PART III – RESPONSIVENESS SUMMARY

13. BACKGROUND ON COMMUNITY INVOLVEMENT

Comments and questions received during the public comment period are summarized in the first section of this responsiveness summary. The comments were grouped according to the topics they focused on, and were then summarized into succinct statements in order to capture the significant issue discussed, or information requested. The purpose is to provide the following, as required by U.S. Environmental Protection Agency (EPA) guidelines for responsiveness summaries, as documented in *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA 1999b [EPA 540-R-98-031, OSWER Directive 9200.1-23P]):

- A clear and concise measure of which aspects or elements of the alternative the community supports, opposes, or has reservations about
- General concerns about the sites being remediated under this action, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at those sites.

The responsiveness summary also indicates how the public's comments were integrated into the decision process and puts the Agencies' response to comments "on record."

The following responsiveness summary provides the community and Agency decision makers with a synopsis of community preferences and concerns, and Agency responses. Although the summarized statements rephrase for brevity the comments submitted, they in no way replace them and are not intended to alter their focus. Bracketed numbers at the end of each summarized topic statement identify the original comment or comments. The complete original comments can be referred to in Appendix A for the discussions or questions from which the summaries of significant concerns were condensed.

All comments that were received are presented in Appendix A, either as scanned written submissions or as transcripts of the formal comments made at each public meeting. Each document is annotated to indicate the comments used to prepare the Responsiveness Summary. The documents are numbered separately in two series: comments in response to the Proposed Plan (W1 through W6) and comments transcribed during the formal comment session of the public meeting (T1). Indexes at the beginning of Appendix A list the comments by commenter, by response number, and by topic.

The responsiveness summary begins with questions and comments on the community relations process for the remediation of the V-Tanks (see Section 3 [Part II of this document] for the history of community participation in this action). Next are questions and comments concerning the treatability studies and the activities carried out during this process. Finally, questions and comments are presented that focus on the remedial actions proposed under this Record of Decision (ROD) Amendment and Explanation of Significant Differences (ESD). In this manner, topics follow an order paralleling their presentation in the Proposed Plan. A total of 58 topics are identified in this summary.

Section 7.1.3 (Part II) summarizes how the community's issues and concerns were incorporated into the evaluation of alternatives for the V-Tanks, while Section 11.3 (Part II) summarizes how the community's comments resulted in a significant change to the institutional controls for the HTRE Reactor Vessel Burial Site. Section 12, References, includes the documents referenced in the Responsiveness Summary.

14. STAKEHOLDER CONCERNS AND AGENCY RESPONSES

The following sections detail the topics of concern to the community, as raised during the public comment period, and the Agencies' responses.

14.1 Overall Goals of the INEEL Environmental Restoration Program

1. **Topic:** A commenting group asserts that there is public skepticism about the Department of Energy's (DOE's) veracity and the other Agencies' willingness to adequately enforce their regulatory and oversight responsibilities. [W2-5]

   Response: The U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (IDEQ) are jointly responsible for cleanup actions at the INEEL. The Federal Facility Agreement and Consent Order (FFA/CO) designated the State and the EPA (the "support agencies") as partners to and regulators of DOE (the "lead agency"). Cleanup activities at the INEEL are directed by project managers who represent each of the three Agencies. The project managers or their support staff meet or confer weekly on cleanup status during all phases of each remediation. Through this coordinated effort, the Agencies jointly develop the necessary work plans, technical investigations, and other documents, including proposed plans and records of decision (RODs).

   The State and EPA review and comment on all key documents for cleanup. In addition, State and EPA representatives are active participants in meetings, briefings, and workshops, either in person or by teleconference. Both the State and EPA may also hold meetings and briefings on the cleanup program. This ROD Amendment, like all INEEL RODs, is the result of a substantial and sustained process of regulatory enforcement and oversight by the support agencies.

   Questions and comments about INEEL activities, and the State's and EPA's oversight, can be addressed to the Agencies:

   Nick Ceto
   INEEL Program Manager
   U.S. Environmental Protection Agency Region 10
   712 Swift Boulevard, Suite 5
   Richland, WA 99352
   Phone: 509-376-9529

   Daryl Koch
   Manager of Federal Facilities Section, Idaho Department of Environmental Quality
   1410 N. Hilton
   Boise, ID 83706
   Phone: (208) 373-0492

   Kathleen E. Hain, Director
   DOE Environmental Restoration Program
   U.S. Department of Energy Idaho Operations Office
   P.O. Box 1625
   Idaho Falls, ID 83415-3911
   Phone: (208) 526-4392

In addition to mailings and public meetings, the INEEL provides additional avenues for public involvement, including tours and briefings. These are described in each proposed plan and on-line at http://cleanup.inel.gov/getinvolved/. The INEEL Community Relations Plan (available on-line at http://cleanup.inel.gov/publicdocuments/remediation/ explains more about these opportunities for comment and involvement. Community Relations Plan Coordinator Joseph Campbell can be reached at (208) 526-3183.

The investigation and cleanup process and schedule for Test Area North (TAN) have complied with the FFA/CO. Every reasonable effort is made to ensure that TAN remediation activities contribute to the ultimate goal of protecting human health and the environment by use of recognized engineering and institutional responses that meet standards for protectiveness identified by the Agencies. These standards (the applicable and relevant or appropriate requirements, or ARARs) were originally identified in the 1999 ROD and in this ROD Amendment and will be enforced by the Agencies. The remedies proposed for Waste Area Group (WAG) 1 sites are in no way illegal.

The cleanup process carried out for TAN has included all required community relations activities to ensure that the public has been provided appropriate opportunities for involvement in a wide variety of site-related decisions, including site analysis and characterization, alternatives analysis, and remedy selection. The public meetings, the proposed plans and associated comment periods, and the Administrative Record all provided opportunities for the community to learn about the WAG 1 remediation and to inform the Agencies about their concerns. The Agencies hope that the WAG 1 CERCLA process with its public comment opportunities, in conjunction with other regulatory hearing processes required by the Resource Conservation and Recovery Act (RCRA), will help build trust in the INEEL's path forward to cleanup completion.

2. **Topic:** To what extent does the INEEL examine the interaction of different components of INEEL-wide cleanup, such as the ramifications of long-term disposal of V-Tanks waste at the INEEL CERCLA Disposal Facility (ICDF)? [T1-9]

Response: The ICDF was authorized under the comprehensive remediation of WAG 3 (the Idaho Nuclear Technology and Engineering Center (INTEC]). Although the ICDF is located at INTEC, it was designed to be the repository for waste generated from CERCLA actions across the INEEL. The ICDF was designed to accommodate the waste types and volumes expected to be generated under CERCLA cleanup activities at the INEEL, including CERCLA waste generated from Operable Unit (OU) 1-10. The waste from the V-Tanks that is disposed of at the ICDF will comply with the ICDF waste acceptance criteria (WAC). The ICDF waste acceptance criteria are, in turn, based on a thorough performance assessment, which evaluated the potential for impacts to the environment (e.g., the aquifer) assuming the entire ICDF were filled with CERCLA waste and then designed the ICDF facility and WAC to prevent such impacts from occurring. As long as each waste stream disposed of at the ICDF meets these criteria, which the V-Tanks waste will, the ICDF will remain protective of human health and the environment.

Although each cleanup activity is carried out separately, project managers coordinate technical knowledge and lessons learned from previous cleanup actions at the INEEL and elsewhere. All CERCLA cleanup activities at the INEEL are integrated under a structure established by the 1991 Federal Facility Agreement and Consent Order (FFA/CO). The FFA/CO placed the INEEL facilities into 10 waste area groups (WAGs). WAG 1 is Test Area North (TAN).

Each WAG is further broken down into operable units (OUs) for more efficient management. Each OU takes in a group of sites with similar contamination problems. Most OU numbers identify site

investigations or early actions. The FFA/CO established 10 OUs within TAN. The V-Tanks cleanup is part of OU 1-10, the comprehensive remediation for WAG 1, which assessed the results of preceding site investigations, carried out investigations of sites not previously evaluated, and determined the overall risk posed by this WAG.

Similarly, the comprehensive investigations of WAGs 2 through 9 each examined the cumulative risk for that WAG. Under WAG 10, these documents and the results of analysis of areas between the INEEL facilities are comprehensively assessed to provide a picture of INEEL-wide risk.

In May 2002, the Agencies formalized an agreement to pursue an accelerated cleanup plan at the INEEL that will further improve the INEEL's cleanup approach, both for better risk reduction and for more efficient and timely cleanup.

3. **Topic:** The V-Tanks contaminants, particularly the transuranics, will not be removed from the INEEL, but only moved from Test Area North (TAN) to the INEEL CERCLA Disposal Facility (ICDF). How can the Proposed Plan claim that this strategy offers long-term effectiveness for protection of human health and the environment? [W4-8]

   Response: At the V-Tanks location, the selected remedy does satisfy the CERCLA criterion of long-term effectiveness and permanence because it will ensure protection of human health and the environment over time through high reliability of the technology involved, and high certainty that the protection achieved by this remedy will be maintained. Chemical oxidation/reduction will destroy the volatile and semivolatile compounds in the tank contents, eliminating them as a risk. The technology will not destroy the metals and radionuclide contaminants; there are no commercially available technologies that can do this. Instead, grouting will reduce the mobility of metals and radionuclides, thereby lowering their risk to human health and the environment. Subsequent disposal of the stabilized residuals at the ICDF will isolate this remaining contamination from potential exposure to human and ecological receptors, completing the goals of the cleanup action.

   A lined, covered, and monitored landfill such as the ICDF helps meet CERCLA's overall goal of long-term protection by reducing uncontrolled access to the waste and inhibiting mobility of contaminants. The ICDF has been designed to meet the substantive requirements of a landfill permitted under the Resource Conservation and Recovery Act (RCRA) and was approved by the Agencies under the WAG 3 Record of Decision (ROD). The ICDF is also designed to meet the substantive requirements of DOE Orders governing radioactive waste disposal. Regardless of whether the immobilized waste residuals are disposed of at the ICDF or sent to a facility off the INEEL, the material will meet waste acceptance criteria (WAC) designed to ensure protection of human health and the environment. An alternative that includes disposal off the INEEL would not be more protective than one that uses disposal at the ICDF with regard to the risk factors that would have to be considered if the material were transported through communities off the INEEL.

   DOE will provide institutional controls for sites subject to land-use restrictions (including the V-Tanks site and ICDF) over at least the next 100 years unless a 5-year review concludes that unrestricted land use is allowable. After 100 years, DOE may no longer manage INEEL activities and controls will take the form of land-use restrictions. Though land use after 100 years is highly uncertain, it is likely that industrial applications will continue at WAG 1 and at the ICDF. The Hall Amendment of the National Defense Authorization Act of 1994 (Public Law 103-160) requires concurrence from EPA on the lease of any National Priorities List sites during the period of DOE control and CERCLA (42 USC 9620 Section 120[h]) requires that the state be notified of a lease involving contamination. When DOE no longer manages INEEL activities and controls are needed,

CERCLA (42 USC 9620 Section 120[h]) requires that DOE indicate the presence of contamination and any restrictions in property transfer documentation.

4. **Topic:** The proposed plan states on page 6 that the long-range land use plan for Test Area North (TAN) is nonnuclear industrial facilities. However, in 2002, the DOE announced a mission change for the entire INEEL to nuclear research and development, including commercial nuclear power stations at the INEEL. Why has this mission change not been factored into the V-Tanks contents proposed plan? [W4-11]

   Response: The announced mission change does not alter or detract from CERCLA cleanup activities now in progress at the INEEL and is, in that sense, an unrelated matter. The INEEL's current mission is available on the Internet (at http://www.inel.gov/about/mission-vision.shtml). Further information on the INEEL mission change also can be found on the Internet (at http://www.inel.gov/elizabeth_sellers_message.pdf). It is not yet known what the details of the proposed new INEEL nuclear research mission will be, relative to activities at TAN. However, the mission change will not hinder or delay cleanup of the V-Tanks or other sites scheduled for remediation. In fact, under the 2002 Agency agreement to pursue accelerated risk reduction and cleanup at the INEEL, many ongoing and projected remediation activities have been consolidated for more efficient management and to ensure that cleanup is completed.

   The DOE is not changing its commitment to clean up all inactive waste sites at the INEEL that pose a risk to human health or the environment, including the V-Tanks. This cleanup is required to eliminate health and environmental threats posed by hazardous waste sites to current and future workers and future residents. The program also includes a review process that reevaluates the effectiveness of remedial actions at least once every five years where residual contamination remains at levels that do not allow for unrestricted access. At TAN, this review process will provide continuing opportunities, no matter what TAN's mission is or becomes, to ensure the long-term effectiveness of cleanup levels achieved by the V-Tanks remedy, should some contaminants remain in place.

5. **Topic:** There has been no environmental impact statement addressing the INEEL's mission change to future nuclear industrial activities, even though substantial federal resources are already being committed to this new mission. [W4-12, W2-23]

   Response: Development of new missions at the INEEL is a separate issue from the remediation of contamination resulting from past activities. Cleanup activities at Test Area North (TAN), including the V-Tanks remediation, are required by the long-standing obligation of DOE to complete CERCLA cleanup at all its facilities. These remedial actions are not related to the mission change, and must continue regardless of any future missions that may or may not be given by Congress to the INEEL. The question of applicability of the National Environmental Protection Act (NEPA) to such future missions is therefore not relevant for the V-Tanks cleanup, or for other INEEL locations scheduled for cleanup under CERCLA.

   The V-Tanks remediation activities are structured so they do not limit future industrial missions at TAN or the INEEL, but instead allow for the creation of new opportunities by removing contamination that would preclude other uses.

14.2 Public Participation and Community Relations

6. **Topic:** The commenter appreciates being on the mailing list to continue being updated on the progress of the INEEL's cleanup activities. [W5-1]

Response: The Agencies encourage citizen involvement in decision-making at the INEEL. In addition to the mailings and public meetings, the INEEL provides other avenues for public involvement including tours and briefings. Mailing addresses, telephone numbers, e-mail addresses, and internet addresses are provided in each proposed plan for citizens to get additional information, briefings, or tours from Agency and project representatives. The INEEL Community Relations office can be contacted by telephone toll-free at 1-800-708-2680, or by mail at P.O. Box 1625, Idaho Falls, Idaho 83415-3940. Joseph Campbell, the INEEL Community Relations representative for Test Area North, can be contacted by e-mail at campjl@inel.gov or by telephone at (208) 526-3183.

7. **Topic:** The commenting group notes that in order to fully support any technology for use in remediation, they must be involved early in the process and receive verifiable demonstration that the technology is both effective and low risk. [W6-6]

Response: A variety of opportunities for early public information and involvement exist, and have been expanded continuously over the years of INEEL's cleanup program. The INEEL's Community Relations Office began contacting individuals and community groups during the early stages of planning for the V-Tanks by making phone calls, providing technical briefings as desired, and actively soliciting early feedback. This process is described in Section 3 of this ROD Amendment. Opportunities for information and comment on an ongoing basis are also available, as noted in the response to Topic 6, above. The web page of the INEEL Community Relations Office (at http://www.inel.gov/environment/) provides information about the current status of cleanup projects.

The feasibility study (in this case, the 2003 Technology Evaluation Review [2003 TER]) and proposed plan present all applicable and relevant or appropriate requirements (ARARs) that must be met, and they identify and evaluate technologies that are capable of meeting those ARARs. Thus, the 2003 TER and the proposed plan that is based on it present a general strategy, a preconceptual design rather than a detailed process. CERCLA Guidance does not require final development and demonstration of a proposed treatment technology prior to the proposed plan and record of decision (ROD), because the cost and time involved in testing multiple potential remedial designs would substantially delay the beginning of the cleanup and add substantially to the final costs.

A number of conceptual verification, treatability studies, and other required tests may be required to confirm the effectiveness and safety of the chosen treatment technologies before operations start at a cleanup site. The level of technical, safety, and cost information required to reach this point makes the development of the final selected remedy a lengthy process.

The feasibility study phase of a cleanup is the beginning of the remedy development process. Its purpose is to identify multiple technologies known to be able to address comparable waste, and to provide the information necessary for the Agencies to determine which of them could be used successfully. The feasibility study, on which the proposed plan is based, is always placed in the Administrative Record and is available for public review. During the proposed plan comment period, readers may address their comments to the data developed in the feasibility plan and other supporting documents, as well as to the proposed plan; some of the groups who commented on the V-Tanks action have taken the opportunity to do this.

Building on the proposed plan, the ROD establishes the cleanup technology to be used and the cleanup levels to be achieved. However, it is only after the signing of the ROD, in the Remedial

Design phase, that the Agencies collectively determine the engineering design (including schedule, cost estimates, and disposal options for wastes generated) and verify that all remediation activities will comply with applicable standards in state and federal laws. The technology selected to remediate the V-Tanks — ex situ chemical oxidation/reduction with stabilization — has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate that the technology is effective and low-risk.

8. **Topic:** The public must be kept informed and involved in the determination of what waste is accepted at the INEEL CERCLA Disposal Facility (ICDF), particularly when there is substantial public concern over what contaminants will be accepted, and how they will be treated and packaged for disposal. This responsibility is spelled out in the National Environmental Protection Act (NEPA), which requires environmental impact statements and public hearings. [W2-23]

   Response: The INEEL carefully meets or exceeds all public information opportunity requirements, and did so for the ICDF development process. The Operable Unit (OU) 3-13 Record of Decision (ROD), which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The OU 3-13 RI/FS and ROD, with the associated public involvement process, address NEPA values, such that no separate NEPA document or NEPA process is required. The waste acceptance criteria (WAC) for the ICDF were developed during the ICDF remedial design process. This included public meetings and opportunity for public comment. As part of the public process for the OU 1-10 ROD Amendment, the Proposed Plan specifically informed the public about the potential use of the ICDF for the disposal of the V-Tanks waste, debris, and contaminated soils.

   For more information about the ICDF, contact Joseph Campbell, the INEEL Community Relations representative for the ICDF, at 208-526-3183 or at campjl@inel.gov. For general information, call 1-800-708-2680, or send mail to P.O. Box 1625, Idaho Falls, ID 83415-3940.

14.3 Content and Organization of the Proposed Plan

9. **Topic:** Several commenters expressed their appreciation for the thoroughness and easy-to-read format of the proposed plan and for being given the opportunity to comment. [W5-3, W6-7]

   Response: The Agencies appreciate all suggestions from the public on the types of information and format that help the INEEL's proposed plans better serve their purpose. Proposed plans are a key community relations activity undertaken as part of the CERCLA process. The Agencies want the proposed plans to be clear and understandable to all readers, whether or not they are previously familiar with the CERCLA activities at the INEEL, so as to allow the fullest possible public participation in the decision-making process. Proposed plan language and organization are continuously evaluated and improved in response to public feedback, such as this.

10. **Topic:** Given that the waste characterization data is incomplete, that the use of the INEEL CERCLA Disposal Facility (ICDF) violates transuranic (TRU) waste acceptance criteria, and that other applicable and relevant or appropriate requirements (ARARs) have not been addressed, the commenting group recommends that the Agencies develop a new, more complete proposed plan for cleanup of the V-Tanks before proceeding with the action. [W2-9]

    Response: The Agencies believe that the waste characterization data for the V-Tanks have been fully summarized, as required, in the 2003 Technology Evaluation Report and other documents on which the Proposed Plan was based. The primary source documents for the V-Tanks risk and

feasibility evaluation described in the Proposed Plan are listed in Section 2.5 of this ROD Amendment. All relevant documents are in the Administrative Record, available online at http://www.inel.gov/publicdocuments/ or at the Information Repositories listed in Section 1 of this ROD Amendment.

The Proposed Plan summarizes all required information leading to this ROD Amendment. It should be noted that when a remedy requires amendment, CERCLA guidance expresses a preference that the new proposed plan highlight the proposed changes but not repeat in detail any information about the cleanup that has not changed. At each stage of the remediation process, data are reviewed for continued validity. As described in Section 10.1 of this ROD Amendment, a laboratory error in calculating the concentration of inorganic contaminants was found and corrected in Table 2-2 of this document. These data changes, while different from the 2003 Proposed Plan and previous documents, would not have significantly affected the technology evaluation and do not affect the remedy selected in this ROD Amendment. The three Agencies believe that the Proposed Plan for this ROD Amendment represents a complete document and see no need to develop a more extensive Proposed Plan.

The ICDF waste acceptance criteria (WAC) will be completely satisfied by the treated V-Tanks waste submitted for disposal. The concentration of the transuranics in the tanks is currently 4.27 nCi/g and will be reduced even further through treatment. These concentrations are well below the ICDF waste acceptance levels. See Sections 14.5 and 14.6, below, for more discussion of the ICDF WAC and other ARARs that will be met by this cleanup.

14.4 Operable Unit 1-10 Remediation Planning and Costs

11. **Topic:** A commenting group asks for confirmation that the proposed amended remedy will cleanup both the V-Tanks contents *and* the surrounding contaminated soil. [W2-2]

    Response: Yes. Both the V-Tanks and the surrounding soils will be remediated in an integrated action. The 2003 Proposed Plan focused on the changes to the remedy previously selected for the V-Tanks in the 1999 Record of Decision (ROD). Although the remedy for the surrounding contaminated soil has not changed in any substantive way from the 1999 ROD, the details of how remediation of the surrounding soil will be carried out have been clarified (see Section 11.2). The V-Tanks contents remedy described in this ROD Amendment is part of an overall cleanup strategy that will eliminate risk to human health and the environment from both the V-Tanks contents and the surrounding contaminated soil.

12. **Topic:** Several commenters noted that the Proposed Plan addresses only four V-Tanks, whereas there are at least six and perhaps more underground tanks at TAN. Why doesn't the Proposed Plan address Tanks V-13 and V-14? [W2-3, W2-14, T1-1]

    Response: There are indeed additional underground tanks at TAN that are not addressed by this ROD Amendment. To understand their handling, it is important to note the difference between the term "V-Tanks," which identifies a kind of underground storage vessel, and the site name "the V-Tanks," which identifies a particular location to be remediated. The V-Tanks site addressed in this ROD Amendment received that designation in the Federal Facility Agreement and Consent Order (FFA/CO), and was defined as containing only four v-type tanks: Tanks V-1, V-2, V-3, and V-9. These are the four described in the 2003 Proposed Plan and this ROD Amendment. The amended remedy for the V-Tanks site properly addresses only the four tanks contained in this site, as established by the FFA/CO.

Besides the four v-type tanks in the V-Tanks site, two other v-type tanks that were in use at TAN require remediation. These are Tanks V-13 and V-14, which were designated in the FFA/CO as TSF-26 and are also referred to as the PM-2A tanks. The PM-2A tanks are currently being cleaned up under the remedy selected in the 1999 ROD (see Section 7 of that ROD). Since the remedy for the PM-2A tanks is unchanged from the 1999 ROD, it was not addressed in the 2003 Proposed Plan.

Other v-type tanks (e.g., Tank V-4) were located in TAN Building 616. The building and its contents, including these other v-type tanks, are being, or have already been, removed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program. Those components of Building 616 that managed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) are also being addressed under a RCRA closure plan. (Topic 13, below, provides more information on the closure plan).

13. **Topic:** The commenter contends that there are additional V-Tanks in Building 616 at Test Area North (TAN) that must be described and remedied as part of the V-Tanks cleanup. The action, as proposed, is incomplete. [W4-4]

    Response: TAN Building 616 does contain multiple vessels with the "v" designation (e.g., Tank V-4). However, these tanks are not part of the V-Tanks remediation project and are not identified in the Federal Facility Agreement and Consent Order (FFA/CO). TAN Building 616 and its contents, including the tanks, are being addressed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program, because there have been no identified releases of contaminants to the environment; therefore, the building is not a CERCLA site. The components within this building are also being addressed by a Closure Plan under the Resource Conservation and Recovery Act (RCRA). The cleanup of Building 616 is currently being completed and is expected to be finalized by the end of 2003. Sampling will be conducted during D&D&D inside the building and underneath it, and if releases to the environment are discovered, these releases would be cleaned up under CERCLA pursuant to the procedures established in the 1999 ROD.

14. **Topic:** Several commenters stated that there are additional buried wastes not previously included in remedial actions at Test Area North (TAN) that would appropriately be addressed with the V-Tanks. [T1-2, W2-4]

    Response: The Agencies agreed to remediate the four V-Tanks, the associated piping, and the surrounding contaminated soil as one unit because they are part of an interconnected waste handling system that contains a single consistent waste stream. At this time, sampling has shown no additional, adjacent, related past releases. As stated in the 1999 Record of Decision (ROD), the possibility exists that contaminated environmental media not identified by the Federal Facility Agreement and Consent Order (FFA/CO) or in the 1999 ROD will be discovered in the future as a result of routine operations, maintenance activities, or dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Newly discovered sites will be addressed using the process for new site inclusion as defined in the FFA/CO and refined in the 1999 ROD and will be assessed and remediated under CERCLA pursuant to the process agreed upon by the Agencies at the time of the new site identification. Where appropriate, the remedial action objectives (RAOs) and final remediation goals (FRGs) identified in the 1999 ROD and this ROD Amendment will be used to complete any necessary cleanup.

15. **Topic:** Several commenters listed release sites at Test Area North (TAN) that require cleanup but have not yet been fully addressed, even though the 1999 Record of Decision (ROD) was designated as comprehensive. The sites in question are the ANP Cask Storage Pad, the Area 10 HTRE Reactor Vessel Burial Site, and the TAN pool. [W2-17, T1-5]

Response: The three sites listed were identified in the 1991 FFA/CO as potential contamination sites to be investigated within WAG 1. The analyses carried out on them were summarized in the 1997 RI/FS and the 1999 ROD.

TSF-06, Area 8, is the designation for the ANP Cask Storage Pad. Part of this site is currently included within the active Radioactive Parts Service and Storage Area (RPSSA) facility, which will be evaluated during future dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Sampling during the risk assessment indicated that the soil contamination at this site is below the levels at which remediation is required. More information on this site is available in the Administrative Record for Waste Area Group (WAG) 1 in the 1997 Remedial Investigation and Feasibility Study (RI/FS) and the 1999 ROD. (More information about the Administrative Record is presented in Section 1 of this document. Section 2.5 of this document lists key documents used to prepare this ROD Amendment.)

TSF-06, Area 10, is the designation for the HTRE Reactor Vessel Burial Site. This potential release site was evaluated as part of the WAG 1 comprehensive RI/FS and, as documented in the 1999 ROD, it was determined to be a No Action site. The irradiated empty reactor vessel is contained in a metal storage tank and is believed to be more than 10 feet below ground surface. No pathway to human or ecological receptors exists; thus, no cleanup is required. However, based on the commenter's questions about this site, a review was conducted of the relevant documentation. It was determined that although no pathway exists, potential residual contamination precludes unrestricted land use. Thus, the site should be protected with institutional controls. The WAG 1 Institutional Control Plan (INEEL 2000b) will be modified to include appropriate institutional controls for this site. Detailed language has been added in Section 11.3 of this ROD Amendment directing this change to the 1999 ROD. The Agencies appreciate the dedication of the commenter in bringing this oversight to their attention. The Agencies are pleased that this matter confirms the effectiveness of the design of the CERCLA public involvement process.

The TAN Pool (which is part of the TAN 607 Hot Shop) is currently being emptied under a deactivation process but remains within an active facility. Potential threats to human health and the environment from this site will be addressed during the facility D&D&D. More information on this site is available in the Administrative Record for WAG 1. As part of an active facility, the TAN Pool is not being addressed under WAG 1 CERCLA actions.

16. **Topic:** Cost is an important factor. In the comparison of seven alternatives presented in the Proposed Plan, the estimated costs are so close they cannot be used for ranking. However, the commenting group notes that these estimates are preliminary. [W1-2]

Response: Even though the cost differences between the alternatives turned out to be small, cost was used in the CERCLA evaluation process as required. The narrowness of the differences resulted in the cost criterion having a relatively minor impact in the overall evaluation of alternatives.

The cost estimates used to evaluate and present alternatives in a proposed plan are based on the best available information. Changes in various elements of the cost are expected to occur as new information and data are collected during the engineering design of the selected remedy. Because

of this expectation that costs will be refined, CERCLA allows presentation of the cost estimates in the proposed plan to range from +50 to –30% of the actual final cost. Changes in cost beyond these limits prompt an explanation of significant differences or a ROD amendment. As was explained in the 2003 Proposed Plan, such a cost change was one factor that prompted the requirement for this ROD Amendment, and the preceding preparation of the 2003 Explanation of Significant Differences (ESD), accompanied by notice to the public of its availability.

14.5 Risk Assessment and Characterization of Contaminants

17. **Topic:** Data on the contaminant characterization has changed substantially across the relevant documents resulting in what one commenting group notes as major discrepancies. [W2-1]

    Response: Some of the discrepancies noted by the commenting group stem from a data labeling error in a 1996 INEEL report, which was corrected in the 1997 Remedial Investigation/Feasibility Study (RI/FS). The values presented by the commenting group in their Table A (see page A-10 of Appendix A) for the liquid concentration for the metals barium, cadmium, chromium, and lead have inappropriate unit labels. These values appear to have been taken from the *Work Plan for Waste Area Group 1, Operable Unit 1-10, Comprehensive Remedial Investigation/Feasibility* Study (S. M. Lewis, et al., 1996 [DOE-ID/10527]), which mistakenly labeled the Toxicity Characteristic Leaching Procedure (TCLP) values for those metals as mg/kg instead of µg/L. This error by the INEEL makes the reported values appear 1,000 times higher than they actually were. The error was found and the data reported correctly in all follow-up documents. As these data are TCLP values, which represent the quantity of each metal that can leached from a waste with an acidic solution, they should not be taken as representing the liquid waste in the V-Tanks. It is inappropriate to contrast these leachate concentrations to the total concentrations reported in the rest of the commenting group's Table A.

    The sludge values cited by the commenting group in the same table appear to show a consistent drop from data referenced in the 1998 Proposed Plan to the values listed in the 2003 Proposed Plan. The INEEL does not make this claim. The apparent decrease in concentrations is the result of an inappropriate comparison of the solids in one tank to the combination of solids and liquids in a different tank. Because most of the contamination is in the sludge phase, the overall waste stream, which combines both the sludge and water, has a lower overall concentration. This lower overall waste concentration is more representative of the waste that is actually in the tanks and that must be treated to meet disposal criteria.

    Information on contaminants is refined and updated whenever new data becomes available from sampling, or when regulatory requirements change. The Agencies evaluate the potential impact of any substantial change in data regarding a cleanup site. As of the 2003 Proposed Plan, the most recent comprehensive presentation of data on the contaminants in the V-Tanks contents can be found in the Engineering Design File EDF-3868, which is available in the Administrative Record.

