APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

1. Overview

A proposed plan for the interim remediation of the Test Area North (TAN) groundwater was released in early January 1992, with public comment period from January 13 to February 12, 1992. A request for extension of the comment period was received and granted, resulting in an extension until March 13, 1992. The proposed plan recommended Alternative 2 as the preferred alternative—a pump and treat system to remove groundwater from the aquifer and treat it using air stripping with activated carbon to capture volatile organics and ion exchange resin beads to extract the radioactive and inorganic contaminants from the groundwater.

Both verbal and written comments were received from three public meetings, plus written comments were sent to Department of Energy (DOE) for consideration.

In general, the public favored the preferred alternative and expressed concerns regarding treated water disposal, treatment residual disposal, and overall project cost.

2. Background on Community Involvement

2.1 Community Relations Prior to the Interim Action

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sections 113(K)(2)(b)(i-v) and 117, community interviews were conducted with local officials, community reside and public interest groups to solicit concerns and information needs, and to learn how and when citizens would l. to be involved in the CERCLA process. The information gathered during community interviews and other relevant information provided the basis for development of the Idaho National Engineering Laboratory (INEL)-wide Community Relations Plan (CRP). This INEL-wide CRP will continue to be implemented during this interim action to reflect the decision-making process under CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and to ensure that appropriate public participation continues under the Federal Facility Agreement/Consent Order (FFA/CO).

The presence of organic compounds in the groundwater at the TAN was first announced in a news release issued in November 1987. A second news release issued in September 1988, announced both the provision of an alternate source of drinking water for workers at TAN, and the scheduled installation of an air sparging system to remove volatile organic contaminants from the drinking water supply at TAN.

2.2 Community Relations to Support Selection of a Remedy

In accordance with CERCLA sections 113(k)(2)(B)(i-v) and 117, the public was given the opportunity to participate in the remedy selection process.

The Notice of Availability for the Proposed Plan was published January 5, 1992, in the following newspapers:

- *The Post Register* (Idaho Falls),
- *The Idaho State Journal* (Pocatello),
- *Twin Falls Times News*,
- *Idaho Statesman* (Boise),
- *The Lewiston Morning Tribune*,
- *Idaho Free Press* (Nampa),

- *South Idaho Press* (Burley),
- *Moscow-Pullman Daily News.*

A similar newspaper advertisement was published January 30, 1992, in

- *The Post Register* (Idaho Falls),
- *The Idaho State Journal* (Pocatello),
- *Twin Falls Times News,*
- *Idaho Statesman* (Boise),
- *Idaho Free Press* (Nampa),
- the *South Idaho Press* (Burley).

These advertisements repeated the public meeting locations and times. Personal phone calls were made to inform individuals and groups about the comment opportunity. A "Dear Citizen" letter transmitting a copy of the Proposed Plan was mailed January 8, 1992 via a mailing list of 5,731 names of groups and individuals.

The public comment period was initially scheduled from January 13, 1992, to February 12, 1992. Three public meetings were held on February 4, 5, and 6, 1992, in Idaho Falls, Boise, and Burley. Representatives from the DOE, Environmental Protection Agency (EPA), State of Idaho Department of Health and Welfare (IDHW), and EG&G Idaho, Inc., were present at the public meetings to discuss the Proposed Plan, answer questions, and receive both written and oral public comments. For one hour prior to each meeting, INEL, EPA, and IDHW representatives were also available for informal discussions with the interested public. A court reporter was present at each meeting to record, verbatim, the proceedings of the meetings. Copies of the transcripts from the public meetings are available for public review in the Information Repositories (which are located at the public libraries in Boise, Twin Falls, Pocatello, Idaho Falls and the University of Idaho library in Moscow) as part of the Administrative Record for this interim action.

A request for an extension of the public comment period was received and granted, therefore extending the comment period to March 13, 1992. A notice of the extension was published February 18 and 19, 1992, in:

- *The Post Register,*
- *The Idaho State Journal,*
- *Twin Falls Times News,*
- *Idaho Statesman,*
- *The Lewiston Morning Tribune,*
- *Idaho Free Press,*
- *South Idaho Press,* and
- *Moscow-Pullman Daily News.*

On March 9, 1992, a technical briefing was conducted with the League of Women Voters of Moscow via a conference call.

A Responsiveness Summary has been prepared to address public comments as part of this Record of Decision (ROD). All verbal comments given at the public meetings and all submitted written comments are repeated, verbatim, in the Administrative Record for the ROD. Those comments are annotated to indicate which response in the Responsiveness Summary addresses each comment.

In accordance with CERCLA section 113 (k)(1), an Administrative Record was established to provide the basis for selection of the remedial action. The Administrative Record is available for public review at the INEL technical library in Idaho Falls. Copies of the Administrative Record are available for public review at the public libraries at Boise, Idaho Falls, Pocatello, and Twin Falls, and the University of Idaho Library in Moscow.

Persons on the mailing list will receive a notice of availability stating that the signed ROD is available. Cor of the ROD and the Responsiveness Summary will be placed in the Administrative Record and in the informa repositories, and will be provided to the public upon request.

3. Summary of Comments Received During Public Comment Period

Comments and questions raised during the TAN groundwater interim action public comment period on the Proposed Plan are summarized briefly below. Many questions were answered at the public meeting as reflected in the transcripts. A total of 22 written and 5 verbal comments were received from the public. These public comments have been divided into 45 specific comments and responses. A brief summary of comments received from all interested parties follow:

- Several commenters addressed the availability of sufficient data to support the interim action, including the nature and extent of contamination and risk.

