



**Department of Energy**  
Idaho Operations Office  
1955 Fremont Avenue  
Idaho Falls, ID 83401

September 10, 2004

Environmental Restoration Administrative Record

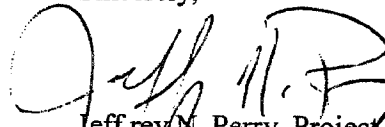
**SUBJECT: Supplemental Responsiveness Summary for the Action Memorandum for Accelerated Retrieval of a Described Area within Pit 4 (FM DP-FFA/CO-04-011)**

*The Engineering Evaluation/Cost Analysis for the Accelerated Retrieval of a Designated Portion of Pit 4 (DOE-ID 2004a)* was issued for public review and comment on May 6, 2004. Individual comments concerning the Accelerated Retrieval (AR) Project received during the 30-day public comment period are detailed in this comment responsiveness summary, which supplements the *Action Memorandum for Accelerated Retrieval of a Described Area within Pit 4 (DOE-ID 2004b)*.

The public comment period began May 6, 2004, and ended June 4, 2004. During the public comment period, 31 individuals submitted a total of 134 written comments. A total of 12 individuals provided oral comments at the public meetings in Idaho Falls, Twin Falls, Boise, and Ketchum, Idaho, and Jackson Hole, Wyoming.

General public support for the proposed removal of waste from the Subsurface Disposal Area (SDA) was evident as detailed in the submitted comments. The majority of commenters share the paramount Agency (i.e., U.S. Department of Energy [DOE], U.S. Environmental Protection Agency [EPA], and the Idaho Department of Environmental Quality [DEQ]) objective to ensure protection of the aquifer through effective cleanup actions at the Radioactive Waste Management Complex (RWMC) within the Idaho National Engineering and Environmental Laboratory (INEEL). Divergence of opinion was evident about some implementation details associated with the action, including the extent of waste removal and specifics of the retrieval process. Considerable public inquiry also focused on measures to be taken to ensure compliance and worker and public safety. Future Agency efforts will be focused on ensuring that the AR Project achieves the removal action objectives, is consistent with the overall Waste Area Group (WAG) 7 program, and is implemented in a manner that is protective of human health and the environment and protective of the workers who are implementing the action.

Sincerely,

  
Jeffrey M. Perry, Project Manager  
Accelerated Retrieval Project

Enclosure

# U.S. DEPARTMENT OF ENERGY MEMORANDUM

## Supplemental Responsiveness Summary for the Action Memorandum for Accelerated Retrieval of a Described Area within Pit 4

### 1. INTRODUCTION

The *Engineering Evaluation/Cost Analysis for the Accelerated Retrieval of a Designated Portion of Pit 4* (DOE-ID 2004a) was issued for public review and comment on May 6, 2004. Individual comments concerning the Accelerated Retrieval (AR) Project received during the 30-day public comment period are detailed in this comment responsiveness summary, which supplements the *Action Memorandum for Accelerated Retrieval of a Described Area within Pit 4* (DOE-ID 2004b). Some comments were submitted where the authors raised issues but did not ask specific questions. In these cases, those issues were added to the comment responsiveness summary and responses were provided (see Section 3). Complete versions of these comments are available in Section 6, "Full-Length Comments."

The public comment period began May 6, 2004, and ended June 4, 2004. During the public comment period, 31 individuals submitted a total of 134 written comments. A total of 12 individuals provided oral comments at the public meetings in Idaho Falls, Twin Falls, Boise, and Ketchum, Idaho, and Jackson Hole, Wyoming.

All comments are included verbatim in this comment responsiveness summary. No changes have been made in grammar, spelling, or any other areas of the submitted public comments.

General public support for the proposed removal of waste from the Subsurface Disposal Area (SDA) was evident as detailed in the submitted comments. The majority of commenters share the paramount Agency (i.e., U.S. Department of Energy [DOE], U.S. Environmental Protection Agency [EPA], and the Idaho Department of Environmental Quality [DEQ]) objective to ensure protection of the aquifer through effective cleanup actions at the Radioactive Waste Management Complex (RWMC) within the Idaho National Engineering and Environmental Laboratory (INEEL). Divergence of opinion was evident about some implementation details associated with the action, including the extent of waste removal and specifics of the retrieval process. Considerable public inquiry also focused on measures to be taken to ensure compliance and worker and public safety. Future Agency efforts will be focused on ensuring that the AR Project achieves the removal action objectives, is consistent with the overall Waste Area Group (WAG) 7 program, and is implemented in a manner that is protective of human health and the environment and protective of the workers who are implementing the action.

## 2. LIST OF COMMENTERS AND COMMENT NUMBERING

All formal comments submitted by the public, in either written or oral form, were documented. Table 1 lists comment sources by numbers that correlate to the comments submitted during the public comment period, which are addressed in Sections 4 and 5. The Comment Source category details how the comment was received—written (W) or during public meetings (i.e., IF for Idaho Falls meeting, TF for Twin Falls, B for Boise, JH for Jackson Hole, and K for Ketchum).

Table 1. Commenters on the Pit 4 Accelerated Retrieval Project, commenter affiliation, and the manner in which the comment was received.

Comment Source No.	Affiliation	Comment Source <sup>a</sup>
1	Private citizen	W
2	Private citizen	W
3	Private citizen	W
4	Private citizen	W
5–8	Private citizen	W
9	Private citizen	W
10	Private citizen	W
11	Private citizen	W
12	Private citizen	W
13	Private citizen	W
14	Private citizen	W
15	Private citizen	W
16	Private citizen	W
17	Private citizen	W
18	Private citizen	W
19	Private citizen	W
20	Keep Yellowstone Nuclear Free	W
21–29	Environmental Defense Institute	W
30	Private citizen	W
31	Private citizen	W
32–103	Private citizen	W
104	Private citizen	W
105	Shoshone-Bannock Tribes	W
106	Private citizen	W
107	Private citizen	W
108	Private citizen	W
109	Private citizen	W
110	Coalition 21	W

Table 1. (continued).

Comment Source No.	Affiliation	Comment Source <sup>a</sup>
111–121	Citizen’s Advisory Board	W
122–133	Snake River Alliance	W
134	Private citizen	W
135	Private citizen	TF
136	Private citizen	TF
137	Private citizen	TF
138	Snake River Alliance	B
139	Private citizen	JH
140	Private citizen	JH
141	Shoshone-Bannock Tribes	IF
142	Citizen’s Advisory Board	IF
143	Snake River Alliance	IF
144	Private citizen	K
145	Private citizen	K
146	Private citizen	K

a. Meeting location key

B = Boise

IF = Idaho Falls

JH = Jackson Hole

K = Ketchum

TF = Twin Falls

### 3. GENERAL COMMENTS BY TOPIC

**Topic #1:** Public concern was expressed as to whether an approach other than visual screening should be used to identify the waste that will be retrieved from the pit, and whether random sampling and/or screening should be performed in addition to the visual screening that is proposed.

**Response:** The proposed process for visually identifying targeted waste streams at the dig face was selected primarily because of experience gained from the Operable Unit (OU) 7-10 Glovebox Excavator Method Project. Consideration also was given to lessons learned through early waste retrievals and initial drum retrievals that occurred in the 1970s. The recent Glovebox Excavator Method Project experience did show that the original distinguishing characteristics of the buried waste forms (e.g., color, cement in layers, and packaging) were indeed still present such that visual identification of waste forms was possible. In the case of Pit 4, the types of targeted waste include graphite waste, contaminated high-efficiency particulate air (HEPA) filters, Series 741 sludge, Series 743 sludge, and uranium roaster oxides. Experience from the Glovebox Excavator Method Project indicates that the expected distinguishing characteristics for graphite and filters will lead to relatively easy identification at the dig face. A similar conclusion is true for the sludge. It also is important to note that the vast majority of nontargeted waste consists of combustible and noncombustible debris (e.g., metal scrap, piping, and plastics) that look very different from the targeted waste streams.

Selective removal of targeted waste streams will result in significant waste management efficiencies by avoiding removal of waste streams that may not be eligible for disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico. The gross removal of all waste streams and soils in the Glovebox Excavator Method Project resulted in only 60 drums of a total of 454 drums that exhibited high enough transuranic radionuclide content to satisfy the WIPP transuranic waste acceptance criteria (WAC). Targeting the identified waste streams, as will occur in this removal action, will help to avoid this situation.

The segregation approach will be verified through operational experience and will be implemented with operational controls, training, procedures, and characterization activities designed to verify effectiveness of the visual method. Specific measures to be implemented include the following:

- A procedural approach will be implemented that defaults to a decision to *remove* nontargeted waste if the waste cannot definitively be distinguished from targeted waste. In other words, for a given waste batch that looks like targeted waste, the waste will be removed rather than left in the pit.
- The targeted or nontargeted waste determination will be made by an individual assisting the excavator operator by way of closed-circuit television cameras at the digface and mounted on the excavator. Further assessment of the targeted or nontargeted determination will be made by personnel viewing the waste through the windows of the drum-packaging system.
- Field screening instrumentation will be employed to identify waste associated with high-energy gamma radiation to ensure that the associated waste is managed appropriately and that potential radiation exposure of operations personnel is appropriately controlled.
- Sampling activities are being planned to characterize selected radionuclides within nontargeted waste and underburden that is not removed as part of the action. Resulting data will be used by the Agencies to assess residual risk considerations and evaluate the effectiveness of the planned visual waste segregation approach.

**Topic #2:** Why isn't all waste—not just the “targeted” waste—being removed from the retrieval area? Once retrieved, will waste be returned to the pit?

**Response:** The objective of this removal action is focused on removing certain targeted waste from the designated portion of Pit 4 rather than removal of all waste. As planned, the action will remove waste streams that contain a significant portion of the contaminants of concern (COCs). These COCs include volatile organic compounds (VOCs), uranium, and transuranic (TRU) radionuclides including plutonium. By targeting Series 743 sludge and uranium roaster oxide waste, it is expected that most of the VOC and uranium inventory in the pit will be removed. In addition, based on waste inventory data, approximately 90% of the curies associated with the RFP TRU waste streams are contained within the Series 741 sludge, graphite, and contaminated HEPA filters. Combined, all targeted waste streams contain a large portion of COCs in approximately 20% of the retrieval area waste volume. By focusing removal on these targeted waste streams, efficiency of the action is increased while waste inventory and risk within the retrieval area are significantly reduced.

While removing most of the COCs, the proposed approach does leave both chemical and radiological residuals in the pit. A significant amount of risk assessment work has been completed to date and is part of the administrative record file for WAG 7. The primary document is the *Ancillary Basis for Risk Analysis of the Subsurface Disposal Area* (Holdren et al. 2002) referred to in the *Engineering Evaluation/Cost Analysis* (EE/CA) (DOE-ID 2004a) for this proposed action. Based on this and other documentation, the Agencies proposed a removal action that addresses COCs, located in the Rocky Flats Plant (RFP) waste buried in Pit 4, that have been identified in the current risk documentation. Consequently, it is concluded that the proposed removal approach, when combined with implementation of the final action for WAG 7, will be protective of human health and the environment. Final evaluation of the comprehensive risk for WAG 7 and the full range of associated remedial options will be documented in the OU 7-13/14 Record of Decision (ROD).

The DOE is evaluating a range of disposal options for waste removed from the pit. The majority of removed waste is expected to be eligible for disposal at WIPP. For waste that is not eligible for disposal at WIPP, DOE will give preference to disposal options that do not involve return to the pit (e.g., off-Site treatment and disposal) and will only consider returning waste to the pit that does not present unacceptable risk to the aquifer, subject to agreement with DEQ and the EPA.

**Topic #3:** Why is the proposed action being pursued at this time rather than waiting until the OU 7-13/14 remedial investigation and feasibility study (RI/FS) is complete? How will the Agencies ensure that future excavation of the same area is not required?

**Response:** A significant amount of work related to the RI/FS and baseline risk assessment has been completed under the WAG 7 program to date. Based on that work, the resulting understanding of COCs at the site, and anticipated state and community considerations, the DOE, in consultation with the DEQ and EPA, has concluded that the proposed waste removal is implemented appropriately at this time. Furthermore, the action is consistent with overall DOE programmatic objectives to accelerate completion of remedial work and to achieve early risk reduction where possible. The removal action process is a streamlined process for accomplishing these objectives and, when conducted with close regulatory Agency coordination, results in actions that are supportive of the final remedial action. The federal facility agreement and consent order (FFA/CO) process (i.e., tri-party process for conducting cleanup at the INEEL) (DOE-ID 1991) does recognize the authority of DOE to conduct removal actions as part of the overall cleanup program. Finally, the DOE has determined that this proposed removal action “. . . shall, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned” (40 CFR 300.415). Specifically, the proposed removal action, in addition to addressing a significant portion of the hazardous substances in the SDA, will provide characterization and technical and cost information from full-scale waste retrieval activities that will support the ROD for OU 7-13/14. It also will establish process details for certification and transfer of retrieved TRU waste to WIPP.

The preliminary feasibility study work currently underway will address three types of remedial alternatives: (1) retrieval, (2) in situ grouting, and (3) capping. This removal action is consistent with these alternatives and will not prevent future implementation of any alternative being evaluated. If the RI/FS determines that additional measures are needed, the OU 7-13/14 ROD will determine whether in situ treatment, capping, retrieval, or a combination will be selected. The proposed action was developed by considering (1) future actions that will likely be implemented through the OU 7-13/14 ROD and (2) the body of existing RI/FS-related documentation available for this site, which forms the technical basis for the waste to be addressed (i.e., waste containing identified COCs).

The Agencies will continue to tailor the project's approach to minimize the potential that future retrievals in this area will be required. The Agencies, however, maintain the ability to require additional measures if needed to protect human health and the environment.

**Topic #4:** Why haven't more alternatives been evaluated in the AR Project EE/CA (DOE-ID 1994)?

**Response:** Alternatives for performance of the removal action were purposely limited for consistency with the focused removal objective (i.e., targeted retrieval of certain RFP waste streams that are highly contaminated with transuranic radionuclides, VOCs, and various isotopes of uranium). The monitoring scenario is included simply as a baseline for comparing costs for either option: implementing the removal action or not implementing the removal action. Monitoring costs are meant to represent costs for existing SDA monitoring for an assumed period of time that will be incurred regardless of the removal action implemented.

**Topic #5:** Public concern was expressed related to air emissions (e.g., radionuclide and nonradionuclide) that would result from implementation of the AR Project, monitoring that would be performed, and efficiency of the control equipment (i.e., HEPA filtration).

**Response:** Evaluation of radiological and chemical air emissions for the AR Project has been finalized. The evaluation quantifies radiological and chemical exposures to an appropriate, hypothetical, and collocated worker receptor and to required public-receptor locations. This evaluation is documented in Engineering Design File (EDF) -4692, "Air Emissions Evaluation for the Accelerated Retrieval Project for a Described Area within Pit 4." The analysis shows that chemical and radiological exposures are within health-based thresholds required by identified applicable or relevant and appropriate requirements (ARARs), and that carcinogenic risk is below the EPA recommended-risk range typically applied in a remedial action context. The evaluation also indicates that continuous radiological-emissions monitoring for compliance with radionuclide National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR 61) ARARs is required and will be implemented. Monitoring for VOC emissions is not required based on the estimates, but is being considered for data gathering and other purposes. It is noted that similar emissions calculations were performed for the Glovebox Excavator Method Project, and resulting monitoring results indicated that the actual emissions were less than estimated for both radionuclides and VOCs.

Use of HEPA filters, in the manner proposed, is consistent with state-of-the-art industry practice, and the associated control efficiencies are widely accepted throughout DOE and Nuclear Regulatory Commission facilities.

**Topic #6:** Public concern was expressed about the ability to transfer waste to WIPP and what will happen to waste that is not eligible for disposal at WIPP.

**Response:** The project is actively working with WIPP officials to ensure retrieved TRU waste meets WIPP requirements. Retrieved targeted waste forms will be visually examined for compliance with WIPP

requirements during repackaging at the drum-packaging station. The waste will be placed in safe and compliant storage until additional characterization steps (e.g., assay and headspace gas sampling) can be performed. Alternative disposal options are currently being evaluated for waste that does not qualify for disposal at WIPP. The diagram presented in Figure 1 illustrates the general process flow and disposal logic for major waste streams resulting from the AR Project.

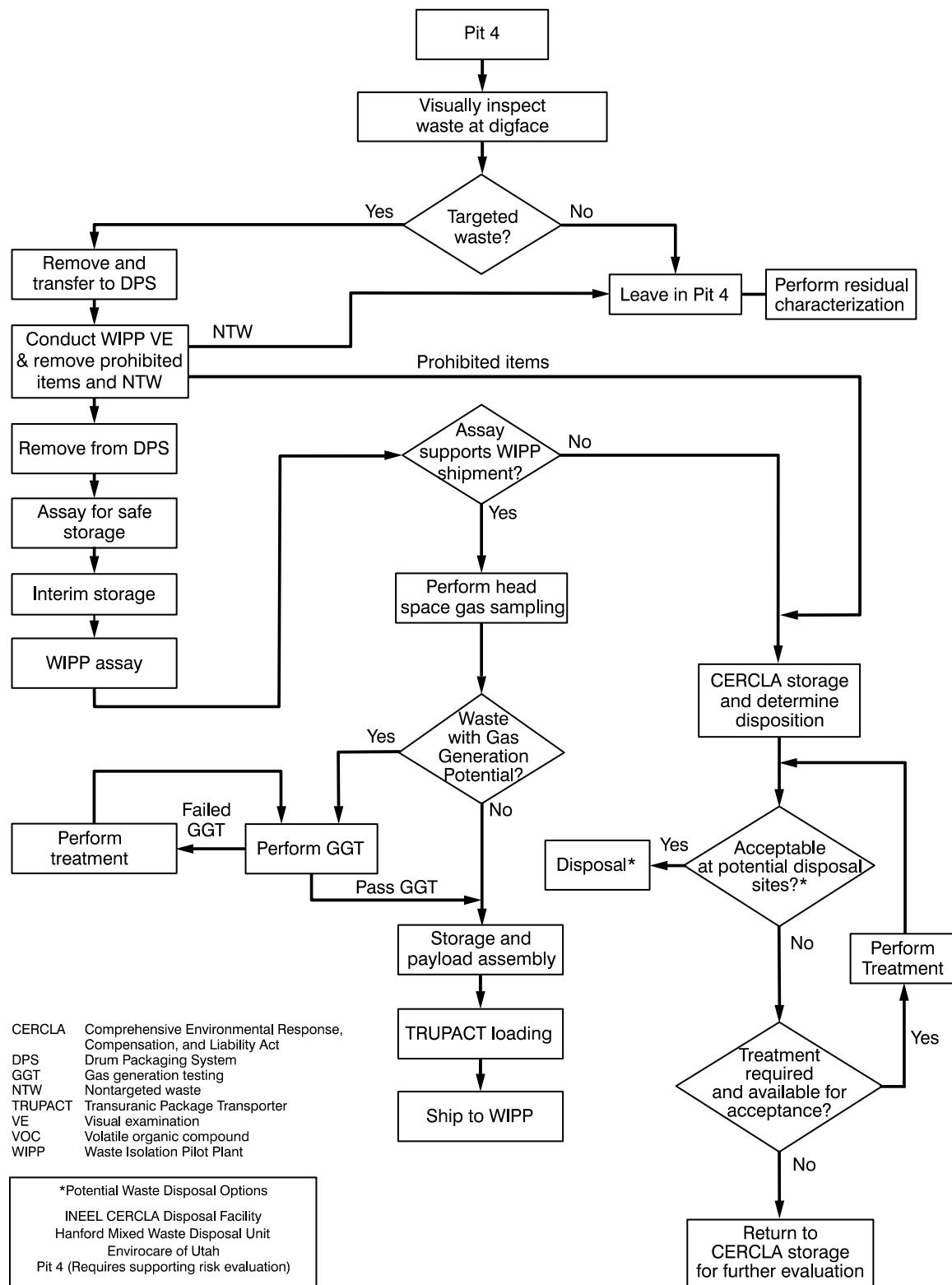
**Topic #7:** Public concern was expressed about compliance with legal requirements such as Resource Conservation and Recovery Act (RCRA) (42 USC § 6901 et seq., 1976) land disposal restrictions, the dense-pack drum storage arrangement, and Toxic Substances Control Act (TSCA) (15 USC § 2601 et seq., 1976) requirements for polychlorinated biphenyl (PCB) management.

**Response:** The EE/CA (DOE-ID 2004a) and the *Action Memorandum* (DOE-ID 2004b) identify ARARs for the chemicals, activities, and location involved in the removal action. Included in this listing of ARARs are substantive RCRA and TSCA standards and other relevant environmental statutes and State of Idaho regulations. Detailed activities for implementing the ARARs will be developed further in subsequent documentation (e.g., removal action plan) and operational procedures that the AR Project will follow. Review of the documentation and associated ARARs implementation will be coordinated with DEQ and EPA personnel to ensure compliance with the substantive ARARs.

In some cases, unique compliance approaches will be implemented to support compliance with the ARARs. One example of this is the risk-based storage approval documented in the *Action Memorandum* (DOE-ID 2004b, Appendix A). The risk-based storage approval is being implemented as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC § 9601 et seq., 1980) action and is provided for by the TSCA regulations identified as ARARs for the AR Project. An additional example is the dense-pack storage arrangement planned for implementation within the CERCLA storage building. The dense-pack storage arrangement is being implemented as a modification to the normal RCRA container storage practice, is considered appropriate for the radiological waste being managed, and is being implemented through consultation with DEQ and EPA personnel. Supporting operational requirements for implementation of the dense-pack storage approach (which ensure meeting the objectives of the RCRA requirements, particularly inspection) will be included in the AR Project removal action plan and reviewed by the Agencies to ensure that appropriate measures are included.

At the suggestion of a commenter, a generalized process flow chart (see Figure 1) has been developed to illustrate the major process steps, associated decision points, and potential waste disposal options that are being evaluated as part of the proposed action.





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Figure 1. Diagram of the general process flow and disposal logic for major waste streams resulting from the Accelerated Retrieval Project.

## 4. WRITTEN COMMENTS AND RESPONSES

**Comment #1:** Please go forward and clean up whatever you can as quick as possible. It's disgusting to know we have this much pollution in our state already. The cost is sickening as well.

**Response:** The DOE is committed to accelerating cleanup at the INEEL and reducing risk to the environment. Retrieving buried waste from Pit 4 is just one example of the many projects that are underway to accomplish this mission.

**Comment #2:** Please tell the DOE to dig it up! The waste buried over the aquifer needs to be removed because it poses such a nasty threat to Idaho's water. This state is too important to do anything less.

**Response:** The DOE, in cooperation with DEQ and EPA, is taking immediate action to significantly reduce the inventory of radioactive and hazardous waste buried above the Snake River Plain Aquifer. The Agencies agree that accelerating cleanup of the SDA is warranted to protect southern Idaho's primary water source.

**Comment #3:** I strongly support removal of nuclear waste at the Burial Grounds or any other facility. We must protect Idaho from nuclear pollution.

**Response:** The DOE is making significant progress to clean up the INEEL from past nuclear-related missions. In addition to the Pit 4 retrieval project, additional cleanup work continues to safely consolidate spent nuclear fuel, dispose of mixed low-level waste and to deactivate, decontaminate, and decommission facilities.

**Comment #4:** A more defensible process than visual examination should be used to identify transuranic wastes to be retrieved from the pit. A different process is needed because it is unclear how operators will be able to differentiate between similar waste streams such as 741 and 742 sludges. Also, it's inevitable that lawsuits will be filed after the removal action is complete since waste will be left in place; DOE will need a way to prove that all targeted TRU waste was in fact removed.

**Response:** See the responses for Topics #1 and #2 under Section 3, "General Comments by Topic."

**Comment #5:** Why are we not finishing Pit 9? Is there trouble, like danger of criticalities, from finishing Pit 9 that you are not disclosing as you switch attention to part of pit 4?

**Response:** The Pit 9 enforceable milestones, as established through the April 18, 2002, *Agreement to Resolve Disputes* (DOE 2002), are still in place. Priority has been placed on Pit 4 because of inventory information that indicates the area in Pit 4 contains significantly higher concentrations of TRU curies than are located within Pit 9. Consequently, the Agencies have agreed that the current priority be placed on removing the waste from Pit 4 to accelerate the quantity of TRU isotopes that are removed. Nuclear criticality considerations are not the reason the decision was made to locate the proposed non-time-critical removal action (NTCRA) in Pit 4.

**Comment #6:** The CDC panel I was on witnessed the CDC report that said records of contents of the buried waste were uncertain, with bad records and unkept records during strikes. Why does your spokesman say with such certainty that "7%" of the buried waste is in pit 4 when the CDC research says it can't be determined?

**Response:** In general, the inventory basis associated with the SDA is adequate to support risk assessment and remedial decision-making. Inventory documentation includes assessment of uncertainty, and

generally, upper-bound inventory values are factors in risk management decisions. Furthermore, the risk assessment documentation will include sensitivity analysis of important parameters such as inventory values and contaminant transport properties (e.g., water infiltration rate).

**Comment #7:** Why are you in court now defending your right to NOT remove buried waste, while you present your fabulous clean up plans alongside your Generation Four nuclear power plans for Idaho? (Like the May 17 “Information” Fair)

**Response:** See the response for Topic #3 under Section 3, “General Comments by Topic.” It is also noted that the DOE’s appeal of the State of Idaho’s lawsuit is based on the DOE position that the 1995 *Settlement Agreement* (DOE 1995) did not apply to *buried* TRU waste at the RWMC. The DOE has maintained the position that the buried waste is covered by the FFA/CO and will be cleaned up in accordance with the CERCLA process. This NTCRA is consistent with that process, and will, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedy under the FFA/CO.