    Data are also reviewed for continuing validity at each stage of the remediation process. As described in Section 10.1 of this ROD Amendment, a laboratory error in calculating the concentration of inorganic contaminants was found and corrected in Table 2-2 of this document. These data changes, while different from the 2003 Proposed Plan and previous documents, would not have significantly affected the technology evaluation and do not affect the remedy selected in this ROD Amendment.

18. **Topic:** According to a commenting group, DOE is implying in the 2003 Proposed Plan that in the four years since the November 1998 Proposed Plan, there has been a reduction in the waste due to

"decay," which is being relied upon as part of the remedy. Is "decay" offered as the reason for the change in contaminant concentration numbers? [W2-10]

Response: "Decay," or the expectation that the actual concentration of the contaminants in the V-Tanks contents will decrease, or attenuate, is not part of the remedial strategy, either as selected in the 1999 Record of Decision (ROD) or as amended in this ROD Amendment. Decay of radioactive constituents in the V-Tanks contents will reduce their concentration over time. However, for the purposes of developing this ROD Amendment, the INEEL has chosen not to consider the relatively small reduction in the concentration of radioactive elements that would have occurred since the original data were collected. The discrepancies noted by the commenting group stem from a data labeling error in a 1996 INEEL report combined with an inapplicable data comparison by the commenting group. Given that the 1996 data cited are incorrectly labeled, the commenting group's conclusion that this represents "decay" is also inapplicable here. The correct data for the V-Tanks radioactive constituent concentrations are in the 1997 Remedial Investigation/Feasibility Study (RI/FS) and all following documents for this action. See Topic 17, above, for more information on contaminant characterization.

19. **Topic:** The 2003 Proposed Plan, in Table 2, Contaminants for Treatment, does not present contaminant concentrations in the same units as the federal and state regulations use. In particular, the contaminant concentrations are listed in mg/kg (milligrams per kilogram) or nCi/g (nanocuries per gram), but not in maximum contaminant levels (MCLs), which is what the regulations use. The commenting group urges that MCLs should be presented side-by-side with the INEEL's contaminant sampling results in all public documents to allow the general public to make a determination of whether the proposed alternatives are appropriate. This use of data units that are not easily comparable confuses the public and exacerbates their distrust. [W2-11, W2-16]

    Response: CERCLA investigations present contaminant data in unit types appropriate to the affected media (e.g., soils, water, or air) or related to the contaminant and the governing regulation (e.g., radionuclides are measured in Curies per gram). MCLs are standards that set the maximum permissible amount of a contaminant in water delivered to any user of a public system. MCLs are not relevant for the V-Tanks site because water is not an affected medium. For the contaminated media that are present in the V-Tanks contents and contaminated soil, risk reduction goals use other measurement standards as appropriate, which are presented in the 1999 Record of Decision (ROD), the 2003 Proposed Plan, and this ROD Amendment in sections on remediation objectives and goals.

    Because regulatory compliance for CERCLA remediation is generally so complex, details cannot be fully specified in the Proposed Plan. They are presented in the supporting documents, which are available in the Administrative Record. The commenting group's suggestion for development of clearer explanations of contaminant concentration data, and how the treated waste will comply with regulatory requirements, will be forwarded to the INEEL Community Relations office for improved presentation in future public documents. Reduction of toxicity, mobility, and volume through treatment is a CERCLA evaluation criterion, and data for the comparison are also available in the Administrative Record for those who are interested. For the V-Tanks amended remedy, Section 5 of the 2003 Technology Evaluation Report (TER) compares estimated concentrations of the treated waste for key contaminants to the regulatory levels, in equivalent units.

20. **Topic:** Why are the transuranics in the V-Tanks contents not classified as transuranic (TRU) waste for purposes of disposal? The liquids and sludge in the V-Tanks must be combined for remediation. When they are combined, the concentration will be > 100 nCi/g, which requires that the contents be treated and disposed of as TRU waste. The commenter questions why the transuranics in the

V-Tanks are not being removed from Idaho as required by the 1995 Settlement Agreement. [W2-13, W4-9]

Response: INEEL waste types are classified based not just on their chemical content but also on disposal requirements. The V-Tanks contents are classified as a mixed waste, which includes hazardous wastes (heavy metals, volatile organic contaminants [VOCs], and semivolatile organic contaminants [SVOCs]) and low-level radioactive waste. There are transuranic elements in the V-Tanks, but not TRU waste.

Transuranic *elements* are a group of radioactive chemical elements "beyond uranium" in the periodic table, having atomic numbers greater than 92 (such as plutonium, atomic number 94). Transuranic *waste* is a legally defined category of waste, established for regulatory and management purposes. As a waste category, TRU waste contains more than 100 nanocuries (3,700 becquerels) of alpha-emitting transuranic isotopes per gram of waste and half-lives greater than 20 years (as cited in the 1995 Settlement Agreement). Although low concentrations of several transuranic elements are present in the V-Tanks contents, the concentrations of the combined sludge and liquid (with a combined weighted average of 4.27 nCi/g) are not high enough to meet the TRU waste definition. It is estimated that prior to disposal at the INEEL CERCLA Disposal Facility (ICDF), the treated V-Tanks waste will have a transuranic concentration of approximately 2 nCi/g, well below the 10 nCi/g limit for the ICDF and the 100 nCi/g TRU waste designation.

21. **Topic:** The commenter does not believe land disposal of transuranic (TRU) waste is approved, given that the concentration of transuranics is at a high level of 26.4 nCi/g within the V-Tanks system. [W4-5]

Response: The commenter is correct in noting that Table 2 of the 2003 Proposed Plan lists the highest single reading for transuranics as 26.4 nCi/g. This sample came from Tank V-9 (as reported in Table 3 of the 2003 Technology Evaluation Report [TER]). All readings from Tanks V-1, V-2, and V-3 were lower (11.0, 4.02, and 2.03 nCi/g, respectively). This variability results because waste typically was routed first through Tank V-9 for solids removal before distribution to Tank V-1, V-2, or V-3 (depending on which had the most available capacity).

The Agencies have agreed that because the waste in the four tanks resulted from the same processes, but varies in concentrations of individual contaminants due to the use history described, all the waste in the four V-Tanks will be managed as one waste stream, and will be combined for treatment. Thus, although the concentrations of specific hazardous constituents vary from tank to tank, the average concentration of the hazardous waste constituents for all tanks is the one that will be used. The average concentration of 4.27 nCi/g is well below the INEEL CERCLA Disposal Facility's (ICDF's) waste acceptance criterion (WAC) of 10 nCi/g. Furthermore; the estimated transuranic concentration of the treated waste to be disposed of at ICDF is 2 nCi/g. It is the concentration of transuranics (and other contaminants) following treatment that will be used to show compliance with disposal requirements (WAC) at ICDF.

Beginning several years ago, the INEEL's proposed plans have included the "lowest" and "highest" readings in response to public comments. Some commenters said they would be better able to assess whether the expense of remediation was necessary if they could see the range of extremes from the sampling suite. CERCLA guidance does not require that maximum readings be presented.

Table 2 of the 2003 Proposed Plan (included in this ROD Amendment as Table 2-2) presents information on the primary contaminants in the V-Tanks that affect the selection of an effective

remedy. The overall average concentration values are used in evaluating the effectiveness and operability of various treatment alternatives. The reader is urged to use caution in comparing this data to other sources of information on the V-Tanks or in comparing these values to regulatory levels. U.S. Environmental Protection Agency (EPA) regulations and guidance require different statistical treatment of analytical data when it is used for risk assessment, waste characterization, acceptability of treatment options, or compliance with disposal facility acceptance criteria. For example, risk assessments require 95% upper confidence limit (ucl) values, while waste characterization requires 90% ucl values on the amount of material that will leach from the waste in a given timeframe, and acceptability at treatment facilities usually looks at average concentrations along with maximum and minimum values. Compliance with disposal facility WAC is usually based on 90% ucl on total concentrations. It is generally inappropriate to compare data supplied for one purpose with data intended for another use. The data presented in the 2003 Proposed Plan were supplied to show what contaminants are present, and to help the reader evaluate the cleanup alternatives described. Other information to support risk assessment and waste characterization can be found in the documents in the Administrative Record.

14.6 Remedial Action Objectives and Compliance with ARARs

22. **Topic:** Environmental regulations and laws prohibit disposal of the V-Tanks contaminants on the INEEL. [W2-6, W2-8]

    Response: The comment is incorrect. All of the applicable or relevant and appropriate requirements (ARARs) (which is the term used in CERCLA cleanup actions to identify the set of all environmental regulations and laws that apply to the action) relevant to this action were identified during preparation of the 2003 Technology Evaluation Report [TER], on which the 2003 Proposed Plan was based. None of the ARARs prohibit disposal of the V-Tanks contents, or the surrounding contaminated soil, at an approved disposal facility on the INEEL. The 2003 Proposed Plan presented and evaluated those technologies found capable of meeting the ARARs. After this ROD Amendment is signed, the selected treatment technologies will move from conceptual design into full remedial design. As part of this remedial design phase, safety plans and other work documents will specify in detail how each individual ARAR will be met. These documents will be placed in the INEEL Information Repository as each is completed and approved.

23. **Topic:** Commenters believe that the V-Tanks contents include alpha-emitting low-level waste (α-LLW), which the 1995 Settlement Agreement specifically requires to be shipped to a repository outside Idaho. Therefore, the commenters conclude that the V-Tanks contents must be shipped out of Idaho. In addition, it is noted that a March 31, 2003, federal court ruling requires the Department of Energy (DOE) to "remove all buried transuranic waste from Idaho," which commenters interpret as including the V-Tanks contents. [W2-7, W2-13, W4-9, T1-3]

    Response: It is correct that the V-Tanks contents are classified as low-level waste (LLW) and that the waste contains alpha-emitting radionuclides. However, it is not correct that this makes the V-Tanks remediation subject to the 1995 Settlement Agreement. By definition, LLW is waste that does not meet the definitions for high-level waste (HLW), transuranic (TRU) waste, spent nuclear fuel, or by-product materials. The 1995 Settlement Agreement requires the removal of all stored TRU waste from Idaho (i.e., waste with greater than 100 nCi/g transuranic content). It does not include LLW in this requirement. See Topic 20, above, for additional information on waste-type categories.

24. **Topic:** Treatment that adds soil to the tank contents constitutes dilution, which is expressly prohibited under the Resource Conservation and Recovery Act (RCRA) (40 CFR 268.3[a]). The commenter believes such a dilution is planned because the concentration of transuranics, noted as 26.4 nCi/g on page 6 of the 2003 Proposed Plan, exceeds the waste acceptance criteria (WAC) of 10 nCi/g for disposal at the INEEL CERCLA Disposal Facility (ICDF). [W2-12]

    Response: The RCRA regulation cited does prohibit dilution — for instance through the addition of soil — as a substitute for treatment if that addition is not a contributing part of the treatment process. The alternatives developed for the V-Tanks contents were designed for treatment of the contaminants; no alternatives were considered that would not result in reduction of toxicity and the mobility of the contaminants. Several of the alternatives, as described in the 2003 Proposed Plan, would add some of the contaminated soil surrounding the V-Tanks to enhance the treatment process. For example, vitrification would add soil as a source of silicon to allow the melting process to produce a more stable glass waste form. While this would dilute the concentration of contaminants, it would not be done to avoid treatment but rather to improve treatment effectiveness and control during the treatment process. This is allowed by the U.S. Environmental Protection Agency's (EPA's) RCRA program (as documented in the June 1, 1990, *Federal Register* at 55 FR 22666). The selected remedy, using chemical oxidation/reduction, does not add any soil to the treatment process. As noted in the response to Topic 21, above, the average concentration of 4.27 nCi/g in the V-Tanks contents is well below the ICDF's waste acceptance criterion of 10 nCi/g, even prior to treatment.

25. **Topic:** Under the preferred alternative, adding grout leads to dilution for the purposes of land disposal, which does not seem legal. "Dilution is not the solution," a commenting group notes. [W2-24, T1-4]

    Response: Grouting is the process of adding appropriate stabilization agents such as portland cement that will chemically bind with the hazardous metals. This stabilization step reduces the leachability of these metals, making it harder for these contaminants to be released into the environment. This reduction in leachability is required to meet both RCRA LDRs and the WAC for any disposal facility. The U.S. Environmental Protection Agency (EPA) has reviewed the inherent dilution that takes place during stabilization treatment processes. This dilution is considered acceptable when there is a significant reduction in leachability of hazardous contaminants and when appropriate volumes of stabilization materials are used. The selected remedy will deploy a stabilization process that meets those goals.

    The Agencies recognize that when hazardous metals are stabilized, there is not only a dilution of the hazardous metals as discussed above in Topic 24 but also a dilution of the other constituents, including the radioactive contaminants. The Agencies concur that this inherent dilution is acceptable when this dilution occurs as a result of treatment necessary to meet either Resource Conservation and Recovery Act (RCRA) land disposal restrictions (LDRs) or disposal facility waste acceptance criteria (WAC).

26. **Topic:** The commenter contends that requirements of the National Environmental Policy Act (NEPA), which include the evaluation of alternative disposal locations through the environmental impact statement (EIS) process, have not been met for the disposal component of this action. In addition, the proposed disposal facility, the INEEL CERCLA Disposal Facility (ICDF), was not permitted under the Resource Conservation and Recovery Act (RCRA), which it should have been in order to be used in this cleanup. [W2-20, W2-23, T1-8]

Response: The Agencies disagree. Under DOE's CERCLA/NEPA Policy, DOE relies on the CERCLA process for the review of actions to be taken under CERCLA; that is, no separate NEPA document or NEPA process is ordinarily required. NEPA values were addressed, to the extent practicable, in the Operable Unit (OU) 3-13 Remedial Investigation and Feasibility Study (RI/FS) and Record of Decision (ROD), with the associated CERCLA public involvement process. The OU 3-13 ROD, which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The ICDF was not permitted under RCRA because, under Section 121(e) of CERCLA, it is exempted from permitting requirements as long as the applicable substantive requirements of RCRA are met. The ICDF is designed to meet the substantive requirements for a RCRA hazardous waste landfill.

27. **Topic:** Is it legal to dispose of radioactive waste on flood plains, under U.S. Nuclear Regulatory Commission (NRC) restrictions, such as 10 CFR 61.50? [W2-22]

    Response: NRC regulations prohibit the disposal of radioactive waste in 100-year flood plains. Although these NRC regulations are not applicable to the ICDF, the ICDF complies with this requirement. The INEEL CERCLA Disposal Facility (ICDF) is outside the 100-year flood plain. In addition, the ICDF will be surrounded by an engineered berm 15 feet higher than the predicted 100-year flood plain elevation. As part of the ICDF planning and design process, research data from the U.S. Geological Survey and other sources were evaluated to confirm the safety of the proposed facility relative to potential flooding.

28. **Topic:** For disposal, shouldn't waste acceptance criteria (WAC) maximum contaminant concentration levels be determined from waste sampling prior to mixture with any stabilizing materials? [W2-24]

    Response: No. The selected remedy includes stabilization as a treatment step. WAC maximum contaminant concentration levels apply to the waste as received at the disposal facility. See responses to Topics 24 and 25, above, for further details that may relate to this concern.

29. **Topic:** The commenter believes that this action fails to meet Resource Conservation and Recovery Act (RCRA) requirements, which prohibit dilution through addition of soils (whether contaminated or not) and grout. In addition, hazardous waste constituent concentrations must be considered prior to dilution in order to meet RCRA land disposal requirements (LDRs). [W4-1]

    Response: This CERCLA action fully complies with all applicable or relevant and appropriate requirements (ARARs) for CERCLA actions. Both RCRA and CERCLA prohibit dilution — for instance through the addition of soil — as a substitute for treatment. While several alternatives discussed in the 2003 Proposed Plan would add contaminated soil prior to the treatment process, this would not be done to avoid treatment but rather to improve treatment effectiveness and control of the operation. Several other alternatives would add grout as the last step in treatment, in order to stabilize constituents in the waste that could otherwise be mobile in the environment. Such additions are allowed by RCRA (as documented in the June 1, 1990, *Federal Register* at 55 FR 22666). The selected remedy using chemical oxidation/reduction does not add any soil to the treatment process; however, it does add grout or other stabilizing agent to reduce leachability, in order to meet RCRA LDRs and the waste acceptance criteria (WAC) for disposal. The hazardous waste constituent concentrations that are measured for the RCRA LDRs are required to be measured at the end of treatment. Addition of stabilizing material under the selected remedy is part of the treatment for reduction of mobility of metals.

30. **Topic:** The commenter feels that because Tank V-9 has such high concentrations of transuranics and other contaminants, it should be dealt with separately, especially because of its mixed waste classification under the Resource Conservation and Recovery Act (RCRA). [W4-2]

Response: The four V-Tanks form a complete system. It is the system that is being remediated. Thus, it is the concentration of the contaminants in the entire system that forms the basis for developing a final remediation design for the selected remedy so that it will meet RCRA land disposal restrictions (LDRs) and the disposal facility waste acceptance criteria (WAC). This strategy produces a single homogenous waste stream that will allow the optimization of the treatment process; this should reduce any potential difficulties that might arise in treating this complex waste stream.

The higher concentrations of hazardous and radioactive contamination found in Tank V-9 are primarily due to the higher percentage of sludge (solids) in that tank. (Most of the contaminants are found in the solid phase.) However, the same contaminant constituents are found in the sludge in all four tanks. Tank V-9 was designed to function as a sludge removal unit prior to the waste being stored in the other tanks. Comparison of the sludge between the various tanks (without taking into consideration the liquid) reveals similar wastes in all four V-Tanks.

31. **Topic:** The commenter does not believe the INEEL CERCLA Disposal Facility (ICDF) waste acceptance criteria (WAC) allow for disposal of transuranics which reach a concentration high of 26.4 nCi/g. [W4-5]

Response: This is correct. The ICDF's WAC restrict disposal of waste to less than 10 nCi/g of transuranic contaminants. As discussed in the response to Topic 29, compliance with WAC limits is evaluated after treatment requirements are met. Whether treatment is done as one consolidated waste stream or for individual tanks, the remedy selected in this ROD Amendment will meet the required treatment levels and produce a waste stream for disposal with a transuranic concentration less than 10 nCi/g, which meets the ICDF WAC.

32. **Topic:** The commenter believes that the proposal for disposal at the INEEL CERCLA Disposal Facility (ICDF) of V-Tank wastes that include transuranics requires notice in the *Federal Register*, under 10 CFR 1022 et seq. The commenter refers also to the applicability of 10 CFR 1022.2(a), 1022.3(3), and 1022.4(q). [W4-7]

Response: Federal regulation 10 CFR 1022 establishes the notification requirements for projects in wetlands and floodplains. Since the ICDF is not located within identified wetlands or floodplains, such notice is not required for this remedial action.

33. **Topic:** An environmental impact statement (EIS) is required before transuranic wastes can be stored at the INEEL CERCLA Disposal Facility (ICDF), given the likelihood that they will eventually contaminate the aquifer. [W4-9]

Response: An environmental impact statement is not required before wastes can be stored at the ICDF. The ICDF was selected and designed under the Waste Area Group (WAG) 3 comprehensive cleanup, which addressed NEPA values. Under DOE's policy on application of NEPA to CERCLA cleanup actions (July 11, 2002), DOE relies on the CERCLA process for the review of actions to be taken under CERCLA. That is, no separate NEPA document or NEPA process is ordinarily required, because DOE addresses NEPA values, to the extent practicable, in the Operable Unit (OU) 3-13 RI/FS and ROD, along with the associated CERCLA public involvement process.

In accordance with the waste acceptance criteria (WAC) for the ICDF, no transuranic waste can be disposed of at the facility. No transuranic waste will be generated during the V-Tanks cleanup. Low-level radioactive waste (LLW) will be generated during the V-Tanks cleanup and will be sent to the ICDF for disposal. This LLW will contain concentrations of transuranic radionuclides that are well below the ICDF's WAC.

The ICDF's design incorporates a complex liner system beneath the waste to inhibit downward migration of wastes from the landfill, a leachate collection system, a leak-detection monitoring system, and groundwater monitoring wells to insure long-term effectiveness of this CERCLA disposal facility, especially protection of the aquifer.

34. **Topic:** Requirements of the National Environmental Protection Act (NEPA) have not been considered, and must be, in order to use the INEEL CERCLA Disposal Facility (ICDF). The U.S. Department of Energy (DOE) is required, to the extent possible, to accommodate the requirements of Executive Orders 11988 and 11990 through applicable DOE NEPA procedures, as under 10 CFR 1022.2(2)(b). An environmental impact assessment should have been performed for the ICDF even to be constructed. [W4-10]

    Response: See response to Topic 33 for an explanation of why separate NEPA requirements, including an environmental impact assessment, do not apply to the use of the ICDF. The same policy applied to the development of the ICDF complex, which was authorized under the Operable Unit (OU) 3-13 ROD, which was signed in 1999.

35. **Topic:** An environmental impact statement (EIS) is also required because of the INEEL's mission change to new nuclear activities. [W4-12]

    Response: The National Environmental Protection Act (NEPA) does require all federal agencies to assess potential environmental impacts from major proposed new actions. However, as described in the response to Topic 5, above, the cleanup of the V-Tanks is a CERCLA action in response to past activities that resulted in contamination, and is unrelated to any NEPA requirements that may arise from the INEEL's mission change.

14.7 Development, Implementation, and Evaluation of Alternatives

14.7.1 Development of Alternatives

36. **Topic:** The technologies described in the 2003 Proposed Plan combine the contents of all four V-Tanks, add contaminated soil, and/or add grout. Is the purpose of this to reduce the concentration of transuranics to permissible levels? If so, the proposed plan should have made this more clear to the public. The commenter finds this an inadequate justification for dilution. In particular, dilution through grouting is of concern for the preferred alternative. [W4-6]

    Response: The addition of contaminated soil and/or grout under some of the technology alternatives presented in the 2003 Proposed Plan is not for the purpose of dilution, but as an integral and necessary part of treatment. See responses to Topics 24 and 25, above, for more details on the use of soil to enhance treatment effectiveness and the use of grout as a required stabilizing agent. The use of these materials, as part of treatment effectiveness and/or reduction of mobility, does incidentally dilute the constituent concentrations, but this is in no way the justification.

37. **Topic:** How can the disposal of V-Tanks waste at the INEEL CERCLA Disposal Facility (ICDF) be an effective long-term solution if the U.S. Department of Energy (DOE) ends institutional control of the INEEL in 100 years? [W2-21]

Response: The ICDF meets the CERCLA criteria for "Overall Protectiveness" and "Long-Term Effectiveness" with an engineered design that prevents both potential downward mobility of waste and exposure via surface pathways to current and future workers, future residents, and the environment. DOE will manage institutional controls at the ICDF for a minimum of 100 years to continue its protectiveness. After 100 years, institutional controls will still be required to maintain protectiveness as long as hazardous substances constitute a threat or potential threat to the underlying aquifer, the public, workers, or the environment. The owner of the property after 100 years, whether DOE, another Federal agency, or any other entity, will be required to maintain institutional controls until such time as the land can be released for unrestricted and unlimited use.

14.7.2 Disposal of Waste at the ICDF

38. **Topic:** When the liquids and sludge in the V-Tanks are combined for remediation, their concentration of transuranics will be > 100 nCi/g. This requires that they be treated and disposed of as transuranic (TRU) waste, not at the INEEL CERCLA Disposal Facility (ICDF). The commenter believes that the transuranics in the V-Tanks must be removed from Idaho under the 1995 Settlement Agreement. [W2-13]

Response: The V-Tanks contents do not meet the definition of TRU waste (>100 nCi/g; see response to Topic 20, above). The response to Topic 21, above, explains in more detail how the concentrations are measured. The highest concentration of contaminants in the V-Tanks is that shown in Table 2 of the 2003 Proposed Plan, which is in the sludge. When the contents of all four tanks are combined for remediation, the overall concentration of transuranics in the V-Tanks is below 10 nCi/g before treatment. After treatment, the V-Tanks waste will have a TRU concentration of approximately 2 nCi/g, well below the 10 nCi/g limit for the ICDF and the 100 nCi/g threshold for TRU waste designation. Since the 1995 Settlement Agreement applies to TRU waste and the V-Tanks contents are not TRU waste (even though they contain transuranic elements), the V-Tanks waste is not required to be removed from Idaho.

39. **Topic:** Waste acceptance criteria (WAC) for the INEEL CERCLA Disposal Facility (ICDF) and U.S. Nuclear Regulatory Commission (NRC) restrictions on radioactive waste dumps do not allow disposal at the ICDF of the contaminants in the V-Tanks. Rather, these must go to a geologic repository off the INEEL. Will the ICDF accept waste from any INEEL cleanup activity, or will some types of waste, or waste from some Operable Units, be refused? [W2-15]

Response: The ICDF was designed and approved by the Agencies (EPA, IDEQ, and DOE) for the disposal of contaminants such as those found within the V-Tanks. The ICDF WAC were developed to limit the concentration and quantity of contaminants to levels that would be protective of human health and the environment, including the aquifer. Concentrations and quantities in excess of these levels are not accepted for disposal. Although NRC regulations do not apply to the ICDF, the contents of the V-Tanks would be acceptable for disposal under those regulations.

Only INEEL CERCLA wastes are acceptable for disposal at the ICDF. These wastes can include low-level radioactive waste (LLW), mixed low-level radioactive waste (MLLW), hazardous waste, and non-liquid waste subject to the Toxic Substances Control Act (TSCA). Prohibited wastes include not only non-CERCLA wastes and non-INEEL wastes but also waste with transuranic constituents greater than 10 nCi/g, liquid waste, explosives and reactives, spent nuclear fuel, and

high-level waste (HLW). The contents of the V-Tanks currently meet all of these criteria except the prohibition against liquid waste. The contents will be solidified to meet that criterion prior to disposal at the ICDF. Any INEEL CERCLA waste that fails to meet the ICDF WAC will be refused for disposal at the ICDF.

40. **Topic:** Commenters continue to be concerned about the long-term safety of the INEEL CERCLA Disposal Facility (ICDF) relative to the aquifer. In particular, one commenter asks whether the ICDF's location on a flood plain makes it possible that flooding could leach contaminants buried at the ICDF downward into the aquifer. Contamination of the aquifer is of concern not only for human health and safety reasons but because the aquifer is immensely important to Idaho's agricultural economy. [W2-19, T1-7]

    Response: As part of the ICDF planning and design process, U.S. Geological Survey and other research data were evaluated to assess the safety of the proposed facility relative to potential flooding. The ICDF location was determined to be outside the 100-year flood plain. In addition, the ICDF will be surrounded by an engineered berm 15 ft higher than the predicted 100-year flood plain. The ICDF's compliance with key federal and state disposal facility design laws includes a cap compliant with the Resource Conservation and Recovery Act (RCRA), monitoring, and an engineered multiple liner system that includes a leachate collection and removal system, and a leak detection and removal system to inhibit fluid movement below the complex liner system. The landfill will meet additional standards for protectiveness with maintenance, monitoring, and post-closure activities that will verify protection of human health and the environment. More information about the ICDF is available on-line at http://www.inel.gov/publicdocuments/pdfs/cercla01-50671-04.pdf.

41. **Topic:** The commenter feels that the contents of Tank V-9 should not be disposed of in the INEEL CERCLA Disposal Facility, which is over the Snake River Plain Aquifer, because its high concentration of transuranics will enter the aquifer and the Snake River. [W4-3]

    Response: The higher concentrations of hazardous and radioactive contamination found in Tank V-9 are primarily due to the higher concentration of sludge (solids) in that tank, which was designed to function as a sludge removal unit prior to storage of the waste in the other tanks. The waste in the four tanks is similar, however, and resulted from the same generation processes; therefore, the Agencies have agreed that all the waste in the four V-Tanks will be treated as one waste stream, and combined to the extent practical for treatment. This will allow a more optimized and effective treatment process. The final design for the selected remedy will treat the combined waste stream, including Tank V-9 waste, so that all residual waste from the V-Tanks site meets the ICDF waste acceptance criteria (WAC). The ICDF WAC is designed to prevent the disposal of waste such that a future release from the ICDF could result in concentrations of contaminants, including transuranics, that exceed the Idaho groundwater quality standards (drinking water standards) in the underlying Snake River Plain Aquifer. If a waste exceeds the ICDF WAC, it cannot be disposed of at the ICDF.

42. **Topic:** An environmental impact statement (EIS) is required before transuranic (TRU) wastes can be stored at the INEEL CERCLA Disposal Facility (ICDF), where they will eventually contaminate the aquifer. ICDF disposal of transuranics also fails to comply with the requirements of the 1995 Settlement Agreement, which requires removal of all transuranics from the INEEL. [W4-9]

Response: An EIS is not required for V-Tanks waste to be disposed of at the ICDF, as detailed in the response to Topic 26, above. The responses to Topics 20 and 23, above, explain why the 1995 Settlement Agreement is not applicable to the cleanup of the V-Tanks.

14.7.3 Overall Evaluation of Alternatives

43. **Topic:** All three alternatives and their variations are approved as both protective of the environment, and able to be carried out safely. [W1-1]

    Response: Under the CERCLA evaluation process, an alternative must fully satisfy the criterion of providing overall protection of human health and the environment in order to be selected. All of the technology alternatives considered for the V-Tanks met this threshold criterion. The criterion of short-term effectiveness, which evaluates an alternative's safety to workers, the community, and the environment during implementation, was also satisfied by all of the alternatives, but the preferred alternative, ex situ chemical oxidation/reduction with stabilization, was one of only three that received a high ranking for this criterion. In addition, the preferred alternative had the highest combined ranking of all the alternatives considered, which led to its selection.

44. **Topic:** The transuranic contaminants in the V-Tanks will not be removed from the INEEL, and thus long-term effectiveness is not as high as claimed in the 2003 Proposed Plan. The long-term protection of health and the environment is not achieved because the transuranics are not being removed from the INEEL. [W4-8]

    Response: The CERCLA criteria for "Overall Protectiveness" and for "Long-Term Effectiveness" require the removal of V-Tanks waste from the V-Tanks site to an approved disposal facility. The INEEL CERCLA Disposal Facility (ICDF) meets these CERCLA criteria by providing an engineered design that inhibits both potential downward migration of waste and exposure via surface pathways to current and future workers, future residents, and the environment. Institutional controls at the ICDF will be in place for a minimum of 100 years to continue its protectiveness. The ICDF cap is a 1,000-year design. The INEEL is currently implementing a Long-Term Stewardship Program, which will remain after programs and projects are completed, as long as institutional controls, monitoring, maintenance, or other post-closure care is required.

45. **Topic:** The commenting group prefers nonthermal technologies. [W6-1]

    Response: The preference is noted. The INEEL agrees that operating temperatures are an important area of consideration when selecting a technology. With all else being equal, lower temperature systems will generally be ranked higher on the criterion of short-term effectiveness because of the lower potential risk to workers; however, they may receive lower rankings on the criteria of long-term effectiveness and reduction of toxicity, mobility, and volume because of lower destructive capabilities. That caveat of "all else being equal" is always the difficult part of an evaluation such as this. The tradeoffs between the higher efficiencies obtained at higher temperatures versus the off-gas control issues associated with those higher temperatures will continue to be an important factor in future technology selections.