- Several commenters raised questions regarding (1) the disposition of treatment residuals such as spent carbon and spent resin, and (2) the discharge of groundwater to the disposal pond.

- Several commenters focused on the selection of interim performance standards (1) for maximum contaminant levels for groundwater effluent and (2) for groundwater extraction pumping rates.

Comments and questions on a variety of subjects not specific to the TSF-05 injection well and groundwater interim action were also received. These subjects included nuclear and hazardous waste issues at the INEL and fu military use of the INEL. Comments received concerning the INEL CRP will be addressed when the Plan is upda in the fall of 1992. Responses to comments on these other subjects are not provided in this Responsiveness Summary. Additional information on these subjects can be obtained from the INEL Public Affairs Office in Idaho Falls or at the local INEL offices in Pocatello, Twin Falls, and Boise.

4. Comment Tracking System for the TAN Groundwater Interim Action

In response to public comments received, DOE has chosen to use a comment tracking system to aid the public in finding responses to individual comments. This system allows commentors to compare public comments received by DOE with the comment summaries and responses provided in the Responsiveness Summary. This system is described below.

At the end of each comment summary is a list of codes in parentheses. These codes are assigned to individual comments and are related to the source of the comments. The first two characters of each code identifies the transcript (T) or written document (W) containing the original comment. For example, T1 is transcript number one from the Idaho Falls public meeting and W1 is the first written comment received by DOE during the public comment period. The second set of two digit numbers represents the sequence of individual comments within a given document. For example, T1-01 is the first comment identified in the Idaho Falls public meeting transcript.

A record of the comments received is annotated listing the comment identification codes and the response numbers where each comment is summarized and the response provided in the Responsiveness Summary. Commentors can then refer to their written or oral comments and easily locate the corresponding comment summary and response. This record is provided in Appendix B.

5. Presentation of Comments and Responses

Characterization and Extent of Interim Action

1. Comment — The problem has not been quantified to scientific and technical standards with respect to quantities, availability to recover, and long-term public risk. When will there be better answers? (T1-07, W8-01)

Response: Sufficient data exists from the Resource Conservation and Recovery Act Facility Investigation of the Test Area North groundwater (1988 to 1990) to determine that there is a potential risk from exposure to the contaminated groundwater. The horizontal boundaries of the plume have also been defined and the general types and concentrations of the contaminants are known. As a result, there is sufficient information to begin the interim action to help prevent further degradation of the groundwater by reducing contaminants near the TSF-05 injection well and in the surrounding groundwater. The interim action will also provide more detailed information regarding aquifer parameters based on data to be obtained from the extraction and monitoring wells. The long-term risk and alternatives to address this risk will be evaluated in the Operable Unit 1-07B remedial investigation/feasibility study on the Test Area North groundwater.

2. Comment — Before money is spent on cleanup, a study should be completed indicating whether the contaminants have created a health hazard, the extent of the contamination, and the most efficacious means for eliminating the problem using existent and proved technologies. The proposed plan is premature because the extent of the problem and the associated risks are not sufficiently determined. (T1-05, W5-01, W7-01)

Response: Contaminant concentrations in the groundwater at the Test Area North exceed health-based drinking water maximum contaminant levels. The immediate risk to Test Area North personnel from organic contaminants, such as trichloroethylene and tetrachloroethylene, has been mitigated by the installation in 1989 of an air sparger to the water supply tanks. However, this sparger does not prevent the contamination from spreading farther into the aquifer and does not reduce the possibility that delaying the remediation of the aquifer will only increase the cost and complexity of any future action. By using well-established and widely-used technologies in the interim action, we will help prevent further degradation of the groundwater while the Operable Unit 1-07B remedial investigation/feasibility study is completed.

3. Comment — There is a consistent, pervasive effort to minimize the risks and hazards identified in INEL literature. The statement that the plume of contamination has only migrated a few miles challenges any public confidence that DOE is capable of objective characterization of its own mess. The contention that the contaminated plume has not migrated more than 1/4 mile is in direct contradiction to the fact sheet. Additionally, the claim that the trichloroethylene plume is not expected to reach existing supply or drinking water wells in areas outside the Test Area North for over 100 years is currently being challenged. Some hydrologists argue that the aquifer is not homogeneous and the existence of lava tubes can provide for speedy dispersion of contaminants. (W20-03, W20-05, W22-02, W22-05, W22-07)

Response: The Department of Energy has worked extensively with the Environmental Protection Agency and the State of Idaho Department of Health and Welfare on determining the boundaries of the plume.

Starting with the Resource Conservation and Recovery Act Facility Investigation in 1989, a tot[illegible] 17 wells have been drilled to the aquifer within a one-mile radius of the TSF-05 injection well. Sev[illegible] rounds of water samples have been taken from these wells. Samples have been collected on one or more occasions from an additional 12 existing wells within 4 miles of the TSF-05 injection well. The results of this search have shown that the plume is moving south-east from the TSF-05 injection well, that it is approximately 1-1/2 miles long by 1/2 mile wide, and that it is still within the general boundaries of the Test Area North. The contaminant plume and its dimensions were shown on diagrams and placed in both the fact sheet on the remedial investigation/feasibility study and in the Proposed Plan on the interim action.

On the basis of data from the existing well network, only trichloroethylene has been found at levels above drinking water maximum contaminant levels farther than 1 mile from the TSF-05 injection well. All other contaminants and the higher levels of contamination are still within one mile of the TSF-05 injection well for the tetrachloroethylene, lead, and strontium-90. The greater than 100-year estimate before the contaminant plume reached other wells is based on the fact that the plume has not gone farther than 1-1/2 miles in the 38 years since the well was first used.

