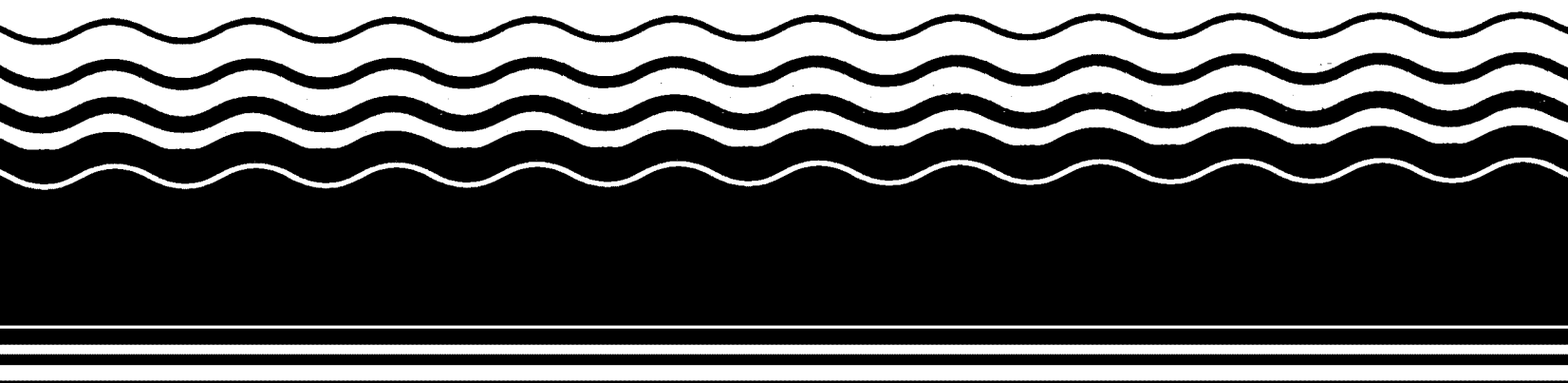




Superfund Record of Decision:

US DOE Idaho National
Engineering Laboratory
(Operable Unit 9), ID



REPORT DOCUMENTATION PAGE		1. REPORT NO. EPA/ROD/R10-93/058	2.	3. Recipient's Accession No.																			
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16. Abstract (Limit: 200 words) <p>The USDOE Idaho National Engineering Laboratory (Operable Unit 9), is part of the 890-square mile U.S. Department of Energy (USDOE) facility, located in Idaho Falls, Idaho. The primary mission of the Idaho National Engineering Laboratory (INEL) is nuclear reactor technology development and waste management. Land use in the area is predominantly industrial, with some restricted agricultural and recreational uses. The site is contained within the northeastern portion of the Eastern Snake River Plain (ESRP) and borders a floodplain to the west and north, and overlies the Snake River Plain Aquifer, which is a sole-source aquifer. The site, also known as the Central Facilities Area (CFA) Motor Pool Pond, is an administrative and support area that includes security facilities, environmental chemistry laboratories, a motor pool and maintenance shop, a general warehouse, and other support facilities. From 1951 until 1985, the site's CFA Motor Pool Pond received wastes from two sumps that collected wastewater from the washing of fleet vehicles and from roof downspouts. During the 35-year service life of the Motor Pool Pond, an estimated 15,900 liters of wastewater, containing metals and organic compounds associated with road dust, oil, grease, and some residual radioactive contamination, per day were discharged into the pond. In</p> <p>(See Attached Page)</p>																							
17. Document Analysis <table border="0"> <tr> <td>a. Descriptors</td> <td colspan="5">Record of Decision - USDOE Idaho National Engineering Laboratory (Operable Unit 9), ID Seventh Remedial Action Contaminated Medium: None Key Contaminants: None</td> </tr> <tr> <td>b. Identifiers/Open-Ended Terms</td> <td colspan="5"></td> </tr> <tr> <td>c. COSATI Field/Group</td> <td colspan="5"></td> </tr> </table>						a. Descriptors	Record of Decision - USDOE Idaho National Engineering Laboratory (Operable Unit 9), ID Seventh Remedial Action Contaminated Medium: None Key Contaminants: None					b. Identifiers/Open-Ended Terms						c. COSATI Field/Group					
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18. Availability Statement			19. Security Class (This Report) None		21. No. of Pages 36																		
			20. Security Class (This Page) None		22. Price																		