46. **Topic:** The commenting group prefers those technologies that have the least amount of off-gassing and airborne emissions. [W6-2]

    Response: The preference is noted.

47. **Topic:** The commenting group cannot support an untested technology. [W6-3]

Response: All of the technologies retained for evaluation in the technical evaluation leading to this ROD Amendment were required to have a reliable use record and to be viable technologies, even if they have not been used on the particular mix of constituents present in the site to be remediated, such as the V-Tanks. More detailed testing, as necessary, to optimize the performance of the selected remedy may be performed during the remedial design phase following the signing of this ROD Amendment. The Agencies have the option of using models, treatability studies, readiness reviews, and other procedures as necessary, to confirm a remedy's feasibility and fully define its engineering design prior to use. The preferred alternative has been previously demonstrated to be viable through a treatability study conducted in 1998 (INEEL/EXT-98-00739). This technology test, conducted on actual V-Tanks waste, demonstrated sufficient organic destruction efficiencies to meet regulatory requirements. Furthermore, similar chemical oxidation/reduction and stabilization processes have been conducted, or are planned, that increase the confidence level that the process will be successful. Based on the previous tests and operations on similar waste streams, plus additional testing planned during the design phase, the preferred alternative appears to be a viable alternative for treating V-Tanks waste.

Citizens have raised questions about the quality of data used in investigations, and how the State of Idaho and U.S. Environmental Protection Agency (EPA) ensure quality. For a remedial investigation, the Agencies identify data quality objectives, which specify the quality of data required to support decisions in the feasibility study and cleanup program. The development of data quality objectives follows guidance in CERCLA, the National Contingency Plan, and EPA documents. Existing data are used whenever data quality objectives are met or can be validated.

A fundamental goal of cooperative efforts by the agencies in implementing the action plan is to emphasize remedial action. This goal recognizes that no reasonable amount of investigation can resolve all uncertainty and that remedial actions must accommodate changes from what was originally expected. Such an approach encourages timely selection of a remedy, flexibility for remedial action, and the ability to respond to information discovered during investigations.

48. **Topic:** The commenting group cautions that in order to fully support any technology for use in remediation, they must be involved early in the process and receive verifiable demonstration that the technology is both effective and low-risk. [W6-6]

Response: As part of advance public information and involvement opportunities for this amendment to the V-Tanks remedy, the INEEL's Community Relations Office began contacting individuals and community groups by phone, providing technical briefings as desired, and actively soliciting early feedback. This process is described in Section 3 of this ROD Amendment.

Conceptual validation, treatability studies, and other tests that may be required to verify the effectiveness and safety of the selected remedy are part of a lengthy development and selection process. This begins well before a proposed plan is written with the feasibility study phase (in this case, the technology evaluation documented in the 2003 Technology Evaluation Report), and continues after the Agencies sign a record of decision (ROD) with the remedial design phase. Because of the cost and time involved in testing multiple potential remedial designs, which would substantially delay the start of the cleanup and add considerably to the overall cost, CERCLA guidance only requires a ROD to present a general strategy for satisfying cleanup requirements, rather than a detailed process. Thus, while a ROD establishes the cleanup technology to be used and the cleanup levels to be achieved, it is only in the following remedial design phase that the Agencies determine the engineering design (including schedule, cost estimates, and disposal

options for wastes generated) and verify that all remediation activities will comply with applicable standards in state and federal laws identified in this ROD Amendment. The technology selected to remediate the V-Tanks – ex situ chemical oxidation/reduction with stabilization – has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate, before full-scale implementation, that the technology is both effective and low-risk.

As described in the response to Topic 7, above, opportunities for additional information and comment about the V-Tanks remediation process are available on an ongoing basis. The web page of the INEEL Community Relations Office (at http://www.inel.gov/environment/) provides information on the current status of cleanup projects.

14.8 Vitrification Alternatives 1(a) and 1(b)

49. **Topic:** Commenters report that vitrification has a record of accidents and other unplanned failures. Specifically, the commenters state that in 1996, Oak Ridge National Laboratory (ORNL) was using in situ vitrification (ISV) and it exploded, putting workers and the public at extreme risk; that the INEEL tried an ISV project several years ago and also experienced an explosion, which burned up the containment tent, and that other failed vitrification projects have taken place at the Hanford Reservation. The commenters state that the Idaho Department of Environmental Quality (IDEQ) and the U.S. Environmental Protection Agency (EPA) have failed to inform the public about these failures, thereby misleading members of the public into mistakenly concluding that ISV is a viable remedial technology for the INEEL. What is the use and safety record of ISV across the U.S. Department of Energy's (DOE's) Complex? [W2-18, T1-6]

Response: The "ISV failures" referred to by the commenters resulted during testing of a previous version of this technology. That version was refined and improved based on analysis of these "failures." The result of these improvements is the planar ISV method. Planar ISV is the technology evaluated in the 2003 Technology Evaluation Review (TER) and presented in the 2003 Proposed Plan.

Planar ISV systems were developed to prevent the "failures" experienced during the developmental stages of ISV. These early failures were not true explosions, but rather rapid releases of air and steam bubbles through the ISV melt. As the air and steam bubbles moved through the ISV melt, to ground surface, they caused the "air-lifting" of the molten glass product within the ISV melt to lift above the subsidence crater and flow across ground level.

Details about the ORNL Melt Expulsion are documented in a 1996 report.[b] This event was only a glass flow, not an expulsion into the air (as it has commonly been misidentified by some members of the public). Movement of steam and air bubbles through the melt did result in some splatter into the air as the bubbles broke — on the order of a few pounds of glass fragments. The radioactive material was not released into the air, but was contained within the matrix of the glass. The expelled glass fragments containing the radioactivity were easily collected and sent for appropriate disposal.

Subsequent analysis of the ambient air collected by the ORNL project's three air samplers did not

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b. Spalding, B. P., 1996, *Technical Evaluation Summary of the In Situ Vitrification Melt Expulsion at the Oak Ridge National Laboratory on April 21, 1996,* ORNL/ER-377, Oak Ridge National Laboratory, July, 1996.

reveal any airborne contamination resulting from the melt expulsion. There was no risk to human health or the environment, certainly not the "extreme risk" suggested in the comment. The reasons for the ORNL melt expulsion are detailed in a formal DOE report.[c]

Other melt expulsions that the commenters refer to are as follows:

a. A private, full-scale test, conducted by Geosafe in support of their eventual ISV processing of 55-gal drums of moist soil contaminated with up to 1.4 wt% PCBs, at the GE Spokane site. In this test, wet soils in the sealed drums that were being processed caused a sudden release of pressurized steam into the melt, that resulted in an "air lifting" and melt splattering similar to what happened at ORNL. The melt expulsion was exacerbated, however, by the fact Geosafe was using a fabric hood containing a flammable sealant. Contact with the molten glass splatter caused the sealant to ignite, and burned up the hood as well as adjacent combustible equipment and materials (such as the electrical cable insulation). Details of this incident are reported in Geosafe's 1994 test report.[d]

b. A pilot-scale test, conducted by Pacific Northwest Laboratory at the INEEL on simulated waste in 1989. During this demonstration test, sealed 5-gal containers containing canola oil placed within the melt location resulted in numerous pressure build-ups and releases of vapors through the pilot-scale ISV melt that also caused molten glass splatter sufficient to ignite the fabric hood material. Details of this expulsion are recorded in Callow et al. [e]

A summary of ISV melt expulsions to date was prepared by R. K. Farnsworth as part of the *Operable Unit 7-13/14 In Situ Vitrification Treatability Study Work Plan*.[f]

Based on the lessons learned from the initial demonstrations of ISV technology, planar ISV was developed and successfully tested in 1998. Planar ISV precludes the types of failures mentioned above by melting the waste material from the sides in rather than the top down. This modification to the process prevents the buildup of a layer of untreated waste trapped beneath a layer of molten glass. Safe operation of the planar ISV process on subsurface tanks containing substantial quantities of vaporizable material, was demonstrated as part of a simulated treatability study performed in support of the 1998 V-Tanks Proposed Plan and 1999 ROD. The results of this treatability study indicated that planar-ISV could safely process subsurface tanks containing substantial quantities of vaporizable material without the potential for subsurface pressure build-up or melt expulsion. The results of this successful treatability study are available in the Administrative Record. The Agencies have reviewed this information and consider planar ISV a viable and safe option for remediation of the V-Tanks.

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c. DOE, 1996, *In Situ Vitrification Workshop,* October 15–17, 1996, Oak Ridge, Tennessee.

d. Geosafe, 1994, *Investigation into the Causes and Application of the Melt Displacement Event During Geosafe Operational Acceptance Test #2 (OAT-2).* GSC-2301, Geosafe Corporation, Richland, Washington.

e. Callow, R. A., L. E. Thompson, J. R. Weidner, C. A. Loehr, B. P. McGrail, and S. O. Bates, 1991, *In Situ Vitrification Application to Buried Waste: Final Report of Intermediate Field Tests at Idaho National Engineering Laboratory,* EGG-WTD-9807, EG&G, Inc., Idaho National Engineering Laboratory, August 1991.

f. Farnsworth, R. K., et al., 1999, "Appendix E, A Preliminary Assessment of Concerns Over Melt Expulsion Potential During ISV Processing," DOE/ID-10667, Rev. 1, Idaho National Engineering and Environmental Laboratory, January 1999.

The Agencies believe that an adequate review has been made of the information on the failures associated with the early stages of the development of ISV. The early failures mentioned by the commenters are no longer considered relevant or representative of the current state of development of planar ISV technology and would not aid the Agencies in the selection of a preferred treatment alternative. The Agencies selected planar ISV as a technology alternative for the V-Tanks in the TER because the test data indicate that planar ISV is no longer subject to the failures experienced during the early development of ISV[g]. This same issue was addressed in the Responsiveness Summary section of the 1999 Record of Decision (see pages 3-24 through 3-26).

50. **Topic:** A commenter supports vitrification, either in situ or ex situ, because it provides the highest reduction in toxicity, mobility, and volume; is the most durable and mature treatment technology available; can treat a greater amount of contaminated soil that would otherwise be disposed of without treatment; and provides the least risk to humans and the environment in storage and transportation of radioactive waste. [W3-1]

Response: Compared to the other alternatives, vitrification does provide the highest reduction in toxicity, mobility, and volume, is the most durable, and is the most mature technology, or one of the most mature technologies, of those evaluated for the V-Tanks cleanup. The commenting group is also correct that a greater amount of contaminated soil would be treated with this technology, than under the other technologies. These are some of vitrification's strengths, and have been documented in the 2003 Technology Evaluation Report (DOE/ID-11038). However, these strengths were contrasted against several weaknesses of the vitrification process relative to the other technologies considered, such as System Complexity, Ease of Additional Remedial Actions, Monitoring Concerns, Administrative Feasibility, Increased (potential) Worker Hazards, Secondary Waste Volumes and Cost. Based on this, it appeared that ex situ chemical oxidation/reduction and stabilization had the highest overall ranking of the seven technologies considered. Furthermore, there has been less public support for thermal treatment technologies than for technologies performed at temperatures below 100° C (such as ex situ chemical oxidation/reduction and stabilization).

As to the greater durability of the vitrified waste form after disposal, however, while data does indicate that the durability of a vitrified waste form is over 100 times that of a grouted waste form, the effect of this difference provides only a small difference in rankings, since the ICDF is a lined facility designed to last over 1,000 years. There is limited potential for contaminant migration from the ICDF following its 1,000-year lifetime, as well. Finally, given that nearly all waste from the V-Tanks would be disposed of at the ICDF under most alternatives, the transportation risks associated with vitrification would be similar to those associated with the preferred alternative.

51. **Topic:** A commenter supports vitrification, but endorses the selection of the preferred alternative, ex situ chemical oxidation/reduction, to eliminate concerns about the tanks' strength, and because grouting will stabilize both cesium-137 (Cs-137) and strontium-90 (Sr-90). The commenter noted the complex mixture of contaminants to be treated. [W5-2]

Response: The Agencies agree with these points. While vitrification provides more durability in the stabilization of these wastes relative to grouting, the fact that all V-Tanks wastes will be disposed of at the ICDF guarantees that the waste will be isolated from the environment for at least 1,000 years, which is sufficient time for Cs-137 and Sr-90 to decay to background levels. Although a vitrified product will stabilize radionuclides with longer half-lives (such as the transuranic

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g. Michael, D. L, 1998, *Treatability Study for Planar-In Situ Vitrification of INEEL Test Area North V-Tanks*, INEEL/EXT-98-00854, Idaho National Engineering Laboratory, October 1998.

contaminants) better than grout, the limited migration potential of the transuranics from the engineered ICDF facility is only a minimal increase to the overall ranking of vitrification, relative to ex situ chemical oxidation/reduction with its stabilization through grouting. The Agencies also agree regarding the complexity of the contaminants that are being treated. It is for this reason that lab-scale treatability studies are currently underway to verify that a chemical oxidation/reduction approach, followed by stabilization, will meet the requirements associated with remediation of the V-Tanks wastes.

52. **Topic:** The commenting group opposes vitrification because it is nothing more than a proxy for incineration. [W6-4]

Response: Not only is vitrification not a proxy for incineration, it is quite different in its means of operation. As a consequence, incineration and vitrification differ considerably in their potential risk to human health and the environment. The Agencies evaluated vitrification as a potential technology for cleanup of the V-Tanks because of its advantages. The U.S. Code of Federal Regulations (40 CFR 260.10) defines incineration as enclosed devices that thermally treat hazardous wastes using controlled flame combustion. Vitrification is not incineration because it does not involve primary treatment via controlled flame combustion in an enclosed device. As a result, the U.S. Environmental Protection Agency considers vitrification technologies (both in situ and ex situ) as non-incineration thermal treatment processes, not subject to the same regulations as incinerators.

One important difference for protection of human health and the environment is that unlike incinerators, vitrification is carried out under a reducing environment. In situ vitrification is carried out in the subsurface; ex situ vitrification is carried out in a specially designed vessel located aboveground. The reducing conditions do not favor the formation of dioxins or furans, as are common in incineration. Furthermore, because of the presence of overburden in both in situ and ex situ vitrification, the off-gas hood remains cool enough that there is minimal potential for a reaction to form dioxins and furans in the hood, as it encounters oxygen.

In prior operations involving the treatment of chlorinated organics, vitrification has been demonstrated to meet stringent regulatory limits relative to products of incomplete combustion and species such as dioxins and furans. Vitrification has also been shown in tests to result in greater than 99.9999% destruction or removal of PCBs.

Another distinction between vitrification and incineration is that vitrification's different thermal conditions, and its much more controllable off-gas filtration system, results in far less off-gas particulates and more radionuclide retention in the melt (greater than 99.9%). This means orders of magnitude less contamination in the off-gas from vitrification than would be encountered in incineration devices. In Australia, where high temperature incineration of hazardous waste is effectively banned (due to a lack of public and political support), vitrification has been publicly accepted and identified as an alternative to incineration.

14.9 Thermal Desorption Alternatives 2(a), 2(b), and 2(c)

No specific comments on this topic were identified.

14.10 Chemical Oxidation/Reduction Alternatives 3(a) and 3(b)

14.10.1 Description of Technology

53. **Topic:** Under the preferred alternative, adding grout leads to dilution for the purposes of land disposal, which does not seem legal. [T1-4]

    Response: Grouting is an integral part of the stabilization step in the waste treatment. Any dilution of constituent concentrations as a result of this occurs as a part of a necessary step in treatment, not solely for the purpose of land disposal. See responses to Topics 25 and 26, above, for a detailed discussion of this issue.

54. **Topic:** A commenting group wrote that it is concerned by how little data exists on using these technologies on waste similar to the INEEL's. They believe no laboratory or small-scale work has been carried out locally. This leads them to ask whether down the road, after a lot of time and money have been invested on full-scale equipment, the U.S. Department of Energy (DOE) will encounter some technical "showstopper" that could have been detected by a little small-scale work earlier. [W1-3]

    Response: A treatability study was completed in 1998 (INEEL/EXT-98-00739) on actual V-Tank waste that demonstrated the effectiveness of the chemical oxidation/reduction and stabilization process. Furthermore, before operations start at a cleanup site, all necessary conceptual verification, treatability studies, and any other tests required are completed to validate the effectiveness and safety of the chosen treatment technologies. Because of the level of technical, safety, and cost information required to reach this point, the development of the final selected remedy is a lengthy process.

    Thus, while a record of decision (ROD) establishes the cleanup technology to be used and the cleanup levels to be achieved, it is only after the signing of the ROD, in the remedial design phase, that the Agencies collectively determine the engineering design (the technical analysis and procedures that result in a detailed set of plans and specifications) and verify that all activities will comply with applicable or relevant and appropriate requirements in state and federal laws. It is for this reason, that laboratory-scale treatability studies are currently underway to verify that a chemical oxidation/reduction approach, followed by stabilization, will meet the V-Tanks remedial action objectives.

14.10.2 Evaluation of Alternatives

55. **Topic:** The commenting group does not support the preferred alternative, chemical oxidation/reduction with stabilization, because it provides the lowest amount of reduction of toxicity, mobility, and volume through treatment. [W3-2]

    Response: Although the preferred alternative received a lower ranking than several others on this CERCLA criterion, it does address it acceptably. It will reduce toxicity by destroying the volatile organic contaminants (VOCs) and semivolatile organic contaminants (SVOCs) through oxidation/reduction, and will reduce mobility of metals and radionuclides by grouting. As noted in the 2003 Technology Evaluation Report (TER) and the 2003 Proposed Plan, the primary reason ex situ chemical/oxidation reduction with stabilization was rated low in this category relative to vitrification was the increase in volume of the primary waste stream through the treatment process. This increase in volume results from the addition of the oxidant/reductant and the grout. Reduction of toxicity and mobility are achieved, which produces a stable, compliant waste form. The

Agencies selected this as the preferred alternative because it is the best remedy overall. The high rankings of this alternative for short-term effectiveness and implementability were factored in, along with its somewhat lower cost. In particular, the preferred alternative's high system reliability and manageable design complexity led to the Agencies' selection of this technology.

56. **Topic:** The commenting group supports chemical oxidation/reduction conditionally. It is preferred because the temperatures generated in the treatment process remain relatively low. The group has concerns, however, about the complexity of the off-gassing system. With so many filters, condensers, and other collection devices, the group is concerned about filter failures and subsequent release of toxic substances into the atmosphere. [W6-5]

    Response: The off-gas system planned for the chemical oxidation/reduction process is a relatively simple and standard off-gas system, considerably less complex than the other thermal treatment alternatives evaluated. The components of the chemical oxidation/reduction off-gas system are commonly used in numerous industrial applications and have been shown to be highly reliable. Furthermore, it is after the signing of a record of decision (ROD), during the remedial design phase, that the Agencies collectively determine the engineering design (the technical analysis and procedures that resulted in a detailed set of plans and specifications) and verify that all remediation processes and activities will comply with applicable standards in state and federal laws. The technology selected to remediate the V-Tanks—ex situ chemical oxidation/reduction with stabilization—has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate, before full-scale implementation, that the technology is effective and low- risk. Laboratory-scale treatability studies are currently underway to verify that a chemical oxidation/reduction approach, followed by stabilization, will meet the requirements associated with remediation of the V-Tanks wastes. It is expected that these laboratory-scale studies will support the Agencies' intention to proceed with ex situ chemical oxidation/reduction/stabilization.

57. **Topic:** While a commenter noted his support for vitrification, he endorsed the preferred alternative for the V-Tanks because the ex situ processing eliminates concerns about the tanks' strength, and grouting will stabilize both cesium-137 (Cs-137) and strontium-90 (Sr-90). The commenter noted the complex mixture of contaminants to be treated. [W5-2]

    Response: We agree. Under this remedy, most or all of the V-Tanks wastes will be disposed of at the INEEL CERCLA Disposal Facility (ICDF), isolating it from the environment for at least 1,000 years, which is sufficient time for Cs-137 and Sr-90 to decay to background levels. Although a vitrified product stabilizes radionuclides with longer half-lives (such as the transuranic contaminants) better than grout, the limited potential for the transuranics to migrate from the lined ICDF results in only a minimal increase in the overall ranking of vitrification relative to the preferred alternative. The commenter is also correct in his assertion that a primary reason for selecting an ex situ form of chemical oxidation/reduction over an in situ form was due to concerns over tank strength and integrity under in situ operations. Other reasons include implementability concerns over heating the tank wastes in situ, and the concerns over runaway chemical oxidation/reduction reactions at tank volume quantities, rather than in the small batches possible with ex situ processing. Finally, the Agencies agree with the commenter's note regarding the complexity of the contaminants that are being treated. It is for this reason that lab-scale treatability studies are underway to verify that the selected remedy will meet the remedial action objectives for the V-Tanks cleanup.

Appendix A

Comment Documents and Responses

Appendix A

Comment Documents and Responses

This appendix accompanies the Responsiveness Summary, which is Part III, Sections 13 and 14 of the Record of Decision Amendment (ROD Amendment) for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North (TAN), Operable Unit 1-10, at the Idaho National Engineering and Environmental Laboratory (INEEL). It contains the scanned images of all written comments received during the comment period on the proposed plan and transcripts of oral comments made during the formal comment session of the public meeting.

The scanned images are annotated with sidebars indicating the identified comments, using a three-part alphanumeric code to designate the document number, comment number within it, and response or responses in the Responsiveness Summary relevant to this comment. Each document number begins with a W or a T, identifying it as a written comment received from the proposed plan (W) or an oral comment made during the formal comment period of a public meeting (T). The number following the letter W or T was assigned to each separately received document according to the order in which it was received. The second number, following the hyphen, identifies comments identified within each document. The final number or numbers in parentheses denote the Section and Topic within the Responsiveness Summary that addresses the comment.

Adjacent to the scanned comments are the Agencies' responses to them. Most responses are presented on the same page as the comment they address. In cases where many comments were identified on a single page, the responses may continue onto following pages. Responses to comments that are identical or very similar in nature are repeated throughout the document. Comments that were grouped under the same issue code for the Responsiveness Summary may not have identical responses, however, depending on which portion of the response is germane to a particular comment.

This Responsiveness Summary identified and responded to more than 58 statements of preferences and concerns, comments, and questions received in 25 pages of written comments from six individuals and interested groups, and as one formal statement at one public meeting. The following indexes summarize the numbers of comments received on the various issues of concern defined in the Responsiveness Summary, and list the individuals and groups who submitted comments in writing or presented them orally at a public meeting.

Table 1. Index of public comments and responses by issue of concern.

Section Number	Issue	Response Numbers	Documents Containing Comments on Issue	Number of Commenters[1] on Issue	Number of Comments on Issue
13.1	Overall Goals of the INEEL Environmental Restoration Program	1–5	W2, W4, T1	3	5
13.2	Public Participation and Community Relations	6–8	W2, W5, W6	3	3
13.3	Content and Organization of the Proposed Plan	9–10	W2, W5, W6	3	2
13.4	OU 1-10 Remediation Planning and Costs	11–16	W2, W4	2	6
13.5	Risk Assessment and Characterization of Contaminants	17–21	W2, W4	2	5
13.6	Remedial Action Objectives and Compliance with ARARs	22–35	W2, W4, T1	3	13
13.7	Development, Implementation, and Evaluation of Alternatives	36–48	W1, W2, W4, W6, T1	5	12
13.8	Vitrification Alternatives 1(a) and 1(b)	49–52	W2, W3, W5, W6, T1	5	4
13.9	Thermal Desorption Alternatives 2(a), 2(b), and 2(c)	None	None	0	0
13.10	Chemical Oxidation/Reduction Alternatives 3(a) and 3(b)	53–57	W1, W3, W5, W6, T1	5	4

1. The number of commenters is an estimate of separate individuals or organizations submitting comments one or more times on the V-Tanks Proposed Plan.

Table 2. Index of public comments and responses by commenter.

Name of Commenter	Organization or Affiliation (as shown or stated in comments)	City (and State, if not Idaho)	Number of Pages Submitted	Document Number Assigned	Number of Comments Identified	Number of Issues of Concern	Appendix Page Numbers
	Coalition 21	Idaho Falls	1	W1	3	3	A-3 to 1-4
	Environmental Defense Institute	Moscow	18	W2	24	30	A-5 to A-30
	Snake River Alliance	Boise	1	W3	2	2	A-31 to A-32
David B. McCoy		Idaho Falls	3	W4	12	12	A-33 to A-41
Robert Wikoff		Jackson, WY	1	W5	3	3	A-42 to A-43
	Keep Yellowstone Nuclear Free	Jackson, WY	1	W6	7	7	A-44 to A-48
David McCoy		Idaho Falls	4	T1	9	9	A-49 to A-57

Commenter: Coalition 21
Document Number: W1
Page: 1 of 2

From: John & Martha Tanner [mailto:pust@srv.net]
Sent: Saturday, April 19, 2003 6:28 AM
To: Hain, Kathleen E
Subject: V Tank Comments

Dear Ms. Hain,

Below are the comments of Coalition 21 on the proposed plan for the V tanks. I mention that the on-line web site at environment.inel.gov didn't show the comment form, or anything else.

John Tanner, Secretary, Coalition 21

Proposed Plan for V-tanks. Comments by Coalition 21

We feel confident that any of the three options with their variations could be carried out safely, and in a manner that protects the environment.

We agree that cost should be an important factor in the process selection. But that would seem not to be much of a factor in this case, given the closeness of the estimates, and given that estimates are likely to be very uncertain before preliminary design has been done.

It was briefly mentioned that there is little data on using the chosen process, oxidation/reduction, with waste similar to ours; and apparently no laboratory or other small scale work has been done locally. This raises the concern that DOE will find some technical show stopper down the road, after a lot of time and money have been invested on full scale equipment, which could have been detected by a little small scale work earlier. It would not be the first time such a thing has happened here. Of course the same applies to the other methods discussed.

Comment W1-1 (Section 13.7.3, Topic 43)

Response: Under the CERCLA evaluation process, an alternative must fully satisfy the criterion of providing overall protection of human health and the environment in order to be selected. All of the technology alternatives considered for the V-Tanks met this threshold criterion. The criterion of short-term effectiveness, which evaluates an alternative's safety to workers, the community, and the environment during implementation, was also satisfied by all of the alternatives, but the Preferred Alternative, ex situ chemical oxidation/reduction with stabilization, was one of only three that received a high ranking for this criterion. In addition, the Preferred Alternative had the highest combined ranking of all the alternatives considered, which led to its selection. ❖

Comment W1-2 (Section 13.4, Topic 16)

Response: Even though the cost differences between the alternatives turned out to be small, cost was used in the CERCLA evaluation process as required. The narrowness of the differences resulted in the cost criterion having a relatively minor impact in the overall evaluation of alternatives.

The cost estimates used to evaluate and present alternatives in a proposed plan are based on the best available information. Changes in various elements of the cost are expected to occur as new information and data are collected during the engineering design of the selected remedy. Because of this expectation that costs will be refined, CERCLA allows presentation of the cost estimates in the proposed plan to range from +50 to –30% of the actual final cost. Changes in cost beyond these limits prompt an explanation of significant differences or a ROD amendment. As was explained in the 2003 Proposed Plan, such a cost change was one factor that prompted the requirement for this ROD Amendment, and the preceding preparation of the 2003 Explanation of Significant Differences (ESD), accompanied by notice to the public of its availability. ❖

Comment W1-3 (Section 13.10.1, Topic 54)

Response: A treatability study was completed in 1998 (INEEL/EXT-98-00739) on actual V-Tank waste that demonstrated the effectiveness of

(Continued on page 6)

(Continued from page 5)

Response to Comment W1-3 (continued):

the chemical oxidation and stabilization process. Furthermore, before operations start at a cleanup site, all necessary conceptual verification, treatability studies, and any other tests required are completed to validate the effectiveness and safety of the chosen treatment technologies. Because of the level of technical, safety, and cost information required to reach this point, the development of the final selected remedy is a lengthy process.

Thus, while a record of decision (ROD) establishes the cleanup technology to be used and the cleanup levels to be achieved, it is only after the signing of the ROD, in the remedial design phase, that the Agencies collectively determine the engineering design (the technical analysis and procedures that result in a detailed set of plans and specifications) and verify that all activities will comply with applicable or relevant and appropriate requirements in state and federal laws. It is for this reason, that laboratory-scale treatability studies are currently underway to verify that a chemical oxidation/reduction approach, followed by stabilization, will meet the V-Tanks remedial action objectives. ❖

Note: No comments were identified on this page.

Environmental Defense Institute
Troy, Idaho

Comments
on
Revised Proposed Plan
Test Area North

at the

Idaho National Engineering
&
Environmental Laboratory

Submitted by
Chuck Broscious
On behalf of the Environmental Defense Institute
April 2003

Commenter: Environmental Defense Institute
Document Number: W2
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I. Summary

The Department of Energy's (DOE) Revised Proposed Plan for Waste Area Group 1 - Test Area North (TAN) dated November 1998 [1] and the New Proposed April 2003 remediation Plan [2] contain major discrepancies with the Comprehensive Remedial Investigation / Feasibility Investigation Report data and other internal INEEL waste characterization report data on TAN. [3] These data discrepancies are in the range of many orders-of-magnitude.

Fundamentally, any treatment plan and applied technology for remediation must be based on reliable waste stream data. Otherwise, DOE will face another fiasco that occurred at the INEEL Pit-9 waste treatment program that was eventually terminated because of (among other reasons) inadequate waste characterization. An issue stressed in the comments below, and apparently ignored by DOE and the regulators, is that both the TAN V-Tank liquid and the sludge (tank heels) and contaminated soil must be include in the calculus of determining an appropriate remediation treatment technology and the selection of waste disposal sites.

Additionally, the 2003 Plan fails to address all the tanks and other "buried" TAN waste issues. Only four of the V-Tanks are addressed (30,400 gal.) when there are at least six V-Tanks (additional 100,000 gal.) and other TAN waste discharge sites with major radioactive and hazardous waste contaminates.

These crucial issues add to the public's skepticism about DOE's veracity to tell the truth about its radioactive a[illegible] [illegible]ly enforce the law that if appl[illegible] [illegible]EL site as DOE plans.

Therefor[illegible] [illegible]nental Protection Agenc[illegible] [illegible]ed "alpha emitting mixed lo[illegible] [illegible]llow this remediation progra[illegible] [illegible]ed waste

See next page for remaining comments on this page.

[1] Proposed Plan [illegible] [illegible]ons Office.

[2] New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) at Test Area North, Operable Unit 1-10, USDOE Idaho Operations Office, April 2003.