4. Comment DOE only identifies trichloroethylene, tetrachloroethylene, lead and strontium-90 as contaminants at the Test Area North. Information available from the State of Idaho identifies additional chemicals and metals as contaminants that have been detected at high activity levels in the Technical Support Facility (TSF)-05 injection well and the groundwater. DOE has an obligation to state this data in the fact sheets and the EPA and the State of Idaho are remiss by not insuring that appropriate data reaches the public. (W20-04, W22-06)

Response: Previous groundwater sampling data from 1989 and 1990 have been summarized in the Record of Decision (See Tables 5-1 and 5-2). These data result from the EG&G Idaho, Inc. sampling of 20 wells in 1989 and 29 wells in 1990. The wells were sampled for selected organic, inorganic, and radiological constituents. Complete results from the EG&G Idaho, Inc. well sampling have been added to the Administrative Record, which is available for public review. In addition, analytical results of the sludge removed from the TSF-05 well in 1990 are included in Table 5-3 of the Record of Decision. Additional data have been published by the USGS and will be added to the Administrative Record.

Four contaminants of concern — trichloroethylene, tetrachloroethylene, lead, and strontium-90 — were identified following review of the analytical data. These four contaminants were the only ones detected routinely above drinking water maximum contaminant levels and are the most widespread (i.e. they were detected in more than one well and in more than one sampling event). Hence these four contaminants are the focus of this interim action. The interim action was proposed to reduce the high concentrations of these contaminants near the TSF-05 injection well, and lessen contaminant migration from the vicinity of the injection well.

The other contaminants were mostly detected in the TSF-05 injection well and in the sludge that was removed from it (these contaminants are listed in Section 5 of the Record of Decision). These contaminants are not relatively widespread, nor do they routinely exceed drinking water maximum contaminant levels in more than one well. In fact, now that the sludge has been removed from the TSF-05 well, the previous sampling results may no longer be reliable indicators of the current groundw[illegible] contaminant levels in the injection well. After evaluation of the sampling data and other informati[illegible] the Department of Energy, Environmental Protection Agency, and the Idaho Department of Health

and Welfare determined that these other groundwater contaminants could be addressed in the remedial investigation/feasibility study for the Test Area North groundwater (OU 1-07B) rather than the interim action.

5. Comment The risks to the workers and public posed by tritium contamination at the Test Area North has been ignored despite the research and literature that identifies significant genetic damage and other biological disfunction as a result of tritium exposure. (W22-04)

Response: Groundwater samples taken in 1989 and 1990 from a network of up to 29 wells have consistently shown that the tritium in the aquifer does not exceed 9,800 picocuries/L or approximately 1/2 the drinking water maximum contaminant level of 20,000 picocuries/L. Twelve of these wells are within 1/4 mile of the TSF-05 injection well. The same samples also show that at distances greater than roughly 1/4 mile from the TSF-05 injection well, the tritium levels are consistently less than 1,000 picocuries/L.

Prior to 1990, tritium levels from water taken directly from the TSF-05 injection well reached levels of up to 43,200 picocuries/L. The sludge is considered to have been a primary source of this tritium contamination. Because sludge was removed from the well in January and February 1990, contaminant concentrations in the TSF-05 well and nearby groundwater are likely to have declined since the pre-1990 sampling event.

. Comment The proposed plan refers to a time of 100 years before trichloroethylene contaminants reach existing supply or drinking water wells outside of the Test Area North. However, the identified plume of strontium-90, which has a half-life of 10,000 years should dominate the discussion when considering the spread of the contaminant plume and cleanup criteria. (W22-08)

Response: The half-life of strontium-90 is 27.7 years, not 10,000 years. In 100 years, the levels of strontium-90 would be approximately 8 times lower than current levels through natural decay alone. The average level of strontium-90 within 1/4 mile of the TSF-05 injection well is about 50 picocuries/L or 6 times the drinking water maximum contaminant level of 8 picocuries/L. Thus, within 100 years, the average levels of strontium-90 in the groundwater would be below maximum contaminant levels from natural decay alone.

Public Involvement

7. Comment Numerous comments were received concerning the INEL Community Relations Plan and public involvement. Comments included: location and format of public meetings; document format, availability and legibility; excessive cost and time required for the public involvement process; regulatory agency support of public involvement; and format of the responsiveness summaries. (T1-01, W4-01, W16-03, W17-01, W18-02, W20-01, W20-11, W21-01, W22-01, W22-19)

Response: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) responsiveness summaries typically address comments pertaining to the scope of the proposed action. Topics such as the Community Relations Plan are not usually addressed in a responsiveness summary. These comments have been directed to the Idaho National Engineering Laboratory (INEL) Community Relations Coordinator for consideration by the Department of Energy (DOE), Environmental Protection Agency (EPA), and the State of Idaho Department of Health and Welfare (IDHW) when

the Community Relations Plan is updated in the fall of 1992.

In response to public concerns, a tracking system has been adopted for use in this Responsiveness Summary to aid the public in finding responses to individual comments. This system allows commentors to compare public comments received by DOE with the comment summaries and responses provided in the Responsiveness Summary.

8. Comment Data sheets placed in the information repository were illegible and a request for legible copies was not responded to in a timely manner. (W20-02)

Response: The two illegible data sheets that contained data on the radionuclide concentrations in the sludge which has been removed from the TSF-05 injection well have been updated with clearer copies.

9. Comment DOE is requested to hold a technical briefing on the project in Moscow. (W6-01, W12-01)

Response: A technical briefing by the Department of Energy via teleconference was held for the League of Women Voters and the interested public in Moscow on March 9, 1992 within the public comment period.