Abstract (Continued)

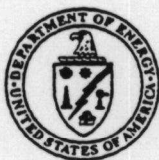
late 1985, the waste was diverted through an oil/water separator to a sanitary sewer line connected to the Sewage Treatment Plant, and onsite discharge to the CFA Motor Pool Pond ceased. Studies conducted in 1982, 1988, and 1989 by USDOE indicated that the CFA Motor Pool Pond sediment and soil were contaminated with VOCs, other organics, metals, and radionuclides. Radiological surveys conducted in 1991 indicated only background levels of radiation. Previous 1992 RODs addressed sediment at the Warm Waste Pond, ordnance and contaminated soil, contaminated ground water at the Technical Support Facility, and contaminated sediment and sludge in the evaporation pond, discharge pipe, and waste sump as OUs 5, 23, 2, and 22, respectively. This ROD addresses the CFA Motor Pool Pond, including the excavated soil and sediment along the ditch, in the ditch, at the discharge pipe outlet, and in the pond, as OU9. Other 1993 RODs addresses the Perched Water System, the CFA Motor Pool Pond and Pit 9 of the Subsurface Disposal Area, as OUs 4, 9, and 18 respectively. Future RODs will address any impacts from past releases to the pond that may affect the subsurface or ground water. Based upon the results of the RI and risk management considerations, therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action because risk data obtained during the RI indicate that the contaminated sediment within the CFA Motor Pool Pond poses no unacceptable risk to human health and the environment. There are no present worth or O&M costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

January 1992



IDAHO DEPARTMENT
OF HEALTH AND WELFARE
DIVISION OF
ENVIRONMENTAL QUALITY

Record of Decision

Central Facilities Area Motor Pool Pond

Operable Unit 4-11
Waste Area Group 4

o.u. 9

Idaho National Engineering Laboratory
Idaho Falls, Idaho



Aerial photo of the Central Facilities Area; arrow indicates the location of the Motor Pool Pond.

DECLARATION OF THE RECORD OF DECISION

Site Name and Location

Central Facilities Area Motor Pool Pond
Operable Unit 4-11
Waste Area Group 4
Idaho National Engineering Laboratory
Idaho Falls, Idaho

Statement of Basis and Purpose

This decision document presents the remedial action selected for the Central Facilities Area Motor Pool Pond at the Idaho National Engineering Laboratory (INEL), Operable Unit 4-11. This alternative was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act as amended by the Superfund Amendments and Reauthorization Act, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision is based on the information in the site Administrative Record, which is located in the INEL Technical Library, Idaho Falls, Idaho.

The lead agency in this decision is the U.S. Department of Energy (DOE). The U.S. Environmental Protection Agency (EPA) and the Idaho Department of Health and Welfare (IDHW) have participated in the scoping of the site investigations and the evaluation of remedial investigation data. The IDHW concurs with the selected remedy.

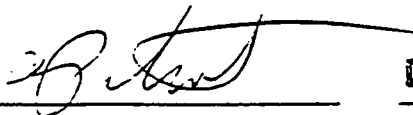
Description of the Selected Remedy

The DOE has determined that no further remedial action is necessary at the CFA Motor Pool Pond to ensure protection of human health and the environment. This decision is based on the results of the human health and ecological risk assessments, which indicate that conditions at the site pose no unacceptable risk to human health or the environment. The EPA has approved the DOE decision; the IDHW concurs.

Declaration

It has been determined that no remedial action is necessary at this operable unit to ensure protection of human health and the environment. This determination is based on the results of the site-specific risk assessment/ however, a risk assessment using default exposure factors indicates that hazardous substances may remain on the site above health-based levels. Therefore, five-year reviews will be conducted to confirm the assumptions used to arrive at the no remedial action decision.

Signature sheet for the foregoing Record of Decision for Operable Unit 4-11 at the Idaho National Engineering Laboratory by the United States Department of Energy and approved by the United States Environmental Protection Agency; with concurrence by the Idaho Department of Health and Welfare. The Operable Unit consists of the Central Facilities Area Motor Pool Pond at the Idaho National Engineering Laboratory.