**Comment #8:** While I have documented HEPA containment problems, and had the Blue Ribbon Panel endorse my call for containment testing, and had the NAS endorse my call for solidification of the waste BEFORE removal, why do you ignore these problems and recommend a backhoe for loose waste that depends on HEPA filters for public safety? How many million plutonium particles will be released by your “estimates” by this procedure you so happily recommend?

**Response:** The use of HEPA filters in the manner proposed is consistent with state-of-the-art industry practice, and the associated control efficiencies are widely accepted throughout DOE and Nuclear Regulatory Commission facilities. The project will implement continuous radiological monitoring to quantify the radionuclide emissions released from HEPA filters in accordance with relevant EPA regulations that are applicable or relevant and appropriate requirements to verify and document that actual emissions are within allowable regulatory limits.

**Comment #9:** My city draws its water from the Aquifer downstream of INEEL, a site chosen by the U.S. Government for experimentation with hazardous materials because “it was so isolated.” How situations do change in 50 years.

City of Shoshone Water Quality Report for 2003 shows beta emitter content at 4 mrem/yr. or 50 pCi/L which is right at the EPA level of concern, and furthermore the report shows it to be attributable to “man-made deposits.”

As for your Pit 4 Project – I say dig it all up and dispose of it properly. Don’t delay any longer 50 years is long enough already.

**Response:** The 4 mrem/year, or 50 picocuries per liter (pCi/L) value, referred to in the City of Shoshone Water Quality Report for 2003, is actually the maximum contaminant level for beta emitters. The maximum contaminant level is the maximum concentration for the specific compound in drinking water that is allowed by the EPA.

According to the report, the beta emitter results in the groundwater ranged from a low of 3.2 pCi/L to a high of 3.6 pCi/L, which are below the 50-pCi/L maximum contaminant level established by the EPA. These results are within the estimated range of background beta radiation

**Comment #10:** As an Idaho resident I expect all waste that threatens the quality of our water supply be removed from the INEEL grounds. This of course would include all of the nuclear waste from Pit 4 at the Burial Grounds.

**Response:** See the response for Topic #2 under Section 3, “General Comments by Topic.”

**Comment #11:** Drumming liners along with the excavated waste will significantly increase the volume of waste that will be shipped to WIPP. Waste should be placed in drums without including the liners to minimize the number of drums that will be shipped.

**Response:** The tray liners are a proven system for transferring waste materials to the drums while minimizing dust generation and associated radiological release potential. A number of designs to accomplish this function were evaluated. The referenced overall increase in waste volume was also considered, but was offset by advantages provided by the approach in terms of handling waste and minimizing radiological release.

**Comment #12:** It’s doubtful that visual inspections will be able to differentiate between targeted and non-targeted waste well enough to defend against claims that some TRU waste was left behind in the excavated portion of Pit 4. It’s highly likely that someone will file a suit against DOE claiming inadequate TRU removal after the non-time critical removal action is complete. If sufficient data to defend against this type of lawsuit is not collected during the removal action, it’s likely that this area of Pit 4 will have to be excavated again. This would be a tremendous waste of taxpayer money and should be avoided by performing defensible TRU screening during the removal action.

**Response:** See the response for Topics #1, #2, and #3 under Section 3, “General Comments by Topic.”

**Comment #13:** The excavation trench should be shored to ensure the trench does not collapse under the weight of the excavator. Without shoring, a collapse could occur, even with a 1:1 slope, since the buried waste could lie in an unstable configuration. A collapse could seriously injure the excavator operator so shoring the sides of the excavation seems prudent.

**Response:** A geotechnical expert reviewed the AR Project in its early stages and provided input on the decision about whether shoring is feasible. Both shoring and angle-of-repose (sloping) were found to be feasible methods of excavation. However, safety and worker protection issues identified with shoring caused the AR Project team to choose an angle-of-repose (sloping) method of excavation because of the negative impact to operations. A workable shoring system would require personnel to enter the excavation area to relocate shoring bracing, subjecting the personnel to undue risk. The angle-of-repose method provided better as low as reasonably achievable (ALARA) practices for personnel. The cost of shoring installation was also very high at \$1,000/lineal ft. A scope of work has been written to perform slope stability calculations for operations and to determine the minimum safe repose angles.

To mitigate the risk of excavator instability during excavation, the excavator will operate from on top of at least 2 ft of overburden soil. This overburden will be highly compacted from previous construction activities. In addition, the overburden soil will be treated with a mix-in soil-stability agent that will increase the strength of the soil layer. The absence of saturated conditions in the soil is another added mitigation factor. The retrieval enclosure will prevent the retrieval area from becoming saturated with rain or snowfall.

**Comment #14:** It’s not clear why the FFA/CO process is suddenly being circumvented by a series of non-time critical removal actions. The agencies have been aware of the environmental hazards associated with the SDA for many years so suddenly taking limited action that may or may not support the disposal

area's final action seems ill conceived. DOE would seem to be better served by negotiating a final action for the SDA, in accordance with the FFA/CO, rather than spending hundreds of millions of dollars on limited actions that may continue for a very long time.

**Response:** Non-time critical removal actions are part of the CERCLA FFA/CO process and are being implemented at the SDA to accelerate cleanup work and to reduce risk now, instead of waiting for a ROD to be issued. To date, a significant amount of the WAG 7 RI/FS and baseline risk assessment-related work has been completed. This work will continue to move forward until a ROD is issued, which is currently scheduled for 2008. Based on this work, the DOE, in consultation with the DEQ and the EPA, has concluded that the proposed waste retrieval, which includes the removal of TRU waste, uranium and VOCs, is appropriately implemented at this time and is consistent with the anticipated final remedy for the SDA.

**Comment #15:** This removal action would be a tremendous waste of taxpayer money if the State of Idaho and EPA decide to excavate this portion of Pit 4 for a second time as part of the final SDA remediation. DOE should negotiate a written agreement with the agencies that eliminates this possibility before proceeding with the non-time critical removal action.

**Response:** See the response for Topic #3 under Section 3, "General Comments by Topic."

**Comment #16:** The EE/CA should compare the non-time critical removal action against an alternative that is likely to resemble the final action for the SDA. Simply comparing the removal action alternative against a monitoring scenario is not appropriate since the final action for the burial site will obviously involve more than monitoring. The analysis should honestly attempt to determine whether it is better to perform a non-time critical removal action now or dedicate resources to developing the final decision for the site.

**Response:** See the response for Topic #4 under Section 3, "General Comments by Topic."

**Comment #17:** The cost estimate presented in the EE/CA is misleading since it does not include the costs associated with treating the excavated waste, transporting the waste to its eventual disposal site, or performing D&D on the facilities that will be built to support the removal action. A more complete cost estimate should be developed before deciding to proceed with the removal action.

**Response:** The cost estimate is a reasonable estimate within the allowable uncertainty for RI/FS cost estimates (i.e., +50 to -30%). The cost estimate does include costs for interim decontamination of the facilities sufficient to support relocation and reuse. Transportation costs to WIPP are not included because those costs are funded by WIPP. Costs for WIPP Central Characterization Project deployment at the Pit 4 site are included. Finally, treatment costs are not directly included within the cost estimate; however, contingency allocation was included sufficient to bound this cost.

**Comment #18:** The Pit 4 waste storage facility will have the same purpose as the Transuranic Storage Facility (i.e., storage of transuranic waste excavated from the SDA). As a result, it's likely that the storage facility will have to be RCRA permitted. Permitting costs and schedule delays should be factored into the analysis of whether the non-time critical removal action should be pursued.

**Response:** There will be no legal need for a RCRA storage facility permit and no delays due to a RCRA permitting process. Congress determined that cleanup at Superfund sites needed to be expedited by removing the need for permits, and instead required that all the substantive requirements of RCRA and other environmental laws would be met during the CERCLA process by being identified as ARARs and incorporated into the design of the removal and remedial actions.

**Comment #19:** Double handling of excavated waste should be avoided to minimize personnel exposure and waste handling costs. Please verify that during drum load out, waste will be inspected such that any visual inspection and prohibited item removal will be sufficient for certification of the waste for disposal at WIPP. The EE/CA does not convey confidence that the process is efficient and will not result in double handling at a later date.

**Response:** Project scope includes development of a process and procedures that will perform appropriate visual examination at the time of initial waste repackaging. Details of this process implementation are being closely coordinated with WIPP program personnel.

**Comment #20:** KYNF is familiar with the waste stream involved in this project, and also notes that the highly radioactive VOC's and TRU have been buried in these unlined pits for over forty years! Since this time there has been an obvious flooding risk, associated air quality issues, and documentation of aquifer contamination. This poison wafts upward into the air and downward to the soil and water. Given that, we find the very nomenclature of this unacceptable. Time is not your friend when dealing with the half-lives of these transuranic elements and volatile compounds.

It is the understanding of KYNF, that the method for waste retrieval will be achieved by a visual sorting of waste, through the direct, man-operated use of excavation equipment. In simple terms, a retro-fitted Trackhoe will be picking through, and sorting waste utilizing a "best guess" method of targeting waste based on physical characteristics, i.e. barrels, filters, graphite fines. This method of picking through the Pit-4 contents of 1,600,000 cubic feet of waste, using an "eyeballing" technique, seems grossly insufficient and an inadequate way to address the totality of the threat this waste poses. Furthermore, the "non-targeted" waste that makes it out of the pit, will then be re-packaged and put back in the same or other sub-surface "dump". To presume that this process will retrieve all the waste that needs to be removed is far from believable given the very non-scientific, low-technology approach. It also seems fool-hearty to assume that there will not be significant amounts of target waste embedded in the non-targeted waste that will then go back to its precarious home perched on the aquifer. Even trace amounts of TRU and VOC's pose a significant risk and threat to people and the environment and will invariably spread contamination.

KYNF is not an organization responsible to posit other alternatives to exhume the waste. However, we know that there have been other successful retrieval projects that have taken place at the RWMC in both 1974 and 1976 and feel that more could be learned and emulated from those examples. Given the debacle and lessons learned from Pit-9, one would presume that with the time that has elapsed, the breadth of research, and expertise of waste characterization and treatment, that a more suitable alternative could be selected that relies less on human error and presumption that we can visually detect radioactive waste. At the very least, this chosen treatment method should utilize a real-time radiation monitoring device to even begin to make this retrieval project viable.

**Response:** See the response for Topics #1, #2, and #3 under Section 3, "General Comments by Topic."

**Comment #21:** In March 2003, DOE lost a desperate legal attempt to renege on its 1995 Settlement Agreement with the State of Idaho to remove all alpha low-level, transuranic, and high-level waste from INEEL. DOE wanted to limit its obligation to removing only "stored" waste and leave the "buried" waste permanently in place at INEEL. U.S. Federal District Court Judge Lodge ruled in favor of Idaho and stated that "all means all, stored and buried waste" and ordered that "the United States remove all transuranic waste located at INEEL." [emphasis added]

As discussed below, DOE also launched another legal attempt to eliminate its statutory obligation (under the Nuclear Waste Policy Act) to remove all the high-level waste in tanks at INEEL and other DOE sites.

Although DOE was able to have its appeal heard in the Ninth Circuit, a ruling has yet to be issued as of this writing.

**Response:** The TRU waste case is currently on appeal at the Ninth Circuit Court and has not been finally resolved. It is noted that the DOE appeal of the State of Idaho lawsuit is based on the DOE position that the 1995 *Settlement Agreement* did not apply to *buried* TRU waste at the RWMC. The DOE has maintained the position that the buried waste is covered by the FFA/CO and will be cleaned up in accordance with the CERCLA process. This NTCRA is consistent with that process, and will, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedy.

**Comment #22:** DOE is the federal agency (tasked with managing the most deadly operations on the planet) that based on its legal and legislative record puts public health and safety in a lower priority than saving money and will go to extreme lengths to avoid compliance with the law.

**Response:** Public health and safety is one of the highest priorities of DOE and is the primary driver for accelerating cleanup at the INEEL, including the Pit 4 retrieval project. The INEEL has an excellent record of compliance with environmental laws. This CERCLA work is carried out cooperatively with the EPA and the DEQ pursuant to a series of specific negotiated agreements, settlements, and consent orders with those agencies. All major proposed CERCLA actions, including this proposed removal action, are offered to the public for review and comment in accordance with CERCLA, Section 117. All decisions are documented (along with comments from EPA, DEQ, and the public) and placed in a public file that is available for viewing in several public libraries as well as on the Internet.

**Comment #23:** The bottom line is that this Pit-4 Plan is categorically deficient under federal regulatory requirements (discussed below), and lacks the requisite commitment by DOE to “get the waste out of Idaho.”

**Response:** The proposed removal action will be conducted in accordance with the relevant federal law (i.e., CERCLA) and is endorsed by both the EPA and DEQ. The action will result in removing a substantial portion of the buried TRU waste, located in the designated area, from the state.

**Comment #24:** DOE’s Plan states that Pit-4 is a “non-time-critical removal action.” [page 1] The fact that this buried waste at the RWMC generally and Pit-4 specifically is migrating into the Snake River Aquifer since the Pit-4 waste interment in 1963, by any observer, represents an immediate hazard. This “non-time-critical” designation is not based on credible risk-based assessments given the documentation available showing RWMC waste migration into the Snake River Plane Aquifer.

**Response:** The primary distinction between “time critical removal actions” and NTCRAs, as defined in the National Contingency Plan (NCP) (40 CFR 300.415, “Removal Action”), is whether the planning and preparation for the action can be completed in less than 6 months (i.e., time critical) or whether planning and preparation will require 6 months or longer (i.e., non-time critical).

A NTCRA requires development of an EE/CA document. This document describes the purpose of the AR Project including risk, cost, and technology alternatives, followed by a 30-day public comment period before the lead agency (i.e., DOE) issues the action memorandum decision document to the Administrative Record. Under a time-critical removal action, the only document required is an action memorandum, which allows public comment to take place simultaneously with issuance of the action memorandum and commencement of the work.

The DOE determined, and DEQ and EPA concurred, that the complexity of design for this action would require a planning period of more than 6 months and provided for public comment before execution of the removal action.

**Comment #25:** DOE, state, and EPA reports on aquifer contamination resulting from RWMC buried waste go back several decades in addition to the ever-present flooding risks. Nuclear Regulatory Commission regulations on “disposal site suitability requirements for land disposal” [10 CFR 61.50(a)(5 through 7) state in pertinent part:

Much of this waste would also be legally classified as “Class-C” and “greater than Class-C Low-level waste” that the Nuclear Regulatory Commission (NRC) regulations specifically prohibit disposal in shallow land burial such as Pit-4. NRC regulations on “greater than Class C” state that waste be interned in engineered deep geologic repositories due to the extreme radiological hazard this waste presents!

**Response:** Historic land disposal practices at the SDA were appropriate at the time in which they were performed (1954 to 1970). The CERCLA law addresses contamination from historic disposals and the INEEL has an excellent record for compliance with CERCLA cleanup milestones.

The Nuclear Regulatory Commission regulation cited in the comment was promulgated in the Federal Register at 47 FR 57463 on December 27, 1982, 12 years after TRU waste disposal ceased in the SDA.

**Comment #26:** Moreover, the State of Idaho stipulated in the Settlement Agreement with DOE, that “low-level alpha waste” (greater than 10 and less than 100 nCi/gm) also be removed from INEEL. The 1995 Settlement Agreement states: “1. DOE agrees to treat spent fuel, high-level waste, and transuranic wastes in Idaho requiring treatment so as to permit ultimate disposal outside the State of Idaho. 2. DOE shall as soon as practicable, commence the procurement of a treatment facility [facility] at INEL for the treatment of mixed waste, transuranic waste and alpha-emitting mixed low-level waste [treatable waste].”

**Response:** The Advanced Mixed Waste Treatment Project (AMWTP) facility at the INEEL was built to fulfill the cited provision in the 1995 *Settlement Agreement*.

**Comment #27:** Additional uncertainty is pervasive on DOE reliance on DOE Order 435.1 that is currently being litigated by the Natural Resources Defense Council (NRDC). U.S. Federal Court found DOE Order 435.1 illegal under the Nuclear Waste Policy Act, however DOE has appealed that ruling to the Ninth Circuit Court of Appeals. Six states have filed a joint Amicus Brief in support of NRDC case.

**Response:** The court case referenced involved only one provision in DOE Order 435.1, “Radioactive Waste Management”; specifically, the provision enabling DOE facilities to use the evaluation process to reclassify material that would originally be classified as high-level waste (HLW), based on its origin, to either TRU waste or low-level waste based on reduced levels of radiation. All other provisions in DOE Order 435.1 were outside the scope of the litigation and are not in question. No HLW was disposed of in Pit 4, and no reclassification of HLW is being proposed by this action at Pit 4.

**Comment #28:** INEEL uses many sites for permanent disposal of transuranic waste including injection wells into the aquifer and unlined percolation ponds.

**Response:** There is no current, ongoing disposal of TRU waste at the INEEL. All new placement of TRU waste from the INEEL and the rest of the DOE complex, is being made, in accordance with law, into WIPP. This includes INEEL TRU waste that has been in aboveground storage since 1970. Transuranic waste retrieved during the proposed Pit 4 removal action will also be sent to WIPP.



**Comment #29:** The thrust of this discussion related to the INTEC high-level tanks [the last 4 pages of the commentor's letter] also applies to the RWMC Pit-4 Remediation of buried waste because the same obfuscation of fundamental statutory and regulatory requirements are employed by DOE.

**Response:** The DOE is fulfilling applicable laws and regulations that pertain to the proposed action. The most significant statute relevant to Pit 4 is CERCLA. The Pit 4 removal action is being proposed in compliance with CERCLA, Section 104 (42 USC 9601 et seq., 1980). Standards applicable to the retrieval of TRU waste have been identified in compliance with CERCLA, Section 121, and comments on the Pit 4 removal action EE/CA have been solicited from this commenter and others in compliance with CERCLA, Section 117.

**Comment #30:** I urge removal of all waste at Burial Grounds. Idaho's water is too important to do anything less.

**Response:** See the response for Topics #2 under Section 3, "General Comments by Topic." The DOE agrees that the Snake River Plain Aquifer is one Idaho's most important natural resources and should be protected. As a result, DOE is committed to accelerating cleanup of buried waste at the INEEL.

**Comment #31:** We are writing you to urge you to commit to removal of ALL the nuclear waste at the Burial Grounds. We support speeded up removal of waste that would be an immediate threat, but urge you keep a firm schedule that will lead to the removal of all waste from this site. We need to protect our valuable aquifer not just for this generation, but for those to come.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic."

**Comment #32:** Again, this document fails to offer any real choices. It seems the DOE, like in NEPA, has made a decision and then written a document to justify that decision. This EE/CA provides no reasonable alternatives except the selected action and No Action. There is no serious discussion of other alternatives and why they are unacceptable.

**Response:** See the response for Topic #4 under Section 3, "General Comments by Topic." As stated in the EE/CA, the alternatives for performance of the removal action were purposely limited for consistency with the focused removal objective (i.e., targeted retrieval of certain RFP waste streams that are highly contaminated with TRU waste radionuclides, VOCs, and various uranium isotopes). An appropriate evaluation of a range of remedial alternatives for the SDA will be included in the OU 7-13/14 RI/FS process. The monitoring scenario, as stated in the EE/CA, is included simply as a baseline for comparing the costs for either option: implementing the removal action or not implementing the removal action.

**Comment #33:** DOE claims this action is necessary to reduce risk, yet it does not identify the exact amount of risk reduction expected through this action. Past risk assessments at the RWMC (except the gerrymandered Pit 9 assessment) have identified hazardous chemical substances as the risk drivers at the RWMC, not radionuclides. While it is understood that disagreement and uncertainty exists regarding the migration rates of various transuranics, this proposed risk reduction is not designed to reduce risk from known risk drivers, VOC's. Rather it seems designed to mollify the opinion of both state regulators and the public.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic." The proposed action will address COCs (e.g., VOCs) identified in OU 7-13/14 risk information to date (primarily the *Ancillary Basis for Risk Analysis* (ABRA) [Holdren et al. 2002]). By removing Series 743 sludge and uranium roaster oxide waste, VOCs and uranium in the pit will be removed. In addition, the continued

removal of organic contamination in the vadose zone will address the VOC fraction that has already been released. Final remedial response for these COCs will be defined through the OU 7-13/14 ROD.

**Comment #34:** The EE/CA fails to identify or quantify the risk reduction that will be bought for over \$210 Million Dollars. The EE/CA fails to compare the overall risk to human health and the environment from waste at the SDA, before and after the targeted removal. This document fails to explain why Pit 4 should be the subject of a removal rather than other pits and trenches.

**Response:** The removal action process or EPA guidance does not require residual risk quantification. The designated portion of Pit 4 was selected because it contains high concentrations of TRU waste and also contains significant volumes of other targeted waste forms containing COCs including VOCs and uranium. The approximate 1/2-acre size was selected based on the existing distribution of waste in the pit and other engineering factors (e.g., economies of scale associated with retrieval).

**Comment #35:** Lisa Green's letter of 25 Feb 2004, authorizing this project states, in part: "The primary objective of this project is to retrieve TRU waste located within Pit 4." The EE/CA baldly repeats DOE's real intent when it states that the removal action will be targeted towards removing transuranic waste and that these wastes can be visually identified by workers. Once again, existing risk analyses do not support this approach because VOCs are the primary risk drivers, not TRU constituents. This document fails to clearly include PCBs as among the organic contaminants in the pit. This document fails to estimate the amount of highly contaminated waste (TRU and VOC) that will be left behind, requiring additional remediation in the future.

**Response:** See the response for Topics #1, #2 and #7 under Section 3, "General Comments by Topic." Also, the objective in the EE/CA, Section 2.0, does go beyond the language referred to in the Approval Memorandum. The objective focuses on removal of the primary waste streams that contain known COCs (that are within the RFP waste) for all of the SDA when it states: "The focused objective of the NTCRA is to perform a targeted retrieval of certain Rocky Flats Plant waste streams that are highly contaminated with transuranic radionuclides, VOCs, and various isotopes of uranium." This addresses removal of specific COC-contaminated waste in addition to TRU waste. As discussed above, the action does address VOC waste stream removal because both VOCs and TRU waste are contained in Series 743 sludge. Therefore, removing Series 743 sludge removes both VOCs and TRU waste. The ARARs appendix of the EE/CA addresses PCBs in the following sentence:

"Inventory information indicates that there is a potential for PCB contamination in the Pit 4 waste inventory at concentrations above the Toxic Substances Control Act regulatory threshold for PCBs (i.e., 50 ppm or greater). The Toxic Substances Control Act storage ARARs will need to be satisfied for any portion of the waste population identified to contain PCBs at 50 ppm or greater."

Investigation and risk analyses conducted to date show that PCBs are not COCs for the SDA.

**Comment #36:** DOE fails to address the short term risk to workers during this removal. DOE, and its lapdog, BBWI, are fully aware of an incident in which three workers received an uptake (read: internal exposure) of radionuclides while removing the allegedly "clean" overburden. This incident has been kept very quiet. Why? How has the "system" that allowed this contamination been corrected?

**Response:** Operational risks were evaluated within the EE/CA and are being factored into the facility design as is discussed in Section 4.2.1. Also, the AR Project has evaluated radiological and chemical exposures to an appropriate worker-receptor and to required public-receptor locations. The documentation

has been factored into the project design and operational planning. The analysis shows that chemical and radiological exposures are within health-based thresholds. The DOE addresses risks to workers through the safety-analysis-report process, the *Health and Safety Plan for the Accelerated Retrieval Project for a Described Area within Pit 4* (Wooley 2004), and *Manual 15A – Radiation Protection—INEEL Radiological Control Manual* (PRD-183), and associated implementing procedures. Using these tools, industrial risks to workers, including chemical and radiological exposure, are controlled within state and federal limits.

A waste drum was encountered during overburden soil removal in preparation for the AR Project. Before performing the overburden removal, the AR Project had reviewed historical inventory data and conducted overburden sampling and geophysical analyses. All indications were that the overburden was uncontaminated to the depth of the planned removal. When a waste drum was discovered in the overburden, work was stopped until the situation could be reassessed. It was then discovered that two workers received internal intake of radioactive particulate but at well below administrative control levels specified in the controlling regulations. When the positive intake was confirmed, additional radiological work controls were added for personnel protection before work resumed. This included reducing the depth of the overburden removal, enhanced dust controls, additional respiratory protection, and increased radiological surveillance. This incident was properly reported and both workers have been informed of their initial dose assessment. The Post Register reported this event in their March 30, 2004, edition.

**Comment #37:** This EE/CA states that monitoring air emissions will not be required, based on modeling. How has that modeling been verified, both for radionuclides and VOCs? What will be done to verify the modeling BEFORE operation? If routing monitoring is not required, what Periodic Confirmatory Monitoring will be performed, in accordance with NESHAPs regulations?

**Response:** It is not clear to what language in the EE/CA this comment refers. Air emissions evaluations have been finalized for the AR Project that indicate continuous radiological monitoring for compliance with radionuclide NESHAPs ARARs is required and will be implemented. Monitoring for VOC emissions is not required, based on the estimates, but is being considered for data gathering and other purposes. Similar approaches were employed for the Glovebox Excavator Method Project, and the results showed that actual emissions were less than predicted emissions for both radionuclides and VOCs.

**Comment #38:** This document makes a number of assumptions regarding waste management and disposal. It assumes TRU waste will be disposed at WIPP. It fails to identify what percentage of waste falls into that category and what percentage will not qualify for WIPP, based either on VOC content or low TRU concentration, even after “blending-up.”

**Response:** See the response for Topic #6 under Section 3, “General Comments by Topic.” The AR Project is actively working with WIPP officials, including conducting frequent face-to-face meetings, to ensure that details for certification and transfer of the resulting TRU waste stream are understood and properly implemented. The resulting newly generated waste stream is eligible for disposal at WIPP based on current WIPP requirements and regulations. The specific percentage of waste that may not satisfy the WIPP WAC will only be known after the waste is retrieved, although the project focus on targeted waste streams will certainly support overall minimization of the volume of such waste.