10. Comment The public comment period should be extended to allow the public to better formulate comment (W6-02)

Response: The original public comment period, which was scheduled from January 13 to February 12, 1992, was extended to March 13, 1992.

General Comments on Alternatives

11. Comment Longer term pumping or pumping at a greater rate would be more effective. (T2-07, W3-03)

Response: The interim action is intended to last no more than two years. However, the action will be evaluated under the Operable Unit 1-07B remedial investigation/feasibility study and, if appropriate, would be continued as part of the OU 1-07B final remedy.

The actual pumping rates would be modified during the interim action to help prevent further degradation of the groundwater by reducing contaminants near the TSF-05 injection wells.

12. Comment Pumping treatment should be automated to minimize cost. (W3-04)

Response: Automation of the treatment facility would be considered during the design of the facility as an option to maximize available resources and improve efficiency of the treatment process.

13. Comment The water from the contaminated wells utilized at the Test Area North for human consumptio treated before use, so no human health exposures exist. The proposed plan also states that none the alternatives for the cleanup of the TSF-05 injection well would meet drinking water maximum

contaminant levels. Either the Test Area North potable water is not safe or DOE can treat the groundwater to maximum contaminant levels but is unwilling due to the cost of the appropriate technologies. (W22-03, W22-12)

Response: The potable water supply for the Test Area North is drawn from wells on the edge of the contaminant plume. Contaminants in these wells only include low levels of organic compounds. The air sparger installed in the water supply tank reduces the organic concentrations to below safe drinking water levels.

The air sparger, however, does not address the source of groundwater contamination at TAN. The purpose of this interim action is to reduce a primary source of contamination and not to restore the aquifer. The OU 1-07B final remedy will address cleanup levels and the selection of appropriate technologies.

14. Comment The State and EPA enforcement agencies are not exercising their mandated oversight duties during the development of a proposed plan. (W22-18)

Response: The State of Idaho Department of Health and Welfare (IDHW) and the Environmental Protection Agency (EPA) were extensively involved in the scoping of the interim action and preparation of the proposed plan. In August 1991, IDHW, EPA, and Department of Energy (DOE) personnel discussed the scope of the interim action and the remedial investigation/feasibility study for the Test Area North groundwater. From September to December 1991, the proposed plan went through several revisions while the IDHW, EPA, and DOE personnel worked on the requirements for the interim action. The proposed plan was distributed for public review only after the IDHW, EPA, and DOE had concurred on the plan.

15. Comment Any alternative that reburies waste extracted at the Test Area North in any other INEL site is totally unacceptable. The only acceptable approach is to place the waste in storage for ultimate disposal at a permanent nuclear waste repository. (W20-06, W22-09)

Response: The currently planned permanent nuclear waste repositories are only for high-level and transuranic wastes with long radioactive lives. The interim action will not generate these kinds of long-life radioactive wastes.

The use of the existing Idaho National Engineering Laboratory (INEL) facilities meets the Atomic Energy Act requirements for disposing of low-level radioactive wastes. Placement of these low-level wastes at existing INEL facilities is also a practical and cost-effective option to meet the need of keeping these wastes secure until the radioactive hazard is diminished.

16. Comment Any plan that incorporates the use of the aging industrial waste experimental reduction facility (WERF incinerator) for disposal of the mixed waste carbon filter is unacceptable. (W20-08, W22-14)

esponse: The selected remedy (Alternative 2) is not expected to generate carbon contaminated with mixed waste. The spent carbon will be regenerated (incineration and recycling) at an off-site facility

operating in compliance with the Environmental Protection Agency's Revised Procedures Implementing Off-Site Response Actions.

17. Comment The Best Demonstrated Available Technology (BDAT) requirements are inadequate and controversial regulations that have a bias for incineration and solvent extraction technologies. This is of particular concern because high temperatures needed to destroy organics may potentially volatilize radionuclides. (W20-09, W22-16)

Response: Disposal and treatment of wastes will meet all applicable Federal and State standards. Disposal and treatment of wastes with radioactive contamination will also need to meet strict Department of Energy standards for containing radionuclide emissions. Best Demonstrated Available Technology standards in themselves are nationally accepted as safe levels for treated wastes.

18. Comment Treated water should be reinjected outside the polluted zone to flush contaminants toward the withdrawal well. (T2-08, W3-05)

Response: This option was considered during the preparation of the Proposed Plan, but rejected because of the technical uncertainties associated with trying to control the flushing process. It is possible that reinjection could make worsen aquifer conditions or not be effective at all. Reinjection will be reevaluated during the Operable Unit 1-07 B remedial investigation/feasibility study as more data on aquifer characteristics and hydrogeology are gathered.

19. Comment Contaminated sediment collected during the process should be treated at the same facility that will be treating the Warm Waste Pond sediments. If a lined evaporation pond is used, contaminated sediments could be collected and removed from the pond liner. Then, there would be no need to use filters in the treatment facility. (W3-06, W3-08)

Response: To the extent practicable, available facilities and resources will be used during the interim action. The possibility of using the warm waste pond treatment system will be taken into consideration during the interim action design period.

Even with a lined pond, pretreatment filters would still need to be used in the treatment facility to remove sediments that would clog and reduce the efficiency of the air stripper and ion exchange units.

20. Comment The "treated" groundwater should be treated as a hazardous waste and the evaporation pond must be permitted by the State as a RCRA waste disposal site. (W22-13)

Response: The treated effluent will be discharged to the disposal pond at levels that are protective of human health and the environment, and will not constitute a hazardous waste.

