Comment TDEC-4

This typographical error has been corrected.

Page 2-7, Section 2.4.1, Facility Description

The sentence "The proposed site would encompass 2 ha (5 acres), the approximately 4 ha (10 acres) that would be included in the lease." The sentence should state "The proposed site would encompass 2 ha (5 acres) of the approximately 4 ha (10 acres) that would be included in the lease."

TDEC-5

Response to Comment TDEC-5

Text in Section 2.4.1 has been modified as suggested.

Page 3-14, Figure 3-5

The geologic map in figure 3-5 shows a formation called the Maryville Limestone. The Stratigraphic column Figure 3-4 page 3-13 calls the formation the Dismal Gap Formation (formerly the Maryville Limestone). The text on page 3-34 mentions the Maryville Limestone and throughout the geology and groundwater sections there is no mention of the Dismal Gap Formation. The formation nomenclature should be consistent.

TDEC-6

Response to Comment TDEC-6

Both Figure 3-5 and text in Sections 3.4.1 and 3.5.2.1 have been changed to be consistent.

Page 3-20, Figure 3-7

"Rough Creek Grabem" should read "Rough Creek Graben."

TDEC-7

Response to Comment TDEC-7

Figure 3-7 has been corrected.

Page 3-21, Paragraph 2, Line 7

The document describes the Oak Ridge Reservation as a location with a moderate risk for seismic damage. Do the construction/design plans include taking into account earthquake construction standards?

TDEC-8

Response to Comment TDEC-8

Earthquake construction standards will be taken into account during the design and construction of the facility.

Page 3-23, Section 3.5.1, Surface Water, First Paragraph

It is the State's understanding that the stream in question, a "wet weather tributary" has been determined to be Waters of the State. Please reflect this in the next version.

TDEC-9

Response to Comment TDEC-9

Text in Section 3.5.1 has been modified to identify all surface waters in the area of the proposed facility as "Waters of the State."

Page 3-30, Table 3-10, Locations, Frequency

Change Mitchell Branch to Melton Branch.

TDEC-10

Response to Comment TDEC-10

Table 3-10 has been corrected.

Page 3-33, Figure 3-13

TDEC DOE-O has in the past disputed the 90% groundwater flux in the stormflow zone for areas outside Melton Valley. The testing to arrive at the 90% number was conducted in the Nolichucky Shale in Melton Valley. However the percentage of water entering the bedrock is greater than 10% for those formations other than the Nolichucky Shale.

TDEC-11

Response to Comment TDEC-11

While the comment is correct, no changes were made to the document. It is important to note that the proposed TRU Waste Treatment Facility site is located over the Nolichucky Shale of the Conasauga Group. The purpose of Table 3-13 is to outline a conceptual model of flow and not for quantification of actual flux.

Page 3-51, Section 3.10.1, Exposure Pathways, Third Paragraph

Some residents in close proximity to ORNL and the Melton Valley facility do receive their potable supplies from groundwater. DOE has in the recent past conducted sampling of some of the residential wells in this area. DOE-O continues to sample residential wells in this area. This should be reflected in the text.

TDEC-12

Response to Comment TDEC-12

There are no groundwater wells on the ORR that are used for drinking water purposes. Text in Section 3.10.1 has been modified to indicate that residential wells are offsite the ORR. The residential wells mentioned in the comment are across the Clinch River and are hydrogeologically separated from the Melton Valley Watershed.

Page 4-6, Section 4.3.3, Low - Temperature Drying Alternative, Second Paragraph

This sentence states "There are no aquatic biota..."

This is a very broad statement. Due to the presence of a flowing stream, it seems likely there are at least a few taxa of organisms present (insects, micro-organisms, etc.), even though they may not be listed as Threatened and Endangered.

Page 4-13, Section 4.5.13, Low-Temperature Drying Alternative

The document states that sanitary wastewater would be contained and transported offsite by vendors for treatment/disposal. Please provide information on storage, treatment, disposal and transportation, and other pertinent information on the facility with respect to this phase of the operation.

Page 4-51, Section 4.9.3, Low-Temperature Drying Alternative

Impacts resulting from the proposed power line placement are not discussed, and no proposed route is presented.

Page 4-55, Section 4.10, Human Health Impacts

This section should be modified with Tritium added as a component of the stack emissions.

Page 4 - 61, Section 4.11, Accident Impacts

The nature of the supernates and sludges are not completely known. There is no discussion of the criticality controls that will be deployed as the wastes are treated and/or stored. In addition, it is recommended that this section be expanded to include an evaluation of possible releases due to the potential failure of the condenser/ventilation/air emission control system.

Page 5-2, Table 5-1, Past, Present and Reasonably Future Actions with Potential for Cumulative Impacts

The road construction is completed, and the Cumulative Impacts should be changed accordingly.

Page 5-5, Section 5.3 Water Resources

There is no analysis as to how the waste at SWSA 6 will impact White Oak Lake with respect to the facility. SWSA 6 should be addressed as to its possible impact to White Oak Lake. Wags 4, 5, and 13 are mentioned without the presence of SWSA 6/Wag 6 being acknowledged.

Cumulative impacts to Water Resources are not well defined. The section indicates that impacts will occur, but presents no explanation or measures to mitigate the impacts.

Page 5-7, Section 5.3.2, Old Melton Valley Access Road Upgrade

The road upgrade has been completed, and additional sediment/erosion control measures are being planned.

Page 6-1, Chapter 6, Mitigating Measures

TDEC recommends adding references concerning the roles of Federal, State, and other regulatory agencies in the formation/approval of mitigating measures.

TDEC-13

Response to Comment TDEC-13

Text in Section 4.4 has been clarified to indicate that few aquatic biota are actually present onsite due to very little permanent aquatic habitat.

TDEC-14

Response to Comment TDEC-14

Treatment and disposal of the liquid waste are described in Section 4.5.1.3.

TDEC-15

Response to Comment TDEC-15

Figure 4-2 shows the location of the electric feeder pole and the proposed facility location. Routine emplacement of poles and overhead cable along the existing patrol road right-of-way would be required; however, only very minor impacts are expected. The text has been modified in Section 4.9.3.

TDEC-16

TDEC-17

TDEC-18

Response to Comment TDEC-16

Tritium was included in the stack emissions. (See Appendix B.)

TDEC-19

TDEC-20

Response to Comment TDEC-17

While there is some uncertainty regarding full characterization of the supernate and sludges, analytical data and process knowledge indicate that no enriched materials are part of the tank waste. In addition, administrative and process controls (such as nondestructive assays) would be followed that avoid establishing a process scenario that would present a criticality concern.

TDEC-21

TDEC-22

With regard to the potential failure of the condenser/ventilation/air emissions filter system, the failure of the ventilation/air emissions system is addressed by the slurry line accident with HEPA filter failure in Section 4.11.5.

Response to Comment TDEC-18

The referenced table in Chapter 5 has been modified as suggested.

Response to Comment TDEC-19

DOE agrees that the impacts from SWSA 6 should be discussed as part of cumulative impacts. A new Section 5.3.6 has been added to identify major inputs (radionuclides) from Waste Area Group (WAG) 6 at SWSA 6.

Response to Comment TDEC-20

Sections 5.3.1 and 5.3.7 state that the cumulative impacts from the White Oak Creek Embayment Project mostly provide beneficial impacts by reducing contaminant and radionuclide loading to White Oak Creek and White Oak Lake. Some reductions are quantified and best management practices are expected to be used (Section 5.3.7) to mitigate impacts. Mitigating measures are addressed in Chapter 6.

Response to Comment TDEC-21

The text in Section 5.3.2 has been modified.

Response to Comment TDEC-22

Section 8.3 has been modified to address the State of Tennessee’s role in resource management, including the approval of mitigation measures (for example wetlands mitigation). The U.S. Fish and Wildlife Service’s role is also included in Section 8.1.

Page 8-1, Chapter 8, Federal and State Environmental Statutes and Regulations

This section omitted the Endangered Species Act that is pertinent to this document.

Page 8-4, Section 8-3, Regulatory Comparisons Between Alternatives

TDEC responsibility pertaining to resource management, Aquatic Resources Alteration Permits issuance/approval, and other resource management responsibilities should be referenced.

Page 10-1, DOE-Oak Ridge Distribution

The list of Preparers is on page 9-1.

Page 7, Appendix A.2, Section 4.4, Floodplain and Wetlands

This section erroneously states that there are no wetlands in the area. Elsewhere, for example in the Affected Environment Section, the document references several wetlands, one of which will probably require mitigation.

Page 7, Appendix A.1, Section 4.6, Water and Water Quality

The section infers that effluent would exceed the State ambient water quality criteria of 12 parts per trillion applicable to White Oak Creek for Mercury. However, no conclusions or recommendations for mitigation and the aspect of potential violation were discussed.

Page E-11, Appendix E

The letter from the United States Fish and Wildlife Service recommends that a Biological Assessment be performed, and forwarded to their office. The EIS does not state that the assessment was performed, or indicated the results of the assessment.

If you have any questions concerning these comments, please contact me at (865) 481-0995

Sincerely



Earl C. Leming
Director

xc: Dodd Galbreath - TDEC
Mike Apple - TDEC
Rodney Nelson - DOE
Steven Alexander - FWS
Jim Elmore - DOE/NEPA

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TDEC-23

TDEC-24

TDEC-25

TDEC-26

TDEC-27

TDEC-28

Response to Comment TDEC-23

A description of the Endangered Species Act has been added to Section 8.1 of the Final EIS.

Response to Comment TDEC-24

Text has been added to Section 8.3 of the Final EIS to address the State of Tennessee's role in resource management, including Aquatic Resources Alteration Permits.

Response to Comment TDEC-25

The comment refers to an error in the Table Contents, which has been corrected.

Response to Comment TDEC-26

The commentator is referring to a report entitled the *Environmental Synopsis for the Transuranic Waste Treatment Project at the Oak Ridge Reservation* (January 1999) in the Appendix (A.2). The synopsis compared environmental information provided to DOE through the procurement process and did not include detailed information developed as a result of the preparation of the EIS.

During the development of the EIS for this project, DOE identified two small wetlands within the area to be used for the proposed TRU Waste Treatment Facility. One wetland would be impacted by the proposed action; the other would not. These wetlands, along with others in the vicinity, are documented in the EIS. DOE is coordinating with TDEC on wetland mitigation. Information on potential mitigation measures is included in Chapter 6.

Response to Comment TDEC-27

The synopsis included as Appendix A.2 refers to proposals by two offerors to DOE to treat the waste discussed in this EIS. Offeror #1's proposal cited an exceedance of the 12 parts per trillion water quality criterion. Offeror #1's proposal was not

accepted by DOE; Foster Wheeler’s proposal was accepted and evaluated as the preferred alternative. Offeror #2 (Foster Wheeler) proposed to have no liquid effluent discharge.

Response to Comment TDEC-28

A draft BA has been prepared (Appendix E) and will be submitted to the U.S. Fish and Wildlife Service. DOE is continuing the informal consultation process with U.S. Fish and Wildlife Service.

3.2.5 U.S. Department of Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

April 11, 2000

ER-00/171

Dr. Clayton Gist
U. S. Department of Energy
Oak Ridge Operations
P. O. Box 2001
Oak Ridge, TN 37831

Dear Dr. Gist:

The Department of the Interior has reviewed the Draft EIS for Treating Transuranic (TRU) Alpha Low-Level Waste at the Oak Ridge National Laboratory, Oak Ridge, TN, as requested.

General Comments

The DEIS describes the action alternatives being considered, all of which involve treatment of the wastes, followed by (1) shipment to an appropriate disposal facility, or (2) storage at the Oak Ridge National Laboratory. However, the water-related impacts of all four action alternatives are equivalent. Therefore, the specific rationale for selecting the preferred alternative should be clearly stated as justification for the waste treatment method ultimately selected in this proposed project.

Seismic hazards are also inadequately discussed in the Draft EIS. Current methodology used to evaluate the seismic hazards, and the East Tennessee seismic zone, which is important to the Oak Ridge site, should be discussed in more detail.

The U.S. Fish and Wildlife Service (FWS) reviewed the scoping document for this DEIS and provided comments to the U.S. Department of Energy on July 8, 1999. The FWS suggested that qualified biologists assess potential impacts to the Federally endangered gray bat (*Myotis grisescens*) and pink mucket pearly mussel (*Lampsilis abrupta*). The sensitive plant and animal surveys conducted in April and May, 1999, for this project did not include mistnetting efforts for bats potentially present at or near the site or an evaluation of potential impacts to the pink mucket pearly mussel.

On July 14, 1999, a site visit of the project area was conducted by FWS personnel. Significant clearing and grubbing activities had occurred for the construction of an access road from State Route 95 to the proposed TRU facility. The DEIS did not discuss in detail the access road construction or potential impacts to sensitive species. This construction activity was granted a categorical exclusion

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USDO1-1

USDO1-2

USDO1-3

USDO1-4

Response to Comment USDO1-1

The water-related impacts from all the treatment alternatives are minimal. Water-related impacts, which are discussed in Section 4.5 of the EIS, were not a discriminating factor for selection of the preferred alternative. DOE evaluated and compared the impacts of each alternative (Chapter 4 and Tables S-3 and 2-6).

DOE obtained proposals from qualified bidders on several treatment processes. Low-temperature drying was initially selected by DOE as the preferred alternative based on a combination of environmental and cost considerations. The analysis in this EIS showed low-temperature drying has lower waste volumes, less utility usage, fewer transportation shipments, and lower associated risks than the other action alternatives.

Response to Comment USDO1-2

Additional information on seismic hazard is provided in Section 3.4.

Response to Comment USDO1-3

Qualified biologists did a site walkover in the fall of 1998. No habitat for the gray bat was identified, and this information is included in the EIS. Additional information on the pink mucket pearly mussel is also added in Section 4.3. Because no suitable habitat for either species was found, DOE determined that no adverse impacts were likely.

Additional field studies for wetlands, terrestrial animals, and rare plants were conducted in May 1999. DOE is continuing informal consultation with the U.S. Fish and Wildlife Service, including addressing the question of mist netting.

Response to Comment USDO1-4

A draft BA has been prepared (Appendix E) under provisions of the Endangered Species Act and has been submitted to the U.S. Fish and Wildlife Service. The draft BA discusses sensitive plant and animal surveys that were conducted within the Melton Valley Watershed prior to construction of the access road. The draft BA also discusses any information related to the presence of the Indiana bat and gray bat and potential habitat for either species in the project area and surrounding areas. Informal consultation between DOE and the U.S. Fish and Wildlife Service will continue with regard to what further action, if any, should be taken near the project area.

DOE has provided information to the U.S. Fish and Wildlife Service on threatened and endangered species surveys conducted over the past several years (1992 and 1997). Mist netting results for bats on Lower East Fork Poplar Creek were provided. Approximately seven caves on the ORR were surveyed for bats in 1996, with negative results for protected species. There are no caves within the area to be leased for the TRU Waste Treatment Facility, although two caves are within 1.5 miles. DOE reported a single dead gray bat found at the Y-12 Plant in 1994.