**Comment #39:** The EE/CA hints at additional waste treatment, possible thermal treatment, prior to disposal, yet a full discussion is not provided, promising a future document. DOE has failed to fully describe this removal action since the treatment, and its costs, have not been included. Neither has DOE be clear regarding the type of future document that will describe this treatment and seek public comment.

**Response:** Design details for the potential treatment process have not been developed although preliminary planning is currently underway. The DOE does plan to provide further information if this system is determined to require implementation and will provide the design information sufficiently before implementation to consider public concerns. Although the exact mechanism for this public involvement process has not been determined, it will likely take the form of a design fact sheet as well as potential public meetings as would be done in a remedial action process under the FFA/CO. (Please see Response #17 regarding information about expected treatment system costs.)

**Comment #40:** It appears it is the intent of DOE to return mixed hazardous waste to the pit without treatment to meet LDRs, despite the clear “placement” of the waste, as defined by RCRA. This is a violation of RCRA. In addition, DOE continues to use deceptive euphemisms since “4 years” can hardly be termed “interim” by anyone except DOE!

**Response:** See the response for Topic #7 under Section 3, “General Comments by Topic.” The remedial action does focus on VOC waste stream removal. Secondly, nontargeted waste will be consolidated within the retrieval enclosure and remain in the pit. Waste that is subsequently determined to not be eligible for transfer to WIPP will be evaluated for a range of disposal options as is commonly done in a remedial context. The DOE will give preference to disposal options that do not involve return to pit (e.g., off-Site treatment and disposal) and will only consider returning waste to the pit that does not present unacceptable risk to the aquifer, subject to agreement with the DEQ and EPA. The commenter should note that the RCRA land disposal restrictions (LDRs) *are* identified as an ARAR in the document. This is a major reason why a treatment component is included as part of the NTCRA. The return-to-pit scenario will be compliant with ARARs that (1) apply to the remedial action scenario (e.g., including LDRs when placement occurs), (2) are compliant with relevant law, and (3) are protective of human health and the environment as a result of this process. Finally, consultation with the DEQ and EPA representatives, including DEQ RCRA personnel, did occur during the EE/CA development process and will continue to ensure that the remedy satisfies the appropriate requirements of RCRA and other ARARs.

Use of the term “interim” is intended to convey that the storage activity occurs between two planned events: removal from the pit and processing for disposal at WIPP.

**Comment #41:** DOE should identify and fully analyze substantive alternatives besides those presented in this document.

**Response:** See the response for Topic #4 under Section 3, “General Comments by Topic.”

**Comment #42:** DOE should identify and quantify the real risk drivers, both at Pit 4 and the entire SDA.

**Response:** A significant amount of risk-assessment work has been completed to date and is part of the administrative record file for WAG 7. The primary risk document is the ABRA (Holdren et al. 2002), which is referred to in the EE/CA for this proposed action. This removal action addresses COCs contained within RFP waste in Pit 4. Consequently, the proposed removal approach, when combined with the final action for WAG 7, will be protective of human health and the environment. As is the case for all CERCLA removal actions under OU 7-13/14, final evaluation of the site risks and final remedial decisions will be made in the OU 7-13/14 ROD.

**Comment #43:** DOE should explain why Pit 4 has been chosen for a removal action of dubious necessity.

**Response:** The explanation for the selection of Pit 4 for this removal action is provided in Section 1.4.1 of the EE/CA: “As discussed in Section 1, the designated portion of Pit 4 was selected because it contains

high concentrations of TRU waste and also contains significant volumes of other targeted waste forms, including VOCs and uranium. The approximate 1/2-acre size was selected based on the existing distribution of waste in the pit and other engineering factors (e.g., economies of scale associated with retrieval).”

**Comment #44:** DOE should quantify the expected reduction in risk that will be achieved through this removal action.

**Response:** See the response for Topic #2 under Section 3, “General Comments by Topic.” The EE/CA document does not quantify the risk reduction that will result from the action nor does the removal action process or EPA guidance require detailed residual risk quantification. Because it is known that buried waste in the SDA poses unacceptable cumulative risk (see the ABRA), the removal action is effective because it focuses on removal of COCs. The final risk assessment for the SDA, including Pit 4, will be included in the OU 7-13/14 comprehensive RI/FS.

**Comment #45:** DOE should quantify the overall risk at the SDA, both before and after spending over \$210M.

**Response:** See response to Comment #44.

**Comment #46:** Please identify the estimated quantity of VOC and TRU waste will remain in the pit.

**Response:** See the response for Topic #2 under Section 3, “General Comments by Topic.”

**Comment #47:** Please state whether additional remediation of Pit 4 will be required after the removal.

**Response:** See the response for Topic #3 under Section 3, “General Comments by Topic.”

**Comment #48:** Please identify the short-term risk to workers in the pit and to the public.

**Response:** See response for Topic #5 under Section 3, “General Comments by Topic.” As stated under the general response, documentation that quantifies radiological and chemical exposures to an appropriate, hypothetical, collocated, worker receptor and to required public-receptor locations has been completed. The documentation has been factored into the project design and operational planning. Analysis shows that chemical and radiological exposures are within health-based thresholds required by identified ARARs, and carcinogenic risk is below the EPA recommended risk range typically applied in a remedial action context (i.e., 1E-04 excess incidence of cancer).

**Comment #49:** Please identify the additional work that will be done to verify that no VOC control equipment is required.

**Response:** Since publication of the EE/CA, air emissions evaluations have been finalized for the AR Project that indicate continuous radiological monitoring for compliance with radionuclide NESHAPs ARARs is required and will be implemented. Installation of monitoring and control equipment for VOC emissions is not required based on the air emissions evaluation.

**Comment #50:** Please present the public with the calculations that demonstrate that routine stack monitoring for radionuclides is not required.

**Response:** See response to Comment #37.

**Comment #51:** Please state the type and frequency of Periodic Confirmatory Monitoring that will be performed.

**Response:** See response to Comment #37. As Response #37 states, continuous radionuclide monitoring will be implemented. As a result, periodic confirmatory monitoring is not necessary.

**Comment #52:** Please identify the amount of waste expected to be disposed at WIPP, and options should it not be accepted at WIPP.

**Response:** See the response for Topic #6 under Section 3, “General Comments by Topic.” The project is actively working with WIPP officials, including conducting frequent face-to-face meetings, to ensure that details for certification and transfer of the resulting TRU waste stream are understood and properly implemented. The resulting newly generated waste stream is eligible for disposal at WIPP based on current WIPP requirements and regulations. The specific percentage of waste that may not satisfy the WIPP WAC is not known, although the AR Project focus on targeted waste streams will certainly support overall minimization of the volume of such waste. Most waste separation will take place in the pit; nontargeted waste will remain in the pit. Targeted waste that is subsequently determined to be not eligible for transfer to WIPP will be evaluated for a range of disposal options that include return to Pit 4, disposal at the INEEL CERCLA Disposal Facility (ICDF), or disposal at an off-Site disposal facility.

**Comment #53:** Please identify the amount of waste that will not go to WIPP and identify where it will be disposed.

**Response:** See response to Comment #52.

**Comment #54:** Identify the quantity of waste expected to be disposed back to the pit without treatment to meet LDRs.

**Response:** See response to Comments #40 and #52. See the response for Topic #7 under Section 3, “General Comments by Topic.” The RCRA LDRs have been identified as ARARs for the NTCRA and will be implemented in accordance with applicable regulations and EPA guidance. It should also be noted that the estimated TRU curie values associated with the Series 743 sludge waste, which contains the majority of the VOCs, are high enough that the majority of this waste stream should be eligible for transfer to WIPP.

**Comment #55:** Explain why DOE is conducting this action solely for the removal of TRU when the real risk drivers are the organics, yet DOE seriously plans to return organic-laden waste back to the pit without treatment.

**Response:** Organic laden waste is to be removed and either disposed of off-Site or treated before onsite disposal. (See the response for Topic #2 under Section 3, “General Comments by Topic,” and the response to Comments #33 and #40.)

**Comment #56:** Please identify what additional treatment will be applied to this waste (if any), when it will occur, and how the public will be involved in the decision-making process. What are the ARARs associated with this treatment process?

**Response:** The EE/CA describes, at a high level, a potential thermal treatment process. The design details for this process have not been developed, though preliminary planning is being performed. The DOE will provide further information if implementation of this system is required. This design information will be provided sufficiently prior to implementation to address public concerns. Though all of the details for this

public involvement process have not been finalized, it will potentially include a design fact sheet and public meetings. Applicable or relevant and appropriate requirements for the process are included in Appendix A of the *Action Memorandum*. As noted in the appendix, the system is expected to be managed as a miscellaneous unit under Subpart X, “Miscellaneous Units,” of 40 CFR 264, “Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.” As such, additional ARARs will be identified as are appropriate for the system design.

**Comment #57:** Please identify in which document the EPA and state have agreed with DOE in selecting Pit 4 for a removal action.

**Response:** Both DEQ and EPA are participating in the development of this removal action, have reviewed the document including the location decision, and will provide formal written concurrence with the *Action Memorandum*.

**Comment #58:** This section mentions the “Ancillary Basis for Risk Analysis.” Please provide additional information regarding this seemingly new document. Since significant reliance is placed on this document, please identify how and when the FFA/CO agencies approved the methodologies and conclusions in the “Ancillary Basis for Risk Analysis.”

**Response:** The ABRA, in its draft form, was titled “Waste Area Group 7 Operable Unit 7-13/14 Pre-Draft Remedial Investigation and Baseline Risk Assessment.” The draft document was submitted to DEQ and EPA for review in April 2002, in accordance with the April 18, 2002, *Agreement to Resolve Disputes* (DOE 2002). The DOE responded to DEQ and EPA comments in writing. However, the *Agreement to Resolve Disputes* also specified that the predraft document would not be finalized under the FFA/CO until after it was submitted as a draft remedial investigation and baseline risk assessment by August 31, 2005. To preserve several years of important work in a citable report, DOE gave the predraft document a new title and published it as the ABRA in September 2002 with no formal standing under the FFA/CO. However, the *Second Revision to the Scope of Work for Operable Unit 7-13/14 Waste Area Group 7 Comprehensive Remedial Investigation/Feasibility Study* (Holdren and Broomfield 2003), which is an Agency-approved document, adopts portions of the ABRA by reference. All three documents mentioned above—the ABRA (Holdren et al. 2002), the *Revision to the Scope of Work* (Holdren and Broomfield 2003), and the *Agreement to Resolve Disputes* (DOE 2002)—are in the INEEL Administrative Record at <http://ar.inel.gov/> (INEEL 2004).

**Comment #59:** This section refers to a document: “Preliminary Evaluation of Remedial Alternatives”, stating that it identifies other remedial options. Please provide a summary of each here, explaining why each was deemed inappropriate for this removal action. In addition, please summarize other technologies that were considered for this removal and why they were not chosen.

**Response:** Descriptions of remedial options in the *Preliminary Evaluation of Remedial Alternatives for the Subsurface Disposal Area* (Zitnik 2002) can be accessed by reviewing that document in the Administrative Record at <http://ar.inel.gov/>. The options evaluated include the following:

- **No Action** – No action, except for monitoring, would be evaluated for this alternative.
- **Surface Barrier** – The entire SDA would be covered by a long-life multilayered, low-permeability cap. It might also include horizontal barriers around the waste. It would be designed to prevent direct human, plant, or animal contact with waste and to control contaminant migration into the groundwater.

- **In Situ Grouting** – Grout would be injected into selected waste pits to permeate the waste and immobilize contaminants. A multilayered cap would be constructed over the entire waste area after grouting is complete.
- **In Situ Vitrification** – Selected waste pits would be vitrified using electrical currents to melt or solidify waste into a glassified form. A multilayered cap would be constructed over the entire waste area after vitrification is complete.
- **Retrieval, Treatment, and Disposal** – Waste materials would be retrieved, treated as necessary, and stored or shipped off-Site for permanent disposal. A multilayered cap would be constructed over the entire waste area after treatment is complete.

As stated in the EE/CA, the alternatives for performance of the Pit 4 removal action were purposely limited to be consistent with the objective of the removal action, which is to retrieve targeted RFP waste that is highly contaminated with TRU waste radionuclides, VOCs, and various uranium isotopes.

**Comment #60:** Please identify the CERCLA hazardous substances found in Pit 4 and the risk to human health or the environment associated with each, assuming no action is taken, and the estimated risk after the removal action.

**Response:** Section 104 (a) of CERCLA authorizes removal responses “. . .whenever (A) any hazardous substance is released or there is a substantial threat of such a release into the environment. . .” This removal action addresses TRU waste radionuclides (e.g., plutonium and americium), VOCs (e.g., carbon tetrachloride), and uranium identified in the ABRA as hazardous substances that have been released to the environment. Detailed risk information is not required in support of a removal action. The action clearly meets the statutory criteria and other NCP factors for considering whether it is appropriate to perform a removal action that is presented in the EE/CA. The WAG 7 risk assessment documentation provides a reasonable basis for designing the removal action such that the results are effective.

**Comment #61:** Please include PCBs as a CERCLA hazardous substance present in the pit.

**Response:** Polychlorinated biphenyls are addressed in the EE/CA in the following sentence in the ARARs appendix:

“Inventory information indicates that there is a potential for PCB contamination in the Pit 4 waste inventory at concentrations above the Toxic Substances Control Act regulatory threshold for PCBs (i.e., 50 ppm or greater). The Toxic Substances Control Act storage ARARs will need to be satisfied for any portion of the waste population identified to contain PCBs at 50 ppm or greater.”

Investigation and risk analyses conducted to date show that PCBs are not COCs for the SDA.

**Comment #62:** The definition of Transuranic Radionuclides is wrong. How and why could DOE make such a basic blunder on a topic at which it should be an expert? Please correct this egregious error.

**Response:** The referenced text will be changed in the *Action Memorandum* to read: “. . .radionuclides with an atomic number greater than 92.”



**Comment #63:** The definition of Low Level Waste excludes depleted uranium. I assume this means that trash contaminated with DU from SMC operations is disposed at the CFA landfill rather than the RWMC since only LLW is accepted there.

**Response:** The definition is taken directly from DOE Guide 435.1-1, “Crosswalk Tables DOE Order 5820.2A vs. DOE Order 435.1/M 435.1-1.”

**Comment #64:** Please explain how the Public Relations Plan for this project will be implemented, as required in 40 CFR 300.415.

**Response:** Required public and community relations activities have been implemented as part of this removal action in accordance with the 40 CFR 300.415. These required public involvement activities include the following:

- An EE/CA was written and issued for a 30-day public comment period
- The EE/CA document was posted in the Administrative Record and also in the INEEL technical library
- Public notification of the EE/CA and public comment period was printed in many local and regional newspapers
- A written response to significant comments was prepared.

In addition, the following voluntary activities were implemented by DOE to inform the public about the AR Project:

- Public meetings were held in five different cities throughout southern Idaho and western Wyoming
- Public and stakeholder briefings were offered and provided to several interested groups
- A news release was issued describing the AR Project
- Postcards were issued to the public and stakeholders informing them of upcoming public meetings
- A public involvement plan was developed and posted on the Internet at <http://cleanup.inel.gov/publicdocuments/documents/PubPartPlan2003.pdf> (INEEL 2003).

**Comment #65:** “The DOE has determined that the removal action...shall, to the extent practicable, contribute to the efficient performance of any anticipated...remedial action...” Please identify how this removal may NOT contribute to any future remedial action and whether this pit is expected to be addressed AGAIN in a future remediation.

**Response:** See response to general comments regarding the concern that Pit 4 will require further remediation in the future. Based on existing information on potential remedies being evaluated under the OU 7-13/14 program, the action is expected to “. . .be consistent with foreseeable future remedial actions for the same release and seek to attain ARARs identified for the release in accordance with CERCLA Section 121 (42 USC 9601 et seq., 1980)” as stated in the EE/CA.

**Comment #66:** DOE assumes that TRU waste from this removal will be accepted at WIPP, though it has not yet been included on the list of expected waste generated by WIPP. This assumption, if false, may

result in extended storage at the INEEL and an uncertain disposal path for the waste. Please identify DOE's plans for the waste if disposal at WIPP is not possible.

**Response:** The AR Project is actively working with WIPP officials to ensure retrieved TRU waste meets WIPP disposal requirements. Additionally, alternative disposal sites are being explored for waste that cannot be qualified for disposal at WIPP. Safe and compliant storage of retrieved waste will be provided until waste can be shipped for final disposal.

**Comment #67:** "The risk assessment included...limited analysis of sensitivity and uncertainty." and "Risk evaluation specific to Pit 4...has not been calculated." In other words, DOE isn't certain of the results of the risk analysis and the ultimate effectiveness of this removal action. Please provide the public some assurance that over \$210M will be spent effectively. Please provide the public with some indication that DOE really knows what it's doing!

**Response:** The AR Project is using extensive risk documentation produced by the OU 7-13/14 program for the SDA, including Pit 4 inventory, as the basis for this removal action. From that work, the Agencies are confident that appropriate identification of those CERCLA hazardous substances, which pose risk sufficient for identification as COCs, has occurred, and as stated earlier, the COCs located within the Pit 4 inventory are being directly addressed through the removal action.

**Comment #68:** "Twenty COCs have been identified for the SDA. Seventeen were identified through risk assessment." Please list the seventeen identified through risk assessment. More importantly, please list the three that were identified through conjuring or divination and carefully explain to the public why they were included. Please tell the truth, if such a thing is possible for DOE.

**Response:** The twenty COCs for the SDA are Am-241, C-14, Cl-36, I-129, Ni-94, Np-237, Pu-238, Pu-239, Pu-240, Sr-90, Tc-99, U-233, U-234, U-235, U-236, U-238, carbon tetrachloride, methylene chloride, nitrates, and tetrachloroethylene. The three plutonium isotopes were identified as special-case COCs to acknowledge uncertainties about plutonium mobility in the environment and to reassure stakeholders that risk management decisions for the SDA will be fully protective (see the first paragraph on p. 10 of the EE/CA). More details about risk assessment and identifying COCs are available in the ABRA and the *Second Revision to the Scope of Work* (Holdren and Broomfield 2003).

**Comment #69:** Please explain which wastes are "targeted" (not by IDC but by hazardous substance), which wastes are not, and why there is a difference.

**Response:** Targeted waste is the focus of the action because it contains COCs identified for the SDA. Specifically, the COCs identified in the ABRA to date, that are located within the Pit 4 area of focus, include carbon tetrachloride, several isotopes of uranium, Np-237, Pu-239, and Pu-240. Removal of the targeted waste forms also results in substantial removal of these COCs.

**Comment #70:** Despite the earlier statements in the EE/CA: "The risk assessment included...limited analysis of sensitivity and uncertainty." and "Risk evaluation specific to Pit 4...has not been calculated.", DOE now has the unmitigated gall to state that nontargeted waste may be removed, based on visual identification, if (1) it poses a potential risk of contamination if left in place; and (2) the potential risk is sufficient to warrant removal. Please explain which wastes might fall into this category and why they are not already "targeted waste". Without a risk analysis, please explain how the future risk from "nontargeted waste" will be divined. Please explain the process by which DOE and the other FFA/CO agencies will make and document these decisions.

**Response:** See response for Topic #1 under Section 3, “General Comments by Topic.” The language referenced was included in the EE/CA to provide flexibility for removal of additional waste streams if the cited criteria were satisfied. Actual implementation of this situation, which is expected to occur on a limited basis, if at all, has not been developed, but will be integrated into operational documentation as determined appropriate by the AR Project with Agency consultation.

**Comment #71:** This entire section is bankrupt and without foundation since DOE has already admitted: “Risk evaluation specific to Pit 4...has not been calculated.” Please explain to the public the quantitative reduction in risk that this removal will achieve and why it is worth in excess of \$210M.

**Response:** The referenced quantitative residual risk assessment is not required for a NTCRA. The risk assessment and contaminant release information available from the ABRA is an appropriate basis for the proposed NTCRA. The action is focused on removing the COCs in the RFP waste within the retrieval area. See the response for Topic #2 under Section 3, “General Comments by Topic.” Also see the response to Comments #33 and #34.

**Comment #72:** Please explain why enhanced monitoring is not being performed now but is being offered as a possible future action. What additional information might be gained from enhanced monitoring and why is that information not needed now?

**Response:** Environmental monitoring at the SDA is being performed now. The No Action/monitoring alternative presented in the EE/CA represents a continuation of the existing monitoring program and is included as a baseline for comparison.

**Comment #73:** DOE states that a final remedial action is not expected until 2020. Please explain why completion of an RI/FS and ROD will be delayed until this date.

**Response:** The current enforceable dates established by the Agencies are December 2006 for the RI/FS and December 2007 for the draft OU 7-13/14 ROD. The 2020 date used in the EE/CA established a basis for calculating a total cost for the No Action alternative. Specifically, as a basis for cost estimating, the EE/CA assumed continuation of the existing OU 7-13/14 monitoring program until 2020, after which the long term monitoring component of the OU 7-13/14 ROD would be implemented. Other related actions, including remedial investigation and baseline risk assessment completion (August 2006) and OU 7-13/14 ROD finalization, will occur before 2020 in accordance with enforceable deadlines.

**Comment #74:** “...it is anticipated that a significant percentage of the original VOC inventory remains in the original packaging...” Please state the estimated inventory that remains in original packaging in the SDA and whether the remainder accounts for the observed VOC inventory in the vadose zone and the Snake River Plain Aquifer.

**Response:** Ongoing modeling for the SDA incorporates the assumption that 50% of the original carbon tetrachloride (the most important VOC) remains in the waste while the other 50% has been released to the environment. These estimated VOC inventories could account for observed concentrations in the vadose zone and aquifer. The retrieval demonstration in Pit 9 (i.e., Glovebox Excavator Method Project) confirmed that VOC-bearing sludge was often contained in intact or nearly intact bags even though drums were mostly disintegrated.

**Comment #75:** Please explain why removal of VOCs is not required prior to venting them to the atmosphere.

**Response:** See response to Comment #37.

**Comment #76:** Please provide evidence that continuous stack monitoring for radionuclides is not required AND, if applicable, explain how Periodic Confirmatory Measurement will be performed.

**Response:** See response to Comments #37 and #49.

**Comment #77:** Please explain how the Storage Enclosure will meet ARARs for storage of PCB waste.

**Response:** The majority of PCB storage requirements will be met by using the containers and storage building. The proposed concrete floor will not fully meet the TSCA (40 CFR 761.65) requirements. As stated in the EE/CA, compliance may be accomplished through “. . . a risk-based storage approval process as is allowed by TSCA ‘PCB Remediation Waste’ (40 CFR 761.61[c]).” The EPA and DEQ will approve storage for PCBs through concurrence with the *Action Memorandum*.

**Comment #78:** Dense pack meets neither RCRA or TSCA ARARs. Please provide a justification for a waiver to these ARARs or demonstrate that the state and EPA have approved of DOE’s plan to fail to meet these ARARs.

**Response:** A review of the statutory ARAR requirement and its relationship with removal actions, and of the RCRA and TSCA substantive standards applicable to storage of response-action waste, confirms that the proposed removal action (i.e., AR Project) will fulfill the relevant requirements through approval of the dense pack approach in relevant CERCLA documentation. The dense pack storage arrangement has been discussed with DEQ and EPA through the process of developing this EE/CA. The administrative record file will document the Agency comments and resolutions dealing with implementation of the dense pack in this CERCLA context. The *Action Memorandum*, which will receive formal written concurrence of all parties, will formally document the intended implementation of the dense pack storage configuration.

**Comment #79:** Define “clean” overburden. This issue is especially important considering the unexpected waste drum found near the surface in the “clean” overburden and the resulting uptake by three workers. What actions will DOE take when overburden is found to be “not clean”?

**Response:** In this context, “clean” is generally used to refer to as soil that can be managed without special radiological controls and for which existing historical information shows contamination consistent with background based on field radiological screening. In the event that overburden was encountered that showed elevated levels of radiological contamination, based on field screening during removal, Radiological Control personnel would implement appropriate corrective actions, which may include measures such as additional characterization, increased personal protective equipment requirements, and containerization of the material.

**Comment #80:** DOE seems to be talking from both sides of it’s mouth again. A previous section states the pit may be as deep as 28 ft, to basalt. Yet this section says the pit is 17-20 ft. In which section is DOE lying? If a 1:1 angle of repose is used, what happens to the waste under the slope? Is it left in place, even if it is “targeted”?

**Response:** The depth of the waste (i.e., bottom of the waste zone) in the Pit 4 area designated for retrieval will vary based on the uneven basalt layer and the disposal operation employed. Section 3.1.2.1 of the EE/CA is describing the site location when it states, “Based on probing data, the depth to basalt in the area is anticipated to range from 4.9 to 8.5 m (16 to 28 ft).” These data were obtained from probing in the east end of Pit 4 to support OU 7-13/14. While probe data define a range of depth to the basalt, the depth of underburden above the basalt could vary. Historical records and photographs indicate that the pits were generally excavated to basalt (i.e., to outcroppings) and that the pit floors were dug to a fairly uniform

depth (i.e., did not closely follow the uneven basalt bedrock). Thus, waste is not expected to be encountered all the way to a depth of 28 ft. Also, the procedures for permanent interment were modified about the same time as the waste in the described area of Pit 4 was buried. These modifications included lining the excavation with at least 2 ft of soil. While it is not known for certain whether the described area of Pit 4 was lined with 2 ft of soil, there is a potential for the bottom of the waste seam to be about 2 ft higher than the basalt outcroppings.