21. Comment Delisting waste residuals from the hazardous waste classification subject to RCRA Subtitle C hazardous waste disposal and closure requirements and classifying the waste as Subtitle D was illegal and should not go unchallenged by the State or EPA. (W22-15)

Response: On the basis of an evaluation of existing documentation, the Department of Energy determined that the wastes at the Technical Support Facility are not listed Resource Conservation and Recovery Act (RCRA) hazardous wastes. Both the Environmental Protection Agency and the State of Idaho Department of Health and Welfare were aware of this determination. Because the wastes are not listed RCRA wastes, the RCRA requirements for delisting waste residuals do not apply to the wastes containing the groundwater contaminants.

22. Comment Treated water should not be discharged to the existing disposal pond. The pond probably needs cleaning up as well. Instead, a lined pond or container impervious to percolation should be used. How will the agencies assure that water discharged to the existing disposal pond will not meet with the contaminated eastern end of the pond? What will protect the earthen berm from seepage? There should be testing to the soil beneath the pond to ensure that percolation of clean water does not cause the migration of contaminants back to the aquifer. How long will it take for the water to percolate to the aquifer? (T2-01, W3-07, W15-04, W15-06, W17-05, W20-07, W21-04, W22-10)

Response: The Test Area North (TAN) disposal pond is an unlined, diked area built in 1972 that encompasses approximately 35 acres. Access to the entire 35 acre pond is restricted by a fence. Approximately 4 acres in the northeast and eastern edges of the large disposal pond are currently in use. The remaining 31 acres are inactive (dry) and have apparently never been used for any disposal operations. Review of historical records and aerial photographs, interviews with former employees, and a site inspection provided no evidence of former discharges or other waste disposal operations in this 31 acre of the pond. Therefore, this part of the disposal pond is considered to be uncontaminated.

The active area of the pond consists of two lagoons—a main lagoon and an overflow lagoon—which receive approximately 40,000 to 70,000 gallons per day of process waste water and treated sewage effluent. The main lagoon and the overflow lagoon are located along the eastern and northeastern edges of the disposal pond, respectively. Both of the lagoons are bermed to contain the discharge effluent within these portions of the large disposal pond. Some soil contamination, resulting from past activities at Test Area North (TAN), has been detected in the lagoons and immediate vicinity. Detected contaminants include organic compounds, radionuclides, and heavy metals. Contaminant concentrations are highest in the upper soil layers and typically decrease with depth. In general, the highest concentrations and frequency of detection were found in the main discharge lagoon. A perched water zone exists in the vicinity of the active lagoons and was routinely monitored by sampling two monitoring wells located along the northeastern and eastern edges of the 35 acre disposal pond. No contaminants have been routinely detected above maximum contaminant levels (MCL) in samples from these wells.

In summary, on the basis of the above information, most of the 35 acre disposal pond is considered to be uncontaminated. Some soil contamination is associated with the active lagoons along the northeastern and eastern edges of the disposal pond. However, this contamination is localized in the upper soil layers in and adjacent to the active lagoons and does not appear to be migrating to other portions of the large disposal pond. The nature and extent of existing contamination in the Test Area North (TAN) disposal pond will be further evaluated under Operable Unit 1-06 of the Federal Facility Agreement/Consent Order (FA/CO).

The treated water from the interim action will be separated from contaminated areas of the pond by a berm. In accordance with standard engineering practice, this berm will be designed to contain standing water at a depth greater than the maximum predicted water depth to prevent horizontal

seepage of the treated water into the contaminated areas of the pond. Also, because the maxim capacity of the pond is not being exceeded, the treated water will tend to migrate vertically inste of horizontally, which will enhance the separation of the treated water from the contaminated areas. The treated water discharged to the pond will also be monitored to verify treatment plant performance and to prevent contaminant build-up in the pond.

23. Comment Carbon filters should be recycled if possible. Where would organic contaminants be incinerated? (W15-07)

Response: Activated carbon will be used to capture the organics coming from the air stripper. The carbon will be regenerated (heated to remove the volatile organic compounds which are subsequently destroyed at high temperatures) at an off-site, Environmental Protection Agency-approved facility that will be selected during the remedial design phase.

24. Comment The qualifications of subcontractors to perform the work is of concern. Subcontractors should have experience and a good track record. It would be preferable that, where possible, local labor is used. (T2-03, T2-06)

Response: Qualified subcontractors will be selected based on technical capabilities and experience in environmental remediation. The actual subcontractor will most likely be selected through a competitive award process that would include technical qualifications. This award process will be conducted during the remedial design phase of the interim action. The possibilities of using lo labor will identified during the contract award process.

25. Comment Judgement should be used in knowing when to quit pumping. Is there an identified point at which there will be no further gain in pumping? If so, what is that point? Specific levels need to be established as to what levels of remaining contamination are acceptable. (T1-03, T2-05, W16-01)

Response: During operation of the interim action, the system's performance will be monitored on a regular basis. On the basis of the monitoring results, the system may be modified to include any or all of the following:

- Alternate pumping of wells to eliminate stagnation points.
- Pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to dissolve into the groundwater.
- Discontinue pumping at individual wells where remediation objectives have been attained.

The specific levels of contamination that will remain in the groundwater when the remedial actions are complete will be defined under the Operable Unit 1-07B Remedial Investigation/Feasibility Study Record of Decision.