[3] DOE 1998 Data refers to the following reports cited here and DOE's 1998 Tan Remediation Plan ,

(a); Work Plan for Waste Area Group 1, Operable Unit 1-10, Comprehensive Remedial Investigation / Feasibility Study, Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office, DOE-ID-10527, March 1996 Vol I, RI/FS

(b); Comprehensive Remedial Investigation / Feasibility Study for the Test Area North Operable Unit 1-10, Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office, DOE-ID-10557, November 1997. (RI/FS)

(c); Field Sampling Plan for Operable Unit 1-10: Test Area North, D. L. Michael, Lockheed Idaho Technologies Company, Idaho National Engineering Laboratory, March 1996, INEL-95/0304, Vol.III RI/FS .

(d) Federal Register, May 26, 1998, Part II, Environmental Protection Agency, 40 CFR Parts 148 to 271, Land Disposal Restrictions Phase IV Final Rule

[4] Settlement Agreement in United States v. Batt, No.CV-91-0065-S-EJL, page 6. Alpha emitting Low-level waste includes waste containing transuranics, generating greater than 10 nano curie per gram (nCi/g).

Comment W2-1 (Section 13.5, Topic 17)

Response: Some of the discrepancies noted by the commenting group stem from a data labeling error in a 1996 INEEL report, which was corrected in the 1997 Remedial Investigation/Feasibility Study (RI/FS). The values presented by the commenting group in their Table A (see page A-6 of Appendix A) for the liquid concentration for the metals

(Continued on page 25)

Comment W2-2 (Section 13.4, Topic 11)

Response: Yes. Both the V-Tanks and the surrounding soils will be remediated in an integrated action. The 2003 Proposed Plan focused on the changes to the remedy previously selected for the V-Tanks in the 1999 Record of Decision (ROD). Although the remedy for the sur-

(Continued on page 25)

Comment W2-3 (Section 13.4, Topic 12)

Response: There are indeed additional underground tanks at TAN that are not addressed by this ROD Amendment. To understand their handling, it is important to note the difference between the term "v-tanks," which identifies a kind of underground storage vessel, and the site name "the V-Tanks," which identifies a particular location to be remediated. The V-Tanks site addressed in this ROD Amendment received that des

(Continued on page 25)

Comment W2-4 (Section 13.4, Topic 14)

Response: The Agencies agreed to remediate the four V-Tanks, the associated piping, and the surrounding contaminated soil as one unit because they are part of an interconnected waste handling system that contains a single consistent waste stream. At this time, sampling has shown no additional, adjacent, related past releases. As stated in the 1999 Record of Decision (ROD), the possibility exists that contami

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I. Summary

The Department of Energy's (DOE) Revised Proposed Plan for Waste Area Group 1 - Test Area North (TAN) dated November 1998 [1] and the New Proposed April 2003 remediation Plan [2] conta ibility Investigation Report These data discrep ust be based on reliable w e INEEL Pit-9 waste treat ns) inadequate waste chara d by DOE and the regulator inated soil must be inclu ology and the selection of w

Additio ste issues. Only four of the ditional 100,000 gal.) and other TAN waste discharge sites with major radioactive and hazardous waste contaminates.

These crucial issues add to the public's skepticism about DOE's veracity to tell the truth about its radioactive and hazardous waste crisis, in addition to the regulators willingness to adequately enforce the law that if appropriately applied, would appear to prohibit disposal of this waste on the INEEL site as DOE plans.

Therefore, the Idaho Department of Environmental Quality (IDEQ) and the Environmental Protection Agency (EPA) as regulators (in keeping with the Settlement Agreement that included "alpha emitting mixed low-level waste" be shipped to a geologic repository out of Idaho), [4] must not allow this remediation program to proceed until DOE provides credible justification for the radically reduced waste

See previous page for remaining comments on this page.

[1] Proposed Plan for Waste Area Group 1 - Test Area North INEEL, December 1998, DOE Idaho Operations Office.

[2] New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) at Test Area North, Operable Unit 1-10, USDOE Idaho Operations Office, April 2003.

[3] DOE 1998 Data refers to the following reports cited here and DOE's 1998 Tan Remediation Plan ;

(a), Work Plan for Waste Area Group 1, Operable Unit 1-10, Comprehensive Remedial Investigation / Feasibility Study, Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office, DOE-ID-10527, March 1996 Vol I, RI/FS

(b); Comprehensive Remedial Investigation / Feasibility Study for the Test Area North Operable Unit 1-10, Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office, DOE-ID-10557, November 1997. (RI/FS)

(c); Field Sampling Plan for Operable Unit 1-10: Test Area North, D. L. Michael, Lockheed Idaho Technologies Company, Idaho National Engineering Laboratory, March 1996, INEL-95/0304, Vol.III RI/FS..

(d) Federal Register, May 26, 1998, Part II, Environmental Protection Agency, 40 CFR Parts 148 to 271, Land Disposal Restrictions Phase IV Final Rule

[4] Settlement Agreement in United States v. Batt, No CV-91-0065-S-EJL, page 6. Alpha emitting Low-level waste includes waste containing transuranics, generating greater than 10 nano curie per gram (nCi/g).

Comment W2-5 (Section 13.1, Topic 1)

Response: The U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (IDEQ) are jointly responsible for cleanup actions at the INEEL. The Federal Facility Agreement and Consent Order (FFA/CO) designated the State and the EPA (the "support agencies") as part-

(Continued on page 26)

Comment W2-6 (Section 13.6, Topic 21)

Response: The comment is incorrect. All of the applicable or relevant and appropriate requirements (ARARs), (which is the term used in CERCLA cleanup actions to identify the set of all environmental regulations and laws that apply to the action) relevant to this action were identified during preparation of the 2003 Technology Evaluation Report [TER], on which the 2003 Proposed Plan was based. None of the ARARs prohibit disposal of the V-Tanks contents, or the surrounding contaminated soil, at an approved disposal facility on the INEEL. The 2003 Proposed Plan presented and evaluated those technologies found capable of meeting the ARARs. After this ROD Amendment is signed, the selected treatment technologies will move from conceptual design into full remedial design. As part of this remedial design phase, safety plans and other work documents will specify in detail how each individual ARAR will be met. These documents will be placed in the INEEL Information Repository as each is completed and approved. ❖

Comment W2-7 (Section 13.6, Topic 22)

Response: It is correct that the V-Tanks contents are classified as low-level waste (LLW) and that the waste contains alpha-emitting radionuclides. However, it is not correct that this makes the V-Tanks remediation subject to the 1995 Settlement Agreement. By definition, LLW is waste that does not meet the definitions for high-level waste (HLW), transuranic (TRU) waste, spent nuclear fuel, or by-product materials. The 1995 Settlement Agreement requires the removal of all stored TRU waste from Idaho (i.e., waste with greater than 100 nCi/g transuranic content). It does not include LLW in this requirement. (See Topic 20 for additional information on waste-type categories.) ❖

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stream characterization data, and the regulators offer credible analysis that the waste treatment and disposal will comply with all environmental regulations. Moreover, the public must then be fully apprised via a new revised Plan, so that informed decisions can be made concerning the remediation alternatives.

II. TAN V-Tank Contaminates of Concern

This discussion is an amalgam of previous (12/98) Environmental Defense Institute comments on TAN with current (4/03) remediation plan Comments in addition to EDI comments on the INEEL CERCLA Disposal Facility (ICDF) because of overlaps of Operational Units (OU), and DOE's intent to dump the TAN waste at the ICDF. Due to the long half-life of the radionuclides and the no-half-life of hazardous chemicals of concern at TAN, there is no credible reason that in the intervening four years there has been any reduction in the waste due to "decay."[3]

The 2003 TAN plan contains data is radically (orders of magnitude) inconsistent with earlier DOE data. Neither DOE nor the regulators offer any evidence justifying these crucial data discrepancies. The 2003 Plan notes the maximum concentration for V-Tanks 1,2,3, and 9, are compared to DOE's 1998 data on the same tanks for a few select contaminates in the Table A below.

Table A (see footnote # 1)

Maximum Individual Tank Contaminate	EPA Standard #	DOE Data 1998 Liquid	DOE Data 1998 Sludge	DOE Data 2003
Antimony	0.006 mg/kg	-	308 mg/kg	11.5 mg/kg
Arsenic	0.01 mg/kg	-	12.4 mg/kg	3.45 mg/kg
Barium	2.0 mg/kg	2,320 mg/kg	600 mg/kg	299 mg/kg
Cadmium	0.005 mg/kg	330 mg/kg	71.7 mg/kg	22.7 mg/kg
Chromium	0.1 mg/kg	286 mg/kg	3,770 mg/kg	1,880 mg/kg
Lead	250 mg/kg	81.7 mg/kg	3,190 mg/kg	454 mg/kg
Cesium-137	200 pC/L	12,500,000 pCi/L	6,370,000 pCi/g 6,370 nCi/g	4,480 nCi/g
Strontium	8 pCi/L	250,000,000 pCi/L	7,070,000 pCi/g 7,070 nCi/g	5,180 nCi/g

[3] Most of the major volatile organic compounds (VOC) are also dense non-aqueous phase liquid (DNAPL) which settle to the bottom of the tank liquids so few would be expected to vaporize out the tank vents over a short period of time.

Comment W2-8 (Section 13.6, Topic 21)

Response: The comment is incorrect. All of the applicable or relevant and appropriate requirements (ARARs) (which is the term used in CERCLA cleanup actions to identify the set of all environmental regu

(Continued on page 27)

Comment W2-9 (Section 13.3, Topic 10)

Response: The Agencies believe that the waste characterization data for the V-Tanks have been fully summarized, as required, in the 2003 Technology Evaluation Report and other documents on which the Proposed Plan was based. The primary source documents for the V-Tanks risk and feasibility evaluation described in the Proposed Plan are listed in Section 2.5 of this ROD Amendment. All relevant documents are in the Administrative Record, available online at http://www.inel.gov/publicdocuments/ or at the Information Repositories listed in Section 1 of this ROD Amendment.

The Proposed Plan summarizes all required information leading to this ROD Amendment. It should be noted that when a remedy requires amendment, CERCLA guidance expresses a preference that the new proposed plan highlight the proposed changes but not repeat in detail any information about the cleanup that has not changed. At each stage of the remediation process, data are reviewed for continued validity.

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Comment W2-10 (Section 13.5, Topic 18)

Response: "Decay," or the expectation that the actual concentration of the contaminants in the V-Tanks contents will decrease, or attenuate, is not part of the remedial strategy, either as selected in the 1999 Record of Decision (ROD) or as amended in this ROD Amendment. Decay of radioactive constituents in the V-Tanks contents will reduce their concentration over time. However, for the purposes of developing this ROD Amendment, the INEEL has chosen not to consider the relatively small reduction in the concentration of radioactive elements that would

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Total transuranics V-Tanks 1,2,3,&9 including plutonium, americium, curium and neptunium	15 pCi/L (for drinking water); * 100 nCi/g (for TRU disposal)	275.406 pCi/L	42,716 pCi/g 42.831 nCi/g	26.4 nCi/g

Notes for Above Table A
* It has been a long-standing criticism of the regulators to allow DOE in joint publications to offer contaminate units different than those in the regulations (MCL) and not to present side-by-side those MCL's with samples in DOE publication data tables. This data unit issue confuses the public and exacerbates distrust.
# The above EPA Maximum Contaminate Level (MCL) Drinking Waste Standards are offered here only to provide perspective on how hazardous the TAN wastes are. See 40 CFR 141.61, 141.62, 141.66.

Since DOE plans to dump V-Tank highly contaminated soils into the tank to absorb the liquid portion of the tank contents, this will add to the total tank contaminate levels. Addition of soil to dilute the concentration of the waste is expressively prohibited in RCRA (40 CFR 268.3). The 2003 Plan acknowledges transuranic waste in the V-Tanks at 26.4 nCi/g (page 6) which is 2 ½ times higher than the greater than 10 nCi/g waste acceptance restriction for the ICDF. [6]

Additionally, a credible argument can be made that both the tank liquid and the sludge must be combined to determine if the waste elevates to the category of transuranic waste. The regulatory definition of transuranic radioactive waste is 100 nano curies per gram (nCi/g) of elements with an atomic number greater than 92 (i.e. above uranium) that also have a half-life greater than 20 years. [7] The above table shows major discrepancies in the sampling data and also suggests that this waste is at the very least "alpha low-level" or "transuranic waste" (assuming inclusion of both liquid and sludge (tank heels) and therefore, cannot be disposed of at INEEL as DOE plans at the ICDF. See discussion below on TAN waste disposal.

Federal Court Justice Edward Lodge issued a ruling on March 31, 2003 that found in favor of the State of Idaho's contention that a 1995 Settlement Agreement/Consent Order stipulates the removal of all buried transuranic waste from INEEL. This ruling ends a long-standing legal battle between the State and the Department of Energy over what waste was included in the Agreement. Judge Lodge's ruling states:

"The express language of the [Settlement] agreement, when taken as a whole, expressly requires that all transuranic waste be removed from INEEL. The parties specifically define transuranic

[6] There are two categories of waste containing transuranics; 1.) waste containing transuranic elements in concentrations greater than 10 but less than 100 nCi/g is called alpha low-level waste. Prior to 1984 DOE called this material transuranic waste, but then unilaterally and arbitrarily changed it to alpha LLW; 2.) currently, waste containing transuranics in concentrations greater than 100 nCi/g is classified transuranic (TRU) waste.

[7] Also see 10 CFR 61.55(a)(7) sum of the fractions rule for mixtures of radionuclides, and (a)(8) Determination of concentrations in wastes.

Comment W2-11 (Section 13.5, Topic 19)

Response: CERCLA investigations present contaminant data in unit types appropriate to the affected media (e.g., soils, water, or air) or related to the contaminant and the governing regulation (e.g., radionuclides are measured

(Continued on page 28)

Comment W2-12 (Section 13.6, Topic 24)

Response: The RCRA regulation cited does prohibit dilution — for instance through the addition of soil — as a substitute for treatment if that addition is not a contributing part of the treatment process. The alternatives developed for the V-Tanks contents were designed for treatment of the contaminants; no alternatives were considered that would not result in reduction of toxicity

(Continued on page 28)

Comment W2-13 (Section 13.5, Topic 20; Section 13.6, Topic 23; and Section 13.7.2, Topic 38)

Response: INEEL waste types are classified based not just on their chemical content but also on disposal requirements. The V-Tanks contents are classified as a mixed waste, which includes hazardous wastes (heavy metals, volatile organic contaminants [VOCs], and semi-volatile organic contaminants [SVOCs]) and low-level radioactive waste. There are transuranic elements in the V-Tanks, but not TRU waste.

Transuranic *elements* are a group of radioactive chemical elements "beyond uranium" in the periodic table, having atomic numbers greater than 92 (such as plutonium, atomic number 94). Transuranic *waste* is a legally defined category of waste, established for regulatory and management purposes. As a waste category, TRU waste contains more than 100 nanocuries (3,700 becquerels) of alpha-emitting transuranic isotopes per gram of waste and half-lives greater than 20 years (as cited in the 1995 Settlement Agreement). Although low concentrations of several transuranic elements are present in the V-Tanks contents, the concentrations of the combined sludge and liquid (with a combined weighted average of 4.27 nCi/g) are not high enough to meet the TRU waste definition. It is estimated that prior to disposal at the INEEL CERCLA Disposal Facility (ICDF), the treated V-Tanks waste will

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waste without any limitation as to its location within INEEL nor any limitation to amount. Thus the Court is able to unequivocally state that in viewing the document in the light most favorable to the United States, the plain language of Paragraph B.1 [of the Settlement Agreement] clearly represents the parties intent at the time the agreement was drafted that the United States remove all transuranic waste located at INEEL."[1]

Additionally, the 2003 TAN Plan fails to address all the V tanks and other "buried" TAN waste issues. Only four of the V-Tanks are addressed in the 2003 Plan when there are at least six V-Tanks with major radioactive and hazardous waste contaminates. V-Tanks 1,2,3,9,13,and 14 volumes are 130,400 gallons. [DOE/ID-10557, Vol. IV, page 9-141 See table B below.

Unfortunately, the TAN plan still fails to provide remedial solutions that meet Applicable or Relevant and Appropriate Requirements (ARAR). Transuranic (TRU) or Greater than Class C LLW (as defined by statute) can not be dumped at the INEEL CERCLA Disposal Facility (ICDF) under current waste acceptance criteria (WAC) restrictions or Nuclear Regulatory Commission regulations on radioactive waste dumps because they must go to a geologic repository.[2] The ICDF itself is questionably in compliance with current regulations. See section III below. The Plans offers no substantive information about discrepancy of the maximum contamination levels related to individual Operational Units (OU). Consequently, the general public is effectively denied essential information upon which to make their own determination of whether the preferred alternatives were appropriate.

The Plan claims to be "the comprehensive" CERCLA investigation into TAN. This is not a "comprehensive" Plan because the ANP Cask Storage Pad, the Area 10 HTRE Reactor Vessel Burial Site, and the TAN Pool have been excluded.

An example of DOE/ID's myopic approach is the Test Area North (TAN) Comprehensive Plan's alternative of insitu vitrification (ISV) of the mixed hazardous/radioactive waste tanks. In 1996, the Oak Ridge National Laboratory (ORNL) tried the same insitu remediation approach despite public challenges to environmental law violations. The ORNL insitu project exploded putting workers and the public at extreme risk. The TAN tank waste characterization is similar to the buried waste in ORNL's insitu project.

Actually, the lessons learned are as much site related as they are complex wide related. INEEL tried a ISV project a few years ago and it exploded as well, and the containment tent got fried (burned up). Similar failed ISV projects can also be found at DOE's Hanford site. Tragically, the IDEQ and EPA, as regulators fail to inform the public about these failed ISV projects, and a member of the public may (based on inadequate information) conclude that ISV is a viable remedial technology for INEEL.

Table B

TAN V-Tank Site	Contaminate	Concentration	Reference
V-1 Tank Liquid (TSF-09/18)	STP Lists Liquid and Sludge	MLLW	STP @ 6-3
	Cobalt-60	101,000 pCi/l	(a) Table A-6-10

[1] Settlement Agreement in United States v. Batt, No CV-91-0065-S-EJL

[2] 10 CFR 61.56

Comment W2-13 (continued)

Comment W2-14 (Section 13.4, Topic 12)

Response:: There are indeed additional underground tanks at TAN that are not addressed by this ROD Amendment. To understand their handling, it is important to note the difference between the term "v-tanks,"

(Continued on page 29)

Comment W2-15 (Section 13.7.2, Topic 39)

Response: The ICDF was designed and approved by the Agencies (EPA, IDEQ, and DOE) for the disposal of contaminants such as those found within the V-Tanks. The ICDF WAC were developed to limit the concentration and quantity of contaminants to levels that would be protective

(Continued on page 29)

Comment W2-16 (Section 13.4, Topic 19)

Response: CERCLA investigations present contaminant data in unit types appropriate to the affected media (e.g., soils, water, or air) or related to the contaminant and the governing regulation (e.g., radionuclides are measured in Curies per gram). MCLs are standards that set the maximum permissible amount of a contaminant in water delivered to any user of a public system. MCLs are not relevant for the V-Tanks site because water is not an affected medium. For the contaminated media that are

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Comment W2-17 (Section 13.8, Topic 15)

Response: The three sites listed were identified in the 1991 FFA/CO as potential contamination sites to be investigated within WAG 1. The analyses carried out on them were summarized in the 1997 RI/FS and the 1999 ROD.

TSF-06, Area 8, is the designation for the ANP Cask Storage Pad. Part of this site is currently included within the active Radioactive Parts Service

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	Cs-134	16,900 pCi/l	(a) Table A-6-10
	Cs-137	12,500,000 pCi/l	(a) Table A-6-10
	Europium-152	83,800 pCi/l	(a) Table A-6-10
	Europium-154	93,800 pCi/l	(a) Table A-6-10
	Plutonium-238 (liquid) (sediment)	7,030 pCi/l 101 pCi/g	(c) page 15-17
	Plutonium-239 (liquid) (sediment)	3,400 pCi/l 95.8 pCi/g	(c) page 15-17
	Americium-241(liquid) (sediment)	9,230 pCi/l 230 pCi/g	(c) page 15-17
	Gross Beta	16,100,000 pCi/l	(c) 59
	Gross Gamma	24,300,000 pCi/l	(c)59
	Gross Alpha	19,800 pCi/l	(c) 59
	Tritium	11,800,000 pCi/l	(a) Table A-6-10
	Total Strontium	1,840,000 pCi/l	(a) Table A-6-10
	Total Activity Liquid Sediment	 40,400,000 pCi/L 15,000,000 pCi/g	(c) 59
	Mercury Barium Cadmium Chromium Lead Silver	0.842 mg/l 2,320 mg/kg 330 mg/kg 286 mg/kg 81.7 mg/kg 18 mg/kg	Likely Exceeds UTS mercury @ 0.15 mg/l barium @ 7.6 mg/l Cadmium @ .19 Lead @ .37 Silver @ .30 (a) Table A-6-10 & 11
	Tetrachloroethene Trichloroethene	1,800 mg/kg 23 mg/kg	Exceed LDR UTS (a) Table A-6-11
	Vinyl Chloride 1,1 Dichloroethene Chloroform 1,2 dichloroethene Carbontetrachloride Benzene Chlorobenzene		All Exceed LDR UTS (c) 8 through 12
Tank V-2 TSF-09/18	STP Lists Liquid and Sludge	MLLW	STP @ 6-3
	Cobalt-60	10,500 pCi/l	(a) A-6-10

Note: No comments were identified on this page.

	Cesium-137	20,200,000 pCi/l	(a) A-6-10
	Strontium-90	1,450,000 pCi/l	(a) A-6-10
	Gross Beta	23,400,000 pCi/l	(a) A-6-10
	Gross Gamma	38,500,000 pCi/l	(c)59
	Plutonium-238 (liquid) (sediment)	63.9 pCi/L 103.0 pCi/g	(c) page 15-17
	Americium-241 (liquid) (Sediment)	18.6 pCi/L 84.0 pCi/L	(c) page 15-17
	Gross Alpha	84.9 pCi/l	(c) 59
	Total Activity Liquid Sediment	 1,090,000 pCi/L 13,000,000 pCi/g	(c) 59
	Trichloroethene Tetrachloroethene Cadmium Vinyl Chloride	All four chemicals/metals Exceed TCLP	(c) 8 through 12
	1,2-Dichloroethane Carbon tetrachloride Benzene	All three chemicals at the TCLP level	(c) 8 through 12
	18 Hazardous Chemicals	Exceed Universal Treatment Standards	(b) 10-44 40 CFR 268.48
V-3 Tank (TSF-09/18)	STP lists	MLLW	STP @ 6-3
	Plutonium-238 (liquid) (Sediment)	33.5 pCi/L 384.0 pCi/g	(c) page 15-17
	Plutonium-239(sediment)	31.1 pCi/g	(c) page 15-17
	Americium-241(liquid) (Sediment)	30.0 pCi/l 206.0 pCi/g	(c) page 15-17
	Uranium-233/234	13,300 pCi/l	(b) A-83
	Strontium-90	12,700,000 pCi/l	"
	Cobalt-60	14,800 pCi/l	"
	Cesium-137	4,210,000 pCi/l	"
	Ruthenium-103	13,600 pCi/l	"
	Tritium	6,090,000 pCi/l	"
	Nickel-63	205,000 pCi/l	"
	Gross Beta	28,300,000 pCi/l	(c) 59

Note: No comments were identified on this page.

	Gross Gamma	2,230,000 pCi/l	(c) 59
	Total Activity Liquid Sediment	 30,500,000 pCi/L 28,000,000 pCi/g	(c) 59
	Trichloroethene Tetrachloroethene Vinyl Chloride	All three chemicals/metals Exceed TCLP	(c) 8 through 12
	1,2-Dichloroethane Carbon tetrachloride Benzene	All three chemicals at the TCLP level	(c) 8 through 12
	18 Hazardous Chemicals	Exceed LDR Universal Treatment Standards	(b) 10-44 40 CFR 268.48
V-9 Tank (TSF-09/18)	STP Lists Liquid and Sludge	MLLW	STP @ 6-3
	Americium-241(liquid) (Sediment)	40,200 pCi/l 5,700 pCi/g	(b) A-91 (c) page 15-17
	Plutonium-238(liquid) (Sediment)	170,000 pCi/l 28,600 pCi/g	(b) A-91 (c) page 15-17
	Plutonium-239/240(Liq.) (Sediment)	45,300 pCi/l 7,180 pCi/g	(b) A-91 (c) page 15-17
	Uranium-233	17,400 pCi/l	(b) A-91
	Uranium-234	211,000 pCi/l	(b) A-91
	Uranium-235	6,900 pCi/l	(b) A-91
	Uranium-236	3,260 pCi/l	(b) A-91
	Uranium-238	972 pCi/l	(b) A-91
	Cesium-137	6,370,000 pCi/g	(b) A-91
	Tritium	353,000,000 pCi/l	(b) A-91
	Total Strontium	250,000,000 pCi/l	(b) A-91
	Cerium-244	5,210 pCi/l	(b) A-91
	Cobalt-60	1,160,000 pCi/l	(b) A-91
	Total Activity Liquid Sediment	 603,918,070 pCi/L 14,025,396 pCi/g	(b) A-91
	26 hazardous chemicals/metals	Exceed UTS Treatment Standards	(b) 10-44 40 CFR 268.48
PM-2A TSF-26 V-13 Tank	50,000 gallon tank	STP lists Liquids and Sludge as MLLW	STP @ 6-4

Note: No comments were identified on this page.

	Cobalt-60	45,900,000 pCi/l	(c) 31
	Europium-154	93,000,000 pCi/l	(c) 31
	Cesium-137	2,900,000,000 pCi/l	(c) 31
	Strontium-90	2,850,000,000 pCi/l	(c) 31
	Cesium-134	18,100,000 pCi/l	(c) 31
	Total Activity Curies	41,380,000,000,000 pico curies 41.38 curies	(c) 31
	31 Hazardous Chemicals/metals	Exceed UTS Treatment Standards	(b) 10-28 to 31 40 CFR 268.48
PMA-2M TSF-26 V-14 Tank	50,000 Gallon Tank	TSP Lists Liquid and Sludge as MLLW	STP @ 6-3
	Cobalt-60	191,000,000 pCi/l	(c) 31
	Cesium-134	2,000,000 pCi/l	(c) 31
	Cesium-137	9,420,000,000 pCi/l	(c) 31
	Europium-154	17,200,000 pCi/l	(c) 31
	Strontium-90	9,260,000,000 pCi/l	(c) 31
	Total Activity Curies	25,900,000,000 pico curies 25.96 curies	(c) 31
	33 hazardous chemicals/metals	Exceed UTS Treatment Standards	(b) 10-28 to 31 40 CFR 268.48
V- Tank soil	STP lists as MLLW	54,120 pCi/g	RE-P-80-090 @6

Sources:

DOE 1998 Data refers to the following reports cited here and DOE's 1998 Tan Remediation Plan ,

(a); Work Plan for Waste Area Group 1, Operable Unit 1-10. Comprehensive Remedial Investigation / Feasibility Study. Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office. DOE-ID-10527, March 1996. Vol I, RI/FS

(b), Comprehensive Remedial Investigation / Feasibility Study for the Test Area North Operable Unit 1-10. Idaho National Engineering Laboratory, US Department of Energy Idaho Operations Office, DOE-ID-10557, November 1997. (RI/FS)

(c), Field Sampling Plan for Operable Unit 1-10: Test Area North, D. L. Michael, Lockheed Idaho Technologies Company, Idaho National Engineering Laboratory, March 1996, INEL-95/0304, Vol.III RI/FS.

(d) Federal Register, May 26, 1998, Part II, Environmental Protection Agency, 40 CFR Parts 148 to 271, Land Disposal Restrictions Phase IV Final Rule

Acronyms:

LDR = Land Disposal Restrictions (40 CFR 148 through 271)

TCLP = Toxicity Characteristic Leachate Procedure (40 CFR 148 through 271)

Note: No comments were identified on this page.

UTS = Universal Treatment Standards (40 CFR 148 through 271)
PRG = Preliminary Remediation Goals (EPA cleanup goals based on risk values 12/18/96)
STP = INEEL Site Treatment Plan generated by statute requirement of the Federal Facility Compliance Act

For more information see Environmental Defense Institute's Comments on Proposed Test Area North Cleanup Plan, December 1998, available on EDI's Website, publications link.

III. Issues Related to Disposal of TAN Waste at ICDF

The Department of Energy (DOE) Idaho National Engineering and Environmental Laboratory (INEEL) issued a Record of Decision in October 1999 to, among other things, construct an on-site mixed hazardous and radioactive waste dump.[10] This decision was made within the Superfund (CERCLA) process with the concurrence of the State of Idaho and the U.S. Environmental Protection Agency (EPA). Initially, this was welcome news since the Environmental Defense Institute has for years criticized DOE's illegal waste "disposal" practices in dumps that would not even meet municipal garbage landfill regulations let alone radioactive and hazardous chemical waste. After detailed analysis of the Record of Decision, it is clear that DOE plans to repeat the mistakes of the past by siting the new dump (called the INEEL CERCLA Disposal Facility) (ICDF) not only in a flood zone, but over top of Idaho's sole source Snake River Aquifer which sustains more than 200,000 families. In short, the issue is not the construction of the new dump, but the issue is where it is to be built on the INEEL site. EDI's position is that there are credible alternative sites on the INEEL that are not over the aquifer or in a flood zone.

Additionally, DOE is violating other environmental laws by claiming that the CERCLA process waves the requirements of the National Environmental Policy Act (NEPA) among other laws. Attorneys conversant in the regulations say CERCLA only waive the permitting and NEPA requirements in the direct removal and remediation of a contaminated site. CERCLA does not in this case waive the RCRA permitting or NEPA requirements on a major $85 million ICDF dump project. Specifically, the equivalent requirements under NEPA would require DOE to evaluate, in an Environmental Impact Statement, the credible alternative siting locations for the ICDF. This was never done. Yes, DOE evaluated alternatives for on-site vers off-site disposal.....but not alternative on-site locations. Once again, the legal requirements are obfuscated not only by DOE but by the State of Idaho and the Environmental Protection Agency. Since this appears to be a "done deal" between DOE and the regulators, it appears the public's

[10] Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13, Idaho National Engineering and Environmental Laboratory, October 1999

Comment W2-18 (Section 13.7.2, Topic 49)

Response: The "ISV failures" referred to by the commenters resulted during testing of a previous version of this technology. That version was refined and improved based on analysis of these "failures." The result of these improvements is the planar ISV method. Planar ISV is the technology evaluated in the 2003 Technology Evaluation Review (TER) and presented in the 2003 Proposed Plan.