Section 3.1.2.3 of the EE/CA describes the proposed retrieval and waste-handling operations and states “The pit is expected to be approximately 5.2-6.1 m (17-20 ft) deep (referring to the work zone), and the walls will be sloped to maintain an angle of repose of approximately one to one.” The ABRA provides information in Table 3-2 (pp. 3–28) that indicates the overall average depth of the waste in Pit 4 (including waste, interstitial soil, and overburden soil) is approximately 15 ft. Thus, the range specified in the EE/CA reflects the uncertainty associated with the bottom of the waste, accounting for the average depth and including adjustments based on available probe data. The excavator procured for the retrieval is capable of digging to 28 ft at a 58-degree angle of repose. The plan is to excavate to at least 17 ft below grade (including overburden) unless basalt is encountered before that depth. Excavation into basalt is not planned. Generally, excavation will continue beyond the 17-ft depth if waste is still being encountered, but only until the limit of the excavator is reached.

The retrieval area is configured to excavate the vast majority of the described area of Pit 4. Some waste (possibly including targeted waste) will be left undisturbed if it is below the desired 1:1 angle of repose. This condition only affects waste along the north side of the described area. The amount of waste left beneath the angle of repose will depend on the angle of repose achieved when the pit was originally excavated for waste disposal and the amount of waste actually disposed of on the north edge of the described area. It is noted that the inventory records show minimal disposals of targeted waste along the northern edge of the excavation.

**Comment #81:** Please describe what happens to waste that is not shipped to WIPP under two scenarios: WIPP accepts TRU waste from this project and WIPP does not.

**Response:** See the response for Topic #6 under Section 3, “General Comments by Topic.” See response to Comment #66. Figure 1 illustrates the process flow and disposal logic for the major waste streams resulting from the AR Project.

**Comment #82:** Please estimate the total length of time waste from this removal will remain in storage prior to treatment and then prior to final disposal.

**Response:** Project planning estimated a 5-year timeframe for storage, treatment, and disposal of retrieved waste. However, completion of these activities is expected to happen much sooner.

**Comment #83:** Please identify all treatment and disposal options for all waste streams, including Closure (DOE might call it D&D) of the excavation unit, all treatment units, and the storage units. What is the estimated cost of Closure?

**Response:** The INEEL uses the Waste Generator Services organization to manage waste streams and to maintain waste disposal capabilities with off-Site disposal facilities (e.g., Envirocare of Utah). Detailed waste management planning will occur before project implementation and will be coordinated by Waste Generator Services. The primary waste disposal options are discussed in the EE/CA including WIPP and other available options (e.g., the ICDF, Envirocare of Utah, or returning to the pit). The cost estimate included in the EE/CA contained cost allocation for decontamination of the facility and relocation of the facility for additional use (although that use is not currently planned) of \$2.1 million.

A diagram is presented under Section 3, “General Comments by Topic,” that illustrates the process flow and disposal logic for the major waste streams resulting from the AR Project.

**Comment #84:** Please identify the estimated cost of waste characterization prior to disposal.

**Response:** An allocation for characterization and certification-related costs is included in the WIPP subtotal item in the EE/CA. The allocation for this characterization is approximately \$53.1 million including contingency allocation of 50%.

**Comment #85** Dependent on hazardous waste codes applicable to the waste, treatment may be required to address far more than just VOCs. Please describe how LDRs will be met for waste not sent to WIPP.

**Response:** See the response for Topic #7 under Section 3, “General Comments by Topic.” It is expected that some portion of the retrieved waste that does not meet the definition of TRU waste (i.e., waste that contains less than 100 nCi/g of alpha-emitting transuranic radionuclides with a half-life greater than 20 years) will require treatment to reduce VOC concentrations of the materials before returning materials to the pit or other alternate disposal. The RCRA LDRs are identified as an ARAR in the document. This is a major reason why a treatment component is included as part of the NTCRA. The return-to-pit scenario will be compliant with the ARARs that apply to the remedial scenario (e.g., including LDRs when placement occurs), compliant with relevant law, and protective of human health and the environment as a result of this process. The DOE will give preference to disposal options that do not involve return to pit (e.g., off-Site treatment and disposal), and will only consider returning to the pit waste that does not present unacceptable risk to the aquifer subject to agreement with the DEQ and EPA. Finally, consultation with the DEQ and EPA representatives, including DEQ RCRA personnel, did occur during the EE/CA development process and will continue to ensure that the remedy satisfies the appropriate requirements of RCRA and other ARARs. It is agreed that treatment may be required for more than VOCs based on the anticipated EPA hazardous waste number that will apply to the waste. A good example may be treatment for toxicity characteristic metals. Stabilization processes, in addition to the VOC treatment system, may be required but are not anticipated based on existing characterization data. In addition, regulatory flexibility under the existing LDR program for a risk-based, site-specific treatability variance will be evaluated in coordination with DEQ personnel for constituents (e.g., toxic metals).

**Comment #86:** Describe how the public will be involved in discussions and decision-making regarding future waste treatment options. This should be included in your Public Relations Plan specific to this project.

**Response:** Design details for the potential treatment process have not been developed although preliminary planning is occurring. The DOE does plan to inform the public about future waste treatment options if this system is implemented, and will provide the information prior to implementation. Though all details for this public involvement process have not been finalized, they will include a design fact sheet and public meetings.

**Comment #87:** Why is the final state of the SDA assumed to include an engineered multi-layer cover? Have the state and EPA agreed to this significant assumption? If so, in what document?

**Response:** The DEQ and EPA have agreed, since 1996, that final remediation of the SDA will include a cap, as indicated by their early decision to eliminate ecological risk assessment from the baseline risk assessment and to evaluate it in the feasibility study. In 1998, this decision was clearly stated in the *Addendum to the Work Plan for the Operable Unit 7-13/14 Waste Area Group 7 Comprehensive Remedial Investigation/Feasibility Study* (DOE-ID 1998) and subsequently restated in the *Second*

*Revision to the Scope of Work.* The final nature of the cover (e.g., multilayer) will be established through the OU 7-13/14 ROD.

**Comment #88:** This section defies belief. It cannot be fixed without changing the entire EE/CA. I suggest DOE identify additional alternatives and subject them to a valid comparison.

**Response:** See response for Topic #4 under Section 3, “General Comments by Topic.” Also see responses to Comments #32 and #59.

**Comment #89:** DOE should know that the simple presence of RCRA hazardous constituents is insufficient reason to apply RCRA waste codes. Knowledge of the processes resulting in the wastes in addition to possible chemical and physical characterization is required. Please correct this gross oversight and misstatement.

**Response:** The *Action Memorandum* (DOE-ID 2004b, Appendix B) states: “The need to implement RCRA ARARs will be based on the hazardous waste determination that will be completed before implementation of the action.” Based on the process knowledge associated with these wastes, several listed and characteristic hazardous waste numbers will apply and will be presented in the removal action plan.

**Comment #90:** “It is concluded that the project will...(comply) with ARARs.” This is an outright lie. The proposed Dense Pack storage strategy will NOT comply with RCRA ARARs for container storage. The DOE must justify an ARAR waiver for Dense Pack. Neither will Dense Pack meet the ARARs for TSCA containers.

**Response:** See response to Comment #78.

**Comment #91:** DOE again lies to the public when it claims that misting inside the enclosure will be effective in controlling dust containing radionuclides. Please provide the public the studies that demonstrate the effectiveness of misting. In addition, provide to the public the modeling assumptions and calculations for rad emissions under NESHAPs and chemical emissions.

**Response:** Application of dust-suppression surfactant will provide a measure of dust control. However, no credit is taken for dust suppression in the air emissions calculations. Quantifying the effectiveness of the dust suppression has not been performed. As stated in the response to General Topic #6, air emissions calculations have been documented; however, there is no requirement to place such an evaluation in the EE/CA or in the Administrative Record. It is noted that a similar misting system was used in the Glovebox Excavator Method Project. The overall Glovebox Excavator Method Project system functioned very well in keeping dust generation and resulting emissions to acceptable levels. Radiological emissions from the Glovebox Excavator Method Project were measured at the stack and were significantly lower than the estimated emissions developed during the design process, and were a small fraction of the allowable threshold under the radionuclide NESHAPs regulations.

**Comment #92:** “Treatment of air emissions for chemical releases...will be implemented if determined necessary during the detailed design phase...” Please identify the information that will become available during the design phase that is not available now regarding chemical emissions and the need for carbon filtration. This project is scheduled to get underway by next fall. Design work must already be underway. Statements such as this are the cause of public mistrust of DOE and what they think they’re hiding.

**Response:** See response to Comment #37.

**Comment #93:** “Retrieved buried waste is anticipated to satisfy WIPP acceptance criteria.” Does DOE really expect the public to believe this kind of balderdash? Or maybe DOE is so steeped in self-delusion that it really believes this kind of drivel. WIPP has strict limitations on VOC off-gas. It seems unlikely that untreated waste laden with organic solvents will meet these requirements.

**Response:** A large fraction of the retrieved waste is anticipated to satisfy the various criteria for transporting and disposing of the waste at WIPP. Some waste, although the fraction is not known, may not satisfy the various criteria. This issue was considered as part of the removal action planning and is the primary reason that the removal action scope includes the potential implementation of a VOC treatment system to ensure that the majority of the retrieved waste can ultimately be shipped to WIPP.

**Comment #94:** The figures presented do not represent the cost of the project. What are the full costs of waste storage for a number of years? Where is the cost to build and operate a treatment facility? Where are transportation costs to WIPP and other facilities? Where are characterization costs (“The largest uncertainties relate to...characterization, transfer and disposal...)?

**Response:** See response to Comment #17.

**Comment #95:** The costs related to monitoring are taken from another EE/CA, Early Action Beryllium Project. This indicates that “enhanced monitoring” for both the ill-conceived Beryllium Project and this project does not focus on either Beryllium or Pit 4, but seem to apply to the entire SDA. Please tell the public the exact scope of “enhanced” monitoring.

**Response:** The scope of the monitoring is presented within the EE/CA, Section 3.1.1.

**Comment #96:** The cost estimates for this project come from a DRAFT document, unreviewed by the FFA/CO agencies and not formalized by DOE. DOE must provide a complete and accurate accounting of the complete scope and cost of this project.

**Response:** The draft designation in the reference to the cost estimate is an editorial error. The cost estimate basis data referenced in the EE/CA reflect a final revision. Review of the cost estimate basis data by the Agencies is not required for a NTCRA. The level of scope and cost detail presented in the EE/CA meets the requirements of an EE/CA cost estimate.

**Comment #97:** The DOE repeats the lie that this project, as presented, will comply with ARARs. Correct the lie. In addition, the table makes other broad, generalized statements regarding effectiveness, implement ability and cost without adequate foundation or proof.

**Response:** See responses to Comments #49 and #61.

**Comment #98:** “The planned storage facility will satisfy the substantive Subpart I requirements...” DOE again repeats the lie. Be honest with the public! Just as importantly, be honest with yourselves! Who wrote this delusional drivel?

**Response:** It is noted that the storage facility does satisfy relevant Subpart I requirements for storage of solid waste. Operationally, the dense pack arrangement is being implemented as a modification to normal RCRA container storage under Subpart I with the concurrence of appropriate DEQ RCRA personnel. Also, please see response to Comment #90.

**Comment #99:** “Disposal of these potential materials will be addressed in future documentation. DOE wastes much time and effort trying to obfuscate the facts. Call this PCB-laden “material” what it really is:



WASTE. In addition, identify the exact nature of the “future documentation” as well as what public review and comment will be sought. Include this information in the Public Relations Plan.

**Response:** The mechanism being discussed, a risk-based disposal approval under TSCA (40 CFR 761.61[c]), is a regulatory mechanism that may be pursued depending on future characterization information that would necessitate evaluation of the option (i.e., if significant volumes of PCB remediation waste that cannot go to WIPP is generated with concentrations greater than 50 ppm).

**Comment #100:** Are the uncontrolled rad emissions expected to be less than or greater than 0.1 mrem/yr? Use honest assessments regarding emissions rates, dust control effectiveness, and waste concentrations.

**Response:** The project Air Emissions Evaluation (EDF-4692), which uses DOE handbook (DOE-HDBK-3010-94) values to the extent available for this type of evaluation, does indicate that continuous radionuclide emissions monitoring is required and will be implemented. No credit was assumed for dust control effectiveness in these calculations.

**Comment #101:** DOE knows what treatment methodology will be implemented, despite generalized and non-committal statements hinting at thermal desorption (more attempted deception of the public on the part of DOE?). Include the ARARs for the treatment process in more detail than just “Subpart X.”

**Response:** The ARARs are identified in Appendix A of the *Action Memorandum*. Subpart X implementation, with the concurrence of DEQ, will be deferred to the detailed design stage. Design details, including treatment temperature and waste stream characteristics, will be important considerations in determining the specific sub-tier ARARs that are appropriate for controlling the system under Subpart X (40 CFR 264).

**Comment #102:** DOE again can’t even identify ARARs correctly. It appears DOE has chosen to ignore the requirements under 40 CFR 261.1(j) in favor of picking and choosing among 40 CFR 261 Subparts B and C. Unfortunately, DOE failed to add the requirements under Subpart D. It is unclear if this approach and this omission were intentional or due to incompetence. In either case, fix it.

**Response:** The contingency plan and emergency procedures of Subpart D (40 CFR 264.1[j]) are implemented at the RWMC facility, in general, including appropriate emergency response measures for CERCLA projects conducted at RWMC. Because of this, and the inherently administrative nature of the requirements, Subpart D provisions were not identified as an ARAR. The DOE originally identified 40 CFR 264.1(j)(1)-(13) as an ARAR; however, at the request of DEQ RCRA personnel, an approach was implemented to alternatively identify appropriate ARARs from 40 CFR 264, Subparts B, C, and D.

**Comment #103:** If DOE will retrieve only “targeted waste”, why have the ARARs for LDRs specific to soil been included. What has DOE failed to tell the public?

**Response:** The proposed retrieval process will undoubtedly retrieve, along with the targeted waste, some volume of contaminated soil that is potentially subject to the referenced ARARs.

**Comment #104:** Public comment regarding Pit 4 at the Burial Grounds – The bottom line is Pit 4 needs to be dug up. *All of it* needs to be removed. You know Idaho’s water is being threatened – DOE: do what’s right for Idaho.

**Response:** See the response for Topic #2 under Section 3, “General Comments by Topic.” The DOE, in cooperation with the DEQ and EPA, is taking immediate action with the Pit 4 AR Project to significantly reduce the inventory of radioactive and hazardous waste buried above the Snake River Plain Aquifer.

**Comment #105:** The Pit 4 project has a positive aspect on accomplishing the removal of designated waste from this pit. The Tribes have contended that all of the waste from the subsurface disposal area to be removed for the protection of the aquifer. In many of the early Accelerated Cleanup meetings that was presented to the Fort Hall Business Council the protection of the aquifer and removal of any type of waste was the primary issues that DOE had proposed

Our concern for the Pit 4 Project is the identified waste that is to be removed. The plan that was presented to the public on how to determine what waste was to be removed would be to visually inspect and then determine the designated waste by color and then to remove that waste. One concern we have is from previous experience that DOE has in other retrieval projects at the RWMC identified drums or barrels have not accurately contained what was identified. How can you assure that you have removed all of the TRU waste by only visual identification?

Previously in one of the very early meetings DOE mentioned that if the waste was to be left in place and capped then it would not be considered and be treated as RCRA waste? We have a concern of the excavated waste that is not slated for disposal at WIPP fall under the auspices of the Resource Conservation and Recovery Act (RCRA)? If so, how will the requirements of RCRA be addressed and how will the material be treated?

Another issue of concern is if excavation results in the discovery of waste considered “Classified Waste,” how would DOE propose to handle it? One answer we received is that the originator of the waste would have to de-classify it. Another response was “what if the originator is no longer in business?” How will that waste then be handled? Which leads to another concern, how will you determine classified waste if you only going to use visual inspection on identifying retrieval waste? The non-retrieval drums that are to be reburied may be classified waste and left in the ground.

The plan to dig up Pit 4 and then re-bury portions that do not require shipment to the WIPP for disposal does not make sense to us. We understand that some waste may require disposal at the WIPP. However, it seems more appropriate that the rest of the retrieved material be placed in safe storage aboveground after it has been excavated, until an alternate disposition path can be determined. That also falls under the issue of protecting the aquifer and that should be of some concern. One other issue is if all the waste were to be excavated and removed and placed in an above ground covered pad such as the 6100 cubic meter building it can later be re-evaluated and packaged and have a cost savings of retrieval again if it was to be reburied.

**Response:** See the response for Topics #1 and #2 under Section 3, “General Comments by Topic.”

Also, the concern about waste falling under the “auspices” of RCRA is addressed in the EE/CA through the ARARs process. While the onsite CERCLA activities will not require RCRA permitting, the CERCLA documentation does identify appropriate RCRA ARARs for the waste types being managed and for the scope being performed (DOE-ID 2004a, Appendix A).

Disposal records do not indicate the presence of classified waste in the designated area of Pit 4. However, procedures are in place to address any classified waste that may be unearthed. Procedures used for dealing with classified waste in the Glovebox Excavator Method Project will also be used for the Pit 4 excavation.

**Comment #106:** I attended your recent public meeting (as chaired by yourself) on May 20 in Boise as relates to future cleanup plans for Pit 4 at INEEL.

Having lived in southern Idaho for over 50 years, I admit I am pleased to learn of your cleanup intentions but I am not at all happy about the “plan” as presented. Pit 4, by your own admission, contains some long-

lived isotopes such as Iodine 129 (to name just one!) that *cannot* be ID'd by visual methods during the mechanical extraction process. Based on the stated fact that site disposal records *may* be inaccurate – or altogether missing! – you could be returning fuel rods and their residue to this unlined pit where leaching and gravity present a seriously dangerous situation above Idaho's Snake River aquifer. Even the EPA representative that was present indicated he was against this plan to return material(s) without an analysis!

*Please* reconsider the potential hazard your “limited retrieval” plan presents. You may never have this opportunity to *remove all the excavated materials* and, at a minimum, store them in a lined pit until such time that future disposal methods will allow improved storage or mitigation of the known hazards.

**Response:** See the responses for Topics #1 and #2 under Section 3, “General Comments by Topic.” In general, the inventory basis associated with the SDA is adequate to support risk assessment and remedial decision-making. Inventory documentation includes assessment of uncertainty, and generally, upper-bound inventory values are factors in risk management decisions. Furthermore, the risk assessment documentation will include sensitivity analysis of important parameters such as inventory values and contaminant transport properties (e.g., water infiltration rate). Secondly, disposal records do not indicate the presence of significant amounts of I-129 or residues from reactor testing in the Pit 4 retrieval area. In addition, as noted in Topic #1, sampling activities are being planned to characterize selected radionuclides within nontargeted waste and underburden that is not removed as part of the action. The resulting data will be used by the Agencies to assess residual risk considerations and evaluate effectiveness of the planned visual waste-segregation approach.

**Comment #107:** We are firmly in favor of digging up and removing the waste at Pit 4 at INEEL and insist that waste removal efforts be continued in the entire Burial Grounds. The future of Idaho's water is at stake!

**Response:** The DOE, in cooperation with the DEQ and EPA, is taking immediate action to begin the retrieval of buried waste at the SDA. Doing so will further protect the Snake River Plain Aquifer. Information received during the Pit 4 AR Project will assist in determining what, if any, future retrievals are needed.

**Comment #108:** I am writing to inquire if and when this project is going to bid as far as contractors. If so, could you provide a list of contractors that will be bidding on this project? I would appreciate any information you could provide.

**Response:** Acquisitions in support of the AR Project are underway. The remaining procurements comprise many different items and services. Bechtel BWXT Idaho, LLC (BBWI), anticipates awarding multiple subcontracts and purchase orders to meet those requirements. For those interested in learning more about these procurements, please contact Bob Crowton (Idaho Completion Project Subcontracting organization) at (208) 526-7746. For those interested in more general information on subcontracting opportunities, a meeting of the Eastern Idaho Contractors Association is held monthly. For more information on these meetings, contact Greg Hill at (208) 523-7030.

**Comment #109:** I want the nuclear waste cleaned up.

**Response:** The DOE is committed to accelerating cleanup at the INEEL. This includes cleanup of buried waste at the RWMC as well as cleanup work at other INEEL facilities. The majority of cleanup work from past INEEL missions is expected to be complete by 2012.

**Comment #110:** We strongly urge promptly proceeding with the planned excavation of Pit 4. Most urgent is the removal of materials containing chlorinated hydrocarbons. Extracting their vapors from the vadose zone later is more expensive and much less thorough. There is no reason for delay.

Since transuranic elements in sufficient concentrations can be disposed of in the WIPP, it is worthwhile removing them also.

Where fission products are in low enough concentrations to classify as low level waste, and are not mixed with other wastes needing disposal elsewhere, leaving them in the pit would be consistent with plans for the rest of the Subsurface Disposal Area, and that should be done. We point out that even fission products put directly into the aquifer by the INTEC injection wells have migrated only a few miles in some 30 years, and are clearly not going to migrate beyond a few more miles in more than trivial amounts.

There is no harm leaving in place the combustible debris, such as garments, paper, wood, etc. It is not worth the expense of shipping that to some place such, as Envirocare for reburial. But it should be mentioned, that if there were the political courage to incinerate it, the ash might classify as transuranic waste that could be shipped to WIPP.

We urge that if there is doubt about whether a container contains targeted waste, it should be opened and analyzed to find out, so as to further test the conclusions from the Pit 9 excavation.

**Response:** See responses to Topics #1 and #2 under Section 3, “General Comments by Topic,” that confirm the AR Project objectives to remove the waste streams containing the most significant inventories of VOCs, uranium isotopes, and TRU waste radionuclides. By volume, the majority of RFP waste that is not targeted for removal is the combustible and noncombustible debris waste streams noted in the comment. Also, as noted, inventory records show relatively insignificant fission and activation product inventory in the retrieval area because the waste streams containing the majority of the fission and activation product curies were buried the SDA trench areas rather than the disposal pits.

**Comment #111:** How much will the proposed excavation at Pit 4 cost? The cost analysis gives a total of \$208.5M, but comments by DOE at the Idaho Falls and Ketchum public meetings indicated that this figure may be too high.

**Response:** See response to Comment #17.

**Comment #112:** What process will be used to separate the excavated waste into two categories: 1) the portion of the waste that must be managed for disposal at the Waste Isolation Pilot Plant (WIPP) and 2) the portion that will not require such handling?

**Response:** The process for distinguishing between the waste categories mentioned is through radiological assay of each individual targeted waste drum that is repackaged following retrieval. The radiological assay will function to characterize the major radionuclides in the waste including identifying those drums that contain TRU waste contaminants at concentrations that can be sent to WIPP. At present, planning is being implemented to perform WIPP-related certification and characterization activities (including radiological assay) by locating a mobile WIPP Central Characterization Project facility at the INEEL site location.

**Comment #113:** The plan to dig up Pit 4 and then re-bury portions that do not require shipment to the WIPP for disposal does not make sense to us. We understand that some waste may require disposal at the WIPP. However, it seems more appropriate that the rest of the retrieved material be placed in safe storage aboveground after it has been excavated, until an alternate disposition path can be determined.

**Response:** See response for Topic #2 under Section 3, “General Comments by Topic.”

**Comment #114:** Will the excavated material and plans for characterization and repackaging of that material meet the waste acceptance criteria for WIPP?

**Response:** See response to Comment #52.

**Comment #115:** Does DOE plan to make use of the Advanced Mixed Waste Treatment Project (AMWTP) to manage the wastes that will be excavated from Pit 4? From the information presented at the public meetings in Idaho Falls and Ketchum, it appears that DOE is not planning to use AMWTP but instead plans to inspect and repackage drums using a mobile laboratory from WIPP. What if the workers find an intact drum among the excavated material? Wouldn't any intact drums require X-ray, head space sampling, etc.? Have plans been made for possible management of retrieved drums should they be found?

**Response:** Using the AMWTP facility was considered. However, current planning is being implemented to perform WIPP-related certification and characterization activities (including radiological assay) by locating a mobile WIPP Central Characterization Project facility at the INEEL site location. Regarding intact drums, the Glovebox Excavator Method Project experience indicates this is highly unlikely. The waste in Pit 4 has been in the ground longer than waste in Pit 9, and it is assumed that the drums will be similarly degraded. However, in the event that a drum with significant integrity remaining is found, current project plans would provide for dismantling the drum and repackaging the drum remnants and original drum contents into a new drum. Finding a drum in the pit that has sufficient integrity to allow management of the drum in storage or subsequent processing is not a realistic expectation based on the Glovebox Excavator Method Project experience. In addition, the AR Project approach is to perform visual examination of all targeted waste contents requiring that any intact drums be dismantled to allow examination of drum contents.

**Comment #116:** What documentation will be required to allow disposal at WIPP and has the necessary documentation been completed and approved by the appropriate regulators?

**Response:** The project is actively working with WIPP officials, including conducting frequent face-to-face meetings, to ensure that the details for certification and transfer of the resulting TRU waste stream are understood and properly implemented. The resulting newly generated waste stream is eligible for disposal at WIPP, based on current WIPP requirements and regulations.

**Comment #117:** Is the material that will be excavated from Pit 4 included in the baseline inventory of waste that is approved for disposal at WIPP? If it was not included in that inventory, what provisions has DOE made to assure that the material can and will be accepted at WIPP?

**Response:** See response to Comment #52. The material to be excavated was not included in the original baseline inventory of waste approved for disposal at WIPP. This material is considered newly generated waste because the excavated waste will have different characteristics than the waste that was buried due to the addition of collocated waste and soil. The DOE is working closely with WIPP to ensure that this waste will be accepted at WIPP.