26. Comment Ion exchange resins should be operated in the calcium state rather than the sodium state. If the r is received in the sodium state, it should be run until the lead and strontium-90 break through. Thi would increase its efficiency ten-fold. Barium and chromium also could be removed using sodium

from cationic resin, but this would be unnecessary. Chromium and lead would precede calcium and magnesium in order of removal by a cation resin. If resin reuse is justified, it should be regenerated using calcium chloride instead of sodium chloride. This would improve efficiency. The spent regenerant containing strontium-90 and heavy metals could be precipitated or sent to the ICPP for incorporation into calcine. (W13-01)

Response: This suggestion will be considered during the remedial design phase. Resin types and the possibility of regenerating the resins is typically a design phase effort that would include regenerant disposal.

27. Comment Are there other wells downstream from the TSF-05 injection well that would allow pumping water that migrated down-plume? (W13-04)

Response: Part of the selected interim action remedy may include pumping of other existing or planned wells in the contaminated plume. Pumping of these wells would be continued if these actions efficiently begin to reduce the contamination levels in the aquifer. Two new wells will also be added to monitor the contamination reduction process. These wells could also be used as part of the remediation process if necessary.

Alternative #1

No comments.

Alternative #2

28. Comment I support the preferred alternative because organics are separated from radioactive and heavy metals. It also allows recycling of carbon filters. (W1-01, W2-01, W13-02, W19-01)

Response: The issues raised by these comments were considered as a key part of selecting Alternative 2 as the interim action remedy.

29. Comment Alternative 2 should include further studies, design, and development of Alternative 4. The potential cost savings of Alternative 4 warrants further consideration for the long-term fix. (T1-06, W7-02) Note: This comment is also repeated in the comment section for Alternative 4.

Response: The technology considered in Alternative 4 is advancing through it's application around the country. This technology will be reconsidered during the Operable Unit 1-07B remedial investigation/ feasibility study as an option for the final action.

30. Comment There needs to be more information on air stripping. Where has air stripping been proven and with what type of waste? Will the technology need modification to match the specifics of this site? (T2-04, W10-01)

.esponse: Air stripping is a well-established, widely-used technology for the removal of volatile organic compounds such as those found in the Test Area North groundwater. Air stripping has been used for

many years in sanitary wastewater and chemical engineering applications. Air stripping is also wid used to cleanup past leaks from storage tanks at gasoline stations.

The air stripper will be designed to meet site-specific conditions using standard design criteria.

31. Comment How much waste will be generated by this alternative (including investigation and treatment)? The alternative generates radioactive waste, but the issue of disposal of this waste is not addressed. What will happen to these resultant wastes, particularly radioactive wastes? Will the resultant creation of waste off-set the goal of cleanup? (T2-02, W14-01, W15-01, W15-05)

Response: The actual type and quantity of wastes generated can only be estimated once the facility design is completed (e.g. different ion exchange resins could radically change the quantity of wastes generated), but rough estimates (based on operating the facility for two years) have been made as described below. The wastes will be disposed in accordance with regulations governing their characteristics (hazardous, radioactive). Radioactive wastes (an estimated 160 drums of ion exchange resins and sediments) will be disposed of on the Idaho National Engineering Laboratory at the Radioactive Waste Management Complex. Hazardous waste (45 drums of carbon) will be disposed of offsite at an Environmental Protection Agency (EPA)-approved recycling facility. Solid waste (an estimated 275 cubic yards of personnel protective gear and facility paper waste) will be disposed to both offsite and on-site facilities, depending on availability.

Overall cleanup goals will still be met with the interim action because the contaminants will be removed from the aquifer and put into a form that will be reduced in volume and can be easily mana in accordance with environmental regulations. This is a more preferable option than allowing t contaminants to stay in an uncontrolled, risk generating state in the aquifer. The organic compounds in the wastes will also be sent to an off-site facility for destruction ultimately eliminating the hazard from these contaminants.

32. Comment How much water will be pumped and how long will it take to remove all the contaminants out of the groundwater? (W15-02)

Response: The annual volume of water that will be pumped is expected to be 18 million gallons (50 gallons per minute for 24 hours per day, 5 days per week, 50 weeks per year), but could be greater depending on how effectively the contaminants are removed from the aquifer. The interim action is currently planned to continue for about two years and any future actions will be evaluated as part of the Operable Unit 1-07B remedial investigation/feasibility study. The total time needed to reduce the contaminant levels to acceptable levels will also be evaluated as part of the Operable Unit 1-07B remedial investigation/feasibility study.

33. Comment Will contaminant movement be monitored from now until cleanup is complete? Who will monitor this? How often are the wells tested? (W15-03)

Response: A monitoring program will be developed as part of the Remedial Design process. The program will include monitoring the groundwater contaminant plume and the extraction/treatment system dur groundwater extraction activities to track the effectiveness of the system and to ensure t performance standards are achieved.

34. Comment It is not possible to support a plan that is only partially developed. Since the agencies have not designed the treatment facility, it is not possible to evaluate its impacts, particularly on air quality. (W18-01)

Response: Under the Comprehensive Environmental Response, Compensation, and Liability Act process, detailed designs are not developed at proposed plan stage. Design of the selected remedy will be addressed in the remedial design stage and will include appropriate emission controls. The public will be kept informed on the progress of the design as outlined in the Federal Facility Agreement/Consent Order and in future issues of the Idaho National Engineering Laboratory Reporter. Fact sheets will be sent out as key points are reached in the design and construction phase.

Alternative #3

No comments were received specifically related to Alternative 3.

Alternative #4

35. Comment The statement that alternative 4's complex design would require special engineering and construction techniques that may reduce its long-term effectiveness must be further substantiated to be believable. If the design and research would only take a few months to complete and it will take the groundwater 100 years to reach drinking water sites, why is DOE reluctant to expend the extra time to develop this technology? (W17-03, W20-10, W21-03, W22-17)

Response: The technology considered in Alternative 4 is advancing through it's application around the country. This technology will be reconsidered during the Operable Unit 1-07B remedial investigation/ feasibility study as an option for the final action.