A copy of the categorical exclusion for the Old Melton Valley Road Upgrade is included in Appendix G. The rare plant survey conducted as part of that categorical exclusion is included in Appendix G. The road was relocated to minimize impacts to rare plant species. (See also response to comment ORSSAB-2.)

pursuant to the National Environmental Policy Act (CX-TRU-98-007, Categorical Exclusion for Construction/Relocation of Access Road at Oak Ridge National Laboratory)(DOE-ORO 1998).

While the FWS did not provide the Federally endangered Indiana bat (*Myotis sodalis*) as a potential species in comments to the scoping document, recent collection records in East Tennessee suggest suitable habitat exists on the Oak Ridge Reservation. It was noted during the site inspection that both Class 1 and Class 2 tree species of suitable sizes to support primary and secondary maternity roosting habitat for the Indiana bat existed adjacent to the road construction corridor. This road construction may have constituted an irreversible and irretrievable commitment of resources which does not appear to have been properly and thoroughly evaluated. The Final EIS should include a discussion of sensitive plant and animal surveys conducted within the Melton Valley watershed prior to construction of the access road. Also, we would also encourage the DOE to conduct thorough mistnetting surveys for bats within the project corridor and White Oak Creek, the unnamed tributary to White Oak Creek, Melton Branch, and White Oak Lake near the proposed facility. While the gray bat may not be a permanent resident in the Melton Valley watershed as stated in the DEIS, it may forage over these waterbodies and could occur within the impact area of the proposed project.

The DOE should make a determination of effect and coordinate the findings with the FWS's Cookeville, Tennessee, office for review and concurrence. The FWS contact in Cookeville, TN is contact Steve Alexander at 931/528-6481 (ext. 210) or via e-mail at steven_alexander@fws.gov.

Specific Comments

Page S-7, Section S1.4.1, 2nd paragraph - Upon decontamination and decommissioning of the treatment facility, ownership and care of the facility and the leased land will revert to the Department of Energy (DOE). Noting the long half-lives of many radio nuclides, the DOE plans for monitoring and/or remediating any related environmental problems over the long term, i.e. the half-life of the longest lived radio nuclide, should be identified. Additionally, the Draft EIS does not identify any mitigation technology if a chemical/radioactive waste spill were to occur.

Page S-8, Section S1.4.2, Alternatives -Alternative number 2 should be labeled "Low-Temperature Drying" instead of "Low-Temperature During."

Page 2-9, Figure 2-3 - This figure must be a reduced version of a larger figure. It is an important figure, but almost impossible to read. A new readable figure needs to be presented in the Draft EIS.

Page 3-9, Section 3.4, Geology and Seismicity - In the second paragraph, a statement is made that the tectonic activity 300-250 million years ago is responsible for the landforms. This is incorrect. This activity is responsible for the structures. Differential erosion is responsible for the landforms, as correctly noted later in the paragraph.

USDO1-4

(cont.)

USDO1-5

USDO1-6

USDO1-7

USDO1-8

USDO1-9

Response to Comment USDO1-5

DOE is consulting with the U.S. Fish and Wildlife Service regarding future actions.

Response to Comment USDO1-6

Foster Wheeler is required to D&D the facility if the Low-Temperature Drying Alternative is selected. The contractor is required to restore the site to near its original condition per stipulations in the contingent contract with DOE. Section 4.11.2.1 states that soil removal and replacement would be the mitigation technology in the event of a spill from the MVSTs.

Although present in small amounts, some radionuclides have half-lives exceeding a million years. DOE acknowledges its responsibilities for long-term stewardship for the wastes for as long as necessary to protect human health and the environment.

Response to Comment USDO1-7

The correction has been made in Section S1.4.2.

Response to Comment USDO1-8

Figure 2-3 has been enlarged.

Response to Comment USDOI-9

Text in Section 3.4 has been modified to clarify role of tectonic activity in producing structure and resulting topography.

Page 3-12, Section 3.4.1, Stratigraphy - In the first paragraph, fault movements are discussed. For clarity, a statement is needed to explain that these faults are very old and inactive.

Page 3-13, Figure 3-4 - The "LITHOLOGY" column is impossible to understand without an explanation or legend. Also, the left-hand column under "FORMATION" shows letter codes for the formations. These codes are not unique, and therefore, are confusing. These shortcomings should be rectified.

Page 3-14, Figure 3-5 - In Figure 3-4, the small print states that the Dismal Gap Formation is formerly known as the Maryville Limestone. Yet in Figure 3-5, it is labeled Maryville Limestone. The names of the formations should be consistent and current. The same problem affects the Friendship Formation, formerly Rutledge Limestone. Maryville Limestone is used in the discussion in paragraph three of section 3.4.1 instead of the Dismal Gap Formation.

Additionally, the legend shows "ORNL North" and "true north." In other figures "ORNL grid north" is used. An explanation of these terms is needed.

Page 3-15, Section 3.4.2, Structure - In the second paragraph, it says saprolites "tend to have a clay content." This statement is unclear. The percentage of clay content in saprolites would be more helpful. The fourth paragraph begins "Tectonic activity has also produced extensive fracturing and ...". This statement is misleading. We suggest the sentence read "Ancient tectonic activity...".

Page 3-16, Figure 3-6 - Label where Figure 3-5 is on Figure 3-6.

Page 3-18, Section 3.4.4, Site Stability - A more up-to-date earthquake catalog is needed here. This can be found at <http://geohazards.cr.usgs.gov/eq/html/catdoc.shtml> and is explained in Mueller et al. (1997).

The term "Richter Scale" is inappropriately used quite often in the report. "Magnitude" is the term to use. If a specific magnitude scale is used, then it needs to be used correctly and can be used with "body-wave," "mb," or other designation. But none of these is strictly a Richter magnitude.

In the last sentence of paragraph 2, the document states that high magnitude earthquakes may not equate to high intensity "...if they occur in an unpopulated, remote location where very little measurable damage to human structure occurs." This is incorrect. A measure of the intensity may be difficult in such places, but the intensity is the intensity. What may affect intensity are site conditions, distance, and how fast the energy is lost with distance in the region (i.e., the attenuation).

Page 3-19, Table 3-6 - Remove "Richter Scale..." and replace with "Effects near the epicenter of earthquake magnitude." It is misleading as it stands.

Page 3-20, Section 3.4.4, Site Stability and Figure 3-7 - In the first complete paragraph, there is a discussion about the New Madrid "fault," which is incorrect usage since there are no certain faults. The New Madrid is referred to as a seismic zone. The earthquakes there were in 1811 and 1812, not

USDOJ-10

Response to Comment USDOJ-10

Text in Section 3.4 has been modified to indicate these faults have been largely inactive in recent geologic time.

USDOJ-11

Response to Comment USDOJ-11

The legend to Figure 3-4 has been modified to identify lithology, and clarify formation terminology.

USDOJ-12

Response to Comment USDOJ-12

Changes have been incorporated into Figure 3-4 to explain that the Dismal Gap Formation is known locally as the Maryville Limestone Formation.

USDOJ-13

Response to Comment USDOJ-13

Figure 3-5 has been modified to show OR Administrative Grid.

USDOJ-14

Response to Comment USDOJ-14

Text in Section 3.4.2 modified to indicate a high clay content. Also sentence in the fourth paragraph in Section 3.4.2 was changed to reflect ancient tectonic activity.

USDOJ-15

USDOJ-16

USDOJ-17

USDOJ-18

Response to Comment USDOJ-15

The location of TRU Waste Project Site location is identified in the geologic cross-section map (Figure 3-6). This figure has a note indicating that a generalized plan view of the project site may be found in Figure 3-5.

USDOJ-19

USDOJ-20

Response to Comment USDOJ-16

The site-specific information referenced in Section 3.4.4 is preferable to the more generic site stability information available at this web site.

Response to Comment USDOJ-17

In accordance with the comments, the references to older "Richter scale" earthquake classification have been removed except on Table 3-6, where they have been left for comparison purposes because most members of the general public are familiar with the Richter scale for earthquake classification.

Response to Comment USDOI-18

Text has been modified in the second paragraph of Section 3.4.4 to delete any reference to comparing earthquake magnitude to levels of earthquake intensity.

Response to Comment USDOI-19

Because the general public thinks of earthquakes in terms of the Richter scale, Table 3-6 was not modified.

just 1812. It is unclear what the five earthquakes are, unless two of them are the 1843 and 1895 events.

Figure 3-7 is completely confusing and the magnitudes are mixed. The caption says “Richter Scale,” the figure legend says “mb”. It is one or the other, but mb (body-wave magnitude) is correct but not very useful because it saturates at high magnitudes. The 1811 and 1812 earthquakes were nearly magnitude 8, but mb cannot measure that high. See Johnston (1996) for current discussion of the magnitude issue for New Madrid.

The second most active seismic zone in the eastern U.S. is the East Tennessee seismic zone, where earthquakes occur under the overthrusts. There is very little discussion of this area. A thorough discussion of this seismic zone is needed here. Johnston et al. (1985) and Powell et al. (1994) can be used as references for this zone.

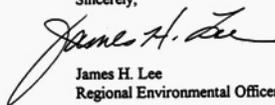
Page 3-21, Section 3.4.4, Site Stability - In the first complete paragraph, the discussion of capable faults is a bit misleading because, again, all earthquakes in the Appalachians and most of New Madrid are occurring on buried faults. This does not mean they are not capable, just that we cannot determine this by the same methodology as used in California, for example.

Pages 3-22-23, Figure 3-8 and Table 3-8 - Both this Figure and Table show the Peak Ground Acceleration in “g,” which is correct, but then describe g as 1 g force equaling the force of earth’s gravity on a mass at sea level. This is incorrect. It is the acceleration due to gravity at sea level. “Force” is an inappropriate term for this concept.

The National Hazard Mapping web pages of the USGS at <http://geohazards.cr.usgs.gov/na/> provide a more modern approach to looking at the seismic hazard (Frankel et al., 1996). The web page shows the peak ground acceleration for Oak Ridge and the values are actually lower than in Table 3-8 (page 3-23). However, if you download the disaggregation of hazard for nearby Knoxville (see attached), it is clear that local Appalachian earthquakes drive much of the hazard, which is not well reflected in the report.

If you have any questions concerning fish and wildlife resources, contact Bruce Bell at the FWS at 404/679-7089. If there are questions concerning geology comments, contact James Devine, U. S. Geological Survey at 703/648-4423. You can reach me at 404/331-4524.

Sincerely,



James H. Lee
Regional Environmental Officer

USDOJ-20 (cont.)

USDOJ-21

USDOJ-22

USDOJ-23

USDOJ-24

USDOJ-25

Response to Comment USDOJ-20

The text has been modified in Section 3.4.4 in accordance with the comment, and detailed reference to the timing of any other seismic activity along the New Madrid seismic zone was deleted to avoid confusion.

Response to Comment USDOJ-21

The caption for Figure 3-7 has been modified to delete any reference to “Richter Scale” to make figure data consistent with caption.

Response to Comment USDOJ-22

Section 3.4.4 has been modified to include a discussion of the East Tennessee seismic zone.

Response to Comment USDOJ-23

Clarifications were made in Section 2.44 as suggested. The information from Blasing et al. 1992 regarding capable faults in the vicinity of the ORR remains because it is directly applicable.

Response to Comment USDOJ-24

Text has been modified in Figure 3-8 and Table 3-8 to reflect acceleration due to gravity at sea level.

Response to Comment USDOJ-25

Table 3-8 was not modified because data in this table are from site-specific monitoring rather than regional Appalachian data as referenced by the commentor. As mentioned in the comment, Frankel et al. 1996 suggest the ground acceleration for Oak Ridge may actually be lower than that reflected by the site-specific data.

REFERENCES:

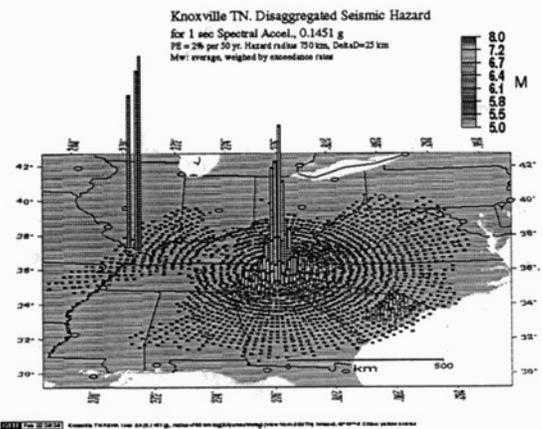
Frankel, A., Mueller, C., Barnhard, T., Perkins, D., Leyendecker, E. V., Dickman, N., Hanson, S., and Hopper, M., 1996, National Seismic-Hazard Maps: Documentation: U.S. Geological Survey Open-File Report 96-532.

Johnston, A. C., 1996, Seismic moment assessment of earthquakes in stable continental regions-III. New Madrid 1811-1812, Charleston 1886 and Lisbon 1755:

Johnston, A. C., Reinbold, D. J., and Brewer, S.I., 1985, Seismotectonics of the southern Appalachians: Bulletin of the Seismological Society of America, v. 75, p. 291-312.

Mueller, C., Hopper, M., and Frankel, A., 1997, Preparation of earthquake catalogs for the National Seismic-Hazard Maps: contiguous 48 States: U.S. Geological Survey Open-File Report 97-464.

Powell, C. A., Bollinger, G. A., Chapman, M. C., Johnston, A. C., and Wheeler, R. L., 1994 A seismotectonic model for the 300-Kilometer-long Eastern Tennessee seismic zone: Science, v. 264, p. 686-688.



3.2.6 U.S. Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960
April 17, 2000

4EAD

Dr. Clayton Gist, Waste Management Integration Team Leader
U.S. Department of Energy
Oak Ridge Operations
55 Jefferson Avenue
P.O. Box 2001
Oak Ridge, Tennessee 37831

**RE: EPA Review and Comments on
Draft Environmental Impact Statement (DEIS) for Treating Transuranic (TRU)/
Alpha Low-Level Waste at the Oak Ridge National Laboratory, Oak Ridge, TN
CEQ No. 000059**

Dear Dr. Gist:

Thank you for submitting the above-referenced document for our review. Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) reviewed the subject Draft Environmental Impact Statement (DEIS). The document provides information to educate the public regarding general and project-specific environmental impacts and analysis procedures. We appreciate your consistency with the public review and disclosure aspects of the NEPA process, and also appreciate the clarity and level of detail in the maps and figures in the document.

The Department of Energy proposes to construct, operate, and decontaminate/decommission a TRU Waste Treatment Facility in Oak Ridge, Tennessee. The four waste types that would be treated at the proposed facility would be remote-handled TRU mixed waste sludge, liquid low-level waste associated with the sludge, contact-handled TRU/alpha low-level waste solids, and remote-handled TRU/alpha low-level waste solids.

The DEIS analyzes potential environmental impacts associated with five alternatives: No Action, Low-Temperature Drying Alternative (Preferred Alternative), Vitrification Alternative, Cementation Alternative, and Treatment and Waste Storage at Oak Ridge National Laboratory Alternative.