**Comment #118:** Based on information provided, we understand that the excavation process of Pit 4 will entail excavation into a 20-foot pit from multiple locations. What steps will be taken to secure the excavation equipment in case the sides of the excavation pit sag? What plans have been made to address the situation if the equipment becomes mired or requires repairs while in the pit? We assume that procedures developed for the Glovebox Excavator Method (GEM) project could be carried over to the

Pit 4 excavation, however we found no evidence of contingency plans in the documentation provided to us.

**Response:** See response to Comment #13 about the angle-of-repose excavation approach. Operations planning for the AR Project, including equipment maintenance considerations, will be performed once the detailed design phase is completed. Issues raised in this comment will be addressed through detailed operations procedures that are approved by appropriate contractor personnel with the highest consideration given to worker safety. To the extent that Glovebox Excavator Method Project procedures apply to the Pit 4 work scope, those procedures will be used or adapted as appropriate.

**Comment #119:** The schedule for the Record of Decision (ROD) for the Subsurface Disposal Area (SDA) may be negatively impacted if DOE waits for the results of Pit 4. Perhaps consideration should be given to changing the schedule for the SDA ROD, which would allow DOE to make use of the results of Pit 4 in determining an appropriate path forward for the rest of the pits and trenches.

**Response:** A recent agreement by DOE, DEQ, and EPA has extended the enforceable milestone dates for the SDA. The current enforceable dates are listed below:

August 31, 2006 – Draft remedial investigation and baseline risk assessment

December 31, 2006 – Draft feasibility study

March 31, 2007 – Draft proposed plan

December 31, 2007 – Draft record of decision.

**Comment #120:** Will excavated waste that is not slated for disposal at WIPP fall under the auspices of the Resource Conservation and Recovery Act (RCRA)? If so, how will the requirements of RCRA be addressed and how will the material be treated?

**Response:** The concern about waste falling under the “auspices” of RCRA is addressed in the EE/CA through the ARARs process. While the onsite CERCLA activities will not require RCRA permitting, the CERCLA documentation does identify appropriate RCRA ARARs for the waste types being managed and for the scope being performed (DOE-ID 2004a, Appendix A).

Specific disposal requirements for retrieved waste that does not meet the definition of TRU waste (i.e., waste that contains less than 100 nCi/g of alpha-emitting transuranic radionuclides with a half-life greater than 20 years) may require waste treatment before disposal. The specific treatment requirements will be determined after the waste drums have been characterized and disposal options have been evaluated, based on waste characteristics.

**Comment #121:** If the excavation results in discovery of waste considered “Classified Waste,” how would DOE propose to handle it?

**Response:** Disposal records do not indicate the presence of classified waste in the designated area of Pit 4. However, procedures are in place to address any classified waste that may be unearthed. The procedures that were used for dealing with classified waste in the Glovebox Excavator Method Project also will be used for the Pit 4 excavation.

**Comment #122:** The goal of the Snake River Alliance is to protect the Snake River Aquifer from nuclear waste and contamination resulting from activities at the Idaho National Engineering and Environmental

Laboratory. To this end, we are concerned about all radionuclides and volatile organic compounds that pose a long-term threat to Idaho's water. While we support removal of the buried waste at the Radioactive Waste Management Complex (RWMC), we question limiting this removal to waste categories that do not fully consider all the long-lived radioactive isotopes threatening groundwater.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic."

**Comment #123:** The Pit 4 retrieval action focuses on a few "targeted" categories of waste: transuranics from Rocky Flats, uranium, and volatile organic compounds. Our understanding is that the inventory of VOCs is not as large in the focused area of Pit 4 as it is in some other areas of the burial grounds. There are, however, other radionuclides and hazardous substances buried at the RWMC that pose a very real and long-term threat to the Snake River Aquifer. Ignoring these contaminants is irresponsible, and failing to retrieve these contaminants during the Pit 4 retrieval action would hold at risk the Snake River Aquifer, waste precious financial resources, and damage the public's perception of cleanup at INEEL. As it stands, it appears that INEEL is only willing to exhume waste for which there is a clear path forward. From a project perspective, this seems sensible, but the "tidiness" of that approach must be balanced against the peril of leaving dangerous material above the Snake River Aquifer.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic."

**Comment #124:** It is our understanding that Pit 4 waste will be retrieved based on visual identification, but that no effort will be made to measure radioactivity at the dig face. Why not include that additional check? It is also our understanding that retrieved waste will eventually be characterized, presumably to verify (or not) historical records and, more important in INEEL's plan, select a disposal path. We need more details on characterization, including timing. As raised in the Idaho Falls meeting, a decision tree with criteria would be very helpful, since there seems to be a fair amount of confusion about this.

**Response:** See the response for Topics #1, and #6, under Section 3, "General Comments by Topic." The diagram presented in Figure 1 illustrates the process flow and disposal logic for major waste streams resulting from the AR Project.

**Comment #125:** The EE/CA maintains that, "...the proposed removal action, in addition to addressing a material portion of the hazardous substances in the SDA, will provide characterization, and technical and cost information from full-scale waste retrieval activities that will support the RI/FS for OU 7-13/14. Evidently, the question of postponing the RI/FS for the entire burial grounds until the information gleaned from this dig and the subsequent characterization can be incorporated was raised at both the Idaho Falls and Ketchum meetings. It is also our informal understanding that there are about a dozen areas in the burial grounds that might be the subject of a similar "hot spot removal" approach. When will more information about any delay in the final decision and about the contemplated "hot spot" approach be available to the public? In posing that question, I remind you that information about next steps is information the public deserves to have as early as possible and needs to have if INEEL expects informed public support.

**Response:** Research and discussions are ongoing to determine what, if any, future removal actions might be needed in the SDA. Currently, the only two planned removal actions are the Pit 4 AR Project and the OU 7-13/14 Early Actions Beryllium Project to grout buried beryllium blocks in place.

**Comment #126:** The DOE points out elsewhere "nontargeted waste (e.g., debris and soil) will be placed on the opposite face of the open pit." In other words, it will remain in the burial grounds. While the DOE admits there may be contaminants of concern buried with the targeted waste (although specific contaminants are not mentioned), it relies solely on visual inspection to identify such waste. We need

more information (a la a decision tree with criteria) about how INEEL intends to choose between these two approaches—consensual removal and abandonment—in practice. The fact that Series 742 second-stage sludge was not slated for removal until halfway through the public comment period leads to the conclusion that more analysis of this point is needed.

**Response:** See the responses for Topics #1 and #2 under Section 3, “General Comments by Topic.” Furthermore, it should be clarified that Series 742 sludge is not a targeted waste stream. However, DOE plans to implement a procedural approach that will default to a decision to remove nontargeted waste (e.g., Series 742 sludge) in the event that the waste cannot definitively be distinguished from targeted waste. In other words, for a given waste batch that visually looks like targeted waste, the waste will be removed rather than left in the pit. The details you request dealing with the criteria for removal of waste other than targeted waste that is referred to in Section 2.0 of the EE/CA are not available at this time. The scenario addressed is expected to be very limited in occurrence and will require operational procedures to implement. Those procedures are being developed.

**Comment #127:** That INEEL is not seeking to process the exhumed material in the Advanced Mixed Waste Treatment Facility raises a number of policy questions, both site-specific and complex-wide. First, that there would be a disconnect between the privatized AMWTF and the cleanup of the burial grounds was perfectly predictable. Second, that disconnect seems to be leading to an unnecessary expenditure of funds here at INEEL. Third, if the point of using a mobile WIPP certification facility is to test that path for other facilities, wouldn't it be more prudent to do the test somewhere somewhat farther removed from the AMWTF than Pit 4?

**Response:** The planned approach to use the mobile WIPP Central Characterization Project to support required characterization and certification is viewed as the most appropriate path forward considering contractual and other considerations. The WIPP Central Characterization Project capability currently exists and simply has to be relocated to the Pit 4 site, resulting in an efficient option that offers advantages for ultimate acceptance of the waste at WIPP.

**Comment #128:** What is the disposal path for the uranium?

**Response:** Based on waste management planning prepared to date, the uranium waste stream would be eligible for treatment and disposal at a number of permitted, off-Site disposal facilities. Final disposal decisions will depend on actual characterization information gathered at the time of waste generation.

**Comment #129:** There seems to be some disagreement between INEEL and its regulators about the firmness of the decision to pursue thermal desorption. That disagreement should be clarified.

**Response:** The Agencies agreed that the removal action scope should encompass use of a thermal desorption system for treatment of retrieved waste streams, as needed, which is why the summary level information about the system was included in the EE/CA. Development of the design details for the system is intentionally being deferred pending better physical and chemical waste stream characterization information such that the treatment design can be optimized.

**Comment #130:** Will the waste acceptance criteria for the INEEL CERCLA Disposal Facility have to be modified? How will that be coordinated among DOE and its regulators?

**Response:** Current waste management planning is focused on disposing of AR Project waste streams at ICDF if they meet current ICDF WAC. It is expected that some subset of the Pit 4 derived waste and secondary waste that result from the AR Project would meet the existing ICDF WAC. Any modification to the ICDF WAC would occur separately from the AR Project work scope.



**Comment #131:** We strongly urge INEEL to exhume some portion of the debris waste. As it is, the approach seems focused only on verifying what you know: you think you know where the TRU is. But it would also be helpful to verify that waste you do not think contains TRU does not in fact contain TRU.

**Response:** See the responses for Topics #2 and #6 under Section 3, “General Comments by Topic.”

**Comment #132:** While the Snake River Alliance applauds the DOE’s shift from opposition to buried waste retrieval to exhuming some of the waste, we are concerned that 1) the scope of retrieval is artificially limited to waste for which there is a clear (though not clearly explained) disposal path but that 2) the obvious disposal path at INEEL, the AMWTF, is being ignored for reasons that have nothing to do with environmental protection, and that 3) this project might be a piece of a piecemeal approach that will no doubt affect future decisions without clear, early public understanding and acceptance.

**Response:** See the responses for Topics #2 and #6 under Section 3, “General Comments by Topic,” and the response to Comment #126.

**Comment #133:** Based on these conclusions, the Alliance recommends that the Pit 4 retrieval project proceed, but only after more information is available, most particularly about how waste will be slated for removal or further (albeit temporary) abandonment and clarification as to why spending an additional \$86 million for WIPP certification is necessary since the AMWTF is already permitted.

**Response:** See the response to Comment #115. The WIPP certification costs cover testing (e.g., headspace sampling), related labor, and recordkeeping. Using the services of AMWTF does not present a significant cost savings. Additionally, for the next several years, the AMWTF WIPP characterization capacity is fully committed to handling aboveground stored waste.

**Comment #134:** Please remove the nuclear waste from Pit 4 at the Burial Grounds.

**Response:** The DOE, in cooperation with the DEQ and EPA, are working diligently to perform the necessary cleanup work to ensure that the SDA does not pose a threat to human health or the environment. The Pit 4 AR Project is being performed as part of this cleanup work.

## 5. ORAL COMMENTS AND RESPONSES

**Comment #135:** I have – After hearing everything that I’ve heard tonight and – which has been a lot and having been out there several times and looking around, I’m of the opinion at this point that perhaps it would be best for you to not do anything right now, to take your – Of the two options, the action or no action, I would say do no action right now simply because the process is running up against its time table for a decision for the entire 88 acres.

Even though you say that the – you know, doing this before that happens doesn’t prejudice the outcome, it’s clear to me that there are definitely some assumptions that there’s going to be some sort of general outcome in a certain way. And, you know, I understand that you think about this stuff. It’s your job, day in, day out, so you certainly have an opinion about it and so on, but my sense is that –

And plus there’s lawsuits going on. Not just one. So, you know, we’ve got lots of things that are moving along right now in terms of not just the CERCLA process, but also all sorts of related processes that really have nothing to do with the science or the engineering. They just have to do with, you know, how things end up getting decided legally or bureaucratically or whatever.

So I’m feeling like maybe, you know, the – My sense actually when I walked in here after I saw the site a couple of weeks ago was that it was great you guys were going to go in and dig it up. And I’m really pleased that, you know, you want to, but after hearing everything I’ve heard tonight, I’m thinking that maybe it would be better to just hold back a little longer and make sure that you really have the final decision in place and that everyone is, you know, in agreement, and then you do what you’re going to do at that point.

And it may not be what you’re proposing. And that’s where I’m – And it’s only two or three years down the road, so I’m thinking, you know, we’ve already been sitting on this stuff for how long in Pit 4?

We’ll, it’s been 30 years, 40 years. Another couple of years I don’t think is going to make much more difference. I’m hoping it won’t make much more difference. But it just seems like it’s so complex and there’s so many problems that are being resolved as we speak that it might be best to wait.

Oh, I had one other question for – you know, if I may ask a question. Do you – You were going to start this fall, do you actually have the money? (yes)

You have the money already? Thank you.

**Response:** See the response for Topic #3 under Section 3, “General Comments by Topic.”

**Comment #136:** We live on the north side of the canyon, my family and I. We drink the water that comes off the aquifer, and my comment is that action is much better than no action, and that the longer we – we’ve got a very – in my sense, we’ve got a very good track record with no action and it’s time we do something.

Whether it’s 90 percent removal or 50 percent removal, removal is better than doing nothing. The longer we wait – As Peter commented, it there – if, in fact, it’s that great of a risk, we need to do something instead of continuing with the political and the regulatory and the court fighting and let’s just get something done. So I say we need to get it done sooner rather than later.

**Response:** The Agencies are working diligently to implement cleanup actions at the SDA to reduce risk to the Snake River Plain Aquifer.

**Comment #137:** I, like Christopher, have been a little overwhelmed with all of this. It's obvious that a lot needs to be addressed. I personally have concern with the worker exposure simply because there is no containment area similar to that of the GEM Project; however, I do believe the Department of Energy is moving in the right direction with regards to digging up the waste. It is obvious that transuranic and hazardous waste buried at the Radioactive Waste Management Complex must be dug up.

We all agree – and when I say “we,” I think the State, I think the Department of Energy, and I think the public agrees that transuranic waste – Plutonium contaminated waste poses a risk to our aquifer, and something must be done, and that is digging it up in a safe, responsible way. That's it.

**Response:** As indicated in the *Second Revision to the Scope of Work*, DOE has identified plutonium isotopes COCs to “. . .acknowledge uncertainties about plutonium mobility in the environment and to reassure stakeholders that risk management decisions for the SDA will be fully protective.”

**Comment #138:** I think that this is a huge step in the right direction with the Department of Energy. I think that a lot of the details need to be worked out. I think if we're taking the opportunity to dig into the burial grounds that we should sample, random sample some of the waste that's dug up. I mean, that is set aside. I think that we should consider a temporary aboveground storage for contaminated soil and other things. And that's it for now on the record.

**Response:** See response for Topic #1 under Section 3, “General Comments by Topic.” As noted in the response to Topic #1, sampling activities are being planned to characterize selected radionuclides within nontargeted waste and underburden that is not removed as part of the action. The resulting data will be used by the Agencies to assess residual risk considerations and to evaluate effectiveness of the planned visual waste-segregation approach.

**Comment #139:** I'm concerned about the lack of testing of the soil for contamination and I believe that all material that's removed from this pit should be put in, at the very least, a lined CERCLA landfill location, you know, or some other approved lined structure or containment facility instead of just moved around in this hold and replaced and left likely for good. And that's my concern.

**Response:** See the responses for Topics #1 and #2 under Section 3, “General Comments by Topic,” and the response to Comment #130. Figure 1 illustrates the process flow and disposal logic for the major waste streams resulting from the AR Project. Waste subsequently determined to not be eligible for transfer to WIPP will be evaluated for a range of disposal options as is commonly done in a remedial context. The DOE will give preference to disposal options that do not involve return to pit (e.g., off-Site treatment and disposal) and will only consider returning to the pit waste that does not present unacceptable risk to the aquifer, subject to agreement with the DEQ and EPA. Also, as noted in the response to Topic #1, sampling activities are being planned to characterize selected radionuclides within nontargeted waste and underburden that is not removed as part of the AR Project removal action. Resulting data will be used by the Agencies to assess residual risk considerations and to evaluate effectiveness of the planned visual waste segregation approach.

**Comment #140:** You know, a list of hopes and dreams for nuclear waste is always a long and varied list, but it seems to me in my limited appreciation of the process and the history of it that this in fact seems to be a good approach and seems to be in concert with the folks who brought up the issue of the threat of contamination of the aquifer particularly in Idaho who have been working in it for years.

And my hope is that it's a lot better to have this stuff – it's good that it's been classified, if we can classify it a little more it would be even better. And I think that it's supremely important that we do whatever we can to protect the aquifer.

**Response:** The Agencies are committed to protecting the environment by cleaning up the INEEL from past nuclear-related missions.

**Comment #141:** The comment I'd like to make is I'm a member of the Shoshone-Bannock Tribe, and some of the issues that I have with cleanup is we've always been told cleanup was going to be one of the issues we're concerned with for protecting the aquifer. And my concern is removing part of it, putting some back in again, and it seems like the cost savings in case you have to go back and retrieve that again would be to remove all of it, put it in a safe location, not matter what it is, so that it's not going to be contaminating the aquifer.

Another comment is once you start removing all this, you disturb the area; you disturb the ground; which creates another pathway for contamination. And I haven't seen the excavator method, but I'm sure – we looked at the demonstration. The demonstration showed a lot of drums were busted open and everything in that sense that that could also be another pathway for contamination that was contained at one point, then seeping into the ground. And that's all my comments.

**Response:** See the responses for Topics #and #3 under Section 3, "General Comments by Topic." The excavation process will not significantly alter transport properties of the waste in the subsurface. The removal action will reduce source term contaminant migration as well as minimize future transport. The original containers consisted primarily of carbon steel drums and wooden boxes. Retrieval data gathered to date, including that from the Glovebox Excavator Method Project, show that these containers have lost their integrity from being buried, not from the excavation process.

Though water is the primary mechanism through which contaminants are mobilized in the subsurface, all excavation work will be performed inside a weather enclosure, which will significantly reduce the ability for water to reach the waste zone.

In addition, contamination that moves through vapor-phase transport (i.e., VOCs) is also free for release by gaseous diffusion processes. Thus, the proposed process will not have a significant effect on modifying the overall subsurface transport of contamination from the waste within the area, though it will remove the majority of contaminants that have been identified as COCs.

**Comment #142:** You have indicated that there is certainly a possibility that material would be removed and then later put back in the pit. My comment, my suggestion is that given you've gone to all the bother of removing it and putting it in a drum, putting it back in the pit may make technical sense, but it is an incredibly bad public relations move, and I think that if you look at the economics of it, it's not going to cost much more to dispose of that.

And I think the people of Idaho will feel a lot happier once the waste the waste is dug up it stays dug up. Thank you.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic." Figure 1 illustrates the process flow and disposal logic for the major waste streams resulting from the AR Project. Waste subsequently determined to be not eligible for transfer to WIPP will be evaluated for a range of disposal options as is commonly done in a remedial context. The DOE will give preference to disposal options that do not involve return to pit (e.g., off-Site treatment and disposal) and will only consider returning waste to the pit that does not present unacceptable risk to the aquifer, subject to agreement with DEQ and EPA.

**Comment #143:** We will be submitting written comments, but these were just a couple of the comments that it would be helpful if we – you could provide more information before the close of the comment

period, and that has to do with any more details you have about the thermal desorption you're planning, you know, particularly kind of how that – when that decision is made. That's real up in the air.

I very much like the idea of you developing a flow chart for looking at the waste and deciding where it goes next.

I do very definitely agree with David's comment that back in the pit is probably – probably not a very good idea.

So those are the things that I think would help with public comment. Thanks.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic." Also see responses to Comment #86 and #129. Figure 1 illustrates the process flow and disposal logic for the major waste streams resulting from the AR Project. Waste subsequently determined to be not eligible for transfer to WIPP will be evaluated for a range of disposal options as is commonly done in a remedial context. The DOE will give preference to disposal options that do not involve return to pit (e.g., off-Site treatment and disposal), and will only consider returning waste to the pit that does not present unacceptable risk to the aquifer, subject to agreement with the DEQ and EPA.

**Comment #144:** I think just from the point of view of DOE and public relations, I think it's a very bad idea to – one, to excavate it, some waste out of the pit, to put it back in the pit. If it's managed properly, there won't be very much of that. And as you've mentioned, there are the disposal pads, and I strongly urge you to not put it back into the pit. I think that would be – technically it's a public relations disaster, and I don't think the DOE needs that grief.

**Response:** See the response for Topic #2 under Section 3, "General Comments by Topic."

**Comment #145:** I'm still trying to kind of get acquainted with this whole process. I went to my first hearing in the Twin Falls area in January. And if I understood you correctly, once you go through this process, there's a recommendation as far as what the steps and procedures would be for the disposition of the waste. That there will be additional public hearings at that time; is that correct?

I would recommend to the DOE, and perhaps it's just my lack of seeing it clearly in our newspaper that – I really appreciate you coming up here, and, in fact, there are quite a number of people, I know, who were hoping to attend, but have graduating students and that kind of thing, so were unable to attend tonight, that would like to attend.

And I'm hoping that there will be an additional hearing here in the Wood River Valley. I would hope that there could be – and I don't know what your budget is for advertising or making public announcements – that it would be preceded at least maybe three weeks in advance, I mean every week, so that we make sure that we are aware as possible.

I've been away visiting an elderly mother, so I arrived last night and all of a sudden, I found out today that this was happening. So I do appreciate you having the hearings here and I hope there will be another one.

**Response:** The DOE is planning to hold future public meetings about the selected treatment technology for waste containing VOCs. Information about the treatment technology selection, as well as the timing and locations of these public meetings, will be provided in the future.

**Comment #146:** I don't know whether it's a question or a comment. But the risk assessment is scheduled to be finished and delivered in August 2005, which means that the – you know, it's got to be pretty much done earlier than that, at least a month or two before.

However, the excavation of Pit 4 is not scheduled to be done until October 2005. So that appears that the lessons learned from Pit 4 will not find their way into the risk assessment. Somehow this seems like the wrong order, the cart before the horse. You are making a decision on what to do without all the information, and the feasibility study will be out just two months after the excavation is completed. Again, it seems like that whole process is – the timing is wrong.

**Response:** See response to Comment #119.

## 6. FULL-LENGTH COMMENTS

Following are the complete, full-length versions for some of the more in-depth public comments that were submitted. Questions and issues have been taken from these comments and addressed in Section 4, "Comments and Responses." The complete version of the comment is noted verbatim below.

### Comments #5–8

Hi folks,

Me again, with my pesky questions about plutonium containment and HEPA filters.

- 1) Why are we not finishing Pit 9? Is there trouble, like danger of criticalities, from finishing Pit 9 that you are not disclosing as you switch attention to part of pit 4?
- 2) The CDC panel I was on witnessed the CDC report that said records of contents of the buried waste were uncertain, with bad records and unkept records during strikes. Why does your spokesman say with such certainty that "7%" of the buried waste is in pit 4 when the CDC research says it can't be determined?
- 3) Why are you in court now defending your right to NOT remove buried waste, while you present your fabulous clean up plans alongside your Generation Four nuclear power plans for Idaho? (Like the May 17 "Information" Fair)
- 4) While I have documented HEPA containment problems, and had the Blue Ribbon Panel endorse my call for containment testing, and had the NAS endorse my call for solidification of the waste BEFORE removal, why do you ignore these problems and recommend a backhoe for loose waste that depends on HEPA filters for public safety? How many million plutonium particles will be released by your "estimates" by this procedure you so happily recommend?

Here are more documented complaints, in the form of my letter to the NAS panel, regarding HEPA problems and problems with the reburial of material into the pit or at the SDA at INEEL.

To the NAS panel on Development of "Risk-Based" Approaches for Disposition of Transuranic and High-Level Radioactive Waste,

I needed to share some vital information on HEPA filter problems and plutonium transport in water that effects risk analysis of most alternatives to treating disposal of TRU and high level waste. I am a

podiatrist in Twin Falls, Idaho. As a citizen, and as a member of the CDC advisory panel on INEEL, I have gathered some vital documents on HEPA filter problems and Pu transport problems.

I hope your panel will address these issues that DOE is ignoring.

I will document that, presently, incorrect air releases are used for risk analysis of treatment and retrievable containment structures for TRU waste.

I will also document that leaving TRU waste buried, and also re-burying TRU waste, are using incorrect water transport figures for risk analysis.

Let me first address the simple solution to the problems first, as your mission also calls to examine “potential alternatives to geologic disposal for disposition of low-hazard waste.”

It is listed as “alternative 5” for INEEL’s Record of Decision for the buried TRU in our Pit 9. This alternative simply rebarrels the waste and stores it above ground in retrievable, inspectable buildings.

For the buried TRU I want to solidify the waste first to avoid airborne plutonium dust. Techniques like injectable cement would greatly reduce the airborne exposure of the present plan to use a backhoe.

The Pit 9 ROD dismissed alternative 5, claiming it would “pose a potential radiological hazard to the workers, the community, and the environment.” When I asked for that risk analysis, they admitted in the ROD they had none because “it was too theoretical to analyze.” HMMM.

The TRU incinerator EIS also dismissed a similar alternative A.5 for questionable risk as well. This time (page F-6), the DOE claims a “geological disaster is expected in the next 55 year time frame.” They refused to share that analysis after I questioned why they say the geology at INEEL is safe for bringing in high level spent fuel rods and building 3 new commercial nuclear reactors here (Nuclear Power 2010.) Perhaps you could shed some light here in Idaho.

If the data shows we are on a dead end road trying to sweep away this waste, don’t be afraid to put on the brakes and just safely contain this waste above ground. CONTAINMENT is the key word. Now to document the detailed problems.

The HEPA filter issues really effects almost all nuclear projects. Please contact me for more details if desired, but here is an overview.

To get an air quality permit, the project has to show they do not expose the public to more than 10 mrem of radiation from normal operations (and my memory says that there is a 100 mrem limit to anticipated accidents).

The filters are bragged to be 99.97% efficient for 0.3 micron particles, and more efficient for both smaller and larger articles. This allows them to calculate a very low rate of release, qualifying easily for a permit.