DEC 31 1992

Augustine A. Pitrolo
Manager

Date

Department of Energy, Idaho Field Office

Signature sheet for the foregoing Record of Decision for Operable Unit 4-11 at the Idaho National Engineering Laboratory by the United States Department of Energy and approved by the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit consists of the Central Facilities Area Motor Pool Pond at the Idaho National Engineering Laboratory.

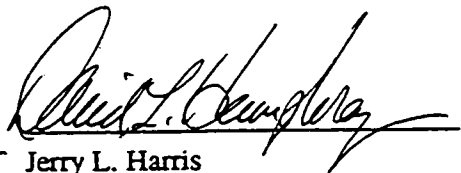
Dana Rasmussen

Dana Rasmussen
Regional Administrator, Region 10
Environmental Protection Agency

12/31/92

Date

Signature sheet for the foregoing Record of Decision for Operable Unit 4-11 at the Idaho National Engineering Laboratory by the United States Department of Energy and approved by the United States Environmental Protection Agency, with concurrence by the Idaho Department of Health and Welfare. The Operable Unit consists of the Central Facilities Area Motor Pool Pond at the Idaho National Engineering Laboratory.



Jerry L. Harris
Director
Idaho Department of Health and Welfare

1/20/93
Date

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ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
COCA	Consent Order and Compliance Agreement
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ESRP	Eastern Snake River Plain
FFA/CO	Federal Facility Agreement and Consent Order
FR	Federal Register
IDHW	Idaho Department of Health and Welfare
INEL	Idaho National Engineering Laboratory
mg/kg	Milligrams per kilogram
µg/kg	Micrograms per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan)
NPL	National Priorities List
OU	Operable Unit
PCB	Polychlorinated biphenyl
pCi/g	Picocuries per gram
pCi/L	Picocuries per liter
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RfD	Reference dose
ROD	Record of Decision
UCL	Upper confidence limit
VOC	Volatile Organic Compound
WAG	Waste Area Group

DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION

The Idaho National Engineering Laboratory (INEL) is a U.S. Department of Energy facility that encompasses approximately 2,305 square kilometers (890 square miles) in southeastern Idaho (see Figure 1). The population centers closest to the INEL Central Facilities Area (CFA) include Atomic City (11 mi southeast), Arco (18 mi west), Howe (15 mi north), Mud Lake (32 mi northeast), and Terreton (34 mi northeast). The nearest large population center is Idaho Falls (population 46,000), located approximately 48 km (32 mi) to the east. The INEL is currently classified for industrial and mixed use by the Bureau of Land Management, and has been designated as a National Environmental Research Park.

The INEL is located in the northeastern portion of the Eastern Snake River Plain (ESRP) in southeastern Idaho. The ESRP is a volcanic plateau consisting of a series of basaltic lava flows with sedimentary interbeds. The topography of the INEL is generally flat to gently rolling, with elevations ranging from 1,585 m (5,200 ft) in the northeast to 1,450 m (4,750 ft) in the southwest. In the vicinity of CFA, the topography is flat, with the Big Lost River floodplain lying to the west and north and gently rolling basalt plains to the south and east. Elevations range from 1,500 m (4,920 ft) to 1,510 m (4,960 ft). Soils in the vicinity of CFA are thin and poorly developed, overlying alluvial deposits of sand, silt, and gravel.

The Snake River Plain Aquifer underlies the INEL and has been designated as a sole source aquifer pursuant to the Safe Drinking Water Act. The depth to the aquifer varies from 61 m (200 ft) in the northern portion of the INEL to 270 m (900 ft) in the southern portion; the depth to the aquifer in the CFA area is approximately 146 m (480 ft). Groundwater in this aquifer generally flows to the southwest.