Based on our review, we rate the document "EC-2," that is, we have environmental concerns about the issues of process releases and details of the preferred alternative. Page S-34 of the DEIS notes that, during the treatment and repackaging effort, some process releases and resulting risks to humans would occur. These risks need to be explained. In addition,

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Internet Address (URL) • <http://www.epa.gov>
Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper (Minimum 25% Postconsumer)

EPA-1

Response to Comment EPA-1

Section S1.8 discusses cumulative impacts. Regarding process releases and resulting human health risks, on page S-34 of the Draft EIS, DOE presented the cumulative impacts of the proposed action when combined with past, present, and reasonably foreseeable future actions, at ORR. The vitrification process was used as the bounding case because it would produce larger human health risks than either the low-temperature drying process or cementation. The latent cancer

clarification is needed regarding how the preferred alternative, using the current facilities at Melton Valley Storage Tanks, fits with the Record of Decision(s) for the proposed CERCLA actions. The relationship of the LLW and/or mixed waste generated to the proposed Mixed Waste disposal cell being proposed for the entire Oak Ridge Reservation also needs clarification.

Thank you for the opportunity to comment on this project. If you have any questions or require technical assistance, you may contact Ramona McConney of my staff at (404)562-9615.

Sincerely,



Heinz J. Mueller, Chief
Office of Environmental Assessment

Attachment

EPA-1

(cont.)

fatalities (LCFs) from the vitrification process (from air emissions), when combined with those computed for the Spallation Neutron Source (another project proposed for the ORR near ORNL), would cumulatively result in 3.1E-01 LCFs. Additional information can be found in Section 4.10.5 and Chapter 5.

Treatment of the MVST waste and SWSA 5 North waste would be consistent with the CERCLA ROD for Melton Valley. Additional information has been added to Chapter 4 addressing on-site waste transportation.

Clarifications relative to CERCLA RODs and the on-site disposal cell are provided in responses to EPA-3 and EPA-4, respectively.

Comments on
Draft Environmental Impact Statement (DEIS)
for Treating Transuranic (TRU)/ Alpha Low-Level Waste
at the Oak Ridge National Laboratory, Oak Ridge, TN
CEQ No. 000059

1. Overall, the DEIS is well-detailed and well-illustrated. The tables, maps, flow charts and figures are clear and useful.
2. Please clarify and explain how the preferred alternative, using the current facilities at Melton Valley Storage Tanks, fits with the Record of Decision(s) for the proposed CERCLA actions.
3. Please clarify the relationship of the LLW and/or mixed waste generated, to the proposed Mixed Waste disposal cell being proposed for the entire Oak Ridge Reservation. Please explain how the waste generated/managed for this action relates to it.
4. The preferred alternative would appear to meet the objectives for treating TRU and preparing it for WIPP disposal. What is the time frame for the waste being sent there, based on current operation schedules for all DOE sites?
5. Please clarify the method used to estimate waste volume on page S-12.
6. The document includes technical terms which may be unfamiliar to some public reviewers. Since this document is distributed to the public and non-technical reviewers, it would be helpful to further explain technical terms used in the DEIS, such as "contact-handled," "remote-handled," and "macroencapsulation."
7. Page S-33 notes that a 0.03-acre wetland on the proposed project site is expected to be eliminated by construction. The wetland area should be noted on a map in the EIS. EPA supports efforts to preserve wetlands, especially those of higher quality. Mitigative efforts and plans to offset unavoidable losses should be designed and implemented during the project; we note the potential mitigative measures listed in the DEIS.
8. Page S-34 notes that, during the treatment and repackaging effort, some process releases and resulting risks to humans would occur. Please clarify these risks. We note the off-gas system to minimize air emissions, and the cumulative effect of the Spallation Neutron Source Project.
9. Please clarify details of the Low-Temperature Drying process. What were the results of the existing precedents for this technology?

EPA-2

EPA-3

EPA-4

EPA-5

EPA-6

EPA-7

EPA-8

EPA-9

EPA-10

Response to Comment EPA-2

Comment noted.

Response to Comment EPA-3

The proposed action is linked to both previous and proposed actions taken or to be taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The existing Melton Valley Storage Tanks (MVSTs) liquid and sludge waste volume was generated from three primary sources: the gunite and associated tanks, the Old Hydrofracture Facility Tanks Remediation Project, and the Inactive Tank Waste Program. Liquid waste volumes from the gunite tanks and the old hydrofracture tanks were transferred to the MVSTs via decisions that were made under the CERCLA process (i.e., interim ROD and action memorandum, respectively). The interim ROD was published by DOE in 1997 and is entitled *Record of Decision for Interim Action: Sludge Removal from Gunite and Associated Tanks Operable Unit, Waste Area Grouping 1, Oak Ridge National Laboratory, Oak Ridge, Tennessee*, DOE/OR/OR2-1591&D3. The operation of the MVSTs and the treatment of liquid waste volumes contained therein are non-CERCLA activities.

In addition, there is also an indirect link between the proposed actions and future CERCLA actions to remediate the SWSA 5 North area. The TRU wastes presently stored in the trenches at SWSA 5 North are currently in an environment where an ongoing release of contamination has been identified. Information was added to Section 4.8 of the Final EIS explaining the impacts of exhuming 23 trenches of buried TRU waste casks and transporting them to the treatment facility for processing. The residual contamination left in the soils below and adjacent to the SWSA 5 North trenches will be addressed in the Draft Melton Valley Watershed ROD.

Response to Comment EPA-4

There is no relationship between the low-level waste that would be produced from the proposed action in this EIS and the on-site disposal cell currently being designed to provide disposal capacity for waste to be generated from cleanup actions on the ORR. The on-site disposal facility, the Environmental Management Waste Management Facility (EMWMF), was evaluated under CERCLA and is intended to provide disposal capacity for waste that will be generated from CERCLA remedial actions across the reservation. Low-level waste that would be generated from the treatment of the TRU waste is not eligible for disposal in the EMWMF because it is not CERCLA waste. Further, the disposition of low-level waste from this action was considered in the WM PEIS and its disposal would be governed by the ROD for low-level waste disposal (*Record of Decision for the Department of Energy's Waste Management Program: Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste; Amendment of the Record of Decision for the Nevada Test Site—Federal Register* Vol. 65, No. 38, pp. 10061–1066, February 25, 2000).

Response to Comment EPA-5

DOE indicated in Table 4-10 of the Draft EIS that the waste shipment schedule is 58 months potentially starting as early as January 2003 and going until late 2007. The proposed schedule for the preferred alternative would meet the Site Treatment Plan milestones agreed to with the State of Tennessee. DOE has a coordinated shipment schedule with all TRU-waste-generating sites having an annual waste shipment allotment.

Response to Comment EPA-6

Waste volumes were summarized from data in Table 2-1, Section 2.4.2 of the EIS. Data were provided by Foster Wheeler and DOE has performed an independent review of the waste volume estimates for reasonableness.

Response to Comment EPA-7

“Contact-handled” and “remote-handled” are defined in footnotes in Section S1.4.2.2 and 2.4.2.2, as well as in the *Glossary of Terms Used in DOE NEPA Documents*

(DOE 1998) and on DOE’s NEPA website at <http://eis.doe.gov/nepa/>. See also Sections S1.4.2.2 and 2.4.2.2. Macroencapsulation refers to a process where waste materials are imbedded in inert material.

Response to Comment EPA-8

Wetlands near the site are discussed in Section S1.2.6.5, Table S-3, and in Sections 3.5.3 and 4.5.3 of the Final EIS. Maps of these wetlands are provided in the Final EIS (Figure 3-16 and Figure 4-1). A Wetlands Assessment was prepared for the site (Appendix C.6), and consultation is ongoing with the State of Tennessee on mitigation measures.

Response to Comment EPA-9

See response to Comment EPA-1.

Response to Comment EPA-10

The low-temperature drying process involves the use of a corkscrew-shaped or auger-type dryer to stir the waste under moderate vacuum conditions. The vacuum conditions reduce the boiling point of water in the waste to approximately 190°F. These types of dryers are used in numerous industrial and process applications. They have also been used to remove water from highly radioactive materials such as sump sludges, nitrate solutions, chemical drains, and ion-exchange resins. Also see response to Comment EM-1 for additional details of the treatment process.

3.2.7 Public Hearings

PUBLIC COMMENT HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR TREATING TRANSURANIC/ALPHA LOW-LEVEL WASTE AT THE OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE, DOE-EIS-0305-D, February 2000

March 21, 2000

Conference Center, Oak Ridge Mall

1 BILL CAHILL: I'd like to get started,
2 and we wanted to try to start as close to 6:30 as possible.
3 We do have a couple of opening announcements. We are
4 without the use of a PA system that works tonight, so I
5 would ask that you either listen real closely or move up to
6 some of the empty seats up closer. And if you can't hear
7 anything that's said, please raise your hand and I will
8 holler a little louder. For those of you who might be
9 looking for the rest rooms, they're out the door, I
10 understand, and to the left, as a public service
11 announcement. We will go ahead and get things kicked off
12 here.

13 My name is Bill Cahill. I am the NEPA
14 document manager for the TRU Waste Treatment Project here in
15 Oak Ridge. I want to do some introductions to the folks who
16 have been running the project for a number of years. First
17 of all, the TRU waste treatment program manager is Mr. Gary
18 Riner, sitting here at the front. Another principal
19 involved tonight with this evening's activities is Mr. Wayne
20 Tolbert with SAIC, as a principal author on the document.

21 We have several visitors from
22 headquarters that I'd like to recognize also. Mr. Jit Desai
23 with the Office of Environmental Management, Jit, you want
24 to raise your hand. And this is Mary Greene in the back
25 with the Office of EH, Environmental Health and

Responses to Comments Made at Public Hearing

To the left is the transcript of the briefing portion of the public hearing held on March 21, 2000, in Oak Ridge, Tennessee. The first comment and DOE's response can be found on page CRD-77 of this CRD.

1 Headquarters. We also have with us this evening the
2 operations manager for Foster Wheeler, Mr. Bryan Roy,
3 sitting up here at the front.

4 If you want to write a comment tonight
5 and mail it into us or you want to pick up some blue cards,
6 please fill one of these out and feel free to mail it in and
7 we will make sure that those comments get incorporated.

8 We have a lot to cover tonight, so I'm

9 going to try to go through the information as quickly as
10 possible, and then we want to reserve as much time as
11 possible to get everybody's comments made and the folks who
12 have been the principals involved in this activity over a
13 number of years will answer any questions that you guys
14 have. Or to the extent that we can respond to the comments
15 given tonight, we'll go ahead and do that.

16 Hopefully, I didn't miss anything. We do
17 have two handouts. We have got the Summary of Impacts
18 Tables that give you some details on the impact analysis
19 that's been done. And we also have hard copies. They're
20 all gone. I do have a couple more back here if you folks
21 are interested in them. We also have copies of the briefing
22 materials as well as if you didn't get a copy of the Draft
23 Environmental Impact Statement and you want to have one, we
24 have a couple here we can hand out tonight, also. If you
25 need one, either get in contact with Gary or myself, and we

1 will make sure that you get a copy of those. So if no
2 further ado, we will go ahead and get going with this
3 evening.

4 We are here tonight to talk to you about
5 the Draft Environmental Impact Statement for the treatment
6 of TRU waste. We want to run through the alternatives that
7 have been evaluated with you, give you an overview of the
8 document in general. And most importantly, we want to get
9 your comments, give you an opportunity to get your comments
10 out on the table for us to make sure we can get it
11 incorporated into the final that gets pulled together. We
12 will give you some information about where to mail your
13 comments and things like that towards the end of the
14 evening.

15 The TRU Waste Treatment Project that we
16 have here at Oak Ridge at ORNL is significant both to Oak
17 Ridge and is a complex wide problem. Clearly one of the
18 most significant challenges of the department today is to
19 address the legacy waste that has been generated by past
20 research and defense activities, liquid wastes that are
21 stored in various tanks across the reservation that do
22 present serious challenges to achieve a cost effective and
23 safe, environmentally safe alternative for addressing those
24 problems.

25 In terms of the scope that we have to

1 cover tonight in the Draft EIS, we are talking about the
2 treatment of the stored legacy and newly generated waste at
3 ORNL. We give a breakdown of the some of the volumes here
4 for you to look at. We've got both contact-handled and
5 remote-handled waste volumes. We have solid low-level waste
6 and we also have liquid and sludge waste that we have to
7 deal with. These are the volumes and these are the waste
8 types that we're going to talk about tonight and talk about
9 treating them.

10 This is, as Gary made a point to someone
11 earlier this evening, this is one of the most hazardous
12 waste streams that we've got here on the reservation. It
13 does present one of the most significant health and safety
14 problems that we have to address here on the reservation.
15 This waste is considered by our regulators as a significant
16 priority to be addressed. We have several different
17 regulatory documents that have been put into place to
18 address remediation or treatment of this waste. We've got a
19 Tennessee commissioner's order and there have been several
20 records of decision that have been put into place to address
21 some of the smaller volumes of the TRU waste that are out
22 there, specifically in the Melton Valley area.

23 We do want to take a couple of minutes to
24 address several basic what we call TRU facts, if you will, a
25 definition of TRU waste. We want to try to get that

1 straight before the evening got too much further down the
2 road. TRU waste is not classified as high-level waste, as
3 you can read here, but we're talking about radioactive
4 isotopes or transuranic isotopes with an atomic number
5 greater than 92 at concentrations greater than 100
6 nanocuries per gram. I think that's correct. Yes. And
7 then you can read the half-lives.

8 Why is the TRU waste a health hazard here
9 on the reservation? Why does it represent a significant
10 health hazard on the reservation? Because of the alpha
11 emitting particles. And although they're easily shielded,
12 they do create some significant health problems if they're
13 inhaled or ingested. So that's kind of a general definition
14 of TRU waste for you.

15 Legacy waste has been another comment or
16 questions that have come up in terms of legacy waste that
17 we've got to deal with here. The legacy waste that we're
18 talking about addressing in this document is waste that's
19 generated from past research and development activities here
20 on the reservation, and it's stored in solid waste tanks and
21 facilities across Oak Ridge National Lab in bunkers and in
22 trenches. Do we generate any TRU waste on the reservation
23 currently? And the answer to that question is yes, we do.
24 It's at the Radiochemical Development Facility, which is the
25 only source of transcurium elements. This EIS, I did want

1 to make a point that this EIS does include addressing newly
2 generated waste volumes, although we have a very small
3 volume of that, and the greatest volume of waste that we
4 have to deal with are the legacy volumes that are in the
5 tanks that we talked about before and the solid waste
6 volumes.

7 In terms of waste types, I mentioned a
8 moment ago about the sludges that are included in the EIS
9 document for analysis. They are currently consolidated.
10 About 95 percent of all of the TRU waste sludges and liquids
11 have been transferred and are consolidated now at the Melton
12 Valley Storage Tanks. We have about 900 cubic meters of
13 sludge waste, that's remote-handled. It does contain RCRA
14 metals, so it is considered to be a mixed waste. We also
15 have some liquids or supernates that the document addresses
16 that is included with the sludge waste material that needs
17 to be addressed.