Here are the 2 main areas of filter problems, that remain unquantified. I have called for testing the filters, in lab, for these problems, at all so-called Environmental Impact scoping hearings. To date, these questions have remained unanswered.

- 1) Most folks know that the filters can burn, but even if the fire is contained and put out by sprinklers, that humidity can ruin the filters. The DOE’s May 1999 Defense Nuclear Facilities Safety Board(DNFSB/TECH-23) had this to say, on page 2-5, “ When installed fire suppression

systems are activated to protect systems, structures, and components inside confinement, the moisture-laden air carried downstream to the HEPA filters can seriously degrade filter performance-at a time when high-efficiency filter performance is crucial.” All this is “despite the fact that water repellents are applied to the medium during manufacturing.” This does not stop the DOE from saying that the 3 HEPA filters in a row combine for 10 to the minus 9th power filtering efficiency (99.999999999%).

Criticalities (not in report) are also another unquantified accident, that could be quantified truthfully in lab settings. I have a great DOE paper from an FL Horn, replicating a criticality with plutonium. On day one, the particles were between 0.1 micron down to less than 0.005 micron. Plutonium is a heavy metal, and often a wind resuspension factor of 1 per million particles is assigned in the EIS. In this FL Horn experiment, the plutonium particles were so light, that in this windless closed cell, they floated for 3 days, bouncing around on the brownian motion of the air molecules! They slowly aggregated and precipitated, but that was in this closed cell.

- 2) “Alpha recoil “ is a DOE term, for the ability of alpha emitters, like plutonium, to “creep “ through 4 HEPA filters in a row! Nobody knows how much plutonium comes out of the last filter. We need to make the DOE reveal the plutonium releases for normal operations, in a lab.

The DOE has known of this problem since the 1970’s, but has chosen to ignore it. I have 2 papers from DOE on this. One is from WJ McDowell, from Oak Ridge. For the 14th ERDA Air Cleaning Conference, he writes a paper called “ Penetration of HEPA filters By Alpha Recoil Aerosols.” He says “Tests at Oak Ridge National Laboratory have confirmed that alpha-emitting particulate matter does penetrate High-efficiency filter media, such as that used by HEPA filters...Filter retention efficiencies drastically lower than the 99.9% quoted for ordinary particulate matter were observed with Pb-212, Es-253, and Pu-238 sources, indicating that the phenomenon is common to all of these...”

It seems as if the alpha particle, from the radioactive decay, literally knocks the particles loose. As it creeps through any filters that is in its way, the DOE thinks that smaller pieces of the plutonium particles, break off the original particle, increasing the joy of downwinders.

Another DOE paper comes from Arthur H Biermann, at Lawrence Livermore, from Dec,11,1991. His paper is called,”Alpha migration through Air Filters: A Numerical simulation.” He says, “ It is obvious from the review of the literature that evidence exists of the migration of alpha radionuclide species through high efficiency filter media.”

Both papers have many DOE references, and both call for quantifying the true releases , in lab experiments. The experiments are do-able, but, so far, the DOE ain’t gonna do it.

I have asked for Dr Liu, at the University of Minn. to be commissioned to study these issues. He uses a “total capture” technique for downstream particle counting. This is key to true efficiency detection, or lack of. The present laser counter can detect down to 0.1microns.

Dr Liu can go to 0.007 micron. Seems the minimal efficiency size goes down from 0.3 micron, each time particle size detection ability increases...

The FL Horn experiment I mentioned replicates a criticality, and has Pu under the electron microscope. It ranges, on day one, from 0.1 to LESS THAN 0.005 micron, a bottomless scale! The Pu particles slowly aggregate, but much was still floating for THREE DAYS on the brownian motion of the air molecules, in this closed cell experiment. We need to quantify normal



and accident filtering truefully, for the first time in nuclear history, and we should use this panel to do it.

The DOE Beirmann paper mentions, as a theory, that the bigger pieces of Pu, that get caught in the first filter, may break off smaller pieces via this alpha recoil. That throws another flaw in the true dose to the public during normal operations, over 30 years. This effects all nuclear facilities, past and present.

While the DOE ignores this, a recent study was conducted in the UK. Y. Yamada et al published "Re-entrainment of  $^{239}\text{PuO}_2$  particles captured on HEPA filter fibres." (Radiation Protection Dosimetry Vol 82 No 1, pp25-29, 1999 ). While I will present what I think are the shortcomings of the Yamada study, they clearly acknowledge the true efficiency of Pu filtering has NOT been quantified before. However, Yamada reported two different resuspension rates. The higher, dust loaded rate was a staggering resuspension of 1 particle per hundred per hour!

Firstly, it is significant that the Yamada study on the re-entrainment of  $\text{PuO}_2$ , detected a PER HOUR rate of Pu resuspension. There is not supposed to be a PER HOUR rate of resuspension, of any kind. The DOE permit applications state that 99.97% efficiency is the MINIMUM, PERIOD. This qualifies them to claim that the 10 mrem limit to public exposure will not be exceeded. This appears to be drastically contradicted by the continual plutonium resuspension rates, especially at higher dust loading, which replicates historical use of filters left in place for decades. Note p.28 states," For example, the dispersion rate at twice dust loading was calculated to have increased by 13 times. It was confirmed that re-entrainment was strongly affected by dust loading."

My main criticism is that the experiment only lasted 20 days. The paper, ironically, does site and acknowledge, the 1976 McDowell paper I love. That McDowell paper notes that regular testing missed the alpha creep because of the short duration of their testing. McDowell left his test up for one year.

The Yamada test, however, seems to have enough sensitivity to detect alpha creep, at all flows, even in this limited 20 day experiment.

I question their conclusion #1, which dismisses the lower rate of re-entrainment. They conclude, "Therefore, it was concluded that plutonium particles captured on fiber filters near the front surface hardly penetrate the filter."

I believe their dismissal misses the red flags I see. In a mere 20 day experiment, it is noteworthy that ANY plutonium gained full penetration of this filter, at this low rate. As McDowell notes, a longer time frame reveals more alpha creep. This 20 day experiment is unrealistic, since no where in the DOE are HEPA filters changed every 20 days. This low rate, short run, underestimates the true, long-term penetration by alpha emitters.

I noted Yamada's reference 4, the Fliescher study , that supports the probable fragmentation of smaller plutonium particles, from the larger original plutonium particles. This is the Bierman paper's theory, as well.

This clearly calls for Dr Liu's ultrasmall, ultrasensitive "total capture" technique, to capture ALL sizes of particles, to be done over an extensive period of time, that replicates actual normal use. How else are we going to determine the true efficiency, of this documented alpha creep problem?

Three important points come to mind. 1) Do the other beta and gamma emitters, that are impacted on the filter, with the alpha emitters, also leave the filters undetected? Does that not require further testing?

- 2) Do more radioactive alpha emitters, like the Pu-238, have even higher rates of resuspension? Does this not call for more testing?
- 3) Since this Yamada paper confirms alpha creep, why have the DOE downstream monitors not detect any whispering of this plutonium, through the filters? The CDC swears that the monitoring proves there is no alpha creep "footprint" on the monitors, declaring their faith in the monitors. I believe the phrase, "below detectable limits", applies to the downstream monitors, and their inability to reveal the true exposure to the public, of inhalable alpha emitters.

The second issue is the recent discoveries by DOE revealing plutonium transport in water is much easier than previously believed. This is also being ignored by the DOE.

The nuclear facilities at the Idaho National Engineering and Environmental Laboratory have left a legacy of radionuclides, including plutonium, in shallow land burial. These burial pits have been flooded, and sit over the Snake River Plain Aquifer. Now, the Department of Energy, with the blessing of the State of Idaho, and the Environmental Protection Agency, have approved a new shallow land burial pit, which although it will have 2 plastic liners and monitors, will also have billions of plutonium particles which remain radioactive for about 240,000 years. Some plutonium particle clean up projects may simply leave the plutonium buried, but cover it with more dirt and plastic, called "capping."

The RWMC has a buried mixture of TRU and alpha low level. I hope the NAS will address ALL of the plutonium particle waste, not just the official TRU.

The standard of 100 nanocuries per gram of waste material was created in 1984. By raising the definition of TRU tenfold, the DOE reclassified almost half the waste to low level, allowing the leaving or reburial on site. Maybe coincidentally, it also saved WIPP from being overfilled before it opened. I have transcripts from the meeting that changed the standard.

The reason given to justify the change was a calculation that the 100 nano standard would give an acceptable dose of 500 mrem from animal intrusion and resuspension

This definitely ignores the water pathway in Idaho. More important, it ignores the total quantity of plutonium which will be left over our water.

For example, the Pit 9 ROD reburies its one acre at a seemingly low limit of 10 nanocuries per gram. At my request, they finally estimated that represents 3-4 lbs of plutonium. DOE has always refused to estimate the number of inhalable plutonium particles in a pound of Rocky Flats waste, but I believe billions is a low guess. It is important to think through the final waste legacy, since we have 88 acres of buried Rocky Flats waste.

It is estimated that 2700-3200 pounds of plutonium lay in these burial sites, but the real amount is unknown.

The new ICDF dump uses the 10 nano curie standard, but for 8 acres this time. Using the Pit 9 estimate, that's another 24-32 pounds of plutonium particles.

How much plutonium would you recommend to rebury over our water? What if it was your water, and your pregnant wife?

The final WIPP EIS chooses to leave ALL the buried waste in Idaho. It also chooses to leave half the above ground waste that is below 100 nano.

The 1995 EIS for INEEL says they may open a 200 acre low level alpha dump on site, and may bring in all the DOE waste, not just ours.

These decisions to open a new plutonium dump, or cap plutonium where it has leaked, are only required to try to calculate radiation doses the public, in a thousand year time frame, if it is below 100 nano/gram. Unfortunately, as mentioned, the plutonium particles, which are potentially deadly and cancer causing, if inhaled and embedded in your lungs, remain radioactive for over 240,00 years.

Much of the Snake River Plain Aquifer is pumped to the surface for irrigation or sprinkle irrigation, which would make the plutonium available for resuspension and inhalation.

We have been told for years that plutonium is an actinide, that binds to clay and rocks, immobilizing the plutonium, protecting the aquifer. We have been told, even in the unlined plutonium trenches originally used until 1970, that the aquifer was protected by the sorption property of plutonium, and the insolubility of plutonium.

These statements and decisions by the DOE, EPA, and State, have unfortunately ignored two recent, contradictory DOE studies, that both show how easily plutonium moves with water. Understanding these important contradictions is key to protecting Idaho's water supply and public health for centuries to come.

These two separate studies actually reveal a double trouble scenario, because both the soluble forms, and the insoluble forms of plutonium can move with water.

The A. B. Kersting study, was done at the Nevada Test Site (1).

This study found that insoluble plutonium had migrated 1.3 km (roughly one mile) bound to clay as a colloid and was suspended and floating in this sluggish aquifer, 30 years after being introduced to the underground environment.

This is a profound and dangerous discovery, that should change our nearsightedness about plutonium over our aquifer.

These plutonium colloids ranged in size from greater than one micron, down to 0.007 microns. The DOE acknowledges that inhalation of plutonium is the most dangerous pathway of human exposure. Plutonium colloids in our aquifer would be available for inhalation from the common use of sprinkle irrigation, and even canal irrigation that later dries, allowing newly surfaced plutonium to be resuspended in the wind.

The fact that these are insoluble particles of plutonium, means that each particle contains millions of plutonium atoms. That makes inhalation more dangerous because, while the single strike alpha disintegration of a single radon gas atom is dangerous, an embedded plutonium particle provides a point of perpetual radiation and alpha destruction.

The Kersting paper notes the old thinking of the DOE, citing the McDowell-Boyer paper. They say, "It has been argued that plutonium introduced into the subsurface environment is relatively immobile owing

to its low solubility in ground water and strong sorption onto rocks.” Kersting notes there are two previous studies of field observations contradicting that premise (2, 3).

I have heard the DOE, CDC, State, and ATSDR verbally dismiss the Kersting study as “due to the bomb testing.” However, Kersting addresses the issue, stating that in the 40 years of bomb testing, previous testing only found that “radionuclides were detected at a maximum of a few hundred metres from the original detonation site. “Having isolated the specific isotope ratio of the Benham bomb test debris, there is no doubt of its origin. The Kersting team concludes,

“The possibility that the Pu from the Benham test site was blasted and deposited greater than 1.3 km away, in two distinct aquifers separated by 300 m vertically and 30 m horizontally seems highly unlikely.”

Most importantly, Kersting concludes,” Pu transport models that only take into account sorption and solubility may therefore underestimate the extent to which this species is able to migrate in ground water.”

That is one reason why I say that the DOE, EPA, and State are ignoring their own contradictory studies. The modeling for Idaho’s future does not include the Kersting study on colloid transport of insoluble plutonium. While we open new shallow burial sites, and leave other plutonium where it lies, underestimating this plutonium transport is not acceptable.

The second study I will refer to, is from DOE’s Los Alamos lab, by John M. Haschke (4). While Kersting showed the mobility of insoluble plutonium, Haschke revealed that Pu in our environment can change oxidation states in the presence of airborne water vapor and become very soluble in water, enhancing mobility. This discovery contradicts the present textbooks, according Dr Madic (5) , who wrote the accompanying “Perspective” , when the Haschke study was published in Science. Textbook knowledge had only found PuO<sub>2</sub> in the environment, in oxidation states III and IV. Madic writes how this must affect how we view everything, from the new plutonium laden MOX nuclear reactors, to nuclear storage. Madic states,” Until now, it was assumed that plutonium would not be very mobile in the underground geological environment because of the insolubility of Pu(IV) compounds. But Haschke et al. demonstrate that water can oxidize PuO<sub>2</sub> into PuO<sub>2+x</sub>, in which more than 25% of the plutonium can exist as Pu(VI), an ion that is far more soluble, and thus mobile, than Pu(IV). This new property will have important implications for the long term storage of plutonium.”

So when will the DOE, EPA , State, and ATSDR apply this information to protect our water and our health ? We need above ground, inspectable and retrievable storage for the billions of plutonium particles dumped over our water. To ignore these studies is inexcusable.

There is one more paper I will quote, from Dr Runde. I went to the Wolfgang Runde article called “The Chemical Interaction of Plutonium in the Environment.” It is from a Los Alamos conference on plutonium transport. That can be referenced at <http://lib-www.lanl.gov/pubs/number26.htm>

Runde acknowledges the colloid transport was fast, and concludes, “What is clear is that transport models to date have underestimated the extent of colloidal transport on plutonium mobility.”

Let me put his conclusion in context, and quote Dr Runde to a fuller extent.

Dr Runde, on page 408 (or 17 of 20 on the computer download) says, “ We are also trying to better understand the sorption/desorption reactions of actinides with colloids and the actinides’ resulting transport characteristics. This area of environmental migration received attention with the discovery of

plutonium in a borehole at the Nevada Test Site (Kersting et al. 1999). The plutonium had evidently migrated 1.3 kilometers in only 30 years.”

Runde continues,” As discussed in the article by Maureen McGraw, we now believe that colloid transport was responsible for this remarkably fast movement of plutonium through the water saturated rock. It is not clear, however, whether the transport was facilitated by intrinsic plutonium colloids or natural (clay or zeolite) colloids. What is clear is that transport models to date have underestimated the extent of colloidal transport on plutonium mobility.”

The only reference to the uniqueness of bomb testing is the initial time it takes to reach plutonium exposure to water. Runde notes that the underground explosion allowed the plutonium to be left in water, while a waste repository would differ, because the “radionuclides would be isolated, at least initially, from the hydrogeologic environment.” (p. 490 )

Runde also mentions a new concern for Pu migration, and that is microbes acting as “ mobile colloids. “ While they may act as a barrier, they may aid transport. Runde says, “As such, they act as mobile or even self propelled colloids. (p 409, 18/20).

That is another reason we should simply re-barrel the plutonium waste, instead of shallow burial.

Runde concludes, “ More sophisticated models are needed to account for all the potential migration paths away from an actinide source. Theoretical and experimental scientists will be challenged for years by demands of developing these models.(p 410, 19/20)

Gee , I look forward to when they finish the job. Why would we want to rebury plutonium over our water before they understand plutonium transport in water?

I look forward to your reply.

Sincerely,

Dr Peter Rickards DPM  
2672 E 4000 N, TF, ID 83301

1)A.B. Kersting et al. , Lawrence Livermore National Laboratory, Nature, vol 397 Jan 7, 1999, p56-59.

2)McDowell-Boyer , Environmental Science Technol. , 26 , 586-595 (1992)

3)Ryan et al, Physiochem. Eng. Aspects, 107 , 1-56 (1996)

4)JM Haschke et al. ,Science 287, Jan 14 2000

5)C Madic, Science 287 , Jan14, 2000

## Comment #20

RE: Remediation Plan for Department of Energy (DOE) Idaho National Laboratory (INEEL) Radioactive Waste Management Complex (RWMC) Pit-4

Keep Yellowstone Nuclear Free (KYNF) appreciates the opportunity to comment on the proposed RWMC Pit-4 remediation plan. We are also grateful to have had the opportunity to meet face-to-face with Jeffery Parrot from the Idaho Operations Office, concerning the INEEL site which have potential health, environmental, social and economic impact on our community. Should additional information become available concerning this project as it goes forward, KYNF reserves the right to submit additional supplemental comments to that end, especially with regard to the option selected to treat the “target” waste.

The legacy waste from Rocky Flats found in Pit-4 is composed primarily of Volatile Organic Compounds (VOC's) and Transuranic Waste (TRU). Both of these highly radioactive waste streams pose great risk to future generations unless disposed of properly. This project is of particular concern to KYNF because if not done prudently, there will be exponentially more contamination to the Snake River Aquifer. Furthermore, as a grass-roots organization founded on the principal of maintaining and monitoring air quality, this organization will be keenly scrutinizing the treatment method selected to treat the exhumed waste. Should a “thermal treatment” i.e. incineration, be selected, Keep Yellowstone Nuclear Free will roar back into action.

KYNF is familiar with the waste stream involved in this project, and also notes that the highly radioactive VOC's and TRU have been buried in these unlined pits for over forty years! Since this time there has been an obvious flooding risk, associated air quality issues, and documentation of aquifer contamination. This poison wafts upward into the air and downward to the soil and water. Given that, we find the very nomenclature of this unacceptable. Time is not your friend when dealing with the half-lives of these transuranic elements and volatile compounds.

It is the understanding of KYNF, that the method for waste retrieval will be achieved by a visual sorting of waste, through the direct, man-operated use of excavation equipment. In simple terms, a retro-fitted Trackhoe will be picking through, and sorting waste utilizing a “best guess” method of targeting waste based on physical characteristics, i.e. barrels, filters, graphite fines. This method of picking through the Pit-r contents of 1,600,000 cubic feet of waste, using an “eyeballing” technique, seems grossly insufficient and an inadequate way to address the totality of the threat this waste poses. Furthermore, the “non-targeted” waste that makes it out of the pit, will then be re-packaged and put back in the same or other sub-surface “dump”. To presume that this process will retrieve all the waste that needs to be removed, is far from believable given the very non-scientific, low-technology approach. It also seems fool-hearty to assume that there will not be significant amounts of target waste embedded in the non-targeted waste that will then go back to its precarious home perched on the aquifer. Even trace amounts of TRU and VOC's pose a significant risk and threat to people and the environment and will invariable spread contamination.

To this end, KYNF acknowledges that the DOE is experiencing budget and timeline constraints that in all probability shape and constrain its thinking and ultimate planning. However, this proposed method for retrieval, given its crude technology approach and lack of comprehensiveness, appears to be a very low-budget solution for addressing a deadly serious problem. The two do not match up.

KYNF is not an organization responsible to posit other alternatives to exhume the waste. However, we know that there have been other successful retrieval projects that have taken place at the RWMC in both 1974 and 1976 and feel that more could be learned and emulated from those examples. Given the debacle

and lessons learned from Pit-9, one would presume that with the time that has elapsed, the breadth of research, and expertise of waste characterization and treatment, that a more suitable alternative could be selected that relies less on human error and presumption that we can visually detect radioactive waste. At the very least, this chosen treatment method should utilize a real-time radiation monitoring device to even begin to make this retrieval project viable.

In summary, KYNF is not satisfied with this remediation plan because it has such a low confidence level for achieving true waste characterization. Additionally, KYNF maintains its concern about the treatment option that DOE has yet to declare, in order to make the targeted waste suitable to go to the Waste Isolation Pilot Plant (WIPP) in New Mexico. KYNF fears there is a characteristic lack of transparency in DOE's motivation to get the waste out of the ground and out of the state in order to meet its deadline under the Consent Agreement. We fear that this push for expediency, combined with reluctance to put the dollars where they most belong, is going to add up to a job that in its most simple form is unsafe, unfinished leaves and untoward legacy for future generations.

Comments prepared by Mary Mitchell.

## **Comment #21–29**

Comment From: Chuck Broscius  
Comment: Environmental Defense Institute  
Troy, ID 83871-0220

Public Comment on Remediation Plan for Department of Energy (DOE)  
Idaho National Engineering and Environmental Laboratory (INEEL) Radioactive Waste Management  
Complex (RWMC)  
Pit-4 Remediation

### **I. Summary**

The Environmental Defense Institute (EDI) appreciates the opportunity to comment for the official record on the proposed RWMC Pit-4 remediation plan. If additional information becomes available, EDI reserves the right to submit additional supplemental comments.

Generally, this Plan is yet another “penny-wise-dollar foolish” project because it fails to commit to serious buried waste exhumation that would mitigate the continued migration of hazardous and radioactive waste into the Snake River Plane Aquifer.

The uncertainty in waste characterization (the process of determining what is in the waste) is so huge, that DOE credibly must commit to exhuming all the Pit-4 waste and evaluate it drum by drum - box by box. Given the forty years of its internment (and random dumping that itself compromised containers), it is likely all the waste is just a corroded mixed up mess! DOE acknowledges that waste containers were just randomly dumped into Pit-4 (as opposed to stacking the containers) and it is this period when records/data have the biggest information gaps. Therefore, DOE’s Plan to exhume only a small (21%) portion of the waste (in a specific area) is not credible, and categorically deficient. Given the available inadequate monitoring and disposal data, DOE simply offers no convincing evidence to the public to support such a limited exhumation project for Pit-4.

In March 2003, DOE lost a desperate legal attempt to renege on its 1995 Settlement Agreement with the State of Idaho to remove all alpha low-level, transuranic, and high-level waste from INEEL. DOE wanted to limit its obligation to removing only “stored” waste and leave the “buried” waste permanently in place at INEEL. U.S. Federal District Court Judge Lodge ruled in favor of Idaho and stated that “all means all, stored and buried waste” and ordered that “the United States remove all transuranic waste located at INEEL.” [emphasis added]

As discussed below, DOE also launched another legal attempt to eliminate its statutory obligation (under the Nuclear Waste Policy Act) to remove all the high-level waste in tanks at INEEL and other DOE sites. Although DOE was able to have its appeal heard in the Ninth Circuit, a ruling has yet to be issued as of this writing.

On May 21, 2004 DOE launched a legislative initiative that would allow DOE to avoid its current legal obligations. Essentially, DOE wants the Republican controlled Congress to block the Federal Court’s intrusion on its operations. In an amendment to Department of Defense authorization bill (secretly attached by Republican leadership) and authored by Senator Lindsey Graham that would amend the Nuclear Waste Policy Act to allow DOE to re-classify high-level waste. The bill was narrowly approved in the House but delayed in the Senate (5/21/04).



DOE is the federal agency (tasked with managing the most deadly operations on the planet) that based on its legal and legislative record puts public health and safety in a lower priority than saving money and will go to extreme lengths to avoid compliance with the law.

The bottom line is that this Pit-4 Plan is categorically deficient under federal regulatory requirements (discussed below), and lacks the requisite commitment by DOE to “get the waste out of Idaho.”

## **II. Pit-4 Remediation Plan Comments**

DOE’s Plan states that Pit-4 is a “non-time-critical removal action.” [page 1] The fact that this buried waste at the RWMC generally and Pit-4 specifically is migrating into the Snake River Aquifer since the Pit-4 waste interment in 1963, by any observer, represents an immediate hazard. This “non-time-critical” designation is not based on credible risk-based assessments given the documentation available showing RWMC waste migration into the Snake River Plane Aquifer.

DOE, state, and EPA reports on aquifer contamination resulting from RWMC buried waste go back several decades in addition to the ever-present flooding risks. Nuclear Regulatory Commission regulations on “disposal site suitability requirements for land disposal” [10 CFR 61.50(a)(5) through 7) state in pertinent part:

“The disposal site must be generally well drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area or wetland, as defined in Executive Order 11988, ‘Floodplain Management Guidelines.’ (6) Upstream drainage areas must be minimized to decrease the amount of runoff, which could erode or inundate waste disposal units. (7) The disposal site must provide sufficient depth to the water table that ground water intrusion, perennial or otherwise, into the waste will not occur.” [emphasis added]

The fact that the RWMC lies some forty feet below the elevation of the Big Lost River, immediately to the north-east, and the fact that the RWMC has experienced numerous floods in the recent past (1952, 1962, 1969, and 1982), would disqualify this site for land disposal of any waste - even municipal garbage under RCRA Subtitle D or Subtitle C hazardous waste disposal.

DOE offers no apparent monitoring data to justify the limit of only 21% of the Pit-4 waste as opposed to exhuming the entire Pit-4 contents of 1,600,000 cubic feet of waste. [page 6] By comparison, DOE conducted a systematic probe assessment of Pit-9 that showed significantly higher estimates of the radioactivity of the waste than the previous estimates using the same data used in the Pit-4 estimates.