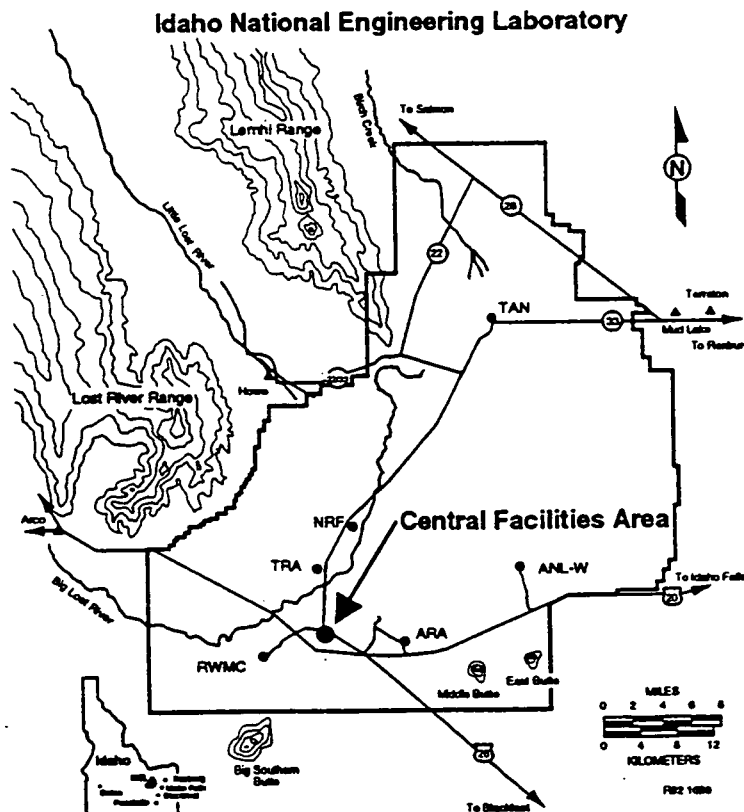


Figure 1. Location of the Central Facilities Area at the INEL.

The Central Facilities Area is located in the south central portion of the INEL near the intersection of U.S. Highways 20 and 26. The CFA is an administrative and support area that includes security facilities, environmental chemistry laboratories, a motor pool and maintenance shop, a general warehouse, and other support facilities.

The CFA Motor Pool Pond is located in an abandoned gravel pit approximately 366 m (1,200 ft) east of the CFA Equipment Yard (Figure 2). A small pond, approximately 36 by 18 m (120 by 60 ft), formed in the low spot when wastes were being discharged. Currently, the pond is typically dry; however, runoff may temporarily accumulate in the pond after storm events and during spring thaws. Waste water discharged to the pond originated at the CFA Service Station (Building CF-664). A 20-cm (8-in.) diameter concrete pipe extends southeast from the Service Station approximately 322 m (1,056 ft) and discharges to a ditch. The ditch extends approximately 68 m (225 ft) to an abandoned gravel pit and then continues for an additional 99 m (325 ft) to a low spot along the south side of the pit. The ditch ranges from 1 m (3 ft) deep at the pipe outlet to approximately 2 m (6 ft) deep near the pond inlet. The bottom of the ditch is 1 to 2 m (3 to 6 ft) wide. Sediments excavated from the ditch were placed along the north side of the ditch. This material was apparently removed to improve the flow of wastewater through the ditch. The remedial investigation (RI) focused on the characterization of soils and surficial sediments within this unlined pond and drainage ditch.