18 In addition to the supernate or the
19 liquids in the sludge, we also have some solid waste to deal
20 with. We've got solid waste that is remote-handled and
21 we've got solid waste that's contact-handled. Basically,
22 the difference between those two different types of waste is
23 the level of activity and the level of health and safety
24 standards that have to be overlaid to make sure that we
25 safely manage that waste.

1 In terms of the remote-handled solid
2 low-level waste, we have about 550 cubic meters of material
3 that may contain RCRA characteristic metals that are
4 currently stored in the waste bunkers and trenches. They
5 are in various boxes and overpacks. We also know that these
6 overpacks are not approved right now for transportation, so
7 they are not in any shape to pick up and move anywhere. So
8 they need to be repackaged, which is one of the challenges
9 that is related to dealing with this type of waste.

10 We also have contact-handled low-level
11 waste to deal with. We have got about a thousand cubic
12 meters of this type of waste that's stored in the metal
13 buildings at Oak Ridge National Lab now. This material is
14 stored in drums inside of these buildings. It also may
15 contain some RCRA characteristic materials, metals,
16 hazardous metals. Many of these containers also need to be
17 repackaged, which presents a challenge for handling this
18 type of waste.

19 I do want to talk about the distinction
20 that we make in the Draft EIS now with regards to alpha
21 low-level waste. Basically, when we talk about the
22 management of alpha low-level waste or the disposal of alpha
23 low-level waste in this document, we're talking about the
24 same transuranic elements but at concentrations below the
25 hundred nanocuries per gram. So we've got low-level waste,

1 basically, but it's alpha low-level waste. The same
2 transuranic elements are involved but just at different
3 concentrations. I wanted to make sure that we're clear on
4 that.

5 The process that we have been following
6 here for this evaluation basically is by using our NEPA
7 implementation regs, 10 *CFR*, Part 1021, which basically has
8 allowed us in this particular process to join together the
9 procurement effort with the development of the NEPA process
10 and the evaluation of our NEPA requirements. Basically, the
11 benefit that that provides us in this particular project is
12 one that essentially takes a lot of the guesswork out of the
13 alternatives that we're evaluating, because it has allowed
14 us to solicit specific environmental data and address it and
15 incorporate that into the analysis that we're doing now, so
16 we actually have real data as opposed to information that is
17 our best guess.

18 We actually have contractor specific
19 environmental data that we have included in this EIS
20 package. We have awarded a contract in August of '98 to
21 Foster Wheeler. That contract is contingent -- we want to
22 make sure that that point is understood -- that contract is
23 contingent on completion of this NEPA process and selection
24 of the contractor's proposed treatment method, which is the
25 Low-Temperature Drying Alternative.

1 Let me switch gears for a moment and talk
2 a little bit now about the overview of the actual document
3 that we're going to go into. Can everybody hear okay?
4 Okay. We're going to talk about the alternatives that we
5 evaluated and the impacts that go along with those
6 alternatives. But, obviously, if you've had a chance to
7 look through the document, there is more in there than just
8 Chapter 4 that talks about the alternatives and the
9 impacts. We've got Chapter 3 in there, which sets the stage
10 for the affected environment. We have accumulative impacts
11 to address, also. We have significant laws and regulations
12 included in that document. So this is the meat and
13 potatoes, if you will, of the analysis, but obviously there
14 is a lot more to cover than what we have time or effort to
15 go into tonight in detail.

16 In terms of alternatives that we've
17 looked at, we have a No Action Alternative obviously,
18 Low-Temperature Drying, Vitrification and Cementation. We
19 also have included, I believe, since the Scoping Meeting, an
20 alternative that evaluates treatment using one of the above
21 noted methods and waste storage at ORNL.

22 Now, in terms of the No Action
23 Alternative, basically, the definition of the No Action
24 Alternative in the document is that the waste will remain in
25 its current storage facilities, be it trenches or bunkers or

1 in the Melton Valley Storage Tanks. No treatment is
2 involved and no final offsite disposal. We've also
3 considered a hundred year institutional control period and
4 some of the effort that goes along with that, also.

5 Now, the impacts associated with the No
6 Action Alternative basically put us into a position to where
7 we're non-compliant with the site treatment plan in terms of
8 our obligation to treat and be ready to ship, make the first
9 shipment for disposal of the TRU waste material. We would
10 have continuing radiological releases from the SWSA 5
11 trenches, which would affect surface water and groundwater
12 and biota.

13 The risk of earthquake becomes a credible
14 event. We've provided a lot of information in the document
15 relative to this potential risk scenario, where we would
16 basically have a release from the Melton Valley Storage
17 Tanks, which would be considered significant impacts related
18 to contamination of White Oak Creek and White Oak Lake. We
19 would have related fish kills and kills of other biota. We
20 would wind up also contaminating downstream drinking water
21 supplies at ETPP as well as Kingston, also. That's a brief
22 overview of the risks related to the No Action Alternative.

23 We also have a Vitrification Alternative
24 included in the document. Basically, we would wind up with
25 vitrification, going out and building the treatment

1 facility, which would require about seven acres of land for
2 the footprint of the vitrification treatment facility. We
3 would vitrify or put into a molten glass form the waste
4 types that we've been talking about, sort, treat and volume
5 reduce the solid waste. We would take the liquids and the
6 sludges and we would vitrify them, but the solid waste, the
7 contact and remote-handled solid waste that we talked about,
8 we would, DOE would deliver it to the facility, would sort
9 it and characterize and volume reduce it and package it.
10 DOE would also certify this material for offsite shipment to
11 either WIPP or NTS.

12 The impacts related to the Vitrification
13 Alternative can basically be summed up as we have done on
14 this slide. It would require, relatively speaking, compared
15 to the other alternatives, more land committed for the
16 treatment facility construction. We would have the
17 potential for the risk of a melter failure. We would also
18 wind up using more electricity compared to the other
19 alternatives. I think we wind up using 30,000 more
20 megawatts of electricity when we compare vitrification to
21 the other alternatives. Vitrification also winds up
22 producing the most D&D waste debris, in terms of material
23 that we have to deal with once we're done with the treatment
24 project when we take the facility down.

25 Now, if we switch gears to the

1 Cementation Alternative, we basically go out and use up
2 about five acres of land, footprint of about five acres to
3 construct the facility. We would treat the sludges and the
4 liquids using the cementation process, which basically
5 involves pumping those materials over to the treatment
6 facility from the Melton Valley Storage Tanks. The liquids
7 and the sludges would then be separated and they would have
8 the dry feed of cement and other additives added to that
9 material and the liquid grout would be pumped directly into
10 55-gallon drums and then into the casks.

11 We would handle the solid waste similar
12 to the way we talked about handling the solid waste material
13 in the Vitrification Alternative. We would deliver it to
14 the facility, sort it, volume reduce it. In the sorting
15 process, incidentally, one of the things that I didn't point
16 out was that we would pick up at that point in time, while
17 we're sorting the waste and characterizing it, whether or
18 not we have any RCRA materials. Those RCRA materials would
19 be isolated and dealt with in another process. They would
20 be microencapsulated and then packaged, and DOE certifies
21 the final waste forms for offsite shipment, the same as the
22 Vitrification Alternative, to WIPP or to NTS.

23 Now, impacts related to the cementation
24 process can be summed up like this. We wind up creating the
25 largest volume of treated TRU waste and alpha low-level

1 waste materials that we've been talking about tonight. The
2 Cementation Alternative winds up giving us the most treated
3 waste form to deal with. We would also, because we've got
4 more waste volume to disposition off site, we would require
5 about 3,000 offsite waste shipments to take care of those
6 treated waste volumes that we generate. We also wind up
7 using the most water. I think relatively speaking, we use
8 up to 13 million more gallons of water for this alternative
9 compared to the other alternatives.

10 Now, the Treatment and Waste Storage
11 Alternative basically, as I mentioned a moment ago,
12 incorporates the notion that you're going to use one of
13 these treatment methods to treat the waste, either
14 Low-Temperature, Vitrification or Cementation for the liquid
15 material. We wind up packaging it and we wind up storing it
16 onsite.

17 I do want to mention that for the
18 analysis that we've done in the document for this
19 alternative, we have to make sure that we have done a
20 bounding analysis that considers the most impacts. We have
21 identified vitrification as the treatment method that we
22 used for the treatment as an onsite storage alternative to
23 make sure that we have a bounding analysis and we're not
24 missing any impacts related to one of the alternatives.
25 Onsite waste storage also assumes the hundred year

1 institutional control period that we talked about a moment
2 ago.

3 Now, the impacts associated with the
4 Treatment and Storage Alternative basically consists of the
5 same situation that we find ourselves in with the No Action
6 Alternative in terms of noncompliance with the
7 Commissioner's order for basically making our first shipment
8 by FY 2003 of the TRU material. We would wind up having the
9 greatest onsite adverse impacts when we look at this
10 alternative compared to the other ones with regards to
11 soils. We've got a bigger footprint area for the facility
12 that we're going to wind up putting in. For biota, we're
13 going to clear more land basically or lose resource area for
14 the biota.

15 And land use, if we wind up going with
16 this alternative, we don't have enough storage capacity, so
17 we would have to create some more storage capacity to manage
18 the waste volumes that we would generate. The upside of
19 this particular situation is that there are no offsite
20 transportation of any material or is no offsite
21 transportation, and obviously no impacts related to that.

22 Now, the Low-Temperature Drying
23 Alternative, which if you've had an opportunity to look at
24 the draft document does identify this alternative as our
25 preferred alternative. We wind up constructing the waste

1 treatment facility. We would need about five acres of land
2 to do that. We treat the liquids and the sludges by
3 low-temperature drying, which essentially consists of
4 evaporating the liquids off of that material and
5 consolidating the rest of the material that's left and
6 packaging it. The solid waste material, we would deliver to
7 the facility, characterize it, sort it and repackage it as
8 we've talked about earlier. DOE would also certify any
9 final waste stream that's generated for shipment later on to
10 WIPP and to NTS.

11 Now, in terms of impacts related to the
12 Low-Temperature Drying Alternative, basically, when compared
13 to the other alternatives, we would have the least impacts
14 when we look at all our different resource areas. We would
15 result with the least volume of waste generated by using
16 this alternative when compared to cementation or
17 vitrification. We would result in the least number of
18 offsite shipments related to this particular treatment
19 alternative. So we've got, in terms of impacts for the
20 low-temperature alternative, most of those are actually
21 favorable. We would consider them as favorable impacts for
22 this analysis.

23 Now, I want to step back for a moment and
24 look at the impacts analysis that we've done in the draft
25 document. And this is intended to give you an idea of the

1 resource areas that we've looked at over on the far left
2 column. I'm not going to go through them all for you.
3 Those are the resource areas that we've looked at.

4 As we move across any particular resource
5 area, what we've tried to do is to present a relative
6 comparison of the alternatives within any given resource
7 area that's been evaluated. We've tried to color code this
8 in terms of green being the least impact, yellow being a
9 moderate impact, and relatively speaking, any red dot on
10 here would indicate the most impact related to any
11 particular alternative within that resource area.

12 Some of the general messages that you get
13 when you summarize things in this fashion are that,
14 basically, if you take the No Action Alternative or the
15 Treatment and Storage Alternative, relatively speaking, when
16 you look and compare them to the other alternatives, those
17 are least favorable. Another observation that we can make
18 is that we've got three viable treatment alternatives here.
19 Low-Temperature, Vitrification and Cementation are all
20 viable alternatives that have been analyzed in the
21 document. Also, if you look at all the resource areas for
22 the Low-Temperature Drying Alternative, you get an idea that
23 when you compare all of the resource areas for
24 low-temperature relative to the other alternatives that
25 we've looked at, there are the least amount of impacts

1 related to low-temperature drying.

2 Now, one of the things that we talked
3 about a moment ago was total waste volumes. All this does
4 is give you an illustration that if we're dealing with
5 vitrification, we're going to generate the most total waste
6 followed by cementation and Low-Temperature Drying
7 Alternative. But let's take that information and break it
8 down a little bit more for you in terms of what's really
9 important for us to look at. If you look at the two
10 columns -- I'm not sure you can see that from sitting there;
11 let me move this up here a little bit for you -- we take the
12 total waste volumes and break them down for you in terms of
13 TRU waste generated, low-level waste volumes and sanitary
14 waste volumes and debris waste volumes specific to each of
15 the treatment alternatives.

16 These two categories, the TRU waste and
17 the low-level waste, are the volumes that we've got to
18 manage and disposition offsite. Sanitary wastewater and
19 this debris from D&D activities is what we would call
20 sanitary waste and it could go to a sanitary landfill. It's
21 not contaminated. This low-level waste or alpha low-level
22 waste is what we have to disposition offsite as well as the
23 TRU. If you keep the color code straight, you get the idea
24 that cementation gives us the most low-level waste and TRU
25 waste to deal with, followed by the Vitrification

1 Alternative and then the Low-Temperature Drying
2 Alternative.

3 In terms of number of shipments that
4 relate to those waste volumes -- again let me scoot that up
5 a little bit for you -- low-level waste shipments for
6 cementation, you can see the numbers speak for themselves
7 basically. And TRU waste volumes and related waste
8 shipments that need to be considered indicate that we wind
9 up with a spectrum that's defined by Cementation Alternative
10 as the highest number of shipments and the Low-Temperature
11 Drying Alternative as the lowest number of shipments for
12 both of those waste categories.

13 Now, in terms of where we go from here,
14 the schedule of events looks a little bit like this. We've
15 got the public comment period that's ongoing now, which
16 started on March 3rd, will end on April 17th. We need to
17 incorporate public comments that come in any form,
18 written or comments that are given tonight. We need to
19 distribute the Final EIS, and we're working towards a Record
20 of Decision in the early July time frame.

21 Kind of what we're here tonight for is to
22 solicit your comments basically. We want your comments on
23 the table. We want to understand them to make sure that we
24 address them clearly. This information is also provided in
25 the draft document, but you can mail comments into Dr. Gist,

1 who is sitting in the back of the room, at this address, or
2 E-mail comments, also, and his E-mail address is provided at
3 the bottom there. The bottom line is, we want to understand
4 and know your comments.

5 That concludes the briefing part of this
6 evening in terms of an overview of the EIS, the alternatives
7 and the impacts. Now, what we would like to do is basically
8 open it up to a question and answer session. If you have
9 any comments you want to share with us now, we will capture
10 those. To the extent that we can respond to them here this
11 evening with the resources that we have and Gary and Wayne
12 and other folks, we can do that. Thank you very much.
13 Anybody want to start off?

14 ROBERT PEELE: In the case of the
15 onsite, keeping the material onsite, you take a hundred year
16 stewardship into account. Does that mean that it won't need
17 stewardship after a hundred years or it's hard to compute
18 the cost?

19 BILL CAHILL: Certainly, it doesn't mean
20 that it won't need stewardship after a hundred years.

21 ROBERT PEELE: This is long-life
22 material.

23 BILL CAHILL: It is. The hundred year
24 institutional control period was just a time frame that we
25 used as an assumption for the analysis.

RP-1

RP-1 (cont.)