DOE fails to acknowledge two previous successful RWMC buried waste retrieval projects in 1974 and 1976 nor are other more extensive Subsurface Disposal Area waste inventory reports acknowledged. Also see, Early Waste Retrieval Final Report, J. Bishoff, EG&G Idaho, Idaho National Engineering Laboratory, August 1979, TREE-1321, notes that the project was to investigate methods, risks, and hazards associated with the retrieval of 65,000 cm of transuranic waste in the burial ground. “Waste retrieved included drums, loose waste, and contaminated soil. Approximately 67% of the drums retrieved were severely breached. Free liquid leaked from about 6% of the drums, and 5% were externally alpha-contaminated. Although alpha-contamination levels often exceeded 2,000,000 counts per minute, available equipment and established operating and safety procedures protected personnel...” There simply is no credible excuse for DOE’s dragging its collective feet in getting on with this essential remediation work other than simply not wanting to spend the money required. This “limited” 21% removal of Pit-4 waste is clearly more cost cutting and stalling that must be challenged! There is no dispute that the Rocky Flats waste dumped at the RWMC represents an immediate hazard. DOE, however, fails to acknowledge equally significant onsite reactor waste from on-sit INEEL programs such as Initial Engine Test (IET),

SNAP-TRAN, SL-1 dumped at the RWMC during the period Pit-4 was open (1963-1967). This waste included reactors, reactor parts, irradiated fuel. Much of this waste would also be legally classified as “Class-C” and “greater than Class-C Low-level waste” that the Nuclear Regulatory Commission (NRC) regulations specifically prohibit disposal in shallow land burial such as Pit-4. NRC regulations on “greater than Class C” state that waste be interned in engineered deep geologic repositories due to the extreme radiological hazard this waste presents! NRC regulations on “land disposal of radioactive waste” in “near surface disposal facilities” [10 CFR 61.55(a)(2)] states in pertinent part:

“Class-C [low-level] waste is waste that not only must meet more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility to protect against inadvertent intrusion. The physical form and characteristics of Class C waste must meet both the minimum and stability requirements set forth in Sec. 61.56. (iv) Waste that is not generally acceptable for near-surface disposal is waste for which form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.” [emphasis added]

Moreover, the State of Idaho stipulated in the Settlement Agreement with DOE, that “low-level alpha waste” (greater than 10 and less than 100 nCi/gm) also be removed from INEEL. The 1995 Settlement Agreement states: “1. DOE agrees to treat spent fuel, high-level waste, and transuranic wastes in Idaho requiring treatment so as to permit ultimate disposal outside the State of Idaho. 2. DOE shall as soon as practicable, commence the procurement of a treatment facility [facility] at INEL for the treatment of mixed waste, transuranic waste and alpha-emitting mixed low-level waste [treatable waste].”

DOE’s misguided “targeting Rocky Flats waste” ONLY has no credible risk management basis. It can only be considered ludicrous for DOE to rely on “package labeling or distinctive packaging to identify non-targeted waste” that will be left in place. [page 11] This waste has been in the ground for over forty-years. This reliance on “labeling” is indicative of how ungrounded this plan actually is, and ignores the previous (1970’s) retrieval projects (noted above) that found the containers completely compromised and labeling non-existent.

DOE’s Plan offers so many caveats to what waste will be “targeted” for extraction, that the public is left with little or no assurance that this is a serious retrieval operation. [page 11] Moreover, DOE’s Plan provides for “thermal treatment” of some extracted waste to remove volatile organic compounds (VOC) that currently are prohibited for disposal at the transuranic disposal site (WIPP) in New Mexico.[page 16] The public is justifiably concerned that this “thermal treatment” means “incineration,” and DOE’s lack of full disclosure on this crucial part of the project feeds the public’s lack of confidence about the impact on environmental, health and safety issues. [pages 16 and 28]

Additional uncertainty is pervasive on DOE reliance on DOE Order 435.1 that is currently being litigated by the Natural Resources Defense Council (NRDC). U.S. Federal Court found DOE Order 435.1 illegal under the Nuclear Waste Policy Act, however DOE has appealed that ruling to the Ninth Circuit Court of Appeals. Six states have filed a joint Amicus Brief in support of NRDC case.

### **III. What is in the RWMC Buried Waste?**

INEEL, located near Idaho Falls, Idaho, is a federal nuclear reservation owned by DOE. INEEL is only one segment of the federal government’s nuclear weapons production complex.

The INEEL over its fifty-year operating history has generated on-site or received via off-site shipments, significant quantities of high-level radioactive spent nuclear fuel waste (i.e. Nuclear Navy spent nuclear fuel), and transuranic (TRU) waste (i.e. DOE's Rocky Flats Site) from fabrication of plutonium nuclear bomb components.

INEEL uses many sites for permanent disposal of transuranic waste including injection wells into the aquifer and unlined percolation ponds. The largest and most significant INEEL disposal site is the Radioactive Waste Management Complex (RWMC) Subsurface Disposal Area (SDA), where Pit-4 is located, and the Argonne National Laboratory-West, Radioactive Scrap and Waste Facility, located on the INEEL site. Internal DOE documents gained by EDI through Freedom of Information Act requests and other state and federal agency administrative records, show more than ninety (90) metric tons of high-level irradiated reactor fuel was dumped in the RWMC. EDI has provided an itemized listing of this irradiated reactor fuel interned at the RWMC SDA. (<http://www.environmental-defense-institute.org>)

DOE's Rocky Flats Plant in Colorado shipped substantial quantities of plutonium waste to INEEL. EDI's investigations into these Rocky Flats shipments show that considerably more plutonium was shipped to INEEL than is disclosed by the parties to this case. EDI's Amicus Brief Exhibit No. 2 documents EDI's contention and further shows that the concentrations of plutonium and highly enriched uranium waste dumped in the SDA poses a significant criticality hazard.

Flooding of the RWMC and other radioactive waste disposal sites poses a significant hazard due to contaminants being flushed through the soil column to the aquifer. EDI's Amicus Brief Exhibit No. 3 shows the hydro-geologic vulnerability of the INEEL buried waste sites including the RWMC to flooding, incidents, which have already occurred in 1962, 1969, and 1982, as well as Idaho Nuclear Technology and Environmental Center (INTEC) formerly known as the Idaho Chemical Processing Plant (ICPP) where DOE plans to permanently dispose of HLW and TRU waste.

Buried or otherwise dumped radioactive transuranic waste is currently contaminating the Snake River Aquifer. U.S. Geological Survey (USGS) reports show plutonium in aquifer wells some twenty miles south of the INEEL boundary. See Exhibit No. 4. USGS reports also show groundwater flow, or "conductivity" in the Snake River Plain Aquifer can reach 32,000 feet per day, or 6.06 miles per day. Contaminates discharged at INEEL have the potential to move rapidly through the aquifer to public water sources.

INEEL over its operating history has received significant quantities of spent reactor fuel from dozens of sources. A high percentage of this irradiated reactor fuel was "reprocessed" using an aqueous process which dissolves the fuel rods in acid/solvent solution that then makes it possible to extract highly enriched uranium and other nuclear isotopes for various United States nuclear military programs. The mixed hazardous and high-level radioactive liquid waste (HLLW) and TRU waste was then interned primarily but not exclusively in underground storage tanks. These HLLW tanks were never intended to be the permanent repository for this waste both because of the known toxicity of the waste, the limited service life of the tanks themselves, and the fact that at the time it was illegal under federal statute. The concrete vaults that encase the eleven high-level 300,000-gallon tanks at the Idaho Nuclear and Environmental Technology Center (INTEC) are known to leak. A 1994 State of Idaho investigation showed that over a twenty-three month period (11/92 to 9/94) about 123,500 gallons of contaminated water was pumped from the tank vault sumps. The investigation concluded that the source of the water was precipitation, irrigation, and leaking tank waste system lines. DOE's reliance on these failed containment systems for permanent disposal of HLW under DOE Order 435.1 is misguided and puts EDI members and the general public at significant risk. The INEEL sits directly atop the Snake River Plain Aquifer, designated by US Environmental Protection Agency (EPA) as a regional sole source aquifer. Protection of this aquifer is main component to the 1995 Settlement Agreement.

Past and current INTEC HLW mismanagement practices have resulted in massive hazardous and radioactive waste contamination of the groundwater under the facility. This recognized groundwater contaminate pathway represents a significant hazard to the general public and EDI's members just with current contaminate levels. Migration of buried waste contaminates into underlying soil and perched ground-water zones are extensively studied by US Geologic Survey and their report notes: "These zones are an integral part of the pathway for contaminates to move to the Snake River Plain Aquifer. Water moves rapidly through surficial [sic] sediments . . ."

If DOE's Order 435.1, that will allow permanent disposal in these already leaking waste tank units, is not stopped, more pollution will migrate to the aquifer, further putting EDI members and the general public at risk. See EDI Amicus Brief Exhibit No. 3, page 24 that shows radioactive groundwater contamination under INTEC greater than 60,000 times the EPA regulated maximum concentration level for drinking water. The hazard is intensified by the fact that the U.S. Geological Survey report shows that the top ground level of the INTEC HLW Tank Farm is within the Big Lost River 100-year flood plain, which means the bottom of the tanks are some 50 feet below the 100-year flood levels. Flooding of these HLW tanks and the related HLW processing buildings will flush pollutants into the aquifer and endanger the general public and EDI members, since these radionuclides are toxic for tens of thousands of years.

At INEEL, the primary facility for reprocessing irradiated nuclear reactor fuel, also called spent nuclear fuel (SNF), is the Idaho Nuclear and Environmental Technology Center (INTEC) formerly known as the Idaho Chemical Processing Plant (ICPP). The INTEC underground HLLW Tank Farm, consisting of eleven 300,000-gallon tanks with a current volume of about 1.4 million gallons, is only part of a large complex of an additional 127 HLLW tanks that are part of the INTEC HLLW treatment operations (also called INTEC Liquid Waste Management System). EDI Amicus Curiae Brief filed in federal court 8/2/02 in NRDC vs. DOE (Case No. 01-CV-413 (BLW)), lists these 127 HLLW tanks, their location and what process they are attached too, however the waste volume of their sediment contents is uncertain. Some of these additional tanks that are part of the INTEC Liquid Waste Management System (ILWMS) high-level waste processing system are listed in the Idaho High-level Waste Draft Environmental Impact Statement as a significant criticality hazard due to the high concentration of fissile (uranium and plutonium) material content of the tanks. NRDC's Complaint to the Court (Case No. 01-CV-413 (BLW)) did not mention these additional 127 tanks nor the HLLW contents in characterizing the INEEL hazards, yet it is a crucial issue the Court (in this USA v. Kempthorne case) must evaluate because DOE Order 435.1 will specifically affect the final disposition and closure of all these tanks and whatever residual waste contents are left in the tanks. Moreover, all the INTEC HLLW tanks do not meet the requirements of the Resource Conservation Recovery Act (RCRA), and therefore do not have RCRA permits as storage units much less permanent disposal units.

The process of closure of these HLLW tanks at INEEL has begun. At issue here is not the need to close the tanks, but what federal statutes and the Settlement Agreement stipulations on buried HLW/TRU waste will be appropriately implemented and enforced to assure proper closure in order to protect the public and environment. The Idaho Department of Environmental Quality (IDEQ) issued an RCRA HLLW tank Closure Plan (RCRA/HWMA Permit Docket No. 10HW-0204) for two INTEC tanks. EDI alleges that the Closure Plan violates the Nuclear Waste Policy Act (NWPA), and RCRA. EDI 1/16/02 Amicus Curiae Brief before IDEQ shows that HLLW units are within the 100-year flood plain of the Big Lost River and therefore violate RCRA HLW disposal restrictions. Although this Closure Plan only immediately affects five HLLW tanks (WM-182, 183, 184, 185, and 186) it will set a precedent for the closure process for all of the 138 HLLW tanks at INTEC. DOE's August 9, 2002 Record of Decision to leave 49 high-level waste tank waste in place will likely be repeated at INEEL. The INTEC Tank Closure Plan violates 40 CFR 191 for disposing mixed high-level radioactive waste in near-surface internment that cannot meet the 10,000-year minimum requirement.

The Tank Closure Plan violates 40 CFR 265.112(b)(4) that states in pertinent part, “A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination necessary to satisfy the closure performance standard.” (Emphasis added). And Subpart J--Tank Systems 40 CFR Sec. 265.197(a) Closure and post-closure care states “ At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste.” [Emphasis added]

DOE is currently (via DOE Order 435.1), and EDI contends illegally, delisting a previous fifty-year DOE policy that “sodium bearing waste” (SBW) contained in INEEL tanks is HLW. DOE now says that: “SBW is liquid waste that is generated from decontamination operations of INTEC facilities involved in the processing of spent nuclear fuel and the treatment of HLW. SBW contains hazardous and radioactive materials and is classified as mixed transuranic waste.” This is at issue here because seven (WM-108 through WM-186) tanks are classified by DOE as SBW tanks in the INTEC Tank Farm. Delisting of these tanks as HLW tanks by DOE has major implications with respect to closure of these and all other HLW units. EDI contends that DOE’s own operator reports show that many of these SBW tanks received “first cycle raffinate.” Also see; other internal INEEL documents show that sodium compounds were used for the purpose of converting reactor fuel rods into a liquid. Sodium nitrate and sodium hydroxide was used in the 1950’s at INEEL as a primary part of the SNF reprocessing operation. SEE; Progress Report of April-June 1955, February 6, 1956, Phillips Petroleum, pg.5, IDO-14362; Chemical Processing Technology, Quarterly Progress Report, April – June 1961, page 4 and 15, IDO-14567; Development of RaLa Progress, Utilizing MTR fuel elements, Period ending 2/20/54, page 27, IDO-14292; Status of Development of RaLa Progress as of 4/1/54, page 5, IDO-14300; Laboratory Development of a Process for separations Ba-140 from MTR Fuel, March, 27, 1959, page 14, IDO-14445. Raffinate is the high-level waste remaining after first, second, or third cycle solvent extraction of highly-enriched uranium from SNF. The State of Idaho maintains that sodium-bearing waste in the INTEC Tank Farm is HLW. The State notes in the forward to the Idaho High-Level Waste Environmental Impact Statement (IHLW/EIS) that:

“Reprocessing at INTEC used a three-cycle solvent extraction process to recover highly enriched uranium from spent fuel. Each cycle created liquid waste, as did decontamination activities. DOE recently adopted Radioactive Waste Management Order (DOE Order 435.1) identifies HLW as liquid produced ‘directly in reprocessing.’ Idaho interprets this HLW definition to include waste from the first reprocessing cycle (non-sodium bearing waste) and second and third cycles (sodium bearing waste). This interpretation is consistent with language in the Settlement Agreement [and Consent Order] that identifies both sodium-bearing waste and non-sodium bearing waste as HLW. In addition, liquid from the second and third extraction cycles was routed to an evaporator before being discharged to the Tank Farm. As such, these liquids contain radioactive fission products in sufficient concentrations to warrant permanent isolation in a geologic repository.”

DOE’s attempt to delist the SBW tanks defies its own internal contractor documents that show the history of these tanks. For example, the closure of INTEC HLLW tanks (WM-182, 183, 184, 185, and 186) as non-HLLW units shows an annualized history for these tanks. According to DOE’s own internal reports, these tanks received both Aluminum and Zirconium clad fuel raffinate between 1955 and 1997. Only after 1997 did these tanks receive sodium-bearing waste. The sediments or heels in these tanks are a result of the SNF reprocessing waste generated between 1955 and 1997 and therefore are HLW defined by NWP. The State of Idaho and EPA regulators are thrusting a “Risk-Based” closure plan that has a multitude of questionable assumptions without supporting sampling data, and specific limits on tank heels left in place,

all of which are not fully disclosed. Specifically, how much tank heel will be left in the tanks and grouted over in order to meet the “Risk Based” no harm criteria? Even more egregious is the fact that the DOE technology development that currently exists can remove nearly all the tank sediments, yet for cost cutting measures this has not been implemented. DOE estimates that about 20,000 gallons of tank sediment heels are in each of the eleven HLW Tank Farm units which would leave a total of 220,000 gallons permanently interned.

Fundamentally, EDI alleges that easily exhumable mixed hazardous high-level waste from the INTEC tanks will be sent to other un-RCRA permitted treatment, storage, disposal (TSD) at INTEC (i.e., High-level Liquid Waste Evaporator (HLLWE), Process Equipment Waste Evaporator (PEWE), and the Liquid Effluent Treatment and Disposal (LET&D). This is illegal!

During the tank closure plan review, EDI and David McCoy unsuccessfully requested reopening or extension of the period for public comment pursuant to 40 CFR 124.10 and 124.14. Because of information that raises substantial new questions related to DOE’s proper closure of High Level Waste Tanks, we objected to IDEQ’s determination that: “Based on our review of your submittal, the DEQ remains confident that the plan for moving forward with the Closure of the first two of eleven Tank Farm Facility (TFF) tanks is compliant with [Hazardous Waste Management Act] HWMA regulations, and it represents full disclosure on the part of DOE to address the operational realities associated with closure of the mixed waste tanks.” This statement fails to address the various crucial legal issues EDI and McCoy presented in our “Request for Investigation” some of which include: Decontamination steam jets do not have the capacity (according to INEEL experts) to remove the solids in the tank heels, therefore leaving about 30,000 gallons of mixed high-level waste sediments in the two tanks. Decontamination water/steam jet sprays will not resuspend the heel solids nor remove hazardous heavy metal waste because, as INEEL experts pointed out, they are precipitates of a < 2 mole acidic raffinate; Grout will not mix with the tank heels which violates the RCRA and EPA’s Land Disposal Restrictions; Grout will only “roll over tank heels” and sandwich them between the tank bottom, and required sampling of the final waste form to validate encapsulation is not planned or technically possible as identified by INEEL expert’s comments; Grouting of the vault completely under the tank is believed by INEEL’s own engineers as impossible, yet the Closure Plan nonetheless assumes it, which in turn invalidates the Plan’s Risk Assessment assumptions, and fate and transport modeling; The “Risk-based Clean Closure” does not offer sampling data to specify the minimum amount of tank heels that will be left in the tanks to satisfy this criteria. Grouting of the tanks sumps will only partially “float” the tanks causing deformation and possible breaching of the fifty-year-old tanks. Closure Plan Risk Assessment fails to include 400 rem/hr soil contaminate loading for cesium-137 (102 million picocuries/gram), strontium-90 (56.8 million pCi/g), and plutonium (276 nano curies per gram) that are the result of tank vault and service line leaks as required in 40 CFR 265.111; Tanks WM-182 and 183-history shows aluminum and zirconium reactor fuel reprocessing raffinate up until 1993 and 1997 respectively that produced the solid high-level waste precipitate in the tank heels. Sodium bearing liquid waste was only subsequently added after these dates, therefore DOE’s claim to strictly SBW with respect to the tank heels is false; Tank heel solids (raffinate precipitates) are mixed high-level waste by definition (42 USC 10101 et.seq. and therefore cannot be legally disposed in shallow land burial as designated in the Tank Closure Plan’s “Landfill Closure Plan”. Also see: (40 CFR191 Disposal of High-level Waste) and (Nuclear Waste Policy Act at 42 USC ss 701 et seq.) DOE estimates that for the eleven underground tank farm tanks, the heels or sediments will be the equivalent of between 79,000 and 220,000 gallons. Risk-Based assessment fails to include the fact that the tanks are some forty feet below the 100-year flood plain of the Big Lost River and the leaching effect of contaminated soil, tank vaults, and tank contents into the Snake River Plain Aquifer. Disposal of hazardous waste is also prohibited by RCRA in a flood plain as previously discussed. The tanks have leaked reactor fuel reprocess waste (according to INEEL experts) into the tank vaults thereby extensively contaminating the concrete vault floor and sides, which was not factored into the Risk Assessment as part of the contaminate loading factors in the fate and transport modeling.

The thrust of this discussion related to the INTEC high-level tanks also applies to the RWMC Pit-4 Remediation of buried waste because the same obfuscation of fundamental statutory and regulatory requirements are employed by DOE.

#### **IV. ENDNOTES:**

##### **Comments #32–103**

This letter submits my written comments on the EE/Ca that proposes targeted removal of transuranic radionuclides from Pit 4. Since DOE must respond only to those public comments that are “significant”, I’ll identify those of my comments that I feel are significant. Once again DOE has produced a document so laden with flaws in fact and logic that one must wonder at the system that produced it.

Again, this document fails to offer any real choices. It seems the DOE, like in NEPA, has made a decision and then written a document to justify that decision. This EE/CA provides no reasonable alternatives except the selected action and No Action. There is no serious discussion of other alternatives and why they are unacceptable.

DOE claims this action is necessary to reduce risk, yet it does not identify the exact amount of risk reduction expected through this action. Past risk assessments at the RWMC (except the gerrymandered Pit 9 assessment) have identified hazardous chemical substances as the risk drivers at the RWMC, not radionuclides. While it is understood that disagreement and uncertainty exists regarding the migration rates of various transuranics, this proposed risk reduction is not designed to reduce risk from known risk drivers, VOC’s. Rather it seems designed to mollify the opinion of both state regulators and the public.

The EE/CA fails to identify or quantify the risk reduction that will be bought for over \$210 Million Dollars. The EE/CA fails to compare the overall risk to human health and the environment from waste at the SDA, before and after the targeted removal. This document fails to explain why Pit 4 should be the subject of a removal rather than other pits and trenches.

Lisa Green’s letter of 25 Feb 2004, authorizing this project states, in part: “The primary objective of this project is to retrieve TRU waste located within Pit 4.” The EE/CA baldly repeats DOE’s real intent when it states that the removal action will be targeted towards removing transuranic waste and that these wastes can be visually identified by workers. Once again, existing risk analyses do not support this approach because VOCs are the primary risk drivers, not TRU constituents. This document fails to clearly include PCBs as among the organic contaminants in the pit. This document fails to estimate the amount of highly contaminated waste (TRU and VOC) that will be left behind, requiring additional remediation in the future.

DOE fails to address the short term risk to workers during this removal. DOE, and it’s lapdog, BBWI, are fully aware of an incident in which three workers received an uptake (read: internal exposure) of radionuclides while removing the allegedly “clean” overburden. This incident has been kept very quiet. Why? How has the “system” that allowed this contamination been corrected?

This EE/CA states that monitoring air emissions will not be required, based on modeling. How has that modeling been verified, both for radionuclides and VOCs? What will be done to verify the modeling BEFORE operation? If routing monitoring is not required, what Periodic Confirmatory Monitoring will be performed, in accordance with NESHAPs regulations?

This document makes a number of assumptions regarding waste management and disposal. It assumes TRU waste will be disposed at WIPP. It fails to identify what percentage of waste falls into that category

and what percentage will not qualify for WIPP, based either on VOC content or low TRU concentration, even after “blending-up.”

The EE/CA hints at additional waste treatment, possible thermal treatment, prior to disposal, yet a full discussion is not provided, promising a future document. DOE has failed to fully describe this removal action since the treatment, and its costs, have not been included. Neither has DOE be clear regarding the type of future document that will describe this treatment and seek public comment.

On the other hand, documents indicate that DOE plans to return untreated waste to the pit. Lisa Green’s letter of 25 Feb 2004, authorizing this project states, in part: “Additional project scope includes return of materials containing TRU constituents below the TRU waste definitional threshold of 100 nCi/gm to the original excavation following retrieval, initial characterization, and temporary staging in the interim storage area. . . . The NTCRA is estimated to require up to 4 years to complete.” It is clear that DOE is focusing on the TRU constituents of the waste rather than the real risk drivers. Why? And Why the deception of the public through this EE/CA?

It appears it is the intent of DOE to return mixed hazardous waste to the pit without treatment to meet LDRs, despite the clear “placement” of the waste, as defined by RCRA. This is a violation of RCRA. In addition, DOE continues to use deceptive euphemisms since “4 years” can hardly be termed “interim” by anyone except DOE!

**General Comments:**

Significant: DOE should identify and fully analyze substantive alternatives besides those presented in this document.

Significant: DOE should identify and quantify the real risk drivers, both at Pit 4 and the entire SDA.

Significant: DOE should explain why Pit 4 has been chosen for a removal action of dubious necessity.

Significant: DOE should quantify the expected reduction in risk that will be achieved through this removal action.

Significant: DOE should quantify the overall risk at the SDA, both before and after spending over \$210M.

Significant: Please identify the estimated quantity of VOC and TRU waste will remain in the pit.

Significant: Please state whether additional remediation of Pit 4 will be required after the removal.

Significant: Please identify the short term risk to workers in the pit and to the public.

Significant: Please identify the additional work that will be done to verify that no VOC control equipment is required.

Significant: Please present the public with the calculations that demonstrate that routine stack monitoring for radionuclides is not required.

Significant: Please state the type and frequency of Periodic Confirmatory Monitoring that will be performed.



Significant: Please identify the amount of waste expected to be disposed at WIPP, and options should it not be accepted at WIPP.

Significant: Please identify the amount of waste that will not go to WIPP and identify where it will be disposed.

Significant: Identify the quantity of waste expected to be disposed back to the pit without treatment to meet LDRs.

Significant: Explain why DOE is conducting this action solely for the removal of TRU when the real risk drivers are the organics, yet DOE seriously plans to return organic-laden waste back to the pit without treatment.

Significant: Please identify what additional treatment will be applied to this waste (if any), when it will occur, and how the public will be involved in the decision-making process. What are the ARARs associated with this treatment process?

Specific Comments:

Section 1 – Please identify in which document the EPA and state have agreed with DOE in selecting Pit 4 for a removal action.

Section 1.3 – This section mentions the “Ancillary Basis for Risk Analysis.” Please provide additional information regarding this seemingly new document.

Significant: Since significant reliance is placed on this document, please identify how and when the FFA/CO agencies approved the methodologies and conclusions in the “Ancillary Basis for Risk Analysis.”