Planar ISV systems were developed to prevent the "failures" experienced during the developmental stages of ISV. These early failures were not true explosions, but rather rapid releases of air and steam bubbles through the ISV melt. As the air and steam bubbles moved through the ISV melt, to ground surface, they caused the "air-lifting" of the molten glass product within the ISV melt to lift above the subsidence crater and flow across ground level.

Details about the ORNL Melt Expulsion are documented in a 1996 report.[1] This event was only a glass flow, not an expulsion into the air (as it has commonly been misidentified by some members of the public). Move

(Continued on page 30)

Comment W2-19 (Section 13.6, Topic 40)

Response: As part of the ICDF planning and design process, U.S. Geological Survey and other research data were evaluated to assess the safety of the proposed facility relative to potential flooding. The ICDF location was determined to be outside the 100-year flood plain. In addition, the ICDF will be surrounded by an engineered berm 15 ft higher than the predicted 100-year flood plain. The ICDF's compliance with key federal and state disposal facility design laws includes a cap compliant with the Resource Conservation and Recovery Act (RCRA), monitoring, and an engineered multiple liner system that includes a leachate collection and removal system, and a leak detection and removal system to inhibit fluid movement below the complex liner system. The landfill will meet additional standards for protectiveness with maintenance, monitoring, and post-closure activities that will verify protection of human health and the environment. More information about the ICDF is available on-line at http://www.inel.gov/publicdocuments/pdfs/cercla01-50671-04.pdf. ❖

Comment W2-18 (continued)

only recourse is litigation. Once again the public's rights have been trampled.

A review of the available US Geological Survey (USGS) reports related to INEEL flooding scenarios and flood control infrastructures, it is clear that DOE and the regulators ignored this information. Moreover, DOE ignored USGS recommendation that additional analyses are conducted prior to any final siting decisions are made for new waste interment and disposition of existing buried waste. Specifically, USGS recommended a two dimensional model to expand the 1998 USGS one dimension model to include the upper 95% confidence flow estimates of 11,600 cubic feet per second for the Big Lost River 100-year flood, and include modeling for the upper range limit of the 500-year estimated flow rate in the Big Lost River flood plain on the INEEL.

DOE is constructing the ICDF as a step toward meeting regulatory requirements in the Resource Conservation Recovery Act (RCRA) Subtitle-C hazardous waste disposal criteria. After 25 years of thumbing its nose at RCRA, DOE finally is making a gesture toward compliance after five decades of mismanagement of its waste streams that cause massive environmental contamination. Estimated cleanup costs of this INEEL debacle are in the range of $19 billion that will come out of our pockets as taxpayers. DOES' decision to finally comply with RCRA is marred by the wrongheaded choice of location, when other on-site locations would not pose the same risks to the aquifer that is already severely contaminated from INEEL waste.

DOE is constructing the ICDF immediately south of the Idaho Chemical Processing Plant (ICPP) also now called INTEC mainly for economic reasons. It is close to the ICPP where much of the waste will be generated and it is near/over existing waste water percolation ponds which are on the Superfund cleanup list, and it is over extensive soil contamination caused from ICPP stack releases. In other words, "kill three wasted birds with one stone."

The US Geological Survey released a 1998 report that modeled the **median** 100-year flow rates in the Big Lost River (that flows by the ICPP) down stream of the INEEL Diversion Dam (6,220 cf/s). The USGS report cross section number 22 at the ICPP puts the median flood elevation at 4,912 feet.[11] Again, this is only the mean flow rate (as opposed to the maximum rate of 11,600 cf/s) of just a 100-year flood, and **not** including any additional cascading events like the failure of Mackey Dam. The USGS flood map shows the northern half of the ICPP under water. There are only five-foot differences between the ICDF (south end of ICPP) elevation of 4,917 feet and the USGS predicted elevation of 4,912 feet through the middle of the ICPP. The USGS study also employed current modeling technics and plotted 37 separate cross sections on the INEEL site. The ICPP as a whole is about as flat as a table top with only a couple feet change in elevation north to south.[12] The crucial point here is that even the slightest variation in a Big Lost River flood would put the ICDF underwater assuming the dump was on the surface. Proportionally less variation in floods would inundate the dump the deeper the ICDF is buried below the surrounding terrain.

An earlier USGS study in 1996 also estimated the flow range for the Big Lost River at the INEEL; "The upper and lower 95-percent confidence limits for the estimated 100-year peak flow were

[11] Preliminary Water-Surface Elevations and Boundary of the 100 Year Peak Flow in the Big Lost River at the Idaho National Engineering and Environmental Laboratory, Idaho, US Geological Survey, Water-Resources Investigations Report 98-4065, DOE/ID-22144

[12] Topographic Map of Block 21, National Reactor Testing Station (now called INEEL) showing works and structures, U.S. Atomic Energy Commission, Idaho Operations Office, shows three feet change in elevation between the north and south end of the ICPP.

11,600 and 3,150 cubic feet per second (cf/s), respectively."[13]

Since 1950, INEEL has experienced significant flooding events (localized and site-wide) in 1962, 1965, 1969, 1982, and 1984. In an effort to mitigate the flooding problem, DOE built a diversion dam on the Big Lost River that is designed to shunt flood waters to the south and away from INEEL facilities. USGS's 1998 report that modeled the mean (midrange) 100-year flow rate of 7,260 cf/s upstream of the INEEL diversion dam. USGS estimated that the Big Lost median flow rate downstream of the diversion dam at 6,220 cf/s with a thousand cf/s going down the diversion channel for a total median flow rate of 7,260 cf/s upstream of the INEEL diversion dam.[14] "This peak flow was routed down stream [of the Big Lost River] as if the INEEL diversion dam did not exist. On the basis of a structural analysis of the INEEL diversion dam (U.S. Army Corps of Engineers) assumed the dam incapable of retaining high flows. The Corps indicated that the diversion dam could fail if flows were to exceed 6,000 cubic feet per second."[15]

This USGS study acknowledged that the northern half of the ICPP would be flooded with four feet of moving water, even at this midrange (mean) flow rate. If ICDF excavation goes two feet below present surfaces, it will be below the elevation of the mean 100 year flood zone. Plans are to excavate ICDF pits most of the entire 50 feet to bedrock.

Since the radioactive waste will be extremely hazardous for tens of thousands of years and flooding will flush contaminates down into the aquifer, a conservative risk assessment would model the upper 95-percent confidence limits for the estimated 100-year peak flow of 11,600 cf/s. USGS has proposed this additional research to DOE, but the Department is not willing to provide the funding. A USGS hydrologist notes, "The flow of 11,600 cfs represents the upper 95 percent confidence limit flow for the estimated 100-year peak flow (Kjelstrom and Berenbrock, 1996, p6). Future modeling needs are to model the area with this flow. We've expressed this to the INEEL and also have expressed that the WSPRO model used has limitations and that an application of more stringent models (two dimensional) is needed to refine and better delineate the extent of possible flooding of the Big Lost River."[16]

USGS estimates the mean 500-year Big Lost River flood rates at 9,680 cf/s (34% greater flow rate than the mean 100 year flood).[17] This 500-year flood would inundate the ICPP and surrounding area. These potential hazards are being ignored when making hazardous mixed radioactive waste internment decisions in these vulnerable areas despite the long-term consequences and the potential for additional aquifer contamination.

Comment W2-18 (continued)

[13] Estimated 100-Year Peak Flows and Flow volumes in the Big Lost River and Birch Creek at the Idaho National Engineering Laboratory, Idaho, U.S. Geological Survey, Water-resources Investigations Report 96-4163, L.C. Kjelstrom and C. Berenbrock, 1996, page 9.

[14] Preliminary Water-Surface Elevations and Boundary of the 100 Year Peak Flow in the Big Lost River at the Idaho National Engineering and Environmental Laboratory, Idaho, US Geological Survey, Water-Resources Investigations Report 98-4065, DOE/ID-22148

[15] USGS 98-4065, page 8

[16] Charles E. Berenbrock, U.S. Geological Survey Hydrologist, March 25, 1999 email to Chuck Broscious

[17] Estimated 100 Year Peak Flows and Flow Volumes in the Big Lost River and Birch Creek at the Idaho National Engineering Laboratory, U.S. Geological Survey, Water Resources Investigations Report 96-4163, page 11 shows flow rates for 5-year, 10-year, 100-year, and 500-year floods

Cascading events also are not considered. This is known as a worst case scenario where one event triggers another event. For instance a 500-Year flood plus failure of Mackay Dam (built in 1917) resulting in estimated flows of 9,700 + 54,000 cubic feet per second respectively would be an example of a cascading event. Failure of Mackey Dam is non-speculative in view of the 1976 failure of the Teton Dam of similar construction and the fact that Mackey Dam lies within 11 miles of a major earthquake fault line that produced the 1983 Borah Peak 7.3 magnitude quake. An internal 1986 DOE report that analyzed the impact of Mackey Dam failure scenarios notes that, "Mackay Dam was not built to conform to seismic or hydrologic design criteria," and "the dam has experienced significant under seepage since its construction." [18] This EG&G study acknowledged that the ICPP, Navel Reactors Facility, and the Test Area North (LOFT) facilities would be flooded with at least four feet of water moving at three feet per second.

USGS did not consider cascading events but noted previous studies showing that failure of Mackay Dam alone would result in 6 feet of water at the INEEL Radioactive Waste Management Complex (RWMC) waste burial grounds. Other studies recognized by USGS note that, "Rathburn (1989, 1991) estimated that the depth of water at the RWMC, resulting from a paleo-flood [early] of 2 to 4 million cf/s in the Big Lost River in Box Canyon and overflow areas, was 50-60 feet." "If Mackey Dam failed, Niccum estimated that peak flow at the ICPP would be at 30,000 cfs." [19] Comparing these flow rates with the USGS estimate 100-year mean flow of 6,220 cfs that would flood the north end of the ICPP with four feet of water, and a Mackey Dam failure becomes a real disaster potential with respect to the existing underground waste tanks and underground spent reactor fuel storage at the ICPP.

DOE is relying extensively on the Big Lost River Diversion Dam (located at the western INEEL boundary) to shunt major flood waters away from INEEL facilities. The last comprehensive analysis of this diversion dike system (below the diversion dam) was conducted by USGS in 1986 in a report titled *Capacity of the Diversion Channel below the Flood Control Dam on the Big Lost River at the INEL*. In this study USGS estimated a mean flow rate of 9,300 cf/s, 7,200 of which went into the diversion channel and "2,100 cf/s will pass through two low swells west of the main channel for a combined maximum diversion capacity of 9,300 cf/s." "A sustained flow at or above 9,300 cf/s could damage or destroy the dike banks by erosion. Overflow will first top the containment dike at cross section 1, located near the downstream control structure on the diversion dam." [20] This USGS study did not analyze the construction of the diversion dikes but they would likely fail as did the upstream diversion dam, built at the same time, that the Army Corps of Engineers found structurally deficient. "On the basis of a structural analysis of the INEEL diversion dam (U.S. Army Corps of Engineers, written comments, 1997), the dam was assumed incapable of retaining high flows. The Corps indicated that the diversion dam could fail if flows were to exceed 6,000 cf/s. Possible failure mechanisms are: (1) erosion of the upstream face of the dam that results from high-flow velocities and loss of slope protections (rip-rap), (2) overtopping of the diversion dam by flows exceeding the capacity of the diversion channel and culverts, (3) piping and breaching of the diversion dam because of seepage around the culverts, and (4) instability of the dam and

Comment W2-18 (continued)

[18] Flood Routing Analysis for a Failure of Mackey Dam, K. Koslow, D. Van Haften, prepared by EG&G Idaho for U.S. Department of Energy, June 1986, EGG-EP-7184, page 15

[19] USGS 98-4065, page 6

[20] Capacity of the Diversion Channel Below the Flood Control Dam on the Big Lost River at the Idaho National Engineering Laboratory, US. Geological Survey Water Resources Investigations Report 86-4204, C. M. Bennet, page 1 and 25

its foundation because of seepage."[21]

Failure of the diversion dam and/or the diversion channel dikes would also directly impact the Radioactive Waste Management Complex (RWMC) waste burial grounds. A 1976 USGS report notes, "The burial ground is within 2 miles (3.2 km) of the Big Lost River and the surface is approximately 40 feet (12 m) **lower than the present river channel**. Sediments in the burial ground contain grains and pebbles of limestone and quartzite, suggesting that in recent geologic past, flood waters of the Big Lost River flowed through the burial ground basin. Two eroded notches or 'wind-gaps' in the basalt ridge bordering the west of the burial ground also suggest past Big Lost River floods." "A large diversion system on the Big Lost River was constructed by the AEC to control flood waters by diverting water into ponding Areas A, B, C, and D. The nearest of these, Area B is less than a mile [south] from and about 30 feet (9m) **higher** in elevation than the burial ground."[22]

USGS *Arco Hills SE* and *Big Southern Butte* quadrangle topographic maps clearly show the RWMC flooding vulnerability as do other USGS reports that note, "If [diversion] dike 2 [at ponding Area B] fails, large flows will drain directly toward the solid radioactive waste burial grounds."[23] These vulnerabilities must be taken into consideration when DOE attempts to leave the buried transuranic waste at the RWMC and not exhume and relocate it to a safe permanent repository.

Building dams around the INEEL CERCLA Disposal Facility (ICDF) as was done at the RWMC is not an acceptable flood protection answer because lateral water migration will go under the dams and local precipitation will be held in exacerbating the leachate conditions. The liner of the ICDF will not be capable of maintaining integrity with the increased hydraulic pressure during a flood because liners are only capable of blocking what minimal surface water may leak past the cap and infiltrate the waste. There are good legitimate reasons why dumps (even municipal garbage dumps) are not allowed by statute in flood zones or above sole source aquifers. Dams by definition are only functional if there is regular maintenance which cannot be assumed once DOE ends institutional control of INEEL in a hundred years. Dumping the waste on top of the ground and mounding the cover over it will result in the cap eroding over the long-term which again is unacceptable. Regulator's contention that there is a degree of efficiency in co-locating the ICDF with the ICPP percolation ponds that they must be remediated along with the "windblown" soil contamination area around the percolation ponds not only defies' common sense but is also illegal.

DOE must designate another location for the ICDF that is not near a flood plain and not over the aquifer. DOE's own study has identified at least two such sites (on the INEEL) where the Lemi Range meets the Snake River Plain.[24] DOE has not seriously considered these alternative sites as would normally be required under the National Environmental Policy Act (NEPA), stating that the sites were eliminated from consideration due to increased seismic activity. There is no documented evidence of this

[21] USGS 98-4065, page 9

[22] Hydrology of the Solid Waste Burial Ground, as Related to the Potential Migration of Radionuclides, Idaho National Engineering Laboratory. U.S. Geological Survey, Open File Report 76-471, J Barraclough, August 1976, page 8

[23] Probability of Exceeding Capacity of Flood-Control System at the National Reactor Testing Station, Idaho, U.S. Geological Survey Water Resources Division, P.Currigan, JR., 1972, page 4

[24] Moriarty, T. P., Feasibility of Locating Dry Storage of Spent Nuclear Fuel on Idaho National Engineering Laboratory Land at a Site That Does Not Overlie the Snake River Aquifer, November 1995

Comment W2-18 (continued)

Comment W2-20 (Section 13.7.1, Topic 26)

Response: The Agencies disagree. Under DOE's CERCLA/NEPA Policy, DOE relies on the CERCLA process for the review of actions to be taken under CERCLA; that is, no separate NEPA document or NEPA process is ordinarily required. NEPA values were addressed, to the extent practicable, in the Operable Unit (OU) 3-13 Remedial Investigation and Feasibility Study (RI/FS) and Record of Decision (ROD), with the associated CERCLA public involvement process. The OU 3-13 ROD, which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The ICDF was not permitted under RCRA because, under Section 121 (e) of CERCLA, it is exempted from permitting requirements as long as the applicable substantive requirements of RCRA are met. The ICDF is designed to meet the substantive requirements for a RCRA hazardous waste landfill.

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alternative site analysis. No empirical risk assessment was conducted to compare the relative risk of a location over a sole source aquifer and in a flood plain (ICPP) as opposed to a site with a slightly higher seismic risk not over the aquifer or in a flood zone (Lemi Range terminus). Other credible options include purchasing land contiguous to the northern end of the INEEL site near the terminus of the Bitterroot Range that also would be off the aquifer and not in a flood zone and have more soil cover over the bedrock.

Another misguided project outlined in DOE's October 1999 Record of Decision is the construction of new ICPP process waste percolation ponds midway between ICPP and Central Facilities Area to the south. For a detailed analysis of this project see the Environmental Defense Institute's *Ground Water Contamination at INEEL Report* available at http://home.earthlink.net/~edinst/

Nuclear Regulatory Commission restrictions prohibiting citing radioactive waste disposal dumps on 100 year flood plains must be observed. [NRC 10 CFR ss 61.50 The reason for these restrictions is because the flood water will leach the contaminates out of the waste and flush the pollution more rapidly into the aquifer. Since these wastes will remain toxic for tens of thousands of years, they must be disposed of responsibly in a safe permanent repository. These issues must be kept in mind also with respect to the ICPP high-level waste tanks that are some forty feet underground as well as the underground spent reactor fuel storage and calcine storage bins at the ICPP. Water acts as a moderator and if the underground spent fuel vaults are flooded, it could cause a criticality. All of these underground high-level waste sites are extremely vulnerable. Former ICPP workers recall stacking sandbags six feet high around the plant during a Spring flood about ten years ago. The added external hydrologic pressure on the high-level waste tank concrete vaults could collapse the vaults and the tanks inside, and thus release the contents. These risks must be considered when DOE decides to leave the high-level waste tank sediments permanently in place as a cost cutting measure.

The ICDF, siting, engineering design, and waste acceptance criteria (WAC) must be developed with public involvement through a free and open discussion. The legal requirements of the process are spelled out in the National Environmental Policy Act that requires Environmental Impact Statements and public hearings. Only un-containerized wastes that can be compacted during placement should be allowed so as to minimize subsidence caused by container decomposition. Biodegradable, VOC, collapsible, soluble, TRU, or Greater than Class C Low-level, and Alpha-low-level waste must also be excluded from the ICDF dump and sent off-site. Prior to completing the ICDF Title II Design, workshops should be convened for stakeholders to comment on the proposal in addition to the NEPA requirements.

Waste Acceptance Criteria maximum contaminate concentration levels must be determined from waste sampling prior to being mixed with any stabilizing materials. In other words, "dilution is not the solution to pollution".

USGS reports identified factors favoring downward waste migration. "In order for waste isotopes to be carried downward by water, four basic requirements are needed: 1.) availability of water, 2.) contact of the water with the waste, 3.) solubility or suspendability of the waste in water, 4.) permeability in the geologic media to allow water flow downward." [25] This USGS report describes in detail how all four conditions are met at INEEL including the solubility factor where they note "Hagan and Miner (1970) leached five different categories of solid waste from Rocky Flats [the main source of plutonium in the RWMC] with ground water from the INEL and Rocky Flats and measured the plutonium concentrations and pH of the leachate. They found the highest Pu-239 concentration in leachates from the acidic-graphite wastes, 62,000 to 80,000 ug/l plutonium or (3.8×10^5 to 4.9×10^5 pCi/L)." [Ibid]

[25] USGS 76-471 page 68-69

Comment W2-18 (continued)

Comment W2-21 (Section 13.6, Topic 37)

Response: The ICDF meets the CERCLA criteria for "Overall Protectiveness" and "Long-Term Effectiveness" with an engineered design that prevents both potential downward mobility of waste and exposure via surface pathways to current and future workers, future residents, and the environment. DOE will manage institutional controls at the ICDF for a minimum of 100 years to continue its protectiveness. After 100 years, institutional controls will still be required to maintain protectiveness as long as hazardous substances constitute a threat or potential threat to the underlying aquifer, the public, workers, or the environment. The owner of the property after 100 years, whether DOE, another Federal agency, or any other entity, will be required to maintain institutional controls until such time as the land can be released for unrestricted and unlimited use.

Comment W2-22 (Section 13.2, Topic 27)

Response: NRC regulations prohibit the disposal of radioactive waste in 100-year flood plains. Although these NRC regulations are not applicable to the ICDF, the ICDF complies with this requirement. The INEEL CERCLA Disposal Facility (ICDF) is outside the 100-year flood plain. In addition, the ICDF will be surrounded by an engineered berm 15 feet higher than the predicted 100-year flood plain elevation. As part of the ICDF planning and design process, research data from the U.S. Geological Survey and other sources were evaluated to confirm the safety of the proposed facility relative to potential flooding.

Comment W2-23 (Section 13.1, Topic 5; Section 13.2, Topic 8; and Section 13.6, Topic 26)

Response: Development of new missions at the INEEL is a separate issue from the remediation of contamination resulting from past activities. Cleanup activities at Test Area North (TAN), including the V-Tanks remediation, are required by the long-standing obligation of

(Continued on page 32)

The most reliable indicators of contaminate migration are onsite sampling data. Cesium-137, plutonium-238,-239,-240 were all found at the 240 foot interbeds under the RWMC. Forty-one % of the samples from the 240 foot interbeds contained radionuclides. Other literature confirmation of plutonium at 240 feet includes: "Radionuclides (including Pu-238,-239,-240, Am-241, Cs-137, Sr-90) have been detected in soils and in sedimentary interbeds to a depth of 240 feet beneath the RWMC, (Hodge et al, 1989)" "Positive values for Pu-238,-239,-240 were detected in samples obtained from the 240 foot interbed in bore hole DOZ." Radionuclides are also confirmed in the aquifer under the RWMC. USGS water sampling data at the 600 foot levels, expressed in pico curies per liter (pCi/l) show:

For more information on the contaminate migration from INEEL buried waste see EDI website publication on "Snake River Aquifer at Risk". http://personalpages.tds.net/~edinst

In summary of Section III, ICDF site selection is illegal under statutes Nuclear Regulatory Commission (NRC) rules that prohibit siting of radioactive waste dumps in 100 year flood plains (10 CFR 61.50) which the agencies are obliged to conform to if their commitment to Applicable or Relevant and Appropriate Requirement (ARAR) is genuine

This particular argument revolves around the fundamental definition of the 100-yr flood zone. USGS conducted an extensive study in 1998 that defined the upper and lower 95% confidence level on the flow rates for a 100-year flood.

1. The upper rate is estimated at 11,600 cfs and the lower rate is 3,150 cfs
2. USGS chose for some unknown reason (perhaps pressure from DOE) to plot only the mean flow rate (average between upper and lower) of 6,220 cfs
3. USGS assumptions base on previous Army Corps of Engineers and other EG&G studies that the Diversion Dam would fail with flows in excess of 6,000 cfs so the diversion dam was mostly discounted.
4. USGS ploting of the mean 100 year flow rate does **not define the flood zone.** It only shows where the likely areas that will be effected during an average flood. This mean plot should never be used for making major facility siting decisions.
5. The appropriate definition of the 100 year flood zone is to plot the upper bound 95% confidence level flow rate, which USGS attempted to convince DOE to fund, but were refused funding.
6. No credible empirical rationale can be presented to define the 100 year flood zone based on the plotting of the mean flow rate as DOE and the regulators are doing.
7. Given that the upper bound 95% confidence level flow rate is nearly twice what the mean flow rate .....this is a significant spread.

The apparent top of the ICDF berm is about 10 feet above the USGS plotted **mean** of the 100 year flood at INTEC. Absent a through USGS study that plots the upper level flow rate and the resultant flooding given the near level topography of the INTEC environs, there is a lot of uncertainty about whether the berm is high enough.

Additional uncertainty is the ability of the berm to survive the three feet per second rush of the flood and the erosion that would be expected to occur.

The ten foot berm would also be expected to erode over time from natural wind and precipitation which would eliminate that minimal flood barrier. Who is going to be around in 200 years to maintain that berm? If the berm was breached, is the liner adequate to maintain integrity with a hydriodic head of nearly 50 feet?

500 year flood MEAN is estimated at 9,600 cfs.....Claims of 1,000 year durability of ICDF mandates inclusion of the 500 year flood impact. Cascading event of Macky Dam.....++ 54,000 cfs

Comment W2-18 (continued)

Comment W2-24 (Section 13.6, Topics 25 and Topic 28)

Response: Grouting is the process of adding appropriate stabilization agents such as portland cement that will chemically bind with the hazardous metals. This stabilization step reduces the leachability of these metals, making it harder for these contaminants to be released into the environment. This reduction in leachability is required to meet both RCRA LDRs and the WAC for any disposal facility. The U.S. Environmental Protection Agency (EPA) has reviewed the inherent dilution that takes place during stabilization treatment processes. This dilution is considered acceptable when there is a significant reduction in leachability of hazardous contaminants and when appropriate volumes of stabilization materials are used. The selected remedy will deploy a stabilization process that meets those goals.

The Agencies recognize that when hazardous metals are stabilized, there is not only a dilution of the hazardous metals as discussed above in Topic 24 but also a dilution of the other constituents, including the radioactive contaminants. The Agencies concur that this inherent dilution is acceptable when this dilution occurs as a result of treatment necessary to meet either Resource Conservation and Recovery Act (RCRA) land disposal restrictions (LDRs) or disposal facility waste acceptance criteria (WAC).

No. The selected remedy includes stabilization as a treatment step. WAC maximum contaminant concentration levels apply to the waste as received at the disposal facility. (See response to Topic 24 for further details that may relate to this concern.)

Cost benefit analysis did not take into account long term impact on the potential further contamination of the sole source Snake River Aquifer and how it would affect health and safety not to mention agriculture.

Comment W2-18 (continued)

(Continued from page 8)

Response to Comment W2-1 (continued):
barium, cadmium, chromium, and lead have inappropriate unit labels. These values appear to have been taken from the *Work Plan for Waste Area Group 1, Operable Unit 1-10, Comprehensive Remedial Investigation/Feasibility* Study (S. M. Lewis, et al., 1996 [DOE-ID/10527]), which mistakenly labeled the Toxicity Characteristic Leaching Procedure (TCLP) values for those metals as mg/kg instead of µg/L. This error by the INEEL makes the reported values appear 1,000 times higher than they actually were. The error was found and the data reported correctly in all follow-up documents. As these data are TCLP values, which represent the quantity of each metal that can leached from a waste with an acidic solution, they should not be taken as representing the liquid waste in the V-Tanks. It is inappropriate to contrast these leachate concentrations to the total concentrations reported in the rest of the commenting group's Table A.

The sludge values cited by the commenting group in the same table appear to show a consistent drop from data referenced in the 1998 Proposed Plan to the values listed in the 2003 Proposed Plan. The INEEL does not make this claim. The apparent decrease in concentrations is the result of an inappropriate comparison of the solids in one tank to the combination of solids and liquids in a different tank. Because most of the contamination is in the sludge phase, the overall waste stream, which combines both the sludge and water, has a lower overall concentration. This lower overall waste concentration is more representative of the waste that is actually in the tanks and that must be treated to meet disposal criteria.

Information on contaminants is refined and updated whenever new data becomes available from sampling, or when regulatory requirements change. The Agencies evaluate the potential impact of any substantial change in data regarding a cleanup site. As of the 2003 Proposed Plan, the most recent comprehensive presentation of data on the contaminants in the V-Tanks contents can be found in the Engineering Design File EDF-3868, which is available in the Administrative Record.

Data are also reviewed for continuing validity at each stage of the remediation process. As described in Section 10.1 of this ROD Amendment, a labo

Response to Comment W2-1 (continued):
ratory error in calculating the concentration of inorganic contaminants was found and corrected in Table 2-2 of this document. These data changes, while different from the 2003 Proposed Plan and previous documents, would not have significantly affected the technology evaluation and do not affect the remedy selected in this ROD Amendment. ❖

(Continued from page 8)

Response to Comment W2-2 (continued):
rounding contaminated soil has not changed in any substantive way from the 1999 ROD, the details of how remediation of the surrounding soil will be carried out have been clarified (see Section 11.2). The V-Tanks contents remedy described in this ROD Amendment is part of an overall cleanup strategy that will eliminate risk to human health and the environment from both the V-Tanks contents and the surrounding contaminated soil. ❖

(Continued from page 8)

Response to Comment W2-3 (continued):
ignation in the Federal Facility Agreement and Consent Order (FFA/CO), and was defined as containing only four v-type tanks: Tanks V-1, V-2, V-3, and V-9. These are the four described in the 2003 Proposed Plan and this ROD Amendment. The amended remedy for the V-Tanks site properly addresses only the four tanks contained in this site, as established by the FFA/CO.

Besides the four v-type tanks in the V-Tanks site, two other v-type tanks that were in use at TAN require remediation. These are Tanks V-13 and V-14, which were designated in the FFA/CO as TSF-26 and are also referred to as the PM-2A tanks. The PM-2A tanks are currently being cleaned up under the remedy selected in the 1999 ROD (see Section 7 of that ROD). Since the remedy for the PM-2A tanks is unchanged from the 1999 ROD, it was not addressed in the 2003 Proposed Plan.

Other v-type tanks (e.g., Tank V-4) were located in TAN Building 616. The building and its contents, including these other v-type tanks, are being, or have already been, removed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program. Those components of Building 616 that managed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) are also being addressed under a RCRA closure plan. (Topic 13 provides more information on the closure plan.) ❖

(Continued from page 9)

Response to Comment W2-5 (continued):

ners to and regulators of DOE (the "lead agency"). Cleanup activities at the INEEL are directed by project managers who represent each of the three Agencies. The project managers or their support staff meet or con fer weekly on cleanup status during all phases of each remediation. Through this coordinated effort, the Agencies jointly develop the necessary work plans, technical investigations, and other documents, including proposed plans and records of decision (RODs).

The State and EPA review and comment on all key documents for cleanup. In addition, State and EPA representatives are active participants in meetings, briefings, and workshops, either in person or by teleconference. Both the State and EPA may also hold meetings and briefings on the cleanup program. This ROD Amendment, like all INEEL RODs, is the result of a substantial and sustained process of regulatory enforcement and oversight by the support agencies.

Questions and comments about INEEL activities, and the State's and EPA's oversight, can be addressed to the Agencies:

Nick Ceto
INEEL Program Manager
U.S. Environmental Protection Agency Region 10
712 Swift Boulevard, Suite 5
Richland, WA 99352
Phone: (509) 376-9259

Daryl Koch
Manager of Federal Facilities Section,
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706
Phone: (208) 373-0492

Response to Comment W2-5 (continued):

Kathleen E. Hain, Director
DOE Environmental Restoration Program
U.S. Department of Energy Idaho Operations Office
P.O. Box 1625
Idaho Falls, ID 83415-3911
Phone: (208) 526-4392

In addition to mailings and public meetings, the INEEL provides additional avenues for public involvement, including tours and briefings. These are described in each proposed plan and on-line at http://cleanup.inel.gov/getinvolved/. The INEEL Community Relations Plan (available on-line at http://cleanup.inel.gov/publicdocuments/remediation/) explains more about these opportunities for comment and involvement. Community Relations Plan Coordinator Joseph Campbell can be reached at (208) 526-3183.