Response to Comment RP-1

DOE recognizes its obligation to take care of the waste as long as necessary. DOE used a 100-year institutional control period for the purposes of impacts analysis. This assumption is stated throughout the EIS. The 100-year period is used because this is the longest period of time for which DOE can assume control for purposes of analysis. DOE intends to manage the waste as long as is necessary to protect human health and the environment. DOE has added analysis to Chapter 4 of impacts after loss of institutional control. The commentor is correct in recognizing that cost is a central issue in the long-term management of waste. However, the DOE does not include information about costs for any alternatives because this issue is not part of the environmental review.

1 MR. PEELE: So one of the costs that you
2 have trouble inventing is the institution to take care of it
3 later? Even if this kind of cost might look small, you
4 still haven't invented who can take care of it after a
5 hundred years?

6 MR. CAHILL: Correct. Correct, if I'm
7 understanding you right.

8 MR. TOLBERT: They need to state their
9 names.

10 BILL CAHILL: I'm sorry. That's right.
11 If you have a comment or question you would like to share,
12 could you give us your name so we can capture that correctly
13 on the record.

14 ROBERT PEELE: I don't know if it was a
15 comment. I'm Bob Peelle. 130 Oaklahoma. There was a
16 comment. You have a hundred year problem; namely, you
17 aren't listing the details of the cost. You don't even know
18 how to do it. It's difficult.

19 BILL CAHILL: It's difficult.

20 ROBERT PEELE: It's very hard.

21 BILL CAHILL: Mr. Weeren.

22 HERMAN WEEREN: I am Herman Weeren. And
23 some fifteen odd years ago I participated in the injection
24 of 3 million gallons of legacy TRU waste down in the
25 argillaceous shale. I see no mention of this. Opinion

RP-1
(cont.)

RP-1
(cont.)

RP-1 (cont.)

HW-1

Response to Comment HW-1

DOE acknowledges that waste was injected into deep (approximately 1,000-ft-deep) formations in a process termed hydrofracture. That waste is not within the scope of this EIS.

1 seems to be divided whether it is necessary or not. But I
2 would think that for completeness, just to show, put it all
3 in proportion, this should at least be mentioned, even if
4 you say, it was a good place, but we aren't going to do
5 anything with it and it's beyond the scope of this report.
6 But 3 million gallons of material that is running 150
7 nanocuries per gram is not trivial.

8 WILLIAM CAHILL: No, I would not consider
9 that trivial either. We are aware of those other activities
10 and those other waste volumes; however, the scope of this
11 document is intended to cover the legacy waste that we have
12 in storage, the liquid and the solid waste material.

13 HERMAN WEEREN: This is real fine. Just
14 say, I think for completeness, as I say, just say this up
15 front, one paragraph, it's there, but we aren't considering
16 it in this report.

17 BILL CAHILL: Okay.

18 GARY RINER: No problem.

19 HERMAN WEEREN: I have another comment.
20 I don't want to monopolize it and I can't see who else has
21 their hand up. Back to the old subject of hydrofracture
22 wells. There was a statement in the responses, Appendix A
23 or whatever it was, that environmental science said that no
24 hydrofracture wells are within the proposed building area.
25 Now, I don't know if we're supposed to examine these

HW-1
(cont.)

HW-1
(cont.)

HW-2

1 statements with great care along the line of it all depends
2 on what you mean by "is", but there is a map of the thing.

3 GARY RINER: There is one well within the
4 boundaries of the property, Herman. I went out there and
5 walked it down, okay. There is one well within the
6 boundaries.

7 MR. WEEREN: There are two. I don't know
8 how deep the second one is. The numbers are there in red.
9 What worries me about those is the right hand doesn't always
10 know or seldom knows what the left hand is doing. I can see
11 them coming in and grading out the culvert right next-door
12 to that well, oh, what's this, just before they knock it
13 down. That well goes down to the grout sheets.

14 BRYAN ROY: My name is Bryan Roy. Gary
15 asked me what well was towards the center of the site. It
16 is 1204. Is that the one you identified, Herman?

17 MR. WEEREN: It is not toward the center
18 of the site. It is more commonly known as Steve Hass'
19 (inaudible). They are a thousand feet out from the
20 injection well. They go down a thousand feet. They are
21 contaminated and they have had activity at least once or
22 twice that made the news.

23 BRYAN ROY: 1204 is the only well that
24 we've come close to that is open.

25 HERMAN WEEREN: This is 2955 and 2374. I

HW-2
(cont.)

HW-2
(cont.)

HW-2
(cont.)

Response to Comment HW-2

Wells in the general location are described below and are listed in the following table. DOE does not expect to disturb any of these wells. Well 1204 is the only well known to be within the proposed boundary of the Low-Temperature Drying or Cementation Alternative sites. The site development plan has carefully accommodated this well. DOE expects to leave it undisturbed within an area between a retaining wall and driveway. For the Vitrification Alternative, which has a larger footprint, wells 2374 and 2955 would be closer to the facility than the distances shown in the table below, but these wells are not expected to be disturbed.

Well No.	Description	Location
1204	PVC research/ monitoring well; 74-ft deep	Within the proposed site boundary
784	2-in. PVC research/ monitoring, 20-ft deep, nonessential well	Approximately 60 ft west of proposed facility entrance driveway
785	2-in. PVC research/ monitoring, 45-ft-deep, nonessential well	Approximately 60 ft west of proposed facility entrance driveway
1974	No data	Opposite side (north side) of access road and east of proposed facility construction
1975	No data	Opposite side (north side) of access road and east of proposed facility construction
*2374	Mostly 4.5-in.-diameter hydrofracture well to 1,275 ft deep	Along old access road shoulder 350 ft west of the site
*2955	Mostly 6-in.-diameter hydrofracture well to 1,063 ft deep; well is inside a shed	Along old access road shoulder 330 ft west of the site
1980	No data	Approximately 25 ft east of nearest proposed site grading activity; at least 50 ft from nearest facility feature
1981	No data	Inside Building 7877 approximately 150 ft east of proposed facility
1982	No data	Through the pad outside of Building 7877 ventilation system, approximately 130 ft east of proposed facility

*Hearing commentor specifically identified these wells.

1 never could keep up with their nomenclature, so it means
2 nothing to me. But the whole business of the wells being
3 contaminated, capable of being damaged on the surface sort
4 of bothers me. I guess, primarily, I want you to be aware
5 that there is a problem there.

6 WILLIAM J. CAHILL: Yes. Could you give
7 me your name, please.

8 PAM WATSON: It's Pam Watson.

9 SUSAN DAVIS: Excuse me. I'm wondering
10 if it would help if they stood. We're competing with across
11 the way. I've asked them to turn down the music. Maybe if
12 we stood up when we gave our comments, you could hear it a
13 little bit better. The people back here can hardly hear.
14 Sorry to do that to you, but we can't hardly hear.

15 BILL CAHILL: If you would rather not
16 stand up, just give me the comment and I'll repeat it.

17 SUSAN DAVIS: Right.

18 PAM WATSON: I have several questions, so
19 I'll just stand up and say the question, and you can answer
20 it, and then I'll stand up again.

21 WILLIAM CAHILL: Okay.

22 PAM WATSON: I was curious about one of
23 your slides. Why do all of the alternatives other than the
24 No Action Alternative show a moderate impact to human
25 health? Can you give us the details of that? What are the

HW-2

(cont.)

PW-1

PW-1

(cont.)

Response to Comment PW-1

The moderate human health impacts for the action alternatives referred to by the commentor are related to the air emissions from normal operations during treatment (Section 4.7). Distinctions among the alternatives are discussed in Section 4.7

Under No Action, during the institutional control period, the waste sits where it is and there is little chance of human health impacts except in the case of accidents, which were

1 moderate impacts that we're talking about to human health?
2 And also, why would the No Action
3 Alternative not have an impact if, as you said, there were
4 to be an earthquake and, you know, the material would go
5 downstream to Kingston and contaminate the water supply and
6 so forth?

7 BILL CAHILL: Let me try to give you an
8 initial response and then I'll turn it over to somebody
9 who's got more details on it than I.

10 HERMAN WEEREN: Could you slide that
11 slightly so that the little green thing down there at the
12 bottom left is visible. Thank you.

13 BILL CAHILL: The human health portion of
14 the analysis, I believe, is generally captured in our
15 Affected Environment, Chapter 3. The statement we're making
16 here is in the context of this is a yellow as opposed to a
17 red would be whether or not the particular treatment
18 alternative winds up increasing or adding to the existing
19 health baseline that we've documented in that chapter. I
20 don't know if that makes that much sense. But Wayne, can
21 you add to that?

22 WAYNE TOLBERT: Let me try. We basically
23 looked at human health and accidents in the following way:
24 First of all, human health was dealt with, when we're
25 referring to it on this chart and in the chapter or in the

PW-1
(cont.)

Response to Comment PW-1 (cont.)

addressed in the accidents portion of the slide.
(Section 4.11. of the Final EIS provides an analysis of an
earthquake accident with corresponding downstream
risks at Kingston in Section 4.11.2.1.)

When DOE begins to treat the TRU waste, there is a
greater likelihood of affecting human health from an
increase in industrial accidents or from processing
emissions. In addition to normal operations of the various
treatment alternatives, DOE evaluated the accident risks
and consequences under an assumed 100-year
institutional control period.

DOE also added analyses in Chapter 4 of the Final EIS
that address impacts after loss of institutional control for
the No Action and Treatment and Waste Storage at
ORNL Alternatives. After loss of institutional control,
impacts from the No Action Alternative could be
significant to human health (Section 4.10.3).

1 section on impacts, we're looking mostly at operational
 2 activities as opposed to accidents. Under accidents, you do
 3 have a fairly significant evaluation, if you will, of human
 4 health effects.

5 So there are, if you're looking, for
 6 example, under accidents and no action, which I think is one
 7 of your questions, if I understood it correctly, why would
 8 there not be human health impact there, if you had an
 9 accident under no action, you, in fact, do have a fairly
 10 significant problem. In fact, that's the most significant
 11 accident in human health risk of all the activities, all the
 12 accidents that we've looked at, was associated with the
 13 breach of the Melton Valley Storage Tanks, or one of the
 14 Melton Valley Storage Tanks. We're looking at a loss of
 15 about 50,000 gallons from one of those tanks. That's where
 16 you end up with human health impacts. It's actually listed
 17 under the accidents part. That's how we organized the
 18 document.

19 PAMELA WATSON: So when you said the
 20 human health impacts are the result of operational
 21 activities, do you mean these are risks to the workers in
 22 the facility or to the public during transportation? You
 23 know, what are the human health impacts we're talking about
 24 here?

25 GARY RINER: I believe your question, on

PW-2

Response to Comment PW-2

Human health impacts include impacts to the workers and the public. Section 4.10 of the EIS addresses human health impacts under normal operating conditions. Impacts due to accidents and transportation of the wastes are addressed in later sections of the Final EIS. Section 4.11 deals with human health consequences from accidents, and Section 4.8 deals with human health impacts due to transportation exposures and accidents.

1 the human health one, no action, we just leave the waste
 2 sitting as it is today, we do not do anything with it, there
 3 is little human risk involved with it. Then as you start to
 4 process the waste, that risk threshold has to increase some,
 5 because you got the chance of dropping a drum on somebody,
 6 dropping one of these large concrete casks on somebody. So
 7 relatively speaking, that's what Bill tried to emphasize,
 8 was these color codes are relative.

9 PAMELA WATSON: To the workers.

10 GARY RINER: Relative to the workers. So
 11 that's where that yellow is coming in. Now you've increased
 12 their risk just in handling radioactive materials on a daily
 13 basis, repackaging and all that. I think that gets more to
 14 your question.

15 PAMELA WATSON: How many years do you
 16 estimate until all the waste that you intend to treat in
 17 this action is treated and how many years do you estimate
 18 until all the waste is shipped offsite or reaches its final
 19 storage place?

20 BILL CAHILL: The treatment period
 21 duration for low temperature, Gary, correct me if I'm wrong,
 22 is about five years. The project duration is eleven years.
 23 So when you throw in the design and D&D on either end of it,
 24 the treatment is five years. Now, offsite shipments, I
 25 don't know.

PW-2 (cont.)

PW-3

Response to Comment PW-3

The overall project durations are longer than the treatment periods. The schedule for each alternative includes a licensing and permitting phase, a construction and operational testing phase, a waste retrieval and treatment operations phase, and a D&D phase. It is assumed that shipment of waste offsite is done immediately after the waste is treated. Thus the shipment period is equivalent to the waste retrieval and treatment operations phase, which would vary according to the action alternatives: for Low-Temperature Drying about 5 years (Section 2.4.3, Figure 2-6), for Vitrification about 3 years (Section 2.5.3, Figure 2-10), and for Cementation about 6 years (Section 2.6.3, Figure 2-13).

DOE plans to have real-time shipments with minimal inventory of treated waste at the treatment facility.

1 GARY RINER: Offsite shipments is within
2 that five-year period, assuming that the repositories where
3 we plan to ship, WIPP mainly and the Nevada Test Site, are
4 available to accept the waste, okay. That is probably one
5 of the greater risks, WIPP being ready for our
6 remote-handled waste. As the program is set right now, as
7 the department is setting up their program, everything
8 should be shipped in the five-year window.

9 PAMELA WATSON: So how many years for
10 treatment? Five years to have it all shipped.

PW-3 (cont.)

11 GARY RINER: Real time shipments; in
12 other words, they never keep an inventory over a few cubic
13 meters in their facility, stuff is packaged and shipped th
14 next day. It continues to flow through the facility in that
15 nature.

16 We looked at the possibility and added
17 Alternative 5 having to do with interim storage on the
18 reservation, because we know that risk is out there for Oak
19 Ridge not to be able to ship this stuff immediately. And if
20 that's the case, we'll have to store it for some interim
21 time period. Can we define that time period? No, we
22 can't. It's not in our control.

23 PAMELA WATSON: One more question and
24 then a couple of comments. How many workers or do we have
25 an estimate for the number of workers that will be required

PW-4

Response to Comment PW-3 (cont.)

Treatment schedules are shown in Tables 4-10, 4-12, and 4-14. DOE did, however, evaluate an alternative in which treated waste would be stored at ORNL. In addition, short-term storage at existing ORNL facilities could occur should there be a temporary problem with shipping the treated waste offsite.

Response to Comment PW-4

For the preferred alternative, the number of workers differs depending on the phase of the project. Generally, the worker population by quarter would average approximately 35 for the design phase, 60 for the construction phase, 55 for the operations phase, and 20 for the D&D phase. Overall, the average for the project duration is about 50 workers.

1 for this facility? And will those be subcontractors to the
2 environmental management contractor?

3 GARY RINER: Are you asking for the
4 preferred alternative, assuming it goes forward, how many
5 workers are we going to have?