36. Comment Alternative 4 is supported subject to changing the disposal of the processed water to a lined evaporation pond in lieu of the Test Area North disposal Pond. This alternative will create by-products that are benign organic and inorganic versus the hazardous waste created by Alternative 2 that requires further processing and disposal at a site that does not currently exist. (W17-02, W17-04, W21-02)

Response: The hazardous waste generated from Alternative 2 can be safely handled and disposed at existing Environmental Protection Agency-approved facilities. Carbon regeneration is a standard industry practice that is on-going at this time. Alternative 2 also is a well-established and widely-used technology with minimal maintenance requirements. Alternative 4 and other similar technologies are more complex systems involving chemical injection pumps and high intensity lights that are more difficult to operate and maintain.

Lined ponds were not considered to be needed for this interim action since the treated water will be discharged at levels that will be protective of human health and the environment. The proposed used of the pond is also discussed in more detail in the response to Comment 22.

37. Comment Alternative 2 should include further studies, design, and development of Alternative 4. The potential cost savings of Alternative 4 warrant further consideration for the long-term fix. (T1-06, W7-02)

esponse: Since this comment is a repeat of Comment 29, refer to that comment for the response.

Other Alternatives

38. Comment Continued treatment of the Test Area North drinking waters should be considered as an alternative. What is the cost of purifying drinking water at the Test Area North? How does this compare to the projected cost of cleanup? This cost can be extrapolated to a timeframe of 35 years. Contamination remaining in the groundwater should be allowed to continue to be diluted by the natural system. (T1-02, T1-04, W9-01)

Response: Federal and State of Idaho environmental mandates require that groundwater be returned to beneficial use.

The existing drinking water treatment system at the Test Area North costs approximately $3400 per year. The projected cost of the interim action over approximately 2 years is $7,715,000. Assuming treatment costs for the drinking water would not change significantly and a rate of return of 8 percent, the net present cost of continuing drinking water treatment for 35 years is $39,625. Since a final remedy for the groundwater contamination has not been selected, remedial action costs over a 35 year period cannot be projected.

39. Comment On site destruction should be used. Equipment or facilities for remediation should be portable and designed to be used for remediating other sites as well. (W3-02)

Response: System design will include an evaluation of portable facilities.

40. Comment Biologic adsorption (such as an artificial wetland) is a technology that should be evaluated as an alternative to an evaporation pond. (W22-11)

Response: Biological absorption as a treated water disposal method would not significantly improve water disposal over an evaporation pond because the same type of processes dominate both methods—evaporation, percolation, and then transpiration through plant uptake. The short-term nature of this interim action is also not conducive to the creation and maintenance of environmental features such as artificial wetlands.

Costs, Budget, and Schedule

41. Comment The cleanup action should begin as soon as possible. The longer cleanup is delayed, the further contamination will spread making the problem harder to solve. Remedial design should be expedited so that the interim action can be sooner, thereby providing more input to the RI/FS. (W2-02, W16-02)

Response: One of the key reasons in selecting Alternative 2 was to take advantage of the shorter design times, so the interim action could start as soon as possible. The rest of the schedule presented has been accelerated as much as possible under the Federal Facility Agreement/Consent Order and still allow enough time to design the facility. Opportunities to accelerate the schedule will be implemented where possible.

42. Comment The proposed plan should contain a more detailed breakdown of estimated costs. (W3-01)

Response: A more detailed breakdown of costs was placed into the Administrative Record at the Idaho National Engineering Laboratory Technical Library in Idaho Falls on or about January 8, 1992. Copies of this Administrative Record were also placed into the Information Repositories at the public libraries in Idaho Falls, Pocatello, Twin Falls, Boise, and Moscow.

43. Comment What will the total cost be for this project? (W10-02)

Response: The estimated total cost is $7,715,000.

Other Related Concerns

44. Comment If one of the principle charges of DOE is the management of wastes, how is it possible that the TSF-05 injection well situation was allowed to happen and has not been addressed until now? (W5-02)

Response: The use of injection wells was a common, acceptable practice during the time the TSF-05 injection well was used at the Test Area North. This practice was stopped in 1972.

The groundwater contamination was first identified in 1987 during routine monitoring of the groundwater wells at the Test Area North by United States Geological Survey. Since that time, Department of Energy has been gathering information on the extent and type of contamination, and on the physical characteristics of the aquifer. Department of Energy also initiated two corrective actions—installation of a drinking water treatment system for Test Area North employees in 1989 and removal of the sludge from the TSF-05 injection well in 1990.

There is now sufficient information from the data collection effort to begin this interim action on the more highly contaminated areas that are within 1/2 mile of the TSF-05 injection well. However, we still do not have sufficient information to plan a remedial action for the rest of the contaminant plume. The information gathered from the interim action will be incorporated into the Operable Unit 1-07B remedial investigation.

45. Comment The sludge recovered from the bottom of the TSF-05 injection well could be processed at the ICPP. They should be contacted. (W13-03)

Response: The sludge is a mixed waste (i.e. hazardous and radioactive contamination combined) based on analytical data collected in 1990. Because the Idaho Chemical Processing Plant (ICPP) is only designed for radioactive waste processing, the sludge does not meet the ICPP acceptance criteria.