The investigation and cleanup process and schedule for Test Area North (TAN) have complied with the FFA/CO. Every reasonable effort is made to ensure that TAN remediation activities contribute to the ultimate goal of protecting human health and the environment by use of recognized engineering and institutional responses that meet standards for protectiveness identified by the Agencies. These standards (the applicable and relevant or appropriate requirements, or ARARs) were originally identified in the 1999 ROD and in this ROD Amendment and will be enforced by the Agencies. The remedies proposed for Waste Area Group (WAG) 1 sites are in no way illegal.

The cleanup process carried out for TAN has included all required community relations activities to ensure that the public has been provided appropriate opportunities for involvement in a wide variety of site□related decisions, including site analysis and characterization, alternatives analysis, and remedy selection. The public meetings, the proposed plans and associated comment periods, and the Administrative Record all provided opportunities for the community to learn about the WAG 1 remediation and to inform the Agencies about their concerns. The Agencies hope that the WAG 1 CERCLA process with its public comment opportunities, in conjunction with other regulatory hearing processes required by the Resource Conservation and Recovery Act (RCRA), will help build trust in the INEEL's path forward to cleanup completion. ❖

Response to Comment W2-4 (continued):
nated environmental media not identified by the Federal Facility Agreement and Consent Order (FFA/CO) or in the 1999 ROD will be discovered in the future as a result of routine operations, maintenance activities, or dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Newly discovered sites will be addressed using the process for new site inclusion as defined in the FFA/CO and refined in the 1999 ROD and will be assessed and remediated under CERCLA pursuant to the process agreed upon by the Agencies at the time of the new site identification. Where appropriate, the remedial action objectives (RAOs) and final remediation goals (FRGs) identified in the 1999 ROD and this ROD Amendment will be used to complete any necessary cleanup. ❖

(Continued from page 10)
Response to Comment W2-8 (continued):
lations and laws that apply to the action) relevant to this action were identified during preparation of the 2003 Technology Evaluation Report [TER], on which the 2003 Proposed Plan was based. None of the ARARs prohibit disposal of the V-Tanks contents, or the surrounding contaminated soil, at an approved disposal facility on the INEEL. The 2003 Proposed Plan presented and evaluated those technologies found capable of meeting the ARARs. After this ROD Amendment is signed, the selected treatment technologies will move from conceptual design into full remedial design. As part of this remedial design phase, safety plans and other work documents will specify in detail how each individual ARAR will be met. These documents will be placed in the INEEL Information Repository as each is completed and approved. ❖

(Continued from page 10)
Response to Comment 2-9 (continued):
As described in Section 10.1 of this ROD Amendment, a laboratory error in calculating the concentration of inorganic contaminants was found and corrected in Table 2-2 of this document. These data changes, while different from the 2003 Proposed Plan and previous documents, would not have significantly affected the technology evaluation and do not affect the remedy selected in this ROD Amendment. The three Agencies believe that the Proposed Plan for this ROD Amendment represents a complete document and see no need to develop a more extensive Proposed Plan.

The ICDF waste acceptance criteria (WAC) will be completely satisfied by the treated V-Tanks waste submitted for disposal. The concentration of the transuranics in the tanks is currently 4.27 nCi/g and will be reduced even further through treatment. These concentrations are well below the ICDF waste acceptance levels. See Sections 14.5 and 14.6, below, for more discussion of the ICDF WAC and other ARARs that will be met by this cleanup. ❖

(Continued from page 10)
Response to Comment 2-10 (continued):
have occurred since the original data were collected. The discrepancies noted by the commenting group stem from a data labeling error in a 1996 INEEL report combined with Comment 2-10 (continued): an inapplicable data comparison by the commenting group. Given that the 1996 data cited are incorrectly labeled, the commenting group's conclusion that this represents "decay" is also inapplicable here. The correct data for the V-Tanks radioactive constituent concentrations are in the 1997 Remedial Investigation/ Feasibility Study (RI/FS) and all following documents for this action. (See Topic 17 for more information on contaminant characterization.) ❖

(Continued from page 11)
Response to Comment 2-11 (continued):
in Curies per gram). MCLs are standards that set the maximum permissible amount of a contaminant in water delivered to any user of a public system. MCLs are not relevant for the V-Tanks site because water is not an affected medium. For the contaminated media that are present in the V-Tanks contents and contaminated soil, risk reduction goals use other measurement standards as appropriate, which are presented in the 1999 Record of Decision (ROD), the 2003 Proposed Plan, and this ROD Amendment in sections on remediation objectives and goals.

Because regulatory compliance for CERCLA remediation is generally so complex, details cannot be fully specified in the Proposed Plan. They are presented in the supporting documents, which are available in the Administrative Record. The commenting group's suggestion for development of clearer explanations of contaminant concentration data, and how the treated waste will comply with regulatory requirements, will be forwarded to the INEEL Community Relations office for improved presentation in future public documents. Reduction of toxicity, mobility, and volume through treatment is a CERCLA evaluation criterion, and data for the comparison are also available in the Administrative Record for those who are interested. For the V-Tanks amended remedy, Section 5 of the 2003 Technology Evaluation Report (TER) compares estimated concentrations of the treated waste for key contaminants to the regulatory levels, in equivalent units. ❖

(Continued from page 11)
Response to Comment W2-12 (continued):
and the mobility of the contaminants. Several of the alternatives, as described in the 2003 Proposed Plan, would add some of the contaminated soil surrounding the V-Tanks to enhance the treatment process. For example, vitrification would add soil as a source of silicon to allow the melting process to produce a more stable glass waste form. While this would dilute the concentration of contaminants, it would not be done to avoid treatment but rather to improve treatment effectiveness and control during the treatment process.

Response to Comment W2-12 (continued):
This is allowed by the U.S. Environmental Protection Agency's (EPA's) RCRA program (as documented in the June 1, 1990, *Federal Register* at 55 FR 22666). The selected remedy, using chemical oxidation/reduction, does not add any soil to the treatment process. As noted in the response to Topic 21, above, the average concentration of 4.27 nCi/g in the V-Tanks contents is well below the ICDF's waste acceptance criterion of 10 nCi/g, even prior to treatment. ❖

(Continued from page 11)
Response to Comment W2-13 (continued):
have a transuranic concentration of approximately 2 nCi/g, well below the 10 nCi/g limit for the ICDF and the 100 nCi/g TRU waste designation.

It is correct that the V-Tanks contents are classified as low-level waste (LLW) and that the waste contains alpha-emitting radionuclides. However, it is not correct that this makes the V-Tanks remediation subject to the 1995 Settlement Agreement. By definition, LLW is waste that does not meet the definitions for high-level waste (HLW), transuranic (TRU) waste, spent nuclear fuel, or by-product materials. The 1995 Settlement Agreement requires the removal of all stored TRU waste from Idaho (i.e., waste with greater than 100 nCi/g transuranic content). It does not include LLW in this requirement. (See Topic 20 for additional information on waste-type categories.)

The V-Tanks contents do not meet the definition of TRU waste (>100 nCi/g; see response to Topic 20.) The response to Topic 21 explains in more detail how the concentrations are measured. The highest concentration of contaminants in the V-Tanks is that shown in Table 2 of the 2003 Proposed Plan, which is in the sludge. When the contents of all four tanks are combined for remediation, the overall concentration of transuranics in the V-Tanks is below 10 nCi/g before treatment. After treatment, the V-Tanks waste will have a TRU concentration of approximately 2 nCi/g, well below the 10 nCi/g limit for the ICDF and the 100 nCi/g threshold for TRU waste designation. Since the 1995 Settlement Agreement applies to TRU waste and the V-Tanks contents are not TRU waste (even though they contain transuranic elements), the V-Tanks waste is not required to be removed from Idaho. ❖

(Continued from page 12)

Response to Comment W2-14 (continued):
which identifies a kind of underground storage vessel, and the site name "the V-Tanks," which identifies a particular location to be remediated. The V-Tanks site addressed in this ROD Amendment received that designation in the Federal Facility Agreement and Consent Order (FFA/CO), and was defined as containing only four v-type tanks: Tanks V-1, V-2, V-3, and V-9. These are the four described in the 2003 Proposed Plan and this ROD Amendment. The amended remedy for the V-Tanks site properly addresses only the four tanks contained in this site, as established by the FFA/CO.

Besides the four v-type tanks in the V-Tanks site, two other v-type tanks that were in use at TAN require remediation. These are Tanks V-13 and V-14, which were designated in the FFA/CO as TSF-26 and are also referred to as the PM-2A tanks. The PM-2A tanks are currently being cleaned up under the remedy selected in the 1999 ROD (see Section 7 of that ROD). Since the remedy for the PM-2A tanks is unchanged from the 1999 ROD, it was not addressed in the 2003 Proposed Plan.

Other v-type tanks (e.g., Tank V-4) were located in TAN Building 616. The building and its contents, including these other v-type tanks, are being, or have already been, removed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program. Those components of Building 616 that managed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) are also being addressed under a RCRA closure plan. (Topic 13 provides more information on the closure plan.) ❖

(Continued from page 12)

Response to Comment W2-15 (continued):
of human health and the environment, including the aquifer. Concentrations and quantities in excess of these levels are not accepted for disposal. Although NRC regulations do not apply to the ICDF, the contents of the V-Tanks would be acceptable for disposal under those regulations.

Only INEEL CERCLA wastes are acceptable for disposal at the ICDF. These wastes can include low-level radioactive waste (LLW), mixed low-level radioactive waste (MLLW), hazardous waste, and non-liquid waste subject to the Toxic Substances Control Act (TSCA). Prohibited wastes include not only non-CERCLA wastes and non-INEEL wastes but also waste with transuranic constituents greater than 10 nCi/g, liquid waste, explosives and reactives, spent nuclear fuel, and high-level waste (HLW). The contents of the V-Tanks currently meet all of these criteria except the prohibition against liquid waste. The contents will be solidified to meet that criterion prior to disposal at the ICDF. Any INEEL CERCLA waste that fails to meet the ICDF WAC will be refused for disposal at the ICDF. ❖

(Continued from page 12)

Response to Comment W2-16 (continued):
present in the V-Tanks contents and contaminated soil, risk reduction goals use other measurement standards as appropriate, which are presented in the 1999 Record of Decision (ROD), the 2003 Proposed Plan, and this ROD Amendment in sections on remediation objectives and goals.

Because regulatory compliance for CERCLA remediation is generally so complex, details cannot be fully specified in the Proposed Plan. They are presented in the supporting documents, which are available in the Administrative Record. The commenting group's suggestion for development of clearer explanations of contaminant concentration data, and how the treated waste will comply with regulatory requirements, will be forwarded to the INEEL Community Relations office for improved presentation in future public documents. Reduction of toxicity, mobility, and volume through treatment is a CERCLA evaluation criterion, and data for the comparison are also available in the Administrative Record for those who are interested. For the V-Tanks amended remedy, Section 5 of the 2003 Technology Evaluation Report (TER) compares estimated concentrations of the treated waste for key contaminants to the regulatory levels, in equivalent units. ❖

(Continued from page 12)

Response to Comment W2-17 (continued):

and Storage Area (RPSSA) facility, which will be evaluated during future dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Sampling during the risk assessment indicated that the soil contamination at this site is below the levels at which remediation is required. More information on this site is available in the Administrative Record for Waste Area Group (WAG) 1 in the 1997 Remedial Investigation and Feasibility Study (RI/FS) and the 1999 ROD. (More information about the Administrative Record is presented in Section 1 of this document. Section 2.5 of this document lists key documents used to prepare this ROD Amendment.)

TSF-06, Area 10, is the designation for the HTRE Reactor Vessel Burial Site. This potential release site was evaluated as part of the WAG 1 comprehensive RI/FS and, as documented in the 1999 ROD, it was determined to be a No Action site. The irradiated empty reactor vessel is contained in a metal storage tank and is believed to be more than 10 feet below ground surface. No pathway to human or ecological receptors exists; thus, no cleanup is required. However, based on the commenter's questions about this site, a review was conducted of the relevant documentation. It was determined that although no pathway exists, potential residual contamination precludes unrestricted land use. Thus, the site should be protected with institutional controls. The WAG 1 Institutional Control Plan (INEEL 2000b) will be modified to include appropriate institutional controls for this site. Detailed language has been added in Section 11.3 of this ROD Amendment directing this change to the 1999 ROD. The Agencies appreciate the dedication of the commenter in bringing this oversight to their attention. The Agencies are pleased that this matter confirms the effectiveness of the design of the CERCLA public involvement process.

The TAN Pool (which is part of the TAN-607 Hot Shop) is currently being emptied under a deactivation process but remains within an active facility. Potential threats to human health and the environment from this site will be addressed during the facility D&D&D. More information on this site is available in the Administrative Record for WAG 1. As part of an active facility, the TAN Pool is not being addressed under WAG 1 CERCLA actions. ❖

(Continued from page 17)

Response to Comment W2-18 (continued):

ment of steam and air bubbles through the melt did result in some splatter into the air as the bubbles broke — on the order of a few pounds of glass fragments. The radioactive material was not released into the air, but was contained within the matrix of the glass. The expelled glass fragments containing the radioactivity were easily collected and sent for appropriate disposal.

Subsequent analysis of the ambient air collected by the ORNL project's three air samplers did not reveal any airborne contamination resulting from the melt expulsion. There was no risk to human health or the environment, certainly not the "extreme risk" suggested in the comment. The reasons for the ORNL melt expulsion are detailed in a formal DOE report.[2]

Other melt expulsions that the commenters refer to are as follows:

a. A private, full-scale test, conducted by Geosafe in support of their eventual ISV processing of 55-gal drums of moist soil contaminated with up to 1.4 wt% PCBs, at the GE Spokane site. In this test, wet soils in the sealed drums that were being processed caused a sudden release of pressurized steam into the melt, that resulted in an "air lifting" and melt splattering similar to what happened at ORNL. The melt expulsion was exacerbated, however, by the fact Geosafe was using a fabric hood containing a flammable sealant. Contact with the molten glass splatter caused the sealant to ignite, and burned up the hood as well as adjacent combustible equipment and materials (such as the electrical cable insulation). Details of this incident are reported in Geosafe's 1994 test report.[3]

b. A pilot-scale test, conducted by Pacific Northwest Laboratory at the INEEL on simulated waste in 1989. During this demonstration test, sealed 5-gal containers containing canola oil placed within the melt location resulted in numerous pressure build-ups and releases of vapors through the pilot-scale ISV melt that also caused molten glass splatter sufficient to ignite the fabric hood material. Details of this expulsion are recorded in Callow et al.[4]

(Continued on page 31)

(Continued from page 30)

Response to Comment W2-18 (continued):

A summary of ISV melt expulsions to date was prepared by R. K. Farnsworth as part of the *Operable Unit 7-13/14 In Situ Vitrification Treatability Study Work Plan.*[5]

Based on the lessons learned from the initial demonstrations of ISV technology, planar ISV was developed and successfully tested in 1998. Planar ISV precludes the types of failures mentioned above by melting the waste material from the sides in rather than the top down. This modification to the process prevents the buildup of a layer of untreated waste trapped beneath a layer of molten glass. Safe operation of the planar ISV process on subsurface tanks containing substantial quantities of vaporizable material, was demonstrated as part of a simulated treatability study performed in support of the 1998 V-Tanks Proposed Plan and 1999 ROD. The results of this treatability study indicated that planar-ISV could safely process subsurface tanks containing substantial quantities of vaporizable material without the potential for subsurface pressure build-up or melt expulsion. The results of this successful treatability study are available in the Administrative Record. The Agencies have reviewed this information and consider planar ISV a viable and safe option for remediation of the V-Tanks.

The Agencies believe that an adequate review has been made of the information on the failures associated with the early stages of the development of ISV. The early failures mentioned by the commenters are no longer considered relevant or representative of the current state of development of planar ISV technology and would not aid the Agencies in the selection of a preferred treatment alternative. The Agencies selected planar ISV as a technology alternative for the V-Tanks in the TER because the test data indicate that planar ISV is no longer subject to the failures experienced during the early development of ISV. This same issue was addressed in the Responsiveness Summary section of the 1999 Record of Decision (see pages 3-24 through 3-26).

Response to Comment W2-18 (continued):

Notes:

1. Spalding, B.P., July, 1996. *Technical Evaluation Summary of the In Situ Vitrification Melt Expulsion at the Oak Ridge National Laboratory on April 21, 1996,* ORNL/ER-377, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
2. DOE, 1996. *In Situ Vitrification Workshop, October 15-17, 1996, Oak Ridge, Tennessee.*
3. Geosafe, 1994. *Investigation into the Causes and Application of the Melt Displacement Event During Geosafe Operational Acceptance Test #2 (OAT-2),* GSC-2301, Geosafe Corporation, Richland, Washington.
4. Callow, R. A., L.E. Thompson, J.R. Weidner, C.A. Loehr, B.P. McGrail, and S.O. Bates. August, 1991. *In Situ Vitrification Application to Buried Waste: Final Report of Intermediate Field Tests at Idaho National Engineering Laboratory,* EGG-WTD-9807, EG&G, Inc., Idaho National Engineering Laboratory, Idaho Falls, ID.
5. Farnsworth, R.K., et al. January, 1999. DOE/ID-10667, Rev. 1, Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID. "Appendix E: A Preliminary Assessment of Concerns Over Melt Expulsion Potential During ISV Processing." ❖

(Continued from page 22)

Response to Comment W2-23 (continued):
DOE to complete CERCLA cleanup at all its facilities. These remedial actions are not related to the mission change, and must continue regardless of any future missions that may or may not be given by Congress to the INEEL. The question of applicability of the National Environmental Protection Act (NEPA) to such future missions is therefore not relevant for the V-Tanks cleanup, or for other INEEL locations scheduled for cleanup under CERCLA.

The V-Tanks remediation activities are structured so they do not limit future industrial missions at TAN or the INEEL, but instead allow for the creation of new opportunities by removing contamination that would preclude other uses.

The INEEL carefully meets or exceeds all public information opportunity requirements, and did so for the ICDF development process. The Operable Unit (OU) 3-13 Record of Decision (ROD), which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The OU 3-13 RI/FS and ROD, with the associated public involvement process, address NEPA values, such that no separate NEPA document or NEPA process is required. The waste acceptance criteria (WAC) for the ICDF were developed during the ICDF remedial design process. This included public meetings and opportunity for public comment. As part of the public process for the OU 1-10 ROD Amendment, the Proposed

Response to Comment W2-23 (continued):
Plan specifically informed the public about the potential use of the ICDF for the disposal of the V-Tanks waste, debris, and contaminated soils.

For more information about the ICDF, contact Joseph Campbell, the INEEL Community Relations representative for the ICDF, at 208-526-3183 or at campjl@inel.gov. For general information, call 1-800-708-2680, or send mail to P.O. Box 1625, Idaho Falls, ID 83415-3940.

The Agencies disagree. Under DOE's CERCLA/NEPA Policy, DOE relies on the CERCLA process for the review of actions to be taken under CERCLA; that is, no separate NEPA document or NEPA process is ordinarily required. NEPA values were addressed, to the extent practicable, in the Operable Unit (OU) 3-13 Remedial Investigation and Feasibility Study (RI/FS) and Record of Decision (ROD), with the associated CERCLA public involvement process. The OU 3-13 ROD, which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The ICDF was not permitted under RCRA because, under Section 121(e) of CERCLA, it is exempted from permitting requirements as long as the applicable substantive requirements of RCRA are met. The ICDF is designed to meet the substantive requirements for a RCRA hazardous waste landfill. ❖

Commenter: Snake River Alliance
Document Number: W3
Page: 1 of 2

Snake River Alliance

Box 731 • Boise, ID 83701 • 208/344-9861

May 14, 2003

Kathleen E. Hain
Environmental Restoration Program
DOE Idaho Operations Office MS 3911
PO Box 1625
Idaho Falls, Idaho 83403-9987

Dear Kathleen Hain,

Please accept the following public comments from the Snake River Alliance regarding what actions to take for the V-Tanks Contents (TSF-09 and TSF-18) at Test Area North, Operable Unit 1-10.

The Alliance supports either *In Situ Vitrification* or *Ex Situ Vitrification* of the 10,000 gallons of liquid waste, 2,000 gallons of sludge, Cesium-137 contaminated soil and the V-Tanks themselves. This position is based on the selection criteria as outlined in the 1999 Record of Decision and vitrification's proven history as a stable and reliable treatment method.

Vitrification technology is the most durable and mature treatment technology available. Vitrification provides the highest reduction in toxicity, mobility and volume and will treat a greater amount of contaminated soil that would otherwise be disposed of without treatment.

Vitrification provides the least risk to humans and the environment in storage and transportation of radioactive waste.

We do not support the preferred alternative, In Situ Chemical Oxidation/Reduction with Stabilization because it least satisfies the reduction of toxicity, mobility, and volume through treatment.

Thank you for your consideration.

Sincerely,

Gary E. Richardson
Executive Director

Comment W3-1 (Section 13.8, Topic 50)

Response: Compared to the other alternatives, vitrification does provide the highest reduction in toxicity, mobility, and volume, is the most durable, and is the most mature technology, or one of the most mature technologies, of those evaluated for the V-Tanks cleanup. The commenting group is also correct that a greater amount of contaminated soil would be treated with this technology, than under the other technologies. These are some of vitrification's strengths, and have been documented in the 2003 Technology Evaluation Report (DOE/ID-11038). However, these strengths were contrasted against several weaknesses of the vitrification process relative to the other technologies considered, such as System Complexity, Ease of Additional Remedial Actions, Monitoring Concerns, Administrative Feasibility, Increased (potential) Worker Hazards, Secondary Waste Volumes and

(Continued on page 34)

Comment W3-2 (Section 13.10.2, Topic 55)

Response: Although the preferred alternative received a lower ranking than several others on this CERCLA criterion, it does address it acceptably. It will reduce toxicity by destroying the volatile organic contaminants (VOCs) and semi-volatile organic contaminants (SVOCs) through oxidation or reduction, and will reduce mobility of metals and radionuclides by grouting. As noted in the 2003 Technology Evaluation Report (TER) and the 2003 Proposed Plan, the primary reason ex situ chemical/oxidation reduction with stabilization was rated low in this category relative to vitrification was the increase in volume of the primary waste stream through the treatment process. This increase in volume results from the addition of the oxidant (or reductant) and the grout. Reduction of toxicity and mobility are achieved, which produces a stable, compliant waste form. The Agencies selected this as the Preferred Alternative because it is the best remedy overall. The high rankings of this alternative for short-term effectiveness and implementability were factored in, along with its somewhat lower cost. In particular, the Preferred Alternative's high system reliability and manageable design complexity led to the Agencies' selection of this technology. ❖

(Continued from page 33)

Response to Comment W3-1 (continued):

Cost. Based on this, it appeared that ex situ chemical oxidation/reduction and stabilization had the highest overall ranking of the seven technologies considered. Furthermore, there has been less public support for thermal treatment technologies than for technologies performed at temperatures below 100°C (such as ex situ chemical oxidation/reduction and stabilization).

As to the greater durability of the vitrified waste form after disposal, however, while data does indicate that the durability of a vitrified waste form is over 100 times that of a grouted waste form, the effect of this difference provides only a small difference in rankings, since the ICDF is a lined facility designed to last over 1,000 years. There is limited potential for contaminant migration from the ICDF following its 1,000-year lifetime, as well. Finally, given that nearly all waste from the V-Tanks would be disposed of at the ICDF under most alternatives, the transportation risks associated with vitrification would be similar to those associated with the preferred alternative. ❖

Commenter: David B. McCoy
Document Number: W4
Page: 1 of 9

mccoydb01@msn.com
05/08/2003 05:07 AM

To: hainke@id.doe.gov
cc:
Fax to:
Subject: Comments on New Proposed Plan for the V-Tanks Contents

Below is the result of your feedback form. It was submitted by

(mccoydb01@msn.com) on Friday, May 9, 2003 at 05:07:42

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email: mccoydb01@msn.com

name: David B. McCoy

comments: May 9, 2003

Comments of David B. McCoy
for the Department of Energy (DOE)
New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18)
at Test Area North, Operable Unit 1-10 (April 2003)

In dealing with the V Tank wastes with its proposed plan, the Department of Energy ("DOE") has attempted to bifurcate the CERCLA aspects from the RCRA aspects evolving the CERCLA plan without first giving due consideration to RCRA requirements. The hazardous wastes contained in the Idaho Nation Engineering and Environmental Laboratory ("INEEL") Test Area North ("TAN") V Tanks clearly are RCRA listed and characteristic wastes. Thus, the compliance with applicable or relevant and appropriate requirements (ARARs) cannot be met unless the plan is in compliance with RCRA standards applicable to generators of hazardous waste, owners and operators and land disposal restrictions.

The CERCLA plan ignores RCRA requirements at the outset by not taking into account the fact that RCRA waste cannot be diluted to reduce material to achieve a level below EPA concentration limits to achieve land disposal. 40 CFR 268.3. Such dilution is being used for the V-Tank wastes in the form of addition of soils and grout materials to reduce the RCRA wastes to levels that would allow land disposal at the INEEL CERCLA Disposal Facility ("ICDF"). In order to properly consider the V Tank wastes under RCRA requirements, the levels of hazardous constituents must be considered prior to the dilution of those wastes by the addition of soils whether contaminated or not, and/or addition of grout.

Levels of radioactive and other contaminants in the V-9 Tank are much higher in concentration than the V-1,2 or 3 Tanks. Although not set out in the proposed plan, the V-9 Tank, which may contain the highest levels of radioactive contaminants in RCRA mixed waste form should be considered individually in order to contain the transuranics and prevent them from being dumped by land disposal over the Snake River Aquifer where the transuranics will enter the groundwater and aquifer and Snake River.

The additional V Tanks in building 616 have not been described in the proposed plan and there is a question as to how much transuranic concentration, if any, may be present there in addition to V Tanks 1, 2, 3 and 9. Not presenting the full scope of the TAN V Tank problem for public review is a major weakness in

Comment W4-1 (Section 13.6, Topic 29)

Response: This CERCLA action fully complies with all applicable or relevant and appropriate requirements (ARARs) for CERCLA actions. Both RCRA and CERCLA prohibit dilution — for instance through the addition of soil — as a substitute for treatment. While several alternatives discussed in the 2003 Proposed Plan would add contaminated soil prior to the treatment process, this would not be done to avoid treatment but rather to improve treatment effectiveness and control of the operation. Several other alternatives would add grout as the last

(Continued on page 39)

Comment W4-2 (Section 13.6, Topic 30)

Response: The four V-Tanks form a complete system. It is the system that is being remediated. Thus, it is the concentration of the contaminants in the entire system that forms the basis for developing a final remediation design for the selected remedy so that it will meet RCRA land disposal restrictions (LDRs) and the disposal facility waste acceptance criteria (WAC). This strategy produces a single homogenous

(Continued on page 39)

Comment W4-3 (Section 13.7.2, Topic 41)

Response: The higher concentrations of hazardous and radioactive contamination found in Tank V-9 are primarily due to the higher concentration of sludge (solids) in that tank, which was designed to function as a sludge removal unit prior to storage of the waste in the other

(Continued on page 39)

Comment W4-4 (Section 13.4, Topic 13)

Response: TAN Building 616 does contain multiple vessels with the "v" designation (e.g., Tank V-4). However, these tanks are not part of the V-Tanks remediation project and are not identified in the Federal

(Continued on page 39)

Commenter: David B. McCoy
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the current proposed plan.

The proposed plan intends to send transuranic waste to the ICDF. Transuranic waste is not approved for land disposal. Concentration of transuranics are at a high level of 26.4 nCi/g within the V Tank system. The plan proposes, without specifically bringing it to the attention of the public, to reduce this concentration below 10 nCi/g by 1) flushing the contents of all the tanks together into a mass; 2) addition of soil wastes, and; 3) addition of grout. The specific facts to justify the reduction of concentration of transuranics to permissible levels have not been set forth. In any case there is a dilution of the waste to accomplish this task.

No notice of the proposed ICDF activity to dispose of TAN V Tank wastes including transuranics within the INEEL floodplain has been given in the Federal Register as required by 10 CFR 1022 et seq. See, 10 CFR 1022.3(a),1022.3(3), and1022.4(g) .

Although the transuranics might be removed from the TAN site, the transuranics will not be removed from the INEEL site and thus long term effectiveness is not high as claimed in the proposed plan. The long term effectiveness of protection of health and the environment is not achieved because the transuranics are not being removed from the INEEL site if disposed of at the ICDF which lies above the Snake River Aquifer and is within the 100-year flood zone at INEEL. The contamination of the aquifer over the long term by transuranics constitutes an irreversible and irretrievable commitment of resources which must clearly be set forth in an environmental impact statement

See next page for remaining comments on this page.

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David B. McCoy

Comment W4-5 (Section 13.5, Topic 21, and Section 13.6, Topic 31)

Response: The commenter is correct in noting that Table 2 of the 2003 Proposed Plan lists the highest single reading for transuranics as 26.4 nCi/g. This sample came from Tank V-9 (as reported in Table 3 of the 2003 Technology Evaluation Report [TER]). All readings from Tanks

(Continued on page 40)

Comment W4-6 (Section 13.7.1, Topic 36)

Response: The addition of contaminated soil and/or grout under some of the technology alternatives presented in the 2003 Proposed Plan is not for the purpose of dilution, but as an integral and necessary part of treatment. See responses to Topics 24 and 25, above, for more details on the use of soil to enhance treatment effectiveness and the use of grout as a required stabilizing agent. The use of these materials, as part of treatment effectiveness and/or reduction of mobility, does incidentally dilute the constituent concentrations, but this is in no way the justification. ❖

Comment W4-7 (Section 13.6, Topic 32)

Response: Federal regulation 10 CFR 1022 establishes the notification requirements for projects in wetlands and floodplains. Since the ICDF is not located within identified wetlands or floodplains, such notice is not required for this remedial action. ❖

Comment W4-8 (Section 13.1, Topic 3, and Section 13.7.3, Topic 44)

Response: At the V-Tanks location, the selected remedy does satisfy the CERCLA criterion of long-term effectiveness and permanence because it will ensure protection of human health and the environment over time through high reliability of the technology involved, and high certainty that the protection achieved by this remedy will be maintained. Chemical oxidation or reduction will destroy the volatile and semi-volatile compounds in the tank contents, eliminating them as a risk. The technology will not destroy the metals and radionuclide contaminants;

(Continued on page 41)

Commenter: David B. McCoy
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Page: 3 of 9

the current proposed plan.

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See previous page for remaining comments on this page.