6 PAMELA WATSON: Right. Do we have a ball
7 park idea?

8 GARY RINER: Okay. I would ask Bryan.

9 BRYAN ROY: Ball park, fifty workers, all
10 shifts, during the operational phase.

11 PAMELA WATSON: Those will likely be
12 subcontractors to the environmental management contractor?

13 BRYAN ROY: They will be subcontractors
14 or employees of Foster Wheeler.

15 PAMELA WATSON: Okay. Just two
16 comments. Slides 24 and 25, I noticed, this is a minor
17 thing, but it's irritating when you're sitting in the back
18 and you can't read the text that's on the screen, slides 24
19 and 25. Slide 24, the text was too small to be readable by
20 most people in the audience, I believe. And slide 25, the
21 text at the bottom was too small to be readable by most of
22 the audience, I believe.

23 BILL CAHILL: Okay. Thank you. Okay.
24 Lorene.

25 LORENE SIGAL: I'm Lorene Sigal. A road

PW-4 (cont.)

Response to Comment PW-4 (cont.)

They would be subcontractors or employees of Foster Wheeler, if the preferred alternative were selected. Otherwise, the workers would be employees of another contractor that DOE would select to implement the other treatment alternatives.

For information on other alternatives see manpower Tables 4-35 and 4-38.

PW-4 (cont.)

PW-5

Response to Comment PW-5

Comment noted. Hard copies of the slide presentation were made available to meeting attendees. Also see ORSSAB-2.

1 has been built out to the Highway 58 from the proposed
2 site?

3 BILL CAHILL: Yes.

4 LORENE SIGAL: Did you assess the impacts
5 of that road?

6 GARY RINER: It's out to 95.

7 LORENE SIGAL: All right. 95. Did you
8 assess the impacts of that road? I don't see it in here.

9 BILL CAHILL: No. In this Draft EIS we
10 did not assess the impacts related to that road. It was a
11 separate action, and I believe it was handled under a
12 separate NEPA document. I think it was a categorical
13 exclusion.

14 LORENE SIGAL: Categorical exclusion for
15 sort of a major record?

16 WAYNE TOLBERT: Correct.

17 GARY RINER: It's 1.45 miles. There was
18 a gravel road already in the vicinity.

19 LORENE SIGAL: But you didn't use that
20 gravel road as roadbed for the new road?

21 GARY RINER: It did diverge from the
22 gravel road once construction got underway. There is a
23 small portion of the gravel road that's still left.

24 LORENE SIGAL: The road is what, two
25 lanes?

| LS-1

| LS-1 (cont.)

| LS-1 (cont.)

| LS-1 (cont.)

Response to Comment LS-1

As noted in the EIS (Sections S1.2.3, 1.5, and 5.3.2), the Old Melton Valley Road (sometimes referred to as the High Flux Isotope Reactor access road) upgrade was evaluated and categorically excluded by DOE, *Categorical Exclusion for Construction/ Relocation of Access Road at Oak Ridge National Laboratory, Oak Ridge, Tennessee, CX-TRU-98-007*, (DOE 1998), a copy of this categorical exclusion is included in this Final EIS (Appendix G). A rare plant survey was performed for the proposed access road location (Appendix G) in an effort to minimize impacts to a rare plant species, Pursh's Wild Petunia (*Ruellia purshiana*), found in the area. As a result of the survey, the proposed road was relocated. The cumulative impacts chapter (Chapter 5) of the EIS has been updated to reflect the above and to provide additional information on the environmentally sensitive resources evaluated. Also see response to Comment ORSSSAB-2.

1 GARY RINER: Yes, in and out.

2 LORENE SIGAL: Seems to be it should have
3 been analyzed in here as well and not categorically
4 excluded.

5 BILL CAHILL: Anyone else, please.

6 MILDRED SEARS: Mildred Sears from Oak
7 Ridge. In the case of Alternative 1, No Action, and
8 Alternative 5, which involved long-term storage, possibly
9 forever on the Oak Ridge Reservation, the document needs to
10 strengthen this question of stewardship and the fact that
11 there will be continuing long-term worker exposure for
12 maintenance. And if you don't provide stewardship, and
13 we're talking millions of years, we're not talking just a
14 hundred years, in due course of time, your containers will
15 rust out, your roof will be gone, an airplane will crash
16 into it, you'll have an earthquake, and this stuff will be
17 in the environment and in the creek.

18 I think that somehow the fact that in an
19 environment like we have in East Tennessee where it's very
20 wet, rains a lot, this needs to be emphasized, because in my
21 judgment, the disposal of this waste at the Oak Ridge
22 Reservation is not acceptable. I'm referring to both
23 Alternative 1 and Alternative 5.

24 Now, also in Alternative 5 in your table
25 on waste volume, I forget which page it's on, but it

LS-1

MS-1

MS-2

Response to Comment MS-1

DOE has added analysis and discussion to Chapter 4 regarding the impacts after loss of institutional control, which for analysis purposes, would occur after 100 years. See also the response to comment ORSSAB-3.

Comment MS-2

A footnote has been added to Tables S-1, 2-4, and 4-5 to clarify that TRU waste is comprised of both remote-handled and contact-handled waste.

1 indicated that the cement one produced remote-handled waste,
2 but low-temperature drying and vitrification did not.
3 That's obviously an error, because if you start out with
4 remote-handled waste and you concentrate it, it's going to
5 be even more remote-handled than when you started. I'm not
6 talking about the dry stuff, but I'm talking about the
7 sludge.

8 If you're shipping TRU waste to WIPP to a
9 geologic repository where the disposal is very expensive,
10 you obviously want to minimize volume. When you start
11 talking about storage, even interim storage, you will have
12 to provide shielding for all this remote-handled waste.
13 That is going to increase the storage required. Now, I
14 don't know how you choose to do this. One way to do it is
15 if you buy a whole bunch of big thick concrete shielding
16 casks and then you multiply your storage requirements, you
17 know, appropriately, or you build, you know, a hot cell type
18 of facility, shielded wall, cranes and all that sort of
19 thing for handling.

20 But this Alternative 5 has not been well
21 thought through at all, even if you're talking about
22 interim. Today, part of the shielding for this stuff is
23 supplied because it's down in the ground. Part of it is
24 supplied because it's in these tanks where the place, the
25 vault where it's stored is in the ground and it has a big

MS-2

(cont.)

MS-3

Response to Comment MS-3

DOE considered the need for additional shielding when waste space requirements for additional storage capacity were calculated for this alternative. Text has been included to describe this assumption in Sections 2.7.1.2 and 4.6.1.6, and to address construction impacts of the storage facilities in Section 4.8.6.1.

1 thick concrete shield on the top. So once you pull it out,
2 you're going to have to replace it.

3 Waste coming out from REDC, they have two
4 types of casks. One type has 6-inch thick special concrete
5 type walls; and then the second type has 12-inch. When we
6 took a hundred gallons of sludge out of the Tank WC-14, and
7 that's a pretty small quantity in comparison, that required
8 a 12-inch thick shielding.

9 So there are a number of things here in
10 connection with Alternative 5 that needs to be thought
11 through, even if you're only talking interim storage. The
12 one with cement, the volume of that won't go up as much as
13 the volume would for the first two.

14 One other comment which I have on the
15 preferred alternative has to do with the accident analysis
16 that's been rather skimpy, because they haven't really
17 considered the type of accidents that can happen. There are
18 two examples which are classic accidents that are considered
19 in processing plants. One is an explosion in the evaporator
20 or an explosion in the calciner, if you have high-level
21 waste. Although this is not legally high-level waste,
22 because high-level waste only comes from first cycle solvent
23 extraction in the fuel reprocessing plant. A research
24 facility like ORNL does not legally generate high-level
25 waste, but these wastes are like high-level waste. They're

MS-3

(cont.)

MS-4

Response to Comment MS-4

DOE considered a wide range of potential accident scenarios and selected those for detailed evaluation that seemed credible. With regard to the Low-Temperature Drying Alternative, DOE did consider the possibility of an explosion accident and concluded that further evaluation was not necessary based on a combination of the low consequence and probability of the explosion scenario. The low-temperature drying process, unlike a calciner process, is a low-energy evaporation process. The wastes would be treated in small (approximately 1 m³) batches. The waste would be dried in an area separated from workers by a 2-ft-thick radiological shielding wall, and the area would have a separate ventilation system.

With regard to the second accident scenario suggested by the commentor, plugging the filters on the ventilation system, DOE did evaluate a fire accident with filter failure, and the radiological risks and consequences are provided in Section 4.11.

1 very hot. We're not talking about sludge down in the tank.
 2 The second accident, which is a pretty
 3 classic accident, if you got a lot of particulates, you can
 4 plug your filters on your ventilation system and have
 5 pressure build up and stuff can blow out. There is other
 6 things, but these are things that need to be looked at a
 7 fairly early stage in the design so that when you're
 8 designing your plan, you include protection for these. You
 9 may still have to consider an accident analogy, but you put
 10 in at that point there are things that you hope will prevent
 11 them from happening, or if it happens, you know how you will
 12 deal with it.

13 A third one -- and this one is maybe not
 14 so likely -- what happens if somebody inadvertently wears
 15 some enriched material, you could have a criticality
 16 accident. I don't think you're supposed to get that kind of
 17 material, but there was unused radiator fuel samples from
 18 experiments that went out and cans were put in burial
 19 grounds. You know, whether all the records are good and
 20 whether everybody knows for sure, you know, where those
 21 things are, I don't know. I merely know that it went.

22 BILL CAHILL: Thank you. Any other
 23 comments? Before we go there, I appreciate those comments.
 24 We will definitely go back and make sure that we have
 25 thought through Alternative 5 in the context of the

MS-4

(cont.)

MS-5

Response to Comment MS-5

Regarding criticality of the solid wastes in the buildings, bunkers, and trenches, DOE has no process knowledge to suggest that enriched materials would be part of the waste. In addition, process procedures, to be developed after Foster Wheeler operational plans, will be followed that avoid criticality. For example, the first step in receiving waste in casks or containers will be to perform nondestructive assay of the waste to determine the presence of any enriched material.

1 additional shielding that may be required for the storage.
2 We also recognize stewardship as a significant item to be
3 dealt with regards to leaving this material in place
4 for any length of time. We certainly will take that comment
5 under consideration.

6 Any other comments, please? Norman.

7 NORMAN MULVENON: I'm Norman Mulvenon. I
8 want to take a look at the transportation issue. This is
9 for the preferred alternative or for any alternative where
10 we're moving material onsite. When we were involved with
11 the End Use Working Group, in particular we took a look at
12 SWSA 5 North, and there were a variety of containers,
13 concrete casks, metal barrels, wood boxes, and we were
14 informed at that time that some of these containers had been
15 breached. As a matter of fact, in the EIS there is an
16 allusion to that by pointing out that there had been some
17 leaking into the soil.

18 Now, what we're a little bit concerned
19 about is that most of the discussion about transportation
20 has been about offsite, and onsite transportation has been
21 looked at primarily as no threat to the outsiders. And
22 there is really not very much information there about how
23 you're going to move the stuff from SWSA 5 North to the
24 treatment facility. I went through that prologue in order
25 to point out that it's been well documented that there is a

NM-1

Response to Comment NM-1

DOE has added discussion and analysis of on-site transportation in Section 4.8. In Section 4.8.1, the EIS describes the waste retrieval and on-site transportation activities in detail.

The program will include procedures to keep radiological exposure as low as reasonably achievable (ALARA). Completion and enforcement of Radiological Work Permits (RWPs) will be done. The RWP, developed by the prime contractor, is an administrative mechanism that is used to establish radiological controls for performing work in radiation areas. It is used to control entry into radiation areas, contamination areas, and airborne radioactivity areas. It provides workers information about the radiological conditions of a work area, stipulates entry requirements, and provides a mechanism to correlate specific work activities with worker exposure.

1 possibility that there are breached containers and that
 2 there has been leaking into the soil and we think this is
 3 kind of a tricky operation --

4 BILL CAHILL: Right.

5 NORMAN MULVENON: -- to move the material
 6 from SWSA 5 North to the treatment facility. We don't think
 7 that it's been covered very well in the EIS. As a matter of
 8 fact, it's rather a cavalier way of looking at it. We think
 9 it should include more discussion about that. What we're
 10 concerned about is safety to the workers. We agree that
 11 there should be no threat to outsiders because outsiders are
 12 not allowed in there and it will be protected from that
 13 standpoint. But we think there is a problem about the
 14 actual workers themselves in the movement of that material.

15 GARY RINER: You know that this document
 16 does not look at the actual retrieval of that material.

17 NORMAN MULVENON: I understand that.

18 GARY RINER: That was done under the
 19 CERCLA process. So the assumption that we took was that the
 20 material was safely packaged when we transported from that
 21 remediation effort to the facility.

22 NORMAN MULVENON: Is that true?

23 BILL CAHILL: The analysis, as Gary
 24 indicated, in the document begins at the loading dock of the
 25 processing plant with the material delivered there. The

NM-1 (cont.)

NM-1

(cont.)

NM-1 (cont.)

NM-1 (cont.)

Response to Comment NM-1 (cont.)

Specifically, the permit includes a description of the work; the area radiological conditions; and training, protective clothing, respiratory protection, and dosimetry required for the work area. Additionally, measures to control the time that workers are allowed to work in the radiological area are stipulated in the RWP. The lead group responsible for conducting work in the area initiates the RWP, and it is reviewed and approved by the DOE's facility's Radiological Control Organization.

Requirements include exposure prediction prior to the work, daily briefings, monitoring as needed, etc. External dosimetry consisting primarily of thermoluminescent dosimeters will be used. Internal dosimetry consisting primarily of urinalysis for radionuclides will be used. Radiation surveys of the workplace to detect any contamination outside controlled areas will be conducted. Surveys of equipment and vehicles leaving controlled areas to establish handling and use requirements will be required. Personal protective equipment per Selection and Use of personal protective equipment or equivalent will be required. Retrieval accidents would result in 6.3E-05 LCFs to the public and 7.5E-04 fatalities to involved workers from industrial accidents.

The waste would be hauled by truck from the SWSA 5 North area over a 1.1-mile gravel road to the proposed treatment facility. On-site transportation would result in 2.9E-05 LCFs to the public and 3.3E-05 traffic fatalities.

1 exhuming of the material from storage in the trenches or the
2 bunkers will most likely come under an operational activity
3 with related health and safety plans and other oversight of
4 those activities that would cover worker safety and was not
5 included as part of this document, correct.

6 BILL CAHILL: But the Melton Valley
7 proposed plan had documented all the retrieval of the waste
8 that we were going to retrieve out of SWSA 5 North. All of
9 that was covered under CERCLA. All we did was allow for
10 that volume to be processed in this facility if, in fact,
11 the Record of Decision indicates to dig it up. This EIS
12 didn't really address going and digging any of that waste
13 up. That's all in the Melton Valley proposed plan.

14 NORMAN MULVENON: All I'm talking about
15 is transportation. What is the containerization? Does
16 anybody know? What is the packaging?

17 GARY RINER: The packaging of the
18 containers that are supposed to be retrieved are the
19 concrete casks. Regulators have agreed not to go after any
20 of the wooden boxes or any of those things that the risk to
21 the workers would exceed any risk that we might ever have
22 for potential offsite releases.