Section 1.3 - Significant: This section refers to a document: “Preliminary Evaluation of Remedial Alternatives”, stating that it identifies other remedial options. Please provide a summary of each here, explaining why each was deemed inappropriate for this removal action. In addition, please summarize other technologies that were considered for this removal and why they were not chosen.

Table 1 - Significant: Please identify the CERCLA hazardous substances found in Pit 4 and the risk to human health or the environment associated with each, assuming no action is taken, and the estimated risk after the removal action.

Section 1.4.1.1 - Significant: Please include PCBs as a CERCLA hazardous substance present in the pit.

Section 1.4.1.1 – The definition of Transuranic Radionuclides is wrong. How and Why could DOE make such a basic blunder on a topic at which it should be an expert? Please correct this egregious error.

Section 1.4.1.1 – The definition of Low Level Waste excludes depleted uranium. I assume this means that trash contaminated with DU from SMC operations is disposed at the CFA landfill rather than the RWMC since only LLW is accepted there.

Section 1.5 - Significant: Please explain how the Public Relations Plan for this project will be implemented, as required in 40 CFR 300.415.

Section 1.5 - Significant: “The DOE has determined that the removal action...shall, to the extent practicable, contribute to the efficient performance of any anticipated...remedial action...” Please identify how this removal may NOT contribute to any future remedial action and whether this pit is expected to be addressed AGAIN in a future remediation.

Section 1.5 - Significant: DOE assumes that TRU waste from this removal will be accepted at WIPP, though it has not yet been included on the list of expected waste generated by WIPP. This assumption, if false, may result in extended storage at the INEEL and an uncertain disposal path for the waste. Please identify DOE’s plans for the waste if disposal at WIPP is not possible.

Section 1.6 - Significant: “The risk assessment included...limited analysis of sensitivity and uncertainty.” and “Risk evaluation specific to Pit 4...has not been calculated.” In other words, DOE isn’t certain of the results of the risk analysis and the ultimate effectiveness of this removal action. Please provide the public some assurance that over \$210M will be spent effectively. Please provide the public with some indication that DOE really knows what it’s doing!

Section 1.6 - Significant: “Twenty COCs have been identified for the SDA. Seventeen were identified through risk assessment.” Please list the seventeen identified through risk assessment. More importantly, please list the three that were identified through conjuring or divination and carefully explain to the public why they were included. Please tell the truth, if such a thing is possible for DOE.

Section 2 - Significant: Please explain which wastes are “targeted” (not by IDC but by hazardous substance), which wastes are not, and why there is a difference.

Section 2 - Significant: Despite the earlier statements in the EE/CA: “The risk assessment included...limited analysis of sensitivity and uncertainty.” and Risk evaluation specific to Pit 4...has not been calculated.”, DOE now has the unmitigated gall to state that nontargeted waste may be removed, based on visual identification, if (1) it poses a potential risk of contamination if left in place; and (2) the potential risk is sufficient to warrant removal. Please explain which wastes might fall into this category and why they are not already “targeted waste”. Without a risk analysis, please explain how the future risk from “non-targeted waste” will be divined. Please explain the process by which DOE and the other FFA/CO agencies will make and document these decisions.

Section 3 - Significant: This entire section is bankrupt and without foundation since DOE has already admitted: “Risk evaluation specific to Pit 4...has not been calculated.” Please explain to the public the quantitative reduction in risk that this removal will achieve and why it is worth in excess of \$210M.

Section 3.1.1 - Significant: Please explain why enhanced monitoring is not being performed now but is being offered as a possible future action. What additional information might be gained from enhanced monitoring and why is that information not needed now?

Section 3 - Significant: DOE states that a final remedial action is not expected until 2020. Please explain why completion of an RI/FS and ROD will be delayed until this date.

Section 3.1.2 - Significant: “...it is anticipated that a significant percentage of the original VOC inventory remains in the original packaging...” Please state the estimated inventory that remains in original packaging in the SDA and whether the remainder accounts for the observed VOC inventory in the vadose zone and the Snake River Plain Aquifer.

Section 3.1.2.2 - Significant: Please explain why removal of VOCs is not required prior to venting them to the atmosphere.

Section 3.1.2.2 - Significant: Please provide evidence that continuous stack monitoring for radionuclides is not required AND, if applicable, explain how Periodic Confirmatory Measurement will be performed.

Section 3.1.2.2 – Significant: Please explain how the Storage Enclosure will meet ARARs for storage of PCB waste.

Section 3.1.2.2 - Significant: Dense pack meets neither RCRA or TSCA ARARs. Please provide a justification for a waiver to these ARARs or demonstrate that the state and EPA have approved of DOE's plan to fail to meet these ARARs.

Section 3.1.2.3 - Significant: Define "clean" overburden. This issue is especially important considering the unexpected waste drum found near the surface in the "clean" overburden and the resulting uptake by three workers. What actions will DOE take when overburden is found to be "not clean"?

Section 3.1.2.3 - Significant: DOE seems to be talking from both sides of it's mouth again. A previous section states the pit may be as deep as 28 ft, to basalt. Yet this section says the pit is 17-20 ft. In which section is DOE lying? If a 1:1 angle of repose is used, what happens to the waste under the slope? Is it left in place, even if it is "targeted"?

Section 3.1.2.3 - Significant: Please describe what happens to waste that is not shipped to WIPP under two scenarios: WIPP accepts TRU waste from this project and WIPP does not.

Section 3.1.2.3 - Significant: Please estimate the total length of time waste from this removal will remain in storage prior to treatment and then prior to final disposal.

Section 3.1.2.3 - Significant: Please identify all treatment and disposal options for all waste streams, including Closure (DOE might call it D&D) of the excavation unit, all treatment units, and the storage units. What is the estimated cost of Closure?

Section 3.1.2.3 - Significant: Please identify the estimated cost of waste characterization prior to disposal.

Section 3.1.2.3 - Significant: Dependent on hazardous waste codes applicable to the waste, treatment may be required to address far more than just VOCs. Please describe how LDRs will be met for waste not sent to WIPP.

Section 3.1.2.4 - Significant: Describe how the public will be involved in discussions and decision-making regarding future waste treatment options. This should be included in you Public Relations Plan specific to this project.

Section 3.1.2.5 - Significant: Why is the final state of the SDA assumed to include an engineered multi-layer cover? Have the state and EPA agreed to this significant assumption? If so, in what document?

Section 4 - Significant: This section defies belief. It cannot be fixed without changing the entire EE/CA. I suggest DOE identify additional alternatives and subject them to a valid comparison.

Section 4.2.1 - Significant: DOE should know that the simple presence of RCRA hazardous constituents is insufficient reason to apply RCRA waste codes. Knowledge of the processes resulting in the wastes in addition to possible chemical and physical characterization is required. Please correct this gross oversight and misstatement.

Section 4.2.1 - Significant: “It is concluded that the project will...(comply) with ARARs.” This is an outright lie. The proposed Dense Pack storage strategy will NOT comply with RCRA ARARs for container storage. The DOE must justify an ARAR waiver for Dense Pack. Neither will Dense Pack meet the ARARs for TSCA containers.

Section 4.2.1 - Significant: DOE again lies to the public when it claims that misting inside the enclosure will be effective in controlling dust containing radionuclides. Please provide the public the studies that demonstrate the effectiveness of misting. In addition, provide to the public the modeling assumptions and calculations for rad emissions under NESHAPs and chemical emissions.

Section 4.2.1 - Significant: “Treatment of air emissions for chemical releases...will be implemented if determined necessary during the detailed design phase...”. Please identify the information that will become available during the design phase that is not available now regarding chemical emissions and the need for carbon filtration. This project is scheduled to get underway by next Fall. Design work must already be underway. Statements such as this are the cause of public mistrust of DOE and what they think they’re hiding.

Section 4.2.2 - Significant: “Retrieved buried waste is anticipated to satisfy WIPP acceptance criteria.” Does DOE really expect the public to believe this kind of balderdash? Or maybe DOE is so steeped in self-delusion that it really believes this kind of drivel. WIPP has strict limitations on VOC off-gas. It seems unlikely that untreated waste laden with organic solvents will meet these requirements.

Table 2 - Significant: The figures presented do not represent the cost of the project. What are the full costs of waste storage for a number of years? Where is the cost to build and operate a treatment facility? Where are transportation costs to WIPP and other facilities? Where are characterization costs (“The largest uncertainties relate to...characterization, transfer and disposal...)?

Table 2 - Significant: The costs related to monitoring are taken from another EE/CA, Early Action Beryllium Project. This indicates that “enhanced monitoring” for both the ill-conceived Beryllium Project and this project does not focus on either Beryllium or Pit 4, but seem to apply to the entire SDA. Please tell the public the exact scope of “enhanced” monitoring.

Table 2 - Significant: The cost estimates for this project come from a DRAFT document, unreviewed by the FFA/CO agencies and not formalized by DOE. DOE must provide a complete and accurate accounting of the complete scope and cost of this project.

Table 3 – The DOE repeats the lie that this project, as presented, will comply with ARARs. Correct the lie. In addition, the table makes other broad, generalized statements regarding effectiveness, implement ability and cost without adequate foundation or proof.

Appendix A, Action Specific - Significant: “The planned storage facility will satisfy the substantive Subpart I requirements...” DOE again repeats the lie. Be honest with the public! Just as importantly, be honest with yourselves! Who wrote this delusional drivel?

Appendix A, Action Specific - Significant: “Disposal of these potential materials will be addressed in future documentation. DOE wastes much time and effort trying to obfuscate the facts. Call this PCB-laden “material” what it really is: WASTE. In addition, identify the exact nature of the “future documentation” as well as what public review and comment will be sought. Include this information in the Public Relations Plan.

Table A-1 – Significant: Are the uncontrolled rad emissions expected to be less than or greater than 0.1 mr/yr” Use honest assessments regarding emissions rates, dust control effectiveness, and waste concentrations.

Table A-1 – Significant: DOE knows what treatment methodology will be implemented, despite generalized and non-committal statements hinting at thermal desorption (more attempted deception fo the public on the part of DOE?). Include the ARARs for the treatment process in more detail than just “Subpart X.”

Table A-1 – Significant: DOE again can’t even identify ARARS correctly. It appears DOE has chosen to ignore the requirements under 40 CFR 2614.1(j) in favor of picking and choosing among 40 CFR 261 Subparts B and C. Unfortunately, DOE failed to add the requirements under Subpart D. It is unclear if this approach and this omission were intentional or due to incompetence. In either case, fix it.

Table A-1 – Significant: If DOE will retrieve only “targeted waste”, why have the ARARs for LDRs specific to soil been included. What has DOE failed to tell the public?

Christina

cc

Mr. Daryl Koch, DEQ  
Mr. Nicholas Ceto, EPA  
INEEL CAB

## Comment #105

To: Mr. Steve Perry  
From: Willie Preacher, Shoshone-Bannock Tribal DOE Director  
Subject: Comments/questions on RWMC Pit 4 Project

I would like to thank you for giving us the opportunity to comment on the Pit 4 project. I attended the public meeting on the 17<sup>th</sup> of May at the ISU Sam Bennion Student Union Building. We applaud the efforts that DOE, BBWI and BNFL have done in the cleanup efforts of the RWMC and other areas at the INEEL.

The Pit 4 project has a positive aspect on accomplishing the removal of designated waste from this pit. The Tribes have contended that all of the waste from the subsurface disposal area to be removed for the protection of the aquifer. In many of the early Accelerated Cleanup meetings that was presented to the Fort Hall Business Council the protection of the aquifer and removal of any type of waste was the primary issues that DOE had proposed

Our concern for the Pit 4 Project is the identified waste that is to be removed. The plan that was presented to the public on how to determine what waste was to be removed would be to visually inspect and then determine the designated waste by color and then to remove that waste. One concern we have is from previous experience that DOE has in other retrieval projects at the RWMC identified drums or barrels have not accurately contained what was identified. How can you assure that you have removed all of the TRU waste by only visual identification?

Previously in one of the very early meetings DOE mentioned that if the waste was to be left in place and capped then it would not be considered and be treated as RCRA waste? We have a concern of the excavated waste that is not slated for disposal at WIPP fall under the auspices of the Resource Conservation and Recovery Act (RCRA)? If so, how will the requirements of RCRA be addressed and how will the material be treated?

Another issue of concern is if excavation results in the discovery of waste considered "Classified Waste," how would DOE propose to handle it? One answer we received is that the originator of the waste would have to de-classify it. Another response was "what if the originator is no longer in business?" How will that waste then be handled? Which leads to another concern, how will you determine classified waste if you only going to use visual inspection on identifying retrieval waste? The non-retrieval drums that are to be reburied may be classified waste and left in the ground.

The plan to dig up Pit 4 and then re-bury portions that do not require shipment to the WIPP for disposal does not make sense to us. We understand that some waste may require disposal at the WIPP. However, it seems more appropriate that the rest of the retrieved material be placed in safe storage aboveground after it has been excavated, until an alternate disposition path can be determined. That also falls under the issue of protecting the aquifer and that should be of some concern. One other issue is if all the waste were to be excavated and removed and placed in an above ground covered pad such as the 6100 cubic meter building it can later be re-evaluated and packaged and have a cost savings of retrieval again if it was to be reburied.

Again, Mr. Perry we applaud the efforts DOE has on cleanup and for giving us the opportunity to comment on these efforts. The above comments and questions is our response to the public comment section of this project.

Thank you, Willie Preacher, Shoshone-Bannock Tribal/DOE Director

## Comments #110–120

Subject: Questions and Concerns about Pit 4

As you know, the Idaho National Engineering and Environmental Laboratory (INEEL) Citizens Advisory Board (CAB) was disappointed that we were not more aware of plans for cleanup at Pit 4. Key information about the project was not available until the Idaho Falls public meeting on May 17, the day before our CAB meeting, and only a few CAB members were able to attend the public meeting. In addition, a very full agenda did not allow adequate time for a presentation and Board discussion. Consequently, it was impossible for us to comment as a Board within the short public comment period provided for this topic.

Despite this, we understand you are interested in hearing our questions and concerns, even though it will not be possible for us to develop consensus on a formal CAB recommendation. Accordingly, this letter transmits a collection of questions and concerns generated by the members of the CAB based on our current level of understanding.

- How much will the proposed excavation at Pit 4 cost? The cost analysis gives a total of \$208.5M, but comments by DOE at the Idaho Falls and Ketchum public meetings indicated that this figure may be too high.
- What process will be used to separate the excavated waste into two categories: 1) the portion of the waste that must be managed for disposal at the Waste Isolation Pilot Plant (WIPP) and 2) the portion that will not require such handling?
- The plan to dig up Pit 4 and then re-bury portions that do not require shipment to the WIPP for disposal does not make sense to us. We understand that some waste may require disposal at the WIPP. However, it seems more appropriate that the rest of the retrieved material be placed in safe storage aboveground after it has been excavated, until an alternate disposition path can be determined.
- Will the excavated material and plans for characterization and repackaging of that material meet the waste acceptance criteria for WIPP?
- Does DOE plan to make use of the Advanced Mixed Waste Treatment Project (AMWTP) to manage the wastes that will be excavated from Pit 4? From the information presented at the public meetings in Idaho Falls and Ketchum, it appears that DOE is not planning to use AMWTP but instead plans to inspect and repackage drums using a mobile laboratory from WIPP. What if the workers find an intact drum among the excavated material? Wouldn't any intact drums require X-ray, head space sampling, etc.? Have plans been made for possible management of retrieved drums should they be found?
- What documentation will be required to allow disposal at WIPP and has the necessary documentation been completed and approved by the appropriate regulators?
- Is the material that will be excavated from Pit 4 included in the baseline inventory of waste that is approved for disposal at WIPP? If it was not included in that inventory, what provisions has DOE made to assure that the material can and will be accepted at WIPP?
- Based on information provided, we understand that the excavation process of Pit 4 will entail excavation into a 20-foot pit from multiple locations. What steps will be taken to secure the

excavation equipment in case the sides of the excavation pit sag? What plans have been made to address the situation if the equipment becomes mired or requires repairs while in the pit? We assume that procedures developed for the Glovebox Excavator Method (GEM) project could be carried over to the Pit 4 excavation, however we found no evidence of contingency plans in the documentation provided to us.

- The schedule for the Record of Decision (ROD) for the Subsurface Disposal Area (SDA) may be negatively impacted if DOE waits for the results of Pit 4. Perhaps consideration should be given to changing the schedule for the SDA ROD, which would allow DOE to make use of the results of Pit 4 in determining an appropriate path forward for the rest of the pits and trenches.
- Will excavated waste that is not slated for disposal at WIPP fall under the auspices of the Resource Conservation and Recovery Act (RCRA)? If so, how will the requirements of RCRA be addressed and how will the material be treated?
- If the excavation results in discovery of waste considered “Classified Waste,” how would DOE propose to handle it?

We anticipate your response with additional information to help us to better understand the Pit 4 Project.

Sincerely,

David Kipping  
INEEL CAB Chair

cc:  
Elizabeth Sellers, DOE-ID  
Nick Ceto, U.S. Environmental Protection Agency  
Dennis Faulk, U.S. Environmental Protection Agency  
Kathleen Trever, State of Idaho  
Shannon Brennan, DOE-ID  
Bonnie Wethington, DOE-ID



## **Comments #121–132**

Re: Non-Time Critical Removal Action for the Accelerated Retrieval of a Designated Portion of Pit 4

The Snake River Alliance is an Idaho-based grassroots group working through research, education, and community advocacy for peace and justice, the end to nuclear weapons production activities, and responsible solutions to nuclear waste and contamination. I submit the following comments and questions on behalf of our dues-paying members.

### **Contaminants of Concern**

The goal of the Snake River Alliance is to protect the Snake River Aquifer from nuclear waste and contamination resulting from activities at the Idaho National Engineering and Environmental Laboratory. To this end, we are concerned about all radionuclides and volatile organic compounds that pose a long-term threat to Idaho's water. While we support removal of the buried waste at the Radioactive Waste Management Complex (RWMC), we question limiting this removal to waste categories that do not fully consider all the long-lived radioactive isotopes threatening groundwater.

The Pit 4 retrieval action focuses on a few "targeted" categories of waste: transuranics from Rocky Flats, uranium, and volatile organic compounds. Our understanding is that the inventory of VOCs is not as large in the focused area of Pit 4 as it is in some other areas of the burial grounds. There are, however, other radionuclides and hazardous substances buried at the RWMC that pose a very real and long-term threat to the Snake River Aquifer. Ignoring these contaminants is irresponsible, and failing to retrieve these contaminants during the Pit 4 retrieval action would hold at risk the Snake River Aquifer, waste precious financial resources, and damage the public's perception of cleanup at INEEL. As it stands, it appears that INEEL is only willing to exhume waste for which there is a clear path forward. From a project perspective, this seems sensible, but the "tidiness" of that approach must be balanced against the peril of leaving dangerous material above the Snake River Aquifer.

### **Retrieval Analysis and Additional Information**

It is our understanding that Pit 4 waste will be retrieved based on visual identification, but that no effort will be made to measure radioactivity at the dig face. Why not include that additional check? It is also our understanding that retrieved waste will eventually be characterized, presumably to verify (or not) historical records and, more important in INEEL's plan, select a disposal path. We need more details on characterization, including timing. As raised in the Idaho Falls meeting, a decision tree with criteria would be very helpful, since there seems to be a fair amount of confusion about this.

The EE/CA maintains that, "...the proposed removal action, in addition to addressing a material portion of the hazardous substances in the SDA, will provide characterization, and technical and cost information from full-scale waste retrieval activities that will support the RI/FS for OU 7-13/14. Evidently, the question of postponing the RI/FS for the entire burial grounds until the information gleaned from this dig and the subsequent characterization can be incorporated was raised at both the Idaho Falls and Ketchum meetings. It is also our informal understanding that there are about a dozen areas in the burial grounds that might be the subject of a similar "hot spot removal" approach. When will more information about any delay in the final decision and about the contemplated "hot spot" approach be available to the public? In posing that question, I remind you that information about next steps is information the public deserves to have as early as possible and needs to have if INEEL expects informed public support.

With regard to nontargeted waste, the DOE maintains:

It is possible that, during the process of excavation, other waste will be revealed that is not within these targeted waste streams. This nontargeted waste will also be removed from the excavation during this removal action if the DOE remedial project manager and the EPA and IDEQ WAG 7 remedial project managers agree that retrieval is warranted because the information concerning the nontargeted waste that is available from visual inspection (such as package labeling or distinctive packaging) identifies the nontargeted waste as being of a nature that (1) it poses a potential risk of contamination to the underlying aquifer if left in place, (2) the potential risk is sufficient to warrant removal at that time rather than leaving it to be addressed by the OU 7-13/14 final remedial action for WAG 7, and (3) the waste can safely be managed by retrieval using the personnel, facilities, and equipment readily available onsite for retrieval of the targeted waste streams.

The DOE points out elsewhere “nontargeted waste (e.g., debris and soil) will be placed on the opposite face of the open pit.” In other words, it will remain in the burial grounds. While the DOE admits there may be contaminants of concern buried with the targeted waste (although specific contaminants are not mentioned), it relies solely on visual inspection to identify such waste. We need more information (a la a decision tree with criteria) about how INEEL intends to choose between these two approaches—consensual removal and abandonment—in practice. The fact that Series 742 second-stage sludge was not slated for removal until halfway through the public comment period leads to the conclusion that more analysis of this point is needed.

That INEEL is not seeking to process the exhumed material in the Advanced Mixed Waste Treatment Facility raises a number of policy questions, both site-specific and complex-wide. First, that there would be a disconnect between the privatized AMWTF and the cleanup of the burial grounds was perfectly predictable. Second, that disconnect seems to be leading to an unnecessary expenditure of funds here at INEEL. Third, if the point of using a mobile WIPP certification facility is to test that path for other facilities, wouldn't it be more prudent to do the test somewhere somewhat farther removed from the AMWTF than Pit 4?

What is the disposal path for the uranium?

There seems to be some disagreement between INEEL and its regulators about the firmness of the decision to pursue thermal desorption. That disagreement should be clarified.

Will the waste acceptance criteria for the INEEL CERCLA Disposal Facility have to be modified? How will that be coordinated among DOE and its regulators?

We strongly urge INEEL to exhume some portion of the debris waste. As it is, the approach seems focused only on verifying what you know: you think you know where the TRU is. But it would also be helpful to verify that waste you do not think contains TRU does not in fact contain TRU.

## **Conclusions & Recommendations**

While the Snake River Alliance applauds the DOE's shift from opposition to buried waste retrieval to exhuming some of the waste, we are concerned that 1) the scope of retrieval is artificially limited to waste for which there is a clear (though not clearly explained) disposal path but that 2) the obvious disposal path at INEEL, the AMWTF, is being ignored for reasons that have nothing to do with environmental

protection, and that 3) this project might be a piece of a piecemeal approach that will no doubt affect future decisions without clear, early public understanding and acceptance.

Based on these conclusions, the Alliance recommends that the Pit 4 retrieval project proceed, but only after more information is available, most particularly about how waste will be slated for removal or further (albeit temporary) abandonment and clarification as to why spending an additional \$86 million for WIPP certification is necessary since the AMWTF is already permitted.

If you have questions or comments, please feel free to contact me.

Sincerely,

Jeremy M. Maxand  
Executive Director

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- 40 CFR 264, 2004, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, Office of the Federal Register.
- 40 CFR 300, 2003, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, Office of the Federal Register.
- 15 USC § 2601 et seq., 1976, "The Toxic Substances Control Act (TSCA) of 1976," *United States Code*
- 42 USC § 6901 et seq., 1976, "Resource Conservation and Recovery Act of 1976 (Solid Waste Disposal Act)," *United States Code*.
- 42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*.
- DOE, 1995, *Settlement Agreement*, U. S. Department of Energy, Environmental Management; U.S. Department of the Navy, Naval Nuclear Propulsion Program; and the State of Idaho.
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- DOE G 435.1-1, 1999, "Crosswalk Tables DOE Order 5820.2A vs. DOE Order 435.1/M 435.1-1," U.S. Department of Energy.
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- DOE O 435.1, 2001, "Radioactive Waste Management," Change 1, U.S. Department of Energy.
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- DOE-ID, 2004b, *Action Memorandum for Accelerated Retrieval of a Described Area within Pit 4*, DOE/NE-ID-11179, Rev. 0, U.S. Department of Energy Idaho Operations Office.
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## 8. ACRONYMS

ABRA	Ancillary Basis for Risk Analysis
Am	americium
AMWTP	Advanced Mixed Waste Treatment Project
AR	Accelerated Retrieval [Project]
ARAR	applicable or relevant and appropriate requirement
C	carbon
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
Cl	chlorine
COC	contaminant of concern
DEQ	[Idaho] Department of Environmental Quality
DOE	U.S. Department of Energy
EDF	engineering design file
EE/CA	Engineering Evaluation and Cost Analysis
EPA	U.S. Environmental Protection Agency
FFA/CO	federal facility agreement and consent order
HEPA	high-efficiency particulate air
I	iodine
INEEL	Idaho National Engineering and Environmental Laboratory
LDR	land disposal restrictions
NCP	National Contingency Plan
NESHAPs	National Emission Standards for Hazardous Air Pollutants
Ni	niobium
Np	neptunium
NRC	Nuclear Regulatory Commission
NTCRA	non-time-critical removal action

OU	operable unit
PCB	polychlorinated biphenyl
Pu	plutonium
RCRA	Resource Conservation and Recovery Act
RFP	Rocky Flats Plant
RI/FS	remedial investigation and feasibility study
ROD	record of decision
RWMC	Radioactive Waste Management Complex
SDA	Subsurface Disposal Area
Sr	strontium
Tc	technetium
TRU	transuranic
TSCA	Toxic Substances Control Act
U	uranium
VOC	volatile organic compound
WAC	waste acceptance criteria
WAC	waste area group
WIPP	Waste Isolation Pilot Plant