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transuranics are not being removed from the INEEL site if disposed of at the
ICDF which lies above the Snake River Aquifer and is within the 100-year flood
zone at INEEL. The contamination of the aquifer over the long term by
transuranics constitutes an irreversible and irretrievable commitment of
resources which must clearly be set forth in an environmental impact statement
and in the decision to grant a license or permit authorizing such commitment
of resources. No environmental impact statement for INEEL sets forth this
irretrievable and irreversible commitment of resources to contamination by
transuranics coming from TAN. A recent federal court order interpreting the
1995 Bat
t Agreement requires removal of all transuranics from INEEL.

The National Environmental Protection Act (NEPA) requirements have not been
satisfied. DOE is required, to the extent possible, to accommodate the
requirements of Executive Orders 11988 and 11990 through applicable DOE NEPA
procedures. 10 CFR 1022.2(2)(b). No Environmental Impact Statement has been
performed prior to the construction of the ICDF. CERCLA allows for cleanup,
but it is not contemplated within CERCLA that an entire facility for cleanup
can be constructed without an Environmental Impact Statement.

The plan states (p.6) that the long range land use plan for Test Area North is
for non nuclear industrial facilities. This statement is erroneous because on
July 15, 2002, the DOE announced a Mission Change for the entire INEEL for
nuclear research and development including the building of commercial nuclear
power stations at the site. This Mission Change statement has not been
factored into the current proposed plan for the TAN V Tanks. Nor has there
been any Environmental Impact Statement addressing the Mission Change even
though substantial federal resources are currently being committed to the new
mission of INEEL for nuclear industrial activities which could continue into
the foreseeable and distant future.

These written comments are submitted in addition to any oral comments made by
myself at the Public Meeting of April 30, 2003 at Idaho Falls, Idaho

David B. McCoy

Comment W4-9 (Section 13.6, Topics 20, 23, and 33; and Section 13.7.2, Topic 42)

Response: INEEL waste types are classified based not just on their chemical content but also on disposal requirements. The V-Tanks contents are classified as a mixed waste, which includes hazardous wastes (heavy metals, volatile organic contaminants [VOCs], and semi-volatile

(Continued on page 42)

Comment W4-10 (Section 13.6, Topic 34)

Response: See response to Topic 33 for an explanation of why separate NEPA requirements, including an environmental impact assessment, do not apply to the use of the ICDF. The same policy applied to the development of the ICDF complex, which was authorized under the Operable Unit (OU) 3-13 ROD, which was signed in 1999. ❖

Comment W4-11 (Section 13.1, Topic 4)

Response: The announced mission change does not alter or detract from CERCLA cleanup activities now in progress at the INEEL and is, in that sense, an unrelated matter. The INEEL's current mission is available on the Internet (at http://www.inel.gov/about/mission-vision.shtml). Further information on the INEEL mission change also can be found on the Internet (at http://www.inel.gov/elizabeth_sellers_message.pdf). It is not yet known what the details of the proposed new INEEL nuclear research mission will be, relative to

(Continued on page 42)

Comment W4-12 (Section 13.1, Topic 5, and Section 13.6, Topic 35)

Response: Development of new missions at the INEEL is a separate issue from the remediation of contamination resulting from past activities. Cleanup activities at Test Area North (TAN), including the V-Tanks remediation, are required by the long-standing obligation of DOE

(Continued on page 43)

Commenter: David B. McCoy
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2940 Redbarn Lane
Idaho Falls, ID 83404

submit: Send Comments

Note: No comments were identified on this page.

Response to Comment W4-1 (continued):
step in treatment, in order to stabilize constituents in the waste that could otherwise be mobile in the environment. Such additions are allowed by RCRA (as documented in the June 1, 1990, *Federal Register* at 55 FR 22666). The selected remedy using chemical oxidation/reduction does not add any soil to the treatment process; however, it does add grout or other stabilizing agent to reduce leachability, in order to meet RCRA LDRs and the waste acceptance criteria (WAC) for disposal. The hazardous waste constituent concentrations that are measured for the RCRA LDRs are required to be measured at the end of treatment. Addition of stabilizing material under the selected remedy is part of the treatment for reduction of mobility of metals. ❖

(Continued from page 35)
Response to Comment W4-2 (continued):
waste stream that will allow the optimization of the treatment process; this should reduce any potential difficulties that might arise in treating this complex waste stream.

The higher concentrations of hazardous and radioactive contamination found in Tank V-9 are primarily due to the higher percentage of sludge (solids) in that tank. (Most of the contaminants are found in the solid phase.) However, the same contaminant constituents are found in the sludge in all four tanks. Tank V-9 was designed to function as a sludge removal unit prior to the waste being stored in the other tanks. Comparison of the sludge between the various tanks (without taking into consideration the liquid) reveals similar wastes in all four V-Tanks. ❖

(Continued from page 35)
Response to Comment W4-3 (continued):
tanks. The waste in the four tanks is similar, however, and resulted from the same generation processes; therefore, the Agencies have agreed that all the waste in the four V-Tanks will be treated as one waste stream, and combined to the extent practical for treatment. This will allow a more optimized and effective treatment process. The final design for the selected remedy will treat the combined waste stream, including Tank V-9 waste, so that all residual waste from the V-Tanks site meets the ICDF waste acceptance criteria (WAC). The ICDF WAC is designed to prevent the disposal of waste such that a future release from the ICDF could result in concentrations of contaminants, including transuranics, that exceed the Idaho groundwater quality standards (drinking water standards) in the underlying Snake River Plain Aquifer. If a waste exceeds the ICDF WAC, it cannot be disposed of at the ICDF. ❖

(Continued from page 35)
Response to Comment W4-4 (continued):
Facility Agreement and Consent Order (FFA/CO). TAN Building 616 and its contents, including the tanks, are being addressed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program, because there have been no identified releases of contaminants to the environment; therefore, the building is not a CERCLA site. The components within this building are also being addressed by a Closure Plan under the Resource Conservation and Recovery Act (RCRA). The cleanup of Building 616 is currently being completed and is expected to be finalized by the end of 2003. Sampling will be conducted during D&D&D inside the building and underneath it, and if releases to the environment are discovered, these releases would be cleaned up under CERCLA pursuant to the procedures established in the 1999 ROD. ❖

(Continued from page 36)

Response to Comment W4-5 (continued):

V-1, V-2, and V-3 were lower (11.0, 4.02, and 2.03 nCi/g, respectively). This variability results because waste typically was routed first through Tank V-9 for solids removal before distribution to Tank V-1, V-2, or V-3 (depending on which had the most available capacity).

The Agencies have agreed that because the waste in the four tanks resulted from the same processes, but varies in concentrations of individual contaminants due to the use history described, all the waste in the four V-Tanks will be managed as one waste stream, and will be combined for treatment. Thus, although the concentrations of specific hazardous constituents vary from tank to tank, the average concentration of the hazardous waste constituents for all tanks is the one that will be used. The average concentration of 4.27 nCi/g is well below the INEEL CERCLA Disposal Facility's (ICDF's) waste acceptance criterion (WAC) of 10 nCi/g. Furthermore, the estimated transuranic concentration of the treated waste to be disposed of at ICDF is 2 nCi/g. It is the concentration of transuranics (and other contaminants) following treatment that will be used to show compliance with disposal requirements (WAC) at ICDF.

Beginning several years ago, the INEEL's proposed plans have included the "lowest" and "highest" readings in response to public comments. Some commenters said they would be better able to assess whether the expense of remediation was necessary if they could see the range of extremes from the sampling suite. CERCLA guidance does not require that maximum readings be presented.

Table 2 of the 2003 Proposed Plan (included in this ROD Amendment as Table 2-2) presents information on the primary contaminants in the V-Tanks that affect the selection of an effective remedy. The overall average concentration values are used in evaluating the effectiveness and operability of vari-

Response to Comment W4-5 (continued):

ous treatment alternatives. The reader is urged to use caution in comparing this data to other sources of information on the V-tanks or in comparing these values to regulatory levels. U.S. Environmental Protection Agency (EPA) regulations and guidance require different statistical treatment of analytical data when it is used for risk assessment, waste characterization, acceptability of treatment options, or compliance with disposal facility accep tance criteria. For example, risk assessments require 95% upper confidence limit (ucl) values, while waste characterization requires 90% ucl values on the amount of material that will leach from the waste in a given timeframe, and acceptability at treatment facilities usually looks at average concentrations along with maximum and minimum values. Compliance with disposal facility WAC is usually based on 90% ucl on total concentrations. It is generally inappropriate to compare data supplied for one purpose with data intended for another use. The data presented in the 2003 Proposed Plan were supplied to show what contaminants are present, and to help the reader evaluate the cleanup alternatives described. Other information to support risk assessment and waste characterization can be found in the documents in the Administrative Record.

This is correct. The ICDF's WAC restrict disposal of waste to less than 10 nCi/g of transuranic contaminants. As discussed in the response to Topic 29, compliance with WAC limits is evaluated after treatment requirements are met. Whether treatment is done as one consolidated waste stream or for individual tanks, the remedy selected in this ROD Amendment will meet the required treatment levels and produce a waste stream for disposal with a transuranic concentration less than 10 nCi/g, which meets the ICDF WAC. ❖

(Continued from page 36)

Response to Comment W4-8 (continued):

there are no commercially available technologies that can do this. Instead, grouting will reduce the mobility of metals and radionuclides, thereby lowering their risk to human health and the environment. Subsequent disposal of the stabilized residuals at the ICDF will isolate this remaining contamination from potential exposure to human and ecological receptors, completing the goals of the cleanup action.

A lined, covered, and monitored landfill such as the ICDF helps meet CERCLA's overall goal of long-term protection by reducing uncontrolled access to the waste and inhibiting mobility of contaminants. The ICDF has been designed to meet the substantive requirements of a landfill permitted under the Resource Conservation and Recovery Act (RCRA) and was approved by the Agencies under the WAG 3 Record of Decision (ROD). The ICDF is also designed to meet the substantive requirements of DOE Orders governing radioactive waste disposal. Regardless of whether the immobilized waste residuals are disposed of at the ICDF or sent to a facility off the INEEL, the material will meet waste acceptance criteria (WAC) designed to ensure protection of human health and the environment. An alternative that includes disposal off the INEEL would not be more protective than one that uses disposal at the ICDF with regard to the risk factors that would have to be considered if the material were transported through communities off the INEEL.

DOE will provide institutional controls for sites subject to land-use restrictions (including the V-Tanks site and ICDF) over at least the next 100 years unless a 5-year review concludes that unrestricted land use is allowable.

Response to Comment W4-8 (continued):

After 100 years, DOE may no longer manage INEEL activities and controls will take the form of land use restrictions. Though land use after 100 years is highly uncertain, it is likely that industrial applications will continue at WAG 1 and at the ICDF. The Hall Amendment of the National Defense Authorization Act of 1994 (Public Law 103-160) requires concurrence from EPA on the lease of any National Priorities List sites during the period of DOE control and CERCLA (42 USC 9620 Section 120(h) requires that the state be notified of a lease involving contamination. When DOE no longer manages INEEL activities and controls are needed, CERCLA (42 USC 9620 Section 120(h) requires that DOE indicate the presence of contamination and any restrictions in property transfer documentation.

The CERCLA criteria for "Overall Protectiveness" and for "Long-Term Effectiveness" require the removal of V-Tanks waste from the V-Tanks site to an approved disposal facility. The INEEL CERCLA Disposal Facility (ICDF) meets these CERCLA criteria by providing an engineered design that inhibits both potential downward migration of waste and exposure via surface pathways to current and future workers, future residents, and the environment. Institutional controls at the ICDF will be in place for a minimum of 100 years to continue its protectiveness. The ICDF cap is a 1,000-year design. The INEEL is currently implementing a Long-Term Stewardship Program, which will remain after programs and projects are completed, as long as institutional controls, monitoring, maintenance, or other post-closure care is required. ❖

(Continued from page 37)

Response to Comment W4-9 (continued):
organic contaminants [SVOCs]) and low-level radioactive waste. There are transuranic elements in the V-Tanks, but not TRU waste.

Transuranic *elements* are a group of radioactive chemical elements "beyond uranium" in the periodic table, having atomic numbers greater than 92 (such as plutonium, atomic number 94). Transuranic *waste* is a legally defined category of waste, established for regulatory and management purposes. As a waste category, TRU waste contains more than 100 nanocuries (3,700 becquerels) of alpha-emitting transuranic isotopes per gram of waste and half-lives greater than 20 years (as cited in the 1995 Settlement Agreement). Although low concentrations of several transuranic elements are present in the V-Tanks contents, the concentrations of the combined sludge and liquid (with a combined weighted average of 4.27 nCi/g) are not high enough to meet the TRU waste definition. It is estimated that prior to disposal at the INEEL CERCLA Disposal Facility (ICDF), the treated V-Tanks waste will have a transuranic concentration of approximately 2 nCi/g, well below the 10 nCi/g limit for the ICDF and the 100 nCi/g TRU waste designation.

It is correct that the V-Tanks contents are classified as low-level waste (LLW) and that the waste contains alpha-emitting radionuclides. However, it is not correct that this makes the V-Tanks remediation subject to the 1995 Settlement Agreement. By definition, LLW is waste that does not meet the definitions for high-level waste (HLW), transuranic (TRU) waste, spent nuclear fuel, or by-product materials. The 1995 Settlement Agreement requires the removal of all stored TRU waste from Idaho (i.e., waste with greater than 100 nCi/g transuranic content). It does not include LLW in this requirement. See Topic 20, above, for additional information on waste-type categories.

An environmental impact statement is not required before wastes can be stored at the ICDF. The ICDF was selected and designed under the Waste Area Group (WAG) 3 comprehensive cleanup, which addressed NEPA values. Under DOE's policy on application of NEPA to CERCLA cleanup actions (July 11, 2002), DOE relies on the CERCLA process for the review of actions to be taken under CERCLA. That is, no separate NEPA document or NEPA process is ordinarily required, because DOE addresses NEPA values,

Response to Comment W4-9 (continued):
to the extent practicable, in the Operable Unit (OU) 3-13 RI/FS and ROD, along with the associated CERCLA public involvement process.

In accordance with the waste acceptance criteria (WAC) for the ICDF, no transuranic waste can be disposed of at the facility. No transuranic waste will be generated during the V-Tanks cleanup. Low-level radioactive waste (LLW) will be generated during the V-Tanks cleanup and will be sent to the ICDF for disposal. This LLW will contain concentrations of transuranic radionuclides that are well below the ICDF's WAC.

The ICDF's design incorporates a complex liner system beneath the waste to inhibit downward migration of wastes from the landfill, a leachate collection system, a leak-detection monitoring system, and groundwater monitoring wells to insure long-term effectiveness of this CERCLA disposal facility, especially protection of the aquifer.

An EIS is not required for V-Tanks waste to be disposed of at the ICDF, as detailed in the response to Topic 26. ❖

(Continued from page 37)

Response to Comment W4-11 (continued):
activities at TAN. However, the mission change will not hinder or delay cleanup of the V-Tanks or other sites scheduled for remediation. In fact, under the 2002 Agency agreement to pursue accelerated risk reduction and cleanup at the INEEL, many ongoing and projected remediation activities have been consolidated for more efficient management and to ensure that cleanup is completed.

The DOE is not changing its commitment to clean up all inactive waste sites at the INEEL that pose a risk to human health or the environment, including the V-Tanks. This cleanup is required to eliminate health and environmental threats posed by hazardous waste sites to current and future workers and future residents. The program also includes a review process that reevaluates the effectiveness of remedial actions at least once every five years where residual contamination remains at levels that do not allow for unrestricted access. At TAN, this review process will provide continuing opportunities, no matter what TAN's mission is or becomes, to ensure the long-term effectiveness of cleanup levels achieved by the V-Tanks remedy, should some contaminants remain in place. ❖

(Continued from page 37)

Response to Comment W4-12 (continued):

to complete CERCLA cleanup at all its facilities. These remedial actions are not related to the mission change, and must continue regardless of any future missions that may or may not be given by Congress to the INEEL. The question of applicability of the National Environmental Protection Act (NEPA) to such future missions is therefore not relevant for the V-Tanks cleanup, or for other INEEL locations scheduled for cleanup under CERCLA.

The V-Tanks remediation activities are structured so they do not limit future industrial missions at TAN or the INEEL, but instead allow for the creation of new opportunities by removing contamination that would preclude other uses.

The National Environmental Protection Act (NEPA) does require all federal agencies to assess potential environmental impacts from major proposed new actions. However, as described in the response to Topic 5, above, the cleanup of the V-Tanks is a CERCLA action in response to past activities that resulted in contamination, and is unrelated to any NEPA requirements that may arise from the INEEL's mission change. ❖

Commenter: Robert Wikoff
Document Number: W5
Page: 1 of 2

Please return this form by May 14, 2003

Tell Us What You Think

*The Agencies want to hear from you to decide what actions to take for the V-Tanks Contents (TSF-09 and TSF-18) at Test Area North, Operable Unit 1-10.**

Comments I appreciate being on your mailing lists and read with great interest how the INEEL Cleanup is going. While I am a fan of Vitrification I believe Alternative 3b ex situ chemical oxidation Reduction w/ stabilization makes good sense. Ex situ is better as you need not worry about the tank strength and mixing with water should be effective for the life of both the cesium 137 and Strontium 90. What a great mess of mixed chemicals in tanks.

Again Thank you for your thoroughness and evaluation in an easy to read format.

Robert Wikoff

* If you want a copy of the Record of Decision and Responsiveness Summary, please make sure your mailing label is correct.

307-733-9677

INEEL

INEEL Environmental Restoration Program
P.O. Box 1625
Idaho Falls, ID 83415-3911

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ROBERT WIKOFF
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Comment W5-1 (Section 13.2, Topic 6)

Response: The Agencies encourage citizen involvement in decision-making at the INEEL. In addition to the mailings and public meetings, the INEEL provides other avenues for public involvement including tours and briefings. Mailing addresses, telephone numbers, e-mail addresses, and internet addresses are provided in each proposed plan for citizens to get additional information, briefings, or tours from Agency and project representatives. The INEEL Community Relations office can be contacted by telephone toll-free at 1-800-708-2680, or by mail at P.O. Box 1625, Idaho Falls, Idaho 83415-3940. Joseph Campbell, the INEEL Community Relations representative for Test Area North, can be contacted by e-mail at campjl@inel.gov or by telephone at (208) 526-3183. ❖

Comment W5-2 (Section 13.8, Topics 51 and Topic 57)

Response: The Agencies agree with these points. While vitrification provides more durability in the stabilization of these wastes relative to grouting, the fact that all V-Tanks wastes will be disposed of at the ICDF guarantees that the waste will be isolated from the environment for at least 1,000 years, which is sufficient time for cesium-137 (Cs-137) and strontium-90 (Sr-90) to decay to background levels. Although a vitrified product will stabilize radionuclides with longer half-

(Continued on page 45)

Comment W5-3 (Section 13.3, Topic 9)

Response: The Agencies appreciate all suggestions from the public on the types of information and format that help the INEEL's proposed plans better serve their purpose. Proposed plans are a key community relations activity undertaken as part of the CERCLA process. The Agencies want the proposed plans to be clear and understandable to all readers, whether or not they are previously familiar with the CERCLA activities at the INEEL, so as to allow the fullest possible public participation in the decision-making process. Proposed plan language and organization are continuously evaluated and improved in response to public feedback, such as this. ❖

(Continued from page 44)

Response to Comment W5-2 (continued):

lives (such as the transuranic contaminants) better than grout, the limited migration potential of the transuranics from the engineered ICDF facility is only a minimal increase to the overall ranking of vitrification, relative to ex situ chemical oxidation/reduction with its stabilization through grouting. The Agencies also agree regarding the complexity of the contaminants that are being treated. It is for this reason that lab-scale treatability studies are currently underway to verify that a chemical oxidation approach, followed by stabilization, will meet the requirements associated with remediation of the V-Tanks wastes.

Under this remedy, most or all of the V-Tanks wastes will be disposed of at the INEEL CERCLA Disposal Facility (ICDF), isolating it from the environment for at least 1,000 years, which is sufficient time for Cs-137 and Sr-90 to decay to background levels. Although a vitrified product stabilizes radionuclides with longer half-lives (such as the transuranic contaminants) better than grout, the limited potential for the transuranics to migrate from the lined ICDF results in only a minimal increase in the overall ranking of vitrification relative to the preferred alternative. The commenter is also correct in his assertion that a primary reason for selecting an ex situ form of chemical oxidation/reduction over an in situ form was due to concerns over tank strength and integrity under in situ operations. Other reasons include implementability concerns over heating the tank wastes in situ, and the concerns over runaway chemical oxidation reactions at tank volume quantities, rather than in the small batches possible with ex situ processing. Finally, the Agencies' agree with the commenter's note regarding the complexity of the contaminants that are being treated. It is for this reason that lab-scale treatability studies are underway to verify that the selected remedy will meet the remedial action objectives for the V-Tanks cleanup. ❖

Commenter: Keep Yellowstone Nuclear Free
Document Number: W6
Page: 1 of 5

"Tom Patricelli" <indy@wyoming.com>
06/24/2003 05:36 PM

To: campjl@inel.gov
cc: indy@wyoming.com
Fax to:
Subject: vtank comments

Joe: This message got bounced back to me a couple weeks ago. Trying again.

Concerning treatment of VTank waste, Keep Yellowstone Nuclear Free prefers NON-THERMAL technologies to treat waste, as well as technologies with the least amount of off-gassing and airborne emissions. We cannot support an untested technology. We oppose vitrification as we see it as essentially a proxy for incineration.

We support, conditionally, chemical oxidation because it uses far lower tem[illegible]lo have serious concerns, [illegible]ng system. With so many filte[illegible]her collection systems, w[illegible] subsequent release of toxic s[illegible]

Generally s[illegible] technologies for use in waste[illegible] we must be involved ear[illegible] be verified to be effective an[illegible]nity to comment.

See next page for remaining comments on this page.

Comment W6-1 (Section 13.7.3, Topic 45)

Response: The preference is noted. The INEEL agrees that operating temperatures are an important area of consideration when selecting a technology. With all else being equal, lower temperature systems will generally be ranked higher on the criterion of short-term effectiveness because of the lower potential risk to workers; however, they may re

(Continued on page 48)

Comment W6-2 (Section 13.7.3, Topic 46)

Response: The preference is noted. ❖

Comment W6-3 (Section 13.7.3, Topic 47)

Response: All of the technologies retained for evaluation in the technical evaluation leading to this ROD Amendment were required to have a reliable use record and to be viable technologies, even if they have not been used on the particular mix of constituents present in the site to be remediated, such as the V-Tanks. More detailed testing, as necessary, to opti

(Continued on page 48)

Comment W6-4 (Section 13.8, Topic 52)

Response: Not only is vitrification not a proxy for incineration, it is quite different in its means of operation. As a consequence, incineration and vitrification differ considerably in their potential risk to human health and the environment. The Agencies evaluated vitrification as a potential technology for cleanup of the V-Tanks because of its advantages. The U.S. Code of Federal Regulations (CFR 263.515, Subpart O) defines incineration as enclosed devices that thermally treat hazardous wastes using controlled flame combustion. Vitrification is not incineration because it does not involve primary treatment via controlled flame combustion in an enclosed device. As a result, the U.S. Environmental Protection

(Continued on page 49)

Commenter: Keep Yellowstone Nuclear Free
Document Number: W6
Page: 2 of 5

"Tom Patricelli" <indy@wyoming.com>
06/24/2003 05:36 PM

To: campjl@inel.gov
cc: indy@wyoming.com
Fax to:
Subject: Mark comments

Joe: This message got bounced back to me a couple weeks ago. Trying again

Concerni ... ear Free
prefers ...
technologi ... e
em:ssions. ... ose
vitrificatio ... tion.

See previous page for remaining comments on this page.

We support, conditionally, chemical oxidation because it uses far lower temperatures in the treatment process. We do have serious concerns, however, about the complicated off-gassing system. With so many filters (carbon and HEPA), condensers, and other collection systems, we are concerned about filter failures and subsequent release of toxic substances into the atmosphere.

Generally speaking, KYNF would like to fully support technologies for use in waste treatment, however, in order to do so, we must be involved early in the process and the technology can be verified to be effective and low-risk. We thank DOE for the opportunity to comment.

Comment W6-5 (Section 13.10.2, Topic 56)

Response: The off-gas system planned for the chemical oxidation process is a relatively simple and standard off-gas system, considerably less complex than the other thermal treatment alternatives evaluated. The components of the chemical oxidation off-gas system are commonly used in numerous industrial applications and have been shown to be highly reliable. Furthermore, it is after the signing of a record of decision (ROD), during the remedial design phase, that the Agencies collectively determine the engineering design (the technical analysis and procedures that resulted in a detailed set of plans and specifications) and verify that

(Continued on page 49)

Comment W6-6 (Section 13.2, Topic 7, and Section 13.7.3, Topic 48)

Response: A variety of opportunities for early public information and involvement exist, and have been expanded continuously over the years of INEEL's cleanup program. The INEEL's Community Relations Office began contacting individuals and community groups during the early stages of planning for the V-Tanks by making phone calls, providing technical briefings as desired, and actively soliciting early feedback. This process is described in Section 3 of this ROD Amendment. Opportunities for information and comment on an ongoing basis are also available (as noted in the response to Topic 6.) The web page of the INEEL Community Relations Office (at http://www.inel.gov/environment/) provides information about the current status of cleanup projects.

The feasibility study (in this case, the 2003 Technology Evaluation Review [2003 TER]) and proposed plan present all applicable and relevant or appropriate requirements (ARARs) that must be met, and they identify

(Continued on page 50)

Comment W6-7 (Section 13.3, Topic 9)

Response: The Agencies appreciate all suggestions from the public on the types of information and format that help the INEEL's proposed plans better serve their purpose. Proposed plans are a key community relations activity undertaken as part of the CERCLA process. The Agen-

(Continued on page 49)

(Continued from page 46)

Response to Comment W6-1 (continued):

ceive lower rankings on the criteria of long-term effectiveness and reduc tion of toxicity, mobility, and volume because of lower destructive capabilities. That caveat of "all else being equal" is always the difficult part of an evaluation such as this. The tradeoffs between the higher efficiencies obtained at higher temperatures versus the off-gas control issues associated with those higher temperatures will continue to be an important factor in future technology selections. ❖

(Continued from page 46)

Response to Comment W6-3 (continued):

mize the performance of the selected remedy may be performed during the remedial design phase following the signing of this ROD Amendment. The Agencies have the option of using models, treatability studies, readiness reviews, and other procedures as necessary, to confirm a remedy's feasibility and fully define its engineering design prior to use. The Preferred Alternative has been previously demonstrated to be viable through a treatability study conducted in 1998 (INEEL/EXT-98-00739). This technology test, conducted on actual V-Tanks waste, demonstrated sufficient organic destruction efficiencies to meet regulatory requirements. Furthermore, similar chemical oxidation and stabilization processes have been conducted, or are planned, that increase the confidence level that the process will be successful. Based on the previous tests and operations on similar waste streams, plus additional testing planned during the design phase, the preferred alternative appears to be a viable alternative for treating V-Tanks waste.

Citizens have raised questions about the quality of data used in investigations, and how the State of Idaho and U.S. Environmental Protection Agency (EPA) ensure quality. For a remedial investigation, the Agencies identify data quality objectives, which specify the quality of data required to support decisions in the feasibility study and cleanup program. The development of data quality objectives follows guidance in CERCLA, the National Contingency Plan, and EPA documents. Existing data are used whenever data quality objectives are met or can be validated.

A fundamental goal of cooperative efforts by the agencies in implementing the action plan is to emphasize remedial action. This goal recognizes that no reasonable amount of investigation can resolve all uncertainty and that remedial actions must accommodate changes from what was originally expected. Such an approach encourages timely selection of a remedy, flexibility for remedial action, and the ability to respond to information discovered during investigations. ❖

(Continued from page 46)

Response to Comment W6-4 (continued):
Agency considers vitrification technologies (both in situ and ex situ) as non-incineration thermal treatment processes, not subject to the same regulations as incinerators.

One important difference for protection of human health and the environment is that unlike incinerators, vitrification is carried out under a reducing environment. In situ vitrification is carried out in the subsurface; ex situ vitrification is carried out in a specially designed vessel located aboveground. The reducing conditions do not favor the formation of dioxins or furans, as are common in incineration. Furthermore, because of the presence of overburden in both in situ and ex situ vitrification, the off-gas hood remains cool enough that there is minimal potential for a reaction to form dioxins and furans in the hood, as it encounters oxygen.

In prior operations involving the treatment of chlorinated organics, vitrification has been demonstrated to meet stringent regulatory limits relative to products of incomplete combustion and species such as dioxins and furans. Vitrification has also been shown in tests to result in greater than 99.9999% destruction or removal of PCBs.

Another distinction between vitrification and incineration is that vitrification's different thermal conditions, and its much more controllable off-gas filtration system, results in far less off-gas particulates and more radionuclide retention in the melt (greater than 99.9%). This means orders of magnitude less contamination in the off-gas from vitrification than would be encountered in incineration devices. In Australia, where high temperature incineration of hazardous waste is effectively banned (due to a lack of public and political support), vitrification has been publicly accepted and identified as an alternative to incineration. ❖

(Continued from page 47)

Response to Comment W6-5 (continued):
all remediation processes and activities will comply with applicable standards in state and federal laws. The technology selected to remediate the V-Tanks — ex situ chemical oxidation/reduction with stabilization — has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate, before full-scale implementation, that the technology is effective and low-risk. Laboratory-scale treatability studies are currently underway to verify that a chemical oxidation/reduction approach, followed by stabilization, will meet the requirements associated with remediation of the V-Tanks wastes. It is expected that these laboratory-scale studies will support the Agencies' intention to proceed with ex situ chemical oxidation/ stabilization. ❖

(Continued from page 47)

Response to Comment W6-7 (continued):
cies want the proposed plans to be clear and understandable to all readers, whether or not they are previously familiar with the CERCLA activities at the INEEL, so as to allow the fullest possible public participation in the decision-making process. Proposed plan language and organization are continuously evaluated and improved in response to public feedback, such as this. ❖

(Continued from page 47)

Response to Comment W6-6 (continued):
and evaluate technologies that are capable of meeting those ARARs. Thus, the 2003 TER and the proposed plan that is based on it present a general strategy, a pre-conceptual design rather than a detailed process. CERCLA Guidance does not require final development and demonstration of a proposed treatment technology prior to the proposed plan and record of decision (ROD), because the cost and time involved in testing multiple potential remedial designs would substantially delay the beginning of the cleanup and add substantially to the final costs.

A number of conceptual verification, treatability studies, and other required tests may be required to confirm the effectiveness and safety of the chosen treatment technologies before operations start at a cleanup site. The level of technical, safety, and cost information required to reach this point makes the development of the final selected remedy a lengthy process.