23 NORMAN MULVENON: Okay. Thank you.

24 GARY RINER: We will take a look and
25 revisit what we did for onsite transportation.

NM-2

NM-2 (cont.)

Response to Comment NM-2

The containers to be retrieved from the trenches are concrete casks. The regulators have agreed not to require DOE to remove wooden boxes or other material from the trenches for which the risks to worker safety may outweigh the benefit of removal of the waste. Section 4.8.1.1, **Retrieval of subsurface remote-handled TRU containers**, describes in detail the process assumed for excavation and overpacking the buried containers in preparation for loading and shipment to the treatment facility. In the bunkers and buildings, wastes are in drums or metal B-25 boxes.

1 NORMAN MULVENON: It is mentioned in
2 here, but in a rather cavalier way.

3 GARY RINER: We assumed when we picked up
4 the package that the package was sound and we hauled it over
5 to the building; not with the details of where you're going.
6 But I understand your issue.

7 BILL CAHILL: Mr. Weeren, I think the
8 lady in back of you had a comment and then we'll get to you.

9 PAMELA WATSON: You couldn't see. I
10 thought of a couple of other questions. I'm Pam Watson.

11 One, has Foster Wheeler done this kind of
12 work before in other locations? And if so, where?

13 BRYAN ROY: This work expands a lot of
14 different activities. Therefore, it would expand or extend
15 a lot of projects we've done. Actually processing the
16 transuranic RH-waste to WIPP, this is a first-time endeavor
17 for anybody within the system. Certain aspects are new.
18 None of the techniques necessarily are new in containment.
19 Some of the steps, some integration of the steps of our
20 first shipment of RH-waste to WIPP.

21 PAMELA WATSON: The other question is in
22 regard to things that are in the burial grounds. Isn't it
23 true that in a lot of cases DOE really does not know what is
24 buried in some places or even where it is buried in some
25 places in some cases?

NM-2 (cont.)

PW-6

PW-7

Response to Comment PW-6

The treatment of TRU waste using the low-temperature drying method is a first-time endeavor for Foster Wheeler; however, Foster Wheeler has performed many of the process steps in a low-temperature drying process on other projects. The low-temperature drying process proposed for this project, however, will have some new steps that Foster Wheeler has not performed. In addition, the integration of all these steps into this specific process has not been previously performed by Foster Wheeler.

Response to Comment PW-7

For the 23 trenches considered for this EIS, DOE has fairly good information on the waste, including surface dose readings of the casks when they were placed into the trenches.

1 BILL CAHILL: For the SWSA 5 trenches
 2 that we're talking about, in terms of the material that's
 3 buried or stored, there are existing records for waste that
 4 went into those trenches and very good records for the
 5 material that are in the bunkers and the storage buildings,
 6 from what I understand. The trenches, Gary probably has
 7 more information on that.

8 GARY RINER: Those 23 trenches that
 9 they're talking about exhuming are just a minor subset of
 10 the buried waste on the Oak Ridge Reservation. You're
 11 right, I think, in your comment that there are some places
 12 where over the years records have been lost or whatnot. But
 13 with the 23 trenches that are being proposed under the
 14 Melton Valley ROD to be exhumed and then processed in this
 15 facility, there are pretty good records. Most of that waste
 16 actually came from the REDC facility, where a large portion
 17 of our inventory waste also came from. So they have only
 18 done a limited number of -- and Mildred can comment on
 19 this -- they have done a very limited number of experiments
 20 ever in the REDC facility. So the waste that has been
 21 generated over the decades has been basically the same kind
 22 of waste.

23 PAMELA WATSON: For those 23 trenches,
 24 you say the records are pretty good. And can we have access
 25 to those records?

PW-8

Response to Comment PW-8

Unclassified information on wastes in the 23 trenches, the casks in the bunkers, and the drum wastes in the metal buildings would be available to the public under CERCLA as part of the administrative record of the Melton Valley Watershed.

The Melton Valley Watershed, situated just south of ORNL, encompasses approximately 1062 acres. ORNL historic missions—plutonium production during World War II and nuclear technology development during the postwar era—produced a diverse legacy of contaminated inactive facilities, research areas, and waste disposal areas in Melton Valley. The major problems identified in Melton Valley are the presence of high inventories of short-half-life radiological wastes, contaminant releases to surface water, and widespread contamination in secondary media. Principal contaminated areas being addressed under the CERCLA process in the Melton Valley Watershed include buried wastes, landfills, tanks, impoundments, seepage pits and trenches, hydrofracture wells and associated grout sheets, buried liquid waste transfer pipelines, leak and spill sites, surface structures, and contaminated soil and sediment.

1 GARY RINER: I guess so. I hate to throw
 2 out yeah, you can, when it's not my authority to say. I
 3 don't see why not. Those records should be clearly in the
 4 Melton Valley proposed plan. It should be delineated very
 5 specifically, because it is one of the streams that's going
 6 to be exhumed under that Record of Decision, and it should
 7 be all delineated there.

8 BILL CAHILL: Herman.

9 HERMAN WEEREN: I'm Herman Weeren again.
 10 And I would like to expound on my prejudices against
 11 vitrification. We did a study once upon a time of
 12 vitrifying the wastes that were in the gunite tanks, which
 13 essentially is the same thing he's talking about.
 14 Engineering called me up twice a week. We found an off gas
 15 stream you have to analyze for. We have nitrates coming up,
 16 we have mercury coming up, cesium (inaudible). That off gas
 17 stream kept growing and growing and growing and growing, and
 18 it got exceedingly complex.

19 The treatment given here is very quick
 20 and off the board, and I don't think you have even a hint of
 21 the complexity. And also, if any amount of cesium
 22 volatilizes and plates out on the off gas system, you're
 23 going to have a real hard time moving it. I don't know if
 24 you're going to move it without endangering health, welfare
 25 and the roads and everything else, which wasn't covered

HW-3

Response to Comment HW-3

DOE acknowledges that some uncertainty exists with all of the treatment processes including vitrification. However, vitrification technology has and is being used successfully at other DOE sites such as West Valley, Savannah River, and Fernald.

1 either.

2 I think vitrification sounds nice, but I
3 don't really believe it's a practical way to handle anything
4 like this. It almost has to be done on the waste level
5 because you can't take something that worked at Hanford for
6 totally different waste and apply it here.

7 BILL CAHILL: Thank you.

8 GARY RINER: Let me ask, Herman, your
9 comment is on the vitrification process, not the proposed
10 alternative, right?

11 HERMAN WEEREN: Right.

12 GARY RINER: Okay.

13 BILL CAHILL: Thank you.

14 HERMAN WEEREN: Vitrification.

15 BILL CAHILL: I think Ms. Sears.

16 MILDRED SEARS: This is an added comment
17 to Herman's about volatilization with the vitrification. In
18 the analytical laboratory, when we analyzed these samples,
19 when they tried one of the standard procedures for measuring
20 gross alpha and beta, which involved drying samples on a
21 plate, we found we were losing 50 percent of the cesium. We
22 had to go to a different method, which did not require
23 heating.

24 So this is merely, you know, providing
25 added support to his comment for things to volatilize. I

| *HW-3 (cont.)*

| *HW-3 (cont.)*

| *HW-3 (cont.)*

| *MS-6*

Response to Comment MS-6

DOE's preferred alternative for treating the MVST waste is low-temperature drying, not vitrification. DOE acknowledges that some uncertainty exists with volatilization and decomposition associated with the high temperatures of the vitrification process. DOE estimated the amount of various compounds that would volatilize during vitrification (technicium-99 approximately 50%, cesium about 10%, etc.) This information is provided in Appendix B of the EIS and was used in computing emission impacts.

1 think you may well have other compounds in there, too, that
2 during vitrification will be a complication. For example,
3 there is a lot of uranium there, uranyl nitrate can be
4 composed to nitric acid (inaudible) in the off gas. There
5 is just a lot of things. Herman probably knows more of
6 these. You have lots of things and then they can plate out
7 in the off gas line and cause you problems. With some of
8 these you can also get stuff that's picked up and just plain
9 carried over in the early stages of it.

10 BILL CAHILL: Thank you. Yes.

11 SUSAN GARAWECKI: I'm Susan Garawecki, and
12 I'm the executive director of the Local Offsite Committee.
13 My questions have more to do with the end of the process
14 where the waste is shipped, particularly the Waste Isolated
15 Pilot Plant. We'll call it WIPP for short.

16 BILL CAHILL: Okay.

17 SUSAN GARAWECKI: Currently, there is a
18 problem with the RCRA portion of their permit from the State
19 of New Mexico. If that is not resolved in DOE's favor, is
20 that going to influence which of the treatment alternatives
21 you might use?

22 BILL CAHILL: Let me start off by saying,
23 and Wayne, correct me if I'm wrong, all three of the viable
24 treatment alternatives that we've looked at will treat
25 LDR'S. And we treat LDRs so that if WIPP does not open, we

MS-6

(cont.)

SG-1

SG-1

(cont.)

Response to Comment SG-1

DOE evaluated an alternative in which the waste is treated and stored onsite at ORNL (Treatment and Waste Storage at ORNL). The wastes would be treated to LDR standards to allow on-site storage at ORNL if the WIPP is not able to accept waste from the TRU Waste Treatment Facility as the waste is treated. DOE plans, however, to ship treated waste offsite as soon as disposal space is available.

1 can store for some undetermined period. But if it's not
 2 worked out to DOE's favor, Gary, do you have any other
 3 information on WIPP and the status of how things are going
 4 there with the WAK?

5 GARY RINER: Well, certainly the RCRA
 6 permit does not include provisions to accept remote-handled
 7 waste, if that's what you're referring to.

8 SUSAN GARAWECKI: Well, also implied in
 9 the beginning they want basically every disposal container
 10 tested for the hazardous constituents.

11 GARY RINER: We're a little bit ahead of
 12 the game there. We were actually doing 100 percent
 13 repackaging. That's the way our project was set up. So
 14 that doesn't have as large a ramifications on us as them not
 15 being able to accept remote-handled waste because we don't
 16 have a permit for it.

17 Both Bryan and I are flying to New Mexico
 18 Monday to meet with the manager out there to talk about
 19 remote-handled waste, to talk about where they need to get
 20 their program to be in line with ours. Hopefully, the
 21 department will move towards getting that incorporated into
 22 the RCRA permit. We've talked to the state about having a
 23 state to state and DOE to DOE meeting where both the New
 24 Mexico and Tennessee regulators will sit down and talk to
 25 each other about the aspects of handling remote-handled

SG-2

Response to Comment SG-2

The proposed action would result in 100% repackaging of waste. DOE would comply with the WAC for WIPP prior to any waste being shipped to this site.

1 waste. New Mexico really doesn't have any experience in
 2 that area, so they're fearful of putting it into the
 3 permit. So we're looking at a plan to start some
 4 communications on the regulator aspect level to try to get
 5 that put into the permit. So whether that comes to
 6 fruition, Susan, who knows. But Oak Ridge is making a
 7 concerted effort to make it happen. We're being very
 8 proactive in pushing WIPP.

9 SUSAN GARAWECKI: It sounds like there is
 10 a possible contingency for a mixed alternative where you end
 11 up storing perhaps the remote-handled and shipping.

12 GARY RINER: Sure. One of the concerns
 13 is if you end up with a dried product or vitrified product
 14 versus a grouted product and you do have to store it
 15 long-term, a hundred year stewardship. We want to be
 16 careful that whatever waste form we choose to do that with,
 17 it's a sound waste form and it's something that's not going
 18 to cause us all kinds of maintenance nightmares that was
 19 alluded to earlier.

20 We believe that the dried product is
 21 going to be fine. It is right now planned in the baseline
 22 to be placed in carbon steel containers and immediately
 23 shipped to WIPP. If we decide that, in fact, it's not going
 24 to be able to be shipped to WIPP, we are going to upgrade to
 25 stainless steel containers. That's the only thing that

SG-3

Response to Comment SG-3

Under Treatment and Waste Storage at ORNL, DOE examined the impacts of treating and storing all the treated waste at ORNL. The impacts analyses for this alternative would bound the possible situation described by the commentor in which a portion of the waste is shipped offsite, while some is stored onsite at ORNL.

1 makes sense to store long term in this humid environment and
 2 all that we've got. It is going to require some design of a
 3 shielded device, and we're looking right now, Mildred, at
 4 concrete sleeves to actually put 72-B liners in to provide
 5 the shielding that you referred to. So we are looking at
 6 contingency planning if, in fact, WIPP does not open to meet
 7 our schedule. We're also pushing WIPP and trying to get
 8 them to move forward as well.

9 SUSAN GARAWECKI: I guess I had one other
 10 question. At what point does this EIS end and the WIPP, I
 11 guess, EIS pick up as far as the worker safety? Because
 12 certainly the form in which it's shipped and the number of
 13 shipments, one is more compact than another, might have an
 14 impact on worker safety of WIPP, although it might not, that
 15 particular impact might not be worked into this EIS.

16 BILL CAHILL: Let me take a shot at that,
 17 and then Wayne can give us some additional information. In
 18 terms of worker safety, this analysis took into account both
 19 involved and non-involved workers related to focusing on the
 20 processing plant and the vicinity of the processing plant.

21 In the transportation portion of the
 22 analysis, we've looked at risks, both radiological and
 23 non-radiological risks related to just the bulk of the
 24 volume going across the roadways. I would imagine, although
 25 I can't state this for a fact, that certainly the WIPP EIS

SG-4

Response to Comment SG-4

The TRU Waste Treatment EIS summarized transportation impacts from treated TRU and low-level wastes from Oak Ridge to WIPP and NTS, respectively. Worker safety concerns at WIPP and NTS are addressed in *Waste Isolation Pilot Plant Disposal Final Supplemental Impact Statement*, DOE/EIS-0026-S-2, U.S. Department of Energy, Washington, D.C., September 1997, and *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal for Radioactive and Hazardous Waste*, DOE/EIS-0200-F, U.S. Department of Energy, Washington, D.C., May 1997.

As long as shipments from ORO, as a certified waste shipper, meet the WIPP WAC, the impacts to workers would have been bounded by the analysis in the WIPP SEIS.

1 would evaluate involved and non-involved workers related to
2 those operational activities. Fill in the gaps here, guys.

3 WAYNE TOLBERT: We did not. This EIS did
4 not deal with worker safety, if you will, at WIPP or NTS.
5 We looked at this information and the impacts associated
6 with that, but when it got there, we assumed that in
7 essence, that's where one ended and the other one picked up.

8 GARY RINER: WIPP pays for the
9 transportation to their facility. They're totally
10 responsible for that transportation crew that they're going
11 to have. And both in their EIS and their supplemental EIS
12 that was analyzed. That's a huge, humongous Environmental
13 Impact Statement. They did look at those activities. I
14 don't know what kind of bounding analysis they did to assume
15 we had dried product or vitrified product or grout product.
16 So I don't think the risk to a worker or to a citizen by
17 virtue of the 72-B cask is dependent upon waste form.