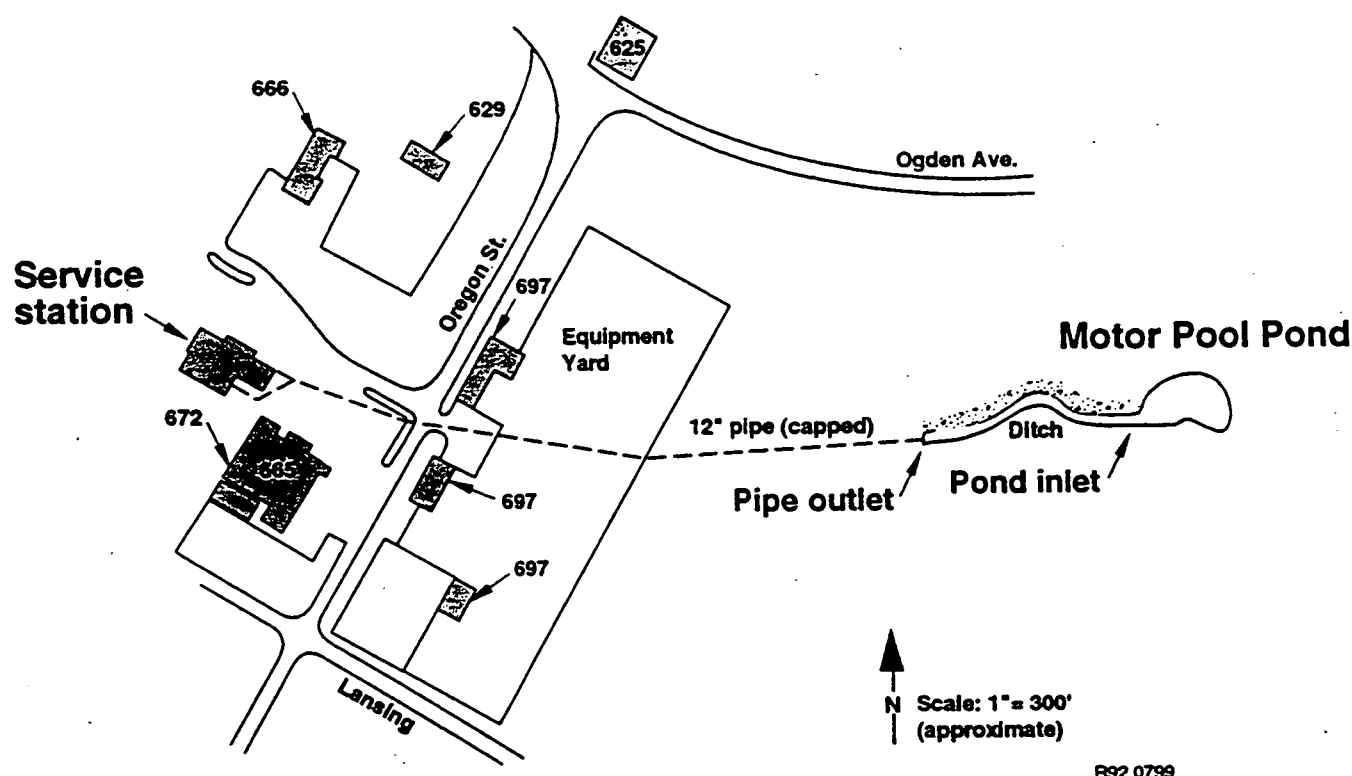


Figure 2. Location of the Central Facilities Area Motor Pool Pond.

2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.1 Enforcement Activities

Under the INEL Consent Order and Compliance Agreement (COCA) signed by the DOE, U.S. Environmental Protection Agency (EPA), and U.S. Geological Survey in July 1987, the Motor Pool Pond was classified as a Land Disposal Unit and was listed as COCA Unit CFA-05. The release of contaminants to the CFA Motor Pool Pond was first identified and evaluated during investigations conducted in accordance with the COCA.

On July 14, 1989, the INEL was proposed for inclusion on the National Priorities List (NPL) in 54 *Federal Register* (FR) 29820. The listing was proposed by the EPA under the authority granted by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986. The final rule that placed the INEL on the NPL was published in November 1989 in 54 FR 44184.

In December 1991, the DOE, EPA, and IDHW signed the Federal Facility Agreement and Consent Order (FFA/CO). The FFA/CO supersedes the COCA and provides enforceable schedules and strategies for implementation of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at the INEL.

2.2 Site History and Investigations

From 1951 until 1985, the CFA Motor Pool Pond received wastes from two sumps located at the CFA Service Station (CFA 664 - See Figure 2). One of the sumps is located in the Bus Wash Bay and collected wastes from bus washes and floor drains in the adjacent Service Bay. The Service Bay was used to perform routine servicing of fleet vehicles. The second sump is located outside the station and collected wastes from the Steam Cleaning Bay and water from roof downspouts. In late 1985, the wastes were diverted through an oil/water separator to a sanitary sewer line connected to the Sewage Treatment Plant, and discharge to the Motor Pool Pond ceased.

During the 35-year service life of the Motor Pool Pond, the waste stream mainly consisted of wastewater from washing vehicles. According to Service Station personnel, the waste volumes were highest between 1978 and 1985, when automatic washing systems were in place at the Service Station. The automatic systems enabled washing of up to 30 buses and 10 cars and trucks per day. These washes are estimated to have generated up to 15,900 L (4,200 gal) of wastewater per day that were discharged to the pond.

The wastes from vehicle washes can be assumed to have contained metals and organic compounds associated with road dust, oil, and grease. Although the Service Station was not used to decontaminate radioactively contaminated vehicles, some residual radioactive contamination may have