The feasibility study phase of a cleanup is the beginning of the remedy development process. Its purpose is to identify multiple technologies known to be able to address comparable waste, and to provide the information necessary for the Agencies to determine which of them could be used successfully. The feasibility study, on which the proposed plan is based, is always placed in the Administrative Record and is available for public review. During the proposed plan comment period, readers may address their comments to the data developed in the feasibility plan and other supporting documents, as well as to the proposed plan; some of the groups who commented on the V-Tanks action have taken the opportunity to do this.

Building on the proposed plan, the ROD establishes the cleanup technology to be used and the cleanup levels to be achieved. However, it is only after the signing of the ROD, in the Remedial Design phase, that the Agencies collectively determine the engineering design (including schedule, cost estimates, and disposal options for wastes generated) and verify that all remediation activities will comply with applicable standards in state and federal laws. The technology selected to remediate the V-Tanks — ex situ chemical oxidation/reduction with stabilization — has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks

Response to Comment W6-6 (continued):
waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate that the technology is effective and low-risk.

As part of advance public information and involvement opportunities for this amendment to the V-Tanks remedy, the INEEL's Community Relations Office began contacting individuals and community groups by phone, providing technical briefings as desired, and actively soliciting early feedback. This process is described in Section 3 of this ROD Amendment.

Conceptual validation, treatability studies, and other tests that may be required to verify the effectiveness and safety of the selected remedy are part of a lengthy development and selection process. This begins well before a proposed plan is written with the feasibility study phase (in this case, the technology evaluation documented in the 2003 Technology Evaluation Report), and continues after the Agencies' sign a record of decision (ROD) with the remedial design phase. Because of the cost and time involved in testing multiple potential remedial designs, which would substantially delay the start of the cleanup and add considerably to the overall cost, CERCLA guidance only requires a ROD to present a general strategy for satisfying cleanup requirements, rather than a detailed process. Thus, while a ROD establishes the cleanup technology to be used and the cleanup levels to be achieved, it is only in the following remedial design phase that the Agencies determine the engineering design (including schedule, cost estimates, and disposal options for wastes generated) and verify that all remediation activities will comply with applicable standards in state and federal laws identified in this ROD Amendment. The technology selected to remediate the V-Tanks – ex situ chemical oxidation/reduction with stabilization – has seen limited past deployments, so additional laboratory and pilot testing on both surrogate and actual V-Tanks waste are planned during the design phase. This testing and the detailed engineering design will help demonstrate, before full-scale implementation, that the technology is both effective and low-risk.

As described in the response to Topic 7, above, opportunities for additional information and comment about the V-Tanks remediation process are available on an ongoing basis. The web page of the INEEL Community Relations Office (at http://www.inel.gov/environment/) provides information on the current status of cleanup projects. ❖

Commenter: David McCoy
Document Number: T1
Page: 1 of 9

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will go ahead and start on the public comments. Okay. All right. Let's get going on that. I would like to invite anyone. I will come around with the microphone. It seems to be working somewhat. You can speak your mind. The agencies aren't going to respond here, but as we talked about earlier, they will respond in the final ROD.

A couple ground rules. We don't seem to have too rowdy of a crowd tonight, but with respect to whoever has the floor, when you're commenting, please give your full name, your address so we can send you a copy of that ROD when it's issued. If anyone would like to make a comment, please raise your hand.

AUDIENCE MEMBER: I have some comments. I think the plan fails to address all the tanks that are out there at TAN, apparently, only four of six are addressed. There may be some buried-waste issues, additionally, to what you've addressed here.

The four tanks as I understand have about 30,400 gallons. That leads remaining 100,000 gallons of some of the other tanks out there.

Then, under the 1995 Settlement Agreement, the alpha-emitting mixed low-level waste has to be shipped to a repository outside Idaho. Then, you've

Comment T1-1 (Section 13.4, Topic 12)

Response: There are indeed additional underground tanks at TAN that are not addressed by this ROD Amendment. To understand their handling, it is important to note the difference between the term "v-tanks," which identifies a kind of underground storage vessel, and the site name "the V-Tanks," which identifies a particular location to be remediated. The V-Tanks site addressed in this ROD Amendment received that designation in the Federal Facility Agreement and Consent Order (FFA/CO), and was defined as containing only four v-type tanks: Tanks V-1, V-2, V-3, and V-9. These are the four described in the

(Continued on page 55)

Comment T1-2 (Section 13.4, Topic 14)

Response: The Agencies agreed to remediate the four V-Tanks, the associated piping, and the surrounding contaminated soil as one unit because they are part of an interconnected waste handling system that

(Continued on page 55)

Comment T1-3 (Section 13.6, Topic 23)

Response: It is correct that the V-Tanks contents are classified as low-level waste (LLW) and that the waste contains alpha-emitting radionuclides. However, it is not correct that this makes the V-Tanks remediation subject to the 1995 Settlement Agreement. By definition, LLW is waste that does not meet the definitions for high-level waste (HLW), transuranic (TRU) waste, spent nuclear fuel, or by-product materials. The 1995 Settlement Agreement requires the removal of all stored TRU waste from Idaho (i.e., waste with greater than 100 nCi/g transuranic content). It does not include LLW in this requirement. See Topic 20 for additional information on waste-type categories. ❖

1 got a March 31, 2003, federal court ruling that
2 says, "Remove all buried transuranic wastes from
3 Idaho," and "all" means all.
4 So, I have a little problem still with the
5 3-B alternative. It would seem the addition of the
6 grouting and everything would, in fact, lead to a
7 dilution, which then is for the purposes of land
8 disposal here. So, I think there may be a clear
9 legal issue in that. In one of those categories,
10 the high concentration shows that you're two and a
11 half times over the limit. Obviously, if you are
12 claiming you now have a 1- to 2-nanogram amount,
13 there has been a dilution there.
14 I don't think the plan is comprehensive.
15 It omits the ANP cask storage pad, the Area 10
16 HTR 80 Reactor Vessel Burial Site.
17 On the in situ vitrification alternative,
18 it's my understanding that Oak Ridge National
19 Laboratory had an in situ project, and there was
20 some kind of explosion that threatened workers and
21 the public. If that's the case, then I think that
22 that should be addressed in your documentation here
23 so that the public is aware of that, that may be a
24 possible risk, if it is in fact. There may have
25 been similar experiences at the INEEL with

Comment T1-3 (continued)

Comment T1-4 (Section 13.6, Topic 25, and Section 13.10.1, Topic 53)

Response: Grouting is the process of adding appropriate stabilization agents such as portland cement that will chemically bind with the hazardous metals. This stabilization step reduces the leachability of these metals, making it harder for these contaminants to be released into the

(Continued on page 56)

Comment T1-5 (Section 13.4, Topic 15)

Response: The three sites listed were identified in the 1991 FFA/CO as potential contamination sites to be investigated within WAG 1. The analyses carried out on them were summarized in the 1997 RI/FS and the 1999 ROD.

TSF-06, Area 8, is the designation for the ANP Cask Storage Pad. Part of this site is currently included within the active Radioactive Parts Service and Storage Area (RPSSA) facility, which will be evaluated

(Continued on page 56)

Comment T1-6 (Section 13.7.2, Topic 49)

Response: The "ISV failures" referred to by the commenters resulted during testing of a previous version of this technology. That version was refined and improved based on analysis of these "failures." The result of these improvements is the planar ISV method. Planar ISV is the technology evaluated in the 2003 Technology Evaluation Review (TER) and presented in the 2003 Proposed Plan.

Planar ISV systems were developed to prevent the "failures" experienced during the developmental stages of ISV. These early failures

(Continued on page 57)

1 problematic in situ projects.
2 As far as the ICDF goes, I really object to
3 the siting of that. It's in the flood plain and
4 it's over the aquifer. There has been a failure to
5 do an environmental-impact statement. Now, you can
6 say that where there's direct removal in remediation
7 CERCLA project can waive the NEPA requirements, but
8 here what you've got going is an $85 million dump
9 project being proposed and constructed, and I think
10 that that does fall under the NEPA requirements.
11 I think that the credible siting
12 alternatives are not considered for the INEEL
13 location. There's other sites which should be
14 considered at the INEEL which would not pose a risk
15 to the aquifer from the location near the ICPP.
16 You've got the ICDF -- sorry about all these
17 acronyms -- being built on or over or near the
18 former unlined percolation ponds.
19 I think there's some real potential hazards
20 there with respect to the aquifer. There's plenty
21 of geological information that indicates that your
22 maximum potential flood in that area would pretty
23 well cover half of the ICPP.
24 I don't think that together these two
25 projects are, you know, adequately addressing those

Comment T1-6 (Continued)

Comment T1-7 (Section 13.7.2, Topic 40)

Response: As part of the INEEL CERCLA Disposal Facility (ICDF) planning and design process, U.S. Geological Survey and other research data were evaluated to assess the safety of the proposed facility relative to potential flooding. The ICDF location was determined to be outside the 100-year flood plain. In addition, the ICDF will be surrounded by an engineered berm 15 ft higher than the predicted 100-year flood plain. The ICDF's compliance with key federal and state

(Continued on page 58)

Comment T1-8 (Section 13.6, Topic 26)

Response: The Agencies disagree. Under DOE's CERCLA/NEPA Policy, DOE relies on the CERCLA process for the review of actions to be taken under CERCLA; that is, no separate NEPA document or NEPA process is ordinarily required. NEPA values were addressed, to the extent practicable, in the Operable Unit (OU) 3-13 Remedial Inves-

(Continued on page 58)

Comment T1-9 (Section 13.1, Topic 2)

Response: The ICDF was authorized under the comprehensive remediation of WAG 3 (the Idaho Nuclear Technology and Engineering Center (INTEC)). Although the ICDF is located at INTEC, it was designed to be the repository for waste generated from CERCLA actions across the INEEL. The ICDF was designed to accommodate the waste types and volumes expected to be generated under CERCLA cleanup

(Continued on page 59)

Comment T1-9 (continued)

concerns when you look at them together. My name is David McCoy, for the record.

MR. CAMPBELL: Thanks, Dave. Is there anyone else who would like to comment on the record? Anyone else? Okay. All right. Well, we've been moving right along. It's now 7:55. The comment session is now over. If you have any other questions, some people from the project will hang around for a little while and answer any that you have.

The comment opportunity extend through May 14th, so if you have any comments, feel free to send them in. There is a form on the inside back cover of the proposed plan that is at our outside table, so go ahead and grab a copy of that on your way out and send them in

To reiterate again that the Record of Decision for this is due out in December, and you'll see the responses made to your comments at that time. On behalf of the Department of Energy, the Environmental Protection Agency, and the state of Idaho, I would like to thank everyone for coming out tonight. I guess that is it, so the meeting is adjourned.

(Meeting adjourned at 7:54 p.m.)

(Continued from page 51)

Response to Comment T1-1 (continued):
2003 Proposed Plan and this ROD Amendment. The amended remedy for the V-Tanks site properly addresses only the four tanks contained in this site, as established by the FFA/CO.

Besides the four v-type tanks in the V-Tanks site, two other v-type tanks that were in use at TAN require remediation. These are Tanks V-13 and V-14, which were designated in the FFA/CO as TSF-26 and are also referred to as the PM-2A tanks. The PM-2A tanks are currently being cleaned up under the remedy selected in the 1999 ROD (see Section 7 of that ROD). Since the remedy for the PM-2A tanks is unchanged from the 1999 ROD, it was not addressed in the 2003 Proposed Plan.

Other v-type tanks (e.g., Tank V-4) were located in TAN Building 616. The building and its contents, including these other v-type tanks, are being, or have already been, removed under the INEEL's Deactivation, Decommissioning, and Dismantlement (D&D&D) Program. Those components of Building 616 that managed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) are also being addressed under a RCRA closure plan. (Topic 13 provides more information on the closure plan). ❖

(Continued from page 51)

Response to Comment T1-2 (continued):
contains a single consistent waste stream. At this time, sampling has shown no additional, adjacent, related past releases. As stated in the 1999 Record of Decision (ROD), the possibility exists that contaminated environmental media not identified by the Federal Facility Agreement and Consent Order (FFA/CO) or in the 1999 ROD will be discovered in the future as a result of routine operations, maintenance activities, or dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Newly discovered sites will be addressed using the process for new site inclusion as defined in the FFA/CO and refined in the 1999 ROD and will be assessed and remediated under CERCLA pursuant to the process agreed upon by the Agencies at the time of the new site identification. Where appropriate, the remedial action objectives (RAOs) and final remediation goals (FRGs) identified in the 1999 ROD and this ROD Amendment will be used to complete any necessary cleanup. ❖

(Continued from page 52)
Response to Comment T1-4 (continued):
environment. This reduction in leachability is required to meet both RCRA LDRs and the WAC for any disposal facility. The U.S. Environmental Protection Agency (EPA) has reviewed the inherent dilution that takes place during stabilization treatment processes. This dilution is considered acceptable when there is a significant reduction in leachability of hazardous contaminants and when appropriate volumes of stabilization materials are used. The selected remedy will deploy a stabilization process that meets those goals.

The Agencies recognize that when hazardous metals are stabilized, there is not only a dilution of the hazardous metals as discussed above in Topic 24 but also a dilution of the other constituents, including the radioactive contaminants. The Agencies concur that this inherent dilution is acceptable when this dilution occurs as a result of treatment necessary to meet either Resource Conservation and Recovery Act (RCRA) land disposal restrictions (LDRs) or disposal facility waste acceptance criteria (WAC).

Grouting is an integral part of the stabilization step in the waste treatment. Any dilution of constituent concentrations as a result of this occurs as a part of a necessary step in treatment, not solely for the purpose of land disposal. (Also see response to Topic 26 for more details on this issue.) ❖

(Continued from page 52)
Response to Comment T1-5 (continued):
during future dismantlement, decommissioning, and decontamination (D&D&D) activities at TAN. Sampling during the risk assessment indicated that the soil contamination at this site is below the levels at which remediation is required. More information on this site is available in the Administrative Record for Waste Area Group (WAG) 1 in the 1997 Remedial Investigation and Feasibility Study (RI/FS) and the 1999 ROD. (More information about the Administrative Record is presented in Section 1 of this document. Section 2.5 of this document lists key documents used to prepare this ROD Amendment.)

TSF-06, Area 10, is the designation for the HTRE Reactor Vessel Burial Site. This potential release site was evaluated as part of the WAG 1 comprehensive RI/FS and, as documented in the 1999 ROD, it was determined to be a No Action site. The irradiated empty reactor vessel is contained in a metal storage tank and is believed to be more than 10 feet below ground surface. No pathway to human or ecological receptors exists; thus, no cleanup is required. However, based on the commenter's questions about this site, a review was conducted of the relevant documentation. It was determined that although no pathway exists, potential residual contamination precludes unrestricted land use. Thus, the site should be protected with institutional controls. The WAG 1 Institutional Control Plan (INEEL 2000b) will be modified to include appropriate institutional controls for this site. Detailed language has been added in Section 11.3 of this ROD Amendment directing this change to the 1999 ROD. The Agencies appreciate the dedication of the commenter in bringing this oversight to their attention. The Agencies are pleased that this matter confirms the effectiveness of the design of the CERCLA public involvement process.

The TAN Pool (which is part of the TAN-607 Hot Shop) is currently being emptied under a deactivation process but remains within an active facility. Potential threats to human health and the environment from this site will be addressed during the facility D&D&D. More information on this site is available in the Administrative Record for WAG 1. As part of an active facility, the TAN Pool is not being addressed under WAG 1 CERCLA actions. ❖

(Continued from page 52)

Response to Comment T1-6 (continued):

were not true explosions, but rather rapid releases of air and steam bubbles through the ISV melt. As the air and steam bubbles moved through the ISV melt, to ground surface, they caused the "air-lifting" of the molten glass product within the ISV melt to lift above the subsidence crater and flow across ground level.

Details about the ORNL Melt Expulsion are documented in a 1996 report.[1] This event was only a glass flow, not an expulsion into the air (as it has commonly been misidentified by some members of the public). Movement of steam and air bubbles through the melt did result in some splatter into the air as the bubbles broke — on the order of a few pounds of glass fragments. The radioactive material was not released into the air, but was contained within the matrix of the glass. The expelled glass fragments containing the radioactivity were easily collected and sent for appropriate disposal.

Subsequent analysis of the ambient air collected by the ORNL project's three air samplers did not reveal any airborne contamination resulting from the melt expulsion. There was no risk to human health or the environment, certainly not the "extreme risk" suggested in the comment. The reasons for the ORNL melt expulsion are detailed in a formal DOE report.[2]

Other melt expulsions that the commenters refer to are as follows:

a. A private, full-scale test, conducted by Geosafe in support of their eventual ISV processing of 55-gal drums of moist soil contaminated with up to 1.4 wt% PCBs, at the GE Spokane site. In this test, wet soils in the sealed drums that were being processed caused a sudden release of pressurized steam into the melt, that resulted in an "air lifting" and melt splattering similar to what happened at ORNL. The melt expulsion was exacerbated, however, by the fact Geosafe was using a fabric hood containing a flammable sealant. Contact with the molten glass splatter caused the sealant to ignite, and burned up the hood as well as adjacent combustible equipment and materials (such as the electrical cable insulation). Details of this incident are reported in Geosafe's 1994 test report.[3]

Response to Comment T1-6 (continued):

b. A pilot-scale test, conducted by Pacific Northwest Laboratory at the INEEL on simulated waste in 1989. During this demonstration test, sealed 5-gal containers containing canola oil placed within the melt location resulted in numerous pressure build-ups and releases of vapors through the pilot-scale ISV melt that also caused molten glass splatter sufficient to ignite the fabric hood material. Details of this expulsion are recorded in Callow et al.[4]

A summary of ISV melt expulsions to date was prepared by R. K. Farnsworth as part of the *Operable Unit 7-13/14 In Situ Vitrification Treatability Study Work Plan.*[5]

Based on the lessons learned from the initial demonstrations of ISV technology, planar ISV was developed and successfully tested in 1998. Planar ISV precludes the types of failures mentioned above by melting the waste material from the sides in rather than the top down. This modification to the process prevents the buildup of a layer of untreated waste trapped beneath a layer of molten glass. Safe operation of the planar ISV process on subsurface tanks containing substantial quantities of vaporizable material, was demonstrated as part of a simulated treatability study performed in support of the 1998 V-Tanks Proposed Plan and 1999 ROD. The results of this treatability study indicated that planar-ISV could safely process subsurface tanks containing substantial quantities of vaporizable material without the potential for subsurface pressure build-up or melt expulsion. The results of this successful treatability study are available in the Administrative Record. The Agencies have reviewed this information and consider planar ISV a viable and safe option for remediation of the V-Tanks.

The Agencies believe that an adequate review has been made of the information on the failures associated with the early stages of the development of ISV. The early failures mentioned by the commenters are no longer considered relevant or representative of the current state of development of planar ISV technology and would not aid the Agencies in the selection of a preferred treatment alternative. The Agencies selected planar ISV as a technology alternative for the V-Tanks in the TER because the test data indicate that planar ISV is no longer subject to the failures experienced during the early

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Response to Comment T1-6 (continued):
development of ISV. This same issue was addressed in the Responsiveness Summary section of the 1999 Record of Decision (see pages 3-24 through 3-26).

Notes:

1. Spalding, B.P., July, 1996. *Technical Evaluation Summary of the In Situ Vitrification Melt Expulsion at the Oak Ridge National Laboratory on April 21, 1996,* ORNL/ER-377, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
2. DOE, 1996. *In Situ Vitrification Workshop, October 15-17, 1996, Oak Ridge, Tennessee.*
3. Geosafe, 1994. *Investigation into the Causes and Application of the Melt Displacement Event During Geosafe Operational Acceptance Test #2 (OAT-2),* GSC-2301, Geosafe Corporation, Richland, Washington.
4. Callow, R. A., L.E. Thompson, J.R. Weidner, C.A. Loehr, B.P. McGrail, and S.O. Bates. August, 1991. *In Situ Vitrification Application to Buried Waste: Final Report of Intermediate Field Tests at Idaho National Engineering Laboratory,* EGG-WTD-9807, EG&G, Inc., Idaho National Engineering Laboratory, Idaho Falls, ID.
5. Farnsworth, R.K., et al. January, 1999. DOE/ID-10667, Rev. 1, Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID. "Appendix E: A Preliminary Assessment of Concerns Over Melt Expulsion Potential During ISV Processing." ❖

(Continued from page 53)

Response to Comment T1-7 (continued):
disposal facility design laws includes a cap compliant with the Resource Conservation and Recovery Act (RCRA), monitoring, and an engineered multiple liner system that includes a leachate collection and removal system, and a leak detection and removal system to inhibit fluid movement below the complex liner system. The landfill will meet additional standards for protectiveness with maintenance, monitoring, and post-closure activities that will verify protection of human health and the environment. More information about the ICDF is available on-line at http://www.inel.gov/publicdocuments/pdfs/cercla01-50671-04.pdf. ❖

(Continued from page 53)

Response to Comment T1-8 (continued):
tigation and Feasibility Study (RI/FS) and Record of Decision (ROD), with the associated CERCLA public involvement process. The OU 3-13 ROD, which was signed in 1999, selected remedies for Waste Area Group (WAG) 3 sites, including the creation of the ICDF complex. The ICDF was not permitted under RCRA because, under Section 121(e) of CERCLA, it is exempted from permitting requirements as long as the applicable substantive requirements of RCRA are met. The ICDF is designed to meet the substantive requirements for a RCRA hazardous waste landfill. ❖

(Continued from page 53)

Response to Comment T1-9 (continued):
activities at the INEEL, including CERCLA waste generated from Operational Unit (OU) 1□10. The waste from the V-Tanks that is disposed of at the ICDF will comply with the ICDF waste acceptance criteria (WAC). The ICDF waste acceptance criteria are, in turn, based on a thorough performance assessment, which evaluated the potential for impacts to the environment (e.g., the aquifer) assuming the entire ICDF were filled with CERCLA waste and then designed the ICDF facility and WAC to prevent such impacts from occurring. As long as each waste stream disposed of at the ICDF meets these criteria, which the V-Tanks waste will, the ICDF will remain protective of human health and the environment.

Although each cleanup activity is carried out separately, project managers coordinate technical knowledge and lessons learned from previous cleanup actions at the INEEL and elsewhere. All CERCLA cleanup activities at the INEEL are integrated under a structure established by the 1991 Federal Facility Agreement and Consent Order (FFA/CO). The FFA/CO placed the INEEL facilities into 10 waste area groups (WAGs). WAG 1 is Test Area North (TAN).

Response to Comment T1-9 (continued):
Each WAG is further broken down into operable units (OUs) for more efficient management. Each OU takes in a group of sites with similar contamination problems. Most OU numbers identify site investigations or early actions. The FFA/CO established 10 OUs within TAN. The V-Tanks cleanup is part of OU 1-10, the comprehensive remediation for WAG 1, which assessed the results of preceding site investigations, carried out investigations of sites not previously evaluated, and determined the overall risk posed by this WAG.

Similarly, the comprehensive investigations of WAGs 2 through 9 each examined the cumulative risk for that WAG. Under WAG 10, these documents and the results of analysis of areas between the INEEL facilities are comprehensively assessed to provide a picture of INEEL-wide risk.

In May 2002, the Agencies formalized an agreement to pursue an accelerated cleanup plan at the INEEL that will further improve the INEEL's cleanup approach, both for better risk reduction and for more efficient and timely cleanup. ❖

Appendix B

Administrative Record Index

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE WAG 1 COMPREHENSIVE RI/FS
INCLUDING: TSF PAINT SHOP FLOOR DRAIN LEACH FIELD OU 1-10
RECORD OF DECISION AMENDMENT FILE INDEX
3/15/04

FILE NUMBER

ADMINISTRATIVE RECORD BINDER I

AR1.1 BACKGROUND

A Document #: DKJ-42-02
Title: Recommended Path Forward For Operable Unit 1-10 V-Tanks Remedial Action
Author: Jantz, A. E.
Recipient: Hain, K. E.
Date: 3/4/02

A Document #: EM-ER-02-040
Title: Concurrence With V-Tanks Path Forward
Author: Hain, K. E.
Recipient: Jorgensen, D. K.
Date: 3/14/02

A Document #: EM-ER-02-058
Title: Request for Concurrence With V-Tanks Path Forward
Author: Hain, K. E.
Recipient: Pierre, W.; Nygard, D.
Date: 3/18/02

A Document #: DKJ-141-02
Title: Transmittal of Technology Evaluation Scope of Work for V-Tanks, TSF-09 and TSF-18 for Test Area North, Operable Unit 1-10
Author: McDannel, G. E.
Recipient: Hain, K. E.
Date: 7/10/02

A Document #: EM-ER-02-116
Title: Transmittal of the Technology Evaluation Scope of Work for the V-Tanks, TSF 09/18, for the Test Area North, Operable Unit 1-10
Author: Hain, K. E.
Recipient: Pierre, W.; Nygard, D.
Date: 7/10/02

A Document #: 24747
Title: A Community Relations Update Fact Sheet—New Alternatives Considered for V-tanks at Waste Area Group 1
Author: Not Specified
Recipient: Not Specified
Date: 08/01/02

A Document #: 24746
Title: DOE Approval to Open an Administrative Record File for the Record of Decision Amendment, Operable Unit 1-10
Author: Hain, K. E.
Recipient: Stuart, J. C.
Date: 9/16/02

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE WAG 1 COMPREHENSIVE RI/FS
INCLUDING: TSF PAINT SHOP FLOOR DRAIN LEACH FIELD OU 1-10
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3/15/04

FILE NUMBER

AR1.1 BACKGROUND (continued)

A Document #: INEEL/EXT-2000-01135
Title: Technical Support Facility-06 and Technical Support Facility-26 Calendar Year 2000 Sampling and Remediation Summary Report for Waste Area Group 1, Operable 1-10
Author: Bruce, J. E.
Recipient: N/A
Date: 10/21/02

A Document #: EM-ER-02-185
Title: Transmittal of the Technical Support Facility-06 and Technical Support Facility-26 Calendar Year 2000 Sampling and Remediation Summary Report for Waste Area Group 1, Operable Unit 1-10
Author: Hain, K. E.
Recipient: Pierre, W.; Nygard, D.
Date: 10/29/02

A Document #: INEEL/EXT-02-01310
Title: Pre-Conceptual Designs of Various Alternatives for the V-Tanks, TSF-09/18 at Waste Area Group 1, Operable Unit 1-10
Author: McDannel, G.
Recipient: Not Specified
Date: 11/26/02

A Document #: DOE/ID-11038
Title: Technology Evaluation Report for the V-Tanks, TSF-09/18 at Waste Area Group 1, Operable Unit 1-10
Author: McDannel, G.
Recipient: Not Specified
Date: 4/8/03

A Document #: INEEL/EXT-02-01448
Title: V-Tanks Decision Support Model Design Report
Author: Richardson, J. G.; Chamber, A.
Recipient: Not Specified
Date: 4/1/03

ADMINISTRATIVE RECORD BINDER II

A Document #: INEEL/EXT-03-00438
Title: Conceptual Design Report for Ex Situ Chemical Oxidation/Reduction and Stabilization of the V-Tanks at Waste Area Group 1, Operable Unit 1-10
Author: Jessmore, J. J.
Recipient: Not Specified
Date: 6/25/03

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE WAG 1 COMPREHENSIVE RI/FS
INCLUDING: TSF PAINT SHOP FLOOR DRAIN LEACH FIELD OU 1-10
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3/15/04

FILE NUMBER

AR1.8 ENGINEERING DESIGN FILE

A
Document #: EDF-3868
Title: V-Tank Analytical Data: Calculated Averages and Upper Confidence Limits
Author: Tyson, D.
Recipient: N/A
Date: 12/5/03

A
Document #: EDF-3077
Title: Risk-Based Approach for Management of PCB Remediation of Waste From V-Tanks
Author: Becker, W. J.; Eaton, D. L.; Nitschke, R. L.
Recipient: N/A
Date: 12/5/03

A
Document #: EDF-3938
Title: Use of Tanks V-1, V-2, and V-3 for Storing, Blending, and Accumulating Waste During Remediation of the V-Tanks
Author: Eaton, D. L.
Recipient: N/A
Date: 12/5/03

AR3.10 SCOPE OF WORK

A
Document #: DOE/ID-10999, Rev. 1
Title: Technology Evaluation Scope of Work For the V-Tank, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10
Author: McDannel G.; Jantz, A.
Recipient: N/A
Date: 7/10/02

AR4.3 PROPOSED PLAN

A
Document #: 24783
Title: New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) At Test Area North, Operable Unit 1-10
Author: DOE
Recipient: N/A
Date: 4/1/03

A
Document #: EM-ER-03-105
Title: Transmittal of the Final Technology Evaluation Report for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 (DOE/ID-11038 Revision 0, April 2003), and the New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) at Test Area North, Operable Unit 1-10
Author: Hain, K. E.
Recipient: Pierre, W; Nygard, D.
Date: 4/6/03

AR5.2 AMENDMENT TO RECORD OF DECISION

A
Document #: EM-ER-03-206
Title: Transmittal of the Draft V-Tanks Record of Decision Amendment and Supporting Engineering Design Files for Operable Unit 1-10, Waste Area Group 1, at Test Area North
Author: Not Specified
Recipient: Pierre, W.; Nygard, D.
Date: 8/20/03

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE WAG 1 COMPREHENSIVE RI/FS
INCLUDING: TSF PAINT SHOP FLOOR DRAIN LEACH FIELD OU 1-10
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3/15/04

FILE NUMBER

A
Document #: DOE/ID-10682AMENDMENT
Title: Record of Decision Amendment for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North, Operable Unit 1-10
Author: Not Specified
Recipient: Not Specified
Date: 2/20/04

AR10.3 PUBLIC NOTICES

A
Document #: 24786
Title: Notice of Availability—Agencies Announce Public Comment Period For Test Area North Cleanup Sites
Author: Not Specified
Recipient: Not Specified
Date: 4/10/03

AR12.3 DOE RESPONSE TO COMMENTS

A
Document #: 24784
Title: DOE Response to IDEQ Comments on the New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) At Test Area North, Operable Unit 1-10
Author: DOE
Recipient: IDEQ
Date: 2/26/03

A
Document #: 24785
Title: DOE Response to EPA Comments on the New Proposed Plan for the V-Tanks Contents (TSF-09 and TSF-18) At Test Area North, Operable Unit 1-10
Author: DOE
Recipient: EPA
Date: 2/25/03

AR12.4 EXTENSION REQUESTS AND APPROVALS

A
Document #: EM-ER-03-287
Title: Extension of the Comment Resolution Period For: OU 1-10, Record of Decision Amendment and OU 3-13, Group 3, Phase I, Remedial Design/Remedial Action Work Plan
Author: DOE
Recipient: Nygard, D.; Pierre, W.
Date: 11/24/03

NOTE: Sampling data can be examined at the Technical Support Building, 1580 Sawtelle Street, Idaho Falls, Idaho.