18 SUSAN GARAWECKI: Your waste form may
19 determine how many of those go on the road?

20 GARY RINER: Right. Which we have those
21 numbers pretty well articulated.

22 BILL CAHILL: That does for sure make a
23 difference.

24 SUSAN GARAWECKI: Okay. Thank you.

25 MILDRED SEARS: Going back to the

SG-5

Response to Comment SG-5

The commentor's statement that the waste form will determine the type of shipping containers needed and the number of shipments is correct. This information is presented in Section 4.8.7, Table 4-15, of the Final EIS.

1 preferred alternative. Sodium -- a good quite a bit of
 2 sodium nitrate is a dried product. Sodium nitrate is called
 3 hygroscopic. That means it picks up moisture very readily
 4 from the air. And once you start picking up moisture, it's
 5 going to be corrosive on your container. I don't know what
 6 the lifetime is for sodium nitrate in stainless steel cans,
 7 but you may want to look a little more at how industrial
 8 production companies store their sodium nitrate.

9 I believe that it says that the waste
 10 product is to meet RCRA LDR, which stands for land disposal
 11 restrictions, and one of those requirements have to do with
 12 leachability. I'm not aware of there having been any
 13 laboratory scale test run with an actual sample with a pH
 14 adjusted to whatever pH you plan to process that, and then
 15 dry and leached to determine whether the sample passes the
 16 LDR with respect to leaching. I know that our compliance
 17 people at ORNL says that in their experience that lead
 18 concentrations as high as we had in the sludge, they
 19 generally flunk. That doesn't mean it's going to flunk. It
 20 merely means that they were warning me that we should be
 21 prepared for the probability that it might flunk.

22 As far as additives, the additives that I
 23 know of were developed for soluble heavy metals in slightly
 24 contaminated water. They weren't really developed for high
 25 salt content material. And yet they may or may not work on

MS-7***Response to Comment MS-7***

The carbon steel containers proposed for on-site transportation are treated for corrosion prevention/resistance (for use in humid ambient conditions). After treatment, the wastes would not be corrosive if kept dry. However, the potential for corrosion remains due to the hygroscopic nature of these materials. The hygroscopic nature of these materials will need to be addressed for interim storage. Storage of these wastes in a humid environment may result in the need to address moisture buildup inside the container. One option available to handle this potential is to use stainless steel containers and possibly one-way temporary check valves or vents to eliminate moisture buildup.

MS-8***Response to Comment MS-8***

Section 9(a)(1) of the WIPP Land Withdrawal Act exempts TRU mixed waste for disposal at WIPP from LDR standards. DOE is currently undertaking small-scale treatment of the actual samples of sludges to see if they meet LDRs.

1 the supernate, but I would say that there is a risk that if
2 the sludge and dried solids don't pass initially, I think
3 your chances of the additives working are slim. And in a
4 manner of speaking, this is Foster Wheeler's problem, but it
5 becomes the community's problem if they don't pass the LDR,
6 and for that reason WIPP won't take it. I'm basically
7 saying I think some properly planned and conducted
8 experiments might be very worthwhile.

9 Secondly, you have to do them on real
10 sludge. You cannot do them on surrogates. And because
11 there is considerable variation from tank to tank to tank,
12 and you certainly won't empty all the tanks at one time,
13 you're going to have to check out several different
14 sludges. You can't work on one sample.

15 UNIDENTIFIED VOICE: Have the experiments
16 been done?

17 GARY RINER: They are being done as we
18 speak. We had it planned to do it on actual samples.
19 Foster Wheeler is not paying for that. I'm paying for that
20 because I had the same concern that you had, Mildred. If
21 they fail, then we've all failed. It's a problem with the
22 department. So in conjunction with the EM-50, we are doing
23 some testing, planned later this year, on actual sludge.
24 I'm tired of surrogates. I'm like you. We got to go for
25 the real thing and see what it actually does, whether or not

*MS-8
(cont.)*

1 it meets the LDR requirements are not.

2 Let me clarify something here. Most of
3 these sludges are remote-handled TRU. It does not have to
4 meet LDR to be shipped to WIPP. It doesn't even have to be
5 treated for its RCRA constituents. We, as a department,
6 chose to specify in the contract treatment to LDR's in case
7 we get stuck with the waste here in Oak Ridge. We wanted it
8 to be LDR compliant so we could safely store the stuff under
9 RCRA provisions, okay. But to ship it to WIPP, it doesn't
10 matter if it meets LDR or not. They don't care. There is a
11 distinction there that we needed to clarify.

12 Now, with the supernates, our plan is to
13 send them to the Nevada Test Site, by all means, they must
14 meet LDR, because they don't accept mixed waste.

15 MILDRED SEARS: May I suggest that Foster
16 Wheeler get some input in planning so that they're operating
17 under something that sort of matches.

18 GARY RINER: Foster Wheeler has been in
19 the meetings with us, as has the laboratory, Jack Novathal
20 from DOE, Bryan, we have together put together the matrix.
21 We don't want to do something that they're not going to do
22 in the real world. So we're trying to make this as much a
23 real life situation as we possibly can.

24 BILL CAHILL: Go ahead.

25 BRYAN ROY: I'm Bryan Roy. I'll add,

MS-9

Response to Comment MS-9

Foster Wheeler is coordinating closely with DOE and the laboratory performing the tests in the event that the Low-Temperature Drying Alternative is selected.

1 Mildred, that we're generally trying to wash (inaudible)
2 nitrate to supernate to a filtrate side, and the solids, the
3 non-dissolved metal (inaudible) you were referring to will
4 generally be washed with most of the nitrate so we don't
5 have that competition that you mentioned. That is part of
6 what Roger --

7 GARY RINER: Roger Spence.

8 BRYAN ROY: -- he's taking that into
9 account.

10 BILL CAHILL: Other questions, please?
11 Bob.

12 ROBERT PEELE: Bob Peelle again. I'd
13 like to drive another nail into Alternative 5. We've
14 already complained about the need for handling the stuff on
15 long term. There is one additional aspect to that,
16 however. I presume the long-term storage would be someplace
17 in Melton Valley. Of course, you hadn't said that.

18 BILL CAHILL: Correct.

19 ROBERT PEELE: Assuming that's true -- I
20 shouldn't have used that word. Assuming it is in Melton
21 Valley, the Melton Valley proposed plan and the ROD that we
22 hope will be signed soon and all the analysis in the public,
23 has assumed this material is gone, let's talk about what
24 will happened in 100, 300 years.

25 BILL CAHILL: Correct.

RP-2

Response to Comment RP-2

This information is in the EIS. Should interim storage be required, the waste would be kept in Melton Valley near the existing bunkers and metal storage buildings at SWSA 5 North. See also response to comment ORSSAB-3.

RP-2
(cont.)

1 ROBERT PEELE: And your Alternative 1 or
2 5, those are invalid, and suppositions upon which those are
3 based, fail. So you cannot have a ROD which is based on the
4 removal of this material and an EIS that has Alternative 5.
5 I don't think they can exist together. So I think you have
6 to drop 5 or something else fairly fancy, because you can't
7 have two conflicting documents, I hope.

8 BILL CAHILL: Good comment. Thank you,
9 Bob. Any other comments, please? Questions? Everybody is
10 ready to go home.

11 Let me do a couple of things then. First
12 of all, thank you for your time for spending this evening
13 talking about this. We appreciate your comments and we'll
14 certainly take them to heart when we go about the business
15 of producing the Final EIS.

16 The second thing is, if you did not get a
17 hard copy of the hand-out or the impact evaluation, I do
18 have a couple of extra copies. You can come up and see me
19 and I'll get those to you. We also have several copies of
20 the draft document here this evening. If you did not get a
21 copy, we would like you to have one.

22 UNIDENTIFIED VOICE: Is it on the Web and
23 what is the easiest way to find it?

24 BILL CAHILL: It is on the Web. The
25 easiest way to find it would be -- Wayne.

RP-2
(cont.)

Response to Comment RP-2 (cont.)

DOE is required under the Council on Environmental Quality's NEPA regulations (40 *CFR* 1500–1508) to evaluate the No Action Alternative. DOE evaluated the Treatment and Waste Storage at ORNL Alternative because the Department believes it is reasonable, in accordance with the Council on Environmental Quality's NEPA regulations (40 *CFR* 1502.14), to analyze the impacts of potential storage of treated waste (e.g., in the event disposal capacity is unavailable).

In conclusion, decisions made as part of the CERCLA process do not preclude DOE from considering on-site alternatives in the EIS.

1 WAYNE TOLBERT: Under the DOE web site
2 and look under the NEPA and follow the path under the NEPA.
3 It's DOE headquarters.

4 PAMELA WATSON: Go to NEPA.

5 WAYNE TOLBERT: Then follow the menu. I
6 don't remember precisely.

7 GARY RINER: Mary, do you know the menu?

8 MARY GREENE: I don't know the address.

9 GARY RINER: If you have trouble, call
10 Bill or I, and we'll make sure you get in there.

11 BILL CAHILL: Thank you very much. This
12 meeting will stand adjourned.

13

14 (Meeting adjourned)

15 - - - -

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C E R T I F I C A T E

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I do hereby certify that the foregoing is a true, complete and accurate record of the Public Meeting held on March 21, 2000.

I do hereby further certify that I am of neither kin, counsel nor interest to any party hereto.

3.2.8 Other Written Comments Received

LORENE SIGAL-Please include a copy of the CX for the 1.4 mile road from the proposed site to Hwy 95 in the Final EIS.

MAL HUMPHREYS (via e-mail) -An issue regarding the Transuranic Waste Remediation Facility EIS and Air Permit Application has arisen from the March TRU EIS PUBLIC MEETING.

In both documents, the actual effective dose equivalent (EDE) rather than the potential EDE was used to compare to the 0.1 mrem/yr limit (which represents the air permit exemption limit under TAPCR 1200-3-9-.04(4)(d)9, and the limit above which continuous stack monitoring is required under

TAPCR 1200-3-11-.08(6)-incorporated EPA Reg 40 *CFR* 61.93(b)). The potential EDE is calculated from the potential radionuclide emission rate of the source, which is defined under 40 *CFR* 61.93(b)(4) and TAPCR1200-3-9-.04(4)(d)9 as the "release rate that would result if all pollution control equipment did not exist, but the facility operations were otherwise normal". Recalculation of the potential radionuclide emission rate and resulting potential EDE without using the HEPA filter removal efficiencies will most likely yield a potential EDE greater than the 0.1 mrem/year threshold. This source will therefore most likely need to be permitted and continuous radionuclide stack monitoring will most likely be required (as per TAPCR 1200-3-11-.08(6)-incorporated EPA Reg 40 *CFR* 61.93(b)).

LS-2

Response to Comment LS-2

A copy of the categorical exclusion for the road is included as Appendix G to the Final EIS.

MH-1

Response to Comment MH-1

The values presented in the EIS are believed to be very conservative. Calculating the emission rate with control systems indicates an emission rate of radionuclides that would result in a dose rate of up to 6.3 mrem/year and 8.6 lbs/hour for particulate matter. If the unit, when built, does exceed the threshold limits, a Clean Air Act permit will be obtained before it is operated.

EARL McDANIEL (via e-mail)- In principle drying the sodium nitrate supernate from the MVST is a good idea. However, that is all it is an idea. What Foster Wheeler proposes to do is not supported by similar work published in the open literature. It is not based on a treatability study and on an engineering scale validation. It is only a good idea, which is cost effective (or cheap). Dried and powdered sodium nitrate may well pose a great safety hazard not only during processing but storage and shipment even if it "meets requirements."

As to drying the sludge, this is even worse. The sludge contains all the TRU isotopes and most of the characteristically hazardous metals. Again, there is no data to support the Foster Wheeler approach. If Universal Treatment Standards (UTS) apply, it may not be possible to meet UTS without some sort of solidification/ stabilization. This needs to be determined on both a lab and engineering scale. Again, dried powder containing TRU isotopes is a very dangerous material. A little plutonium goes a long way. Once the plutonium gets out it is difficult to recover it. What I hear does not give me confidence that this project is safe or will be successful. One would think that DOE learned a lesson with the K-25 sludge problem. It appears not to be so.

Response to Comment EM-1

EM-1

The Low-Temperature Drying Alternative uses the knowledge of the waste characteristics and treatment techniques to produce a waste acceptable for transport to and disposal at the identified waste disposal locations.

EM-2

Foster Wheeler provided technical literature and experience documentation to substantiate its approach, available either in the open literature or from experienced industry sources. DOE reviewed the completeness of this information, independent of cost considerations, prior to contractor selection. An independent project assessment was also accomplished by DOE in early 1999 to assess this and other risks. TDEC also reviewed the proposed process as part of the applicant's RCRA permit, which has been granted. In 2002, prior to waste handling, both WIPP and NTS will also audit and affirm the project's capability to provide an acceptable waste product.

EM-3

The commentor is correct in stating that the wastes from the MVSTs have not previously been treated in this manner. While all the proposed treatment alternatives evaluated in this EIS involve some uncertainties, in the case of the preferred alternative, the following factors were considered:

EM-4

EM-5

1. Industry experience drying similar materials and wastes.
2. Testing of surrogates in the proposed drying equipment by Foster Wheeler, another bidder that advocated drying, and ORNL some years ago.
3. Extensive characterization testing of the MVST wastes.
4. Full reversibility of the physical drying process.

Containment of the radionuclide content of the supernate solids is certainly the primary challenge involved with any treatment alternative.

Supernate wastes, which consist of sodium and potassium nitrate salts dissolved in water that is also contaminated with less than 2% (by mass) of several other soluble compounds and radionuclides, is not considered characteristically toxic under the federal hazardous waste (RCRA) regulations. Salts of similar composition, but not radioactive, are routinely dried in industries worldwide. Radioactively contaminated salts of similar composition have also been dried, but much less frequently, in the United States and Europe.

Response to comment EM-2

Sodium nitrate may pose a safety hazard with regard to explosions. DOE considered the possibility of explosion and concluded it was not a credible accident. DOE evaluated potential accident scenarios associated with this proposed treatment process. See response to comment MS-4 for details on potential explosion accidents. DOE evaluated credible transportation accidents and associated risks (Section 4.8).

Response to comment EM-3

With regard to drying the sludge, the data and experience upon which the Low-Temperature Drying Alternative approach was based included the following:

1. Nuclear industry experience drying sump sludges.
2. Testing of surrogates in proposed equipment.
3. Extensive characterization testing of the MVST wastes.
4. Full reversibility of the physical drying process.
5. Toxic chemical fixation in industrial, waste waters.

At this time, the UTSs, which are RCRA treatment standards applicable to listed wastes, are not expected to be applied to these sludge wastes because they are characteristically hazardous. The proposed treatment technology will render the RCRA-characteristic hazardous sludges nonhazardous by removing their hazardous

characteristics. The commentor is correct to state that it might not be possible to meet UTSSs, were they applicable, without additional stabilization techniques.

Response to comment EM-4

The accident analysis in Section 4.11 considered plutonium.

Response to comment EM-5

The lessons learned from the K-25 pond waste solidification project that produced 78,000 drums of waste product were factored into the approach to this project. Specifically, the process control inadequacies, planning and management shortfalls, and lack of comprehensive waste characterization information were considered in the development of the proposed action.

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