APPENDIX B

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Marion Elliott	T1-06	44	37
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Marion Elliott	T1-06	45	37
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Appendix C

ADMINISTRATIVE RECORD INDEX

IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX

TEST AREA NORTH (TAN) INJECTION WELL INTERIM ACTION
OPERABLE UNIT 1-07a

FILE NUMBER

AR1.1 BACKGROUND

- Document #: 3533
  Title: Contaminants of Concern in the Test Area North Groundwater
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/08/92

- Document #: 3534
  Title: Summary of RCRA Facility Investigation Activities at Test Area North
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/08/92

- Document #: 5169
  Title: Assessment of the Groundwater Pathway from the Leaching of Surficial and Bui Contamination
  Author: N/A
  Recipient: N/A
  Date: 07/29/92

- Document #: 5171
  Title: Suitability Evaluation for Interim Action Discharge to the TSF-07 Disposal Pond
  Author: Harelson, D. B.
  Recipient: N/A
  Date: 09/01/92

- Document #: RLN-51-92
  Title: Discharge Calculation
  Author: Nitschke, R. L.
  Recipient: Zimmerle, J. R.
  Date: 07/30/92

- Document #: DOE/ID-22077
  Title: Radionuclides in Ground Water at the Idaho National Engineering Laboratory, Idaho
  Author: Knobel, L.L.
  Recipient: N/A
  Date: 12/01/88

TEST AREA NORTH (TAN) INJECTION WELL INTERIM ACTION
)PERABLE UNIT 1-07a
08/11/92

FILE NUMBER

AR1.1 BACKGROUND

- Document #: DOE/ID-22101
  Title: Chemical Constituents in the Dissolved and Suspended Fractions of Ground Water from Selected Sites, Idaho National Engineering Laboratory and Vicinity, Idaho, 1989
  Author: Knobel, L.L.
  Recipient: N/A
  Date: 03/01/92

- Document #: 5172
  Title: Plutonium, Am, Cm, and Sr in Ducks Maintained on Radioactive Leaching Ponds in Southeastern Idaho
  Author: Knobel, L.L.
  Recipient: N/A
  Date: 03/01/92

AR3.3 WORK PLAN

Document #: EGG-WM-9905
Title: RI/FS Work Plan and Addenda for the TAN Groundwater OU at the INEL
The Test Area North
Author: Zimmerle, J. R.
Recipient: N/A
Date: 05/01/92

AR3/7 INTERIM ACTIONS

- Document #: 5070
  Title: Scope of Work for an Interim Action on the Groundwater at the Test Area North
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/08/92

AR4.3 PROPOSED PLAN

- Document #: 3532 (the Proposed Plan is included in the Dear Citizen Pamphlet)
  Title: Proposed Plan for an Interim Action to Reduce the Contamination Near the Injection Well and in the Surrounding Groundwater at the Test Area North, Idaho National Engineering Laboratory
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/08/92

FILE NUMBER

AR4.3 **PROPOSED PLAN** (continuted)

- Document #: 3539
  Title: Technologies Assessed in the Development of the "Proposed Plan for an Interim Action to Reduce the Contamination Near the Injection Well and in the Surrounding Groundwater at the Test Area North, INEL"
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/22/92

- Document #: 5069
  Title: WAG 1 Test Area North Interim Action Proposed Plan Cost Estimate for Alternatives 2, 3 and 4
  Author: Zimmerle, J. R.
  Recipient: N/A
  Date: 01/20/92

AR6.1 **COOPERATIVE AGREEMENTS**

- Document #: ERD1-070-91*
  Title: Pre-signature Implementation of the CERCLA Interagency Agreement Action Plan
  Author: EPA, Findley, C. E.
  Recipient: DOE, Solecki, J. E.
  Date: 04/19/91

- Document #: 3205*
  Title: U.S. DOE INEL Federal Facility Agreement and Consent Order
  Author: N/A
  Recipient: N/A
  Date: 07/22/91

- Document #: 2919*
  Title: INEL Action Plan For Implementation of the Federal Facility Agreement and Consent Order
  Author: N/A
  Recipient: N/A
  Date: 07/22/91

TEST AREA NORTH (TAN) INJECTION WELL INTERIM ACTION
)PERABLE UNIT 1-07a
08/11/92

FILE NUMBER

AR6.1 COOPERATIVE AGREEMENTS

- Document #: 1088-06-29-120*
  Title: U.S. DOE INEL Federal Facility Agreement and Consent Order
  Author: N/A
  Recipient: N/A
  Date: 12/04/91

- Document #: 3298*
  Title: Response to Comments on the Idaho National Engineering Laboratory Federal Facility Agreement and Consent Order
  Author: N/A
  Recipient: N/A
  Date: 02/21/92

- Document #: 5163*
  Title: Administrative Record List of Guidance Documents
  Author: EPA
  Recipient: N/A
  Date: 08/12/92

AR10.3 PUBLIC NOTICE(s)

- Document #: 3531
  Title: Citizens Are Asked to Comment - Public Comment on Test Area North Injection Well and Unexploded Ordnance
  Author: INEL Community Relations
  Recipient: N/A
  Date: 01/05/92

AR10.6 PRESS RELEASES

- Document #: 4434
  Title: Comment Period Extended
  Author: Post Register
  Recipient: N/A
  Date: 01/05/92

* **Document filed in INEL Federal Facility Agreement and Consent Order (FFA/CO) Administrative Record Binder**

The following documents have also been used in preparing the OU 1-07a Record of Decisi and are being entered into the Administrative Record:

- Purgeable Organic Compounds in Groundwater at the Idaho National Engineering Laboratory, Idaho, 1987

- Purgeable Organic Compounds in Groundwater at the Idaho National Engineering Laboratory, Idaho, 1988 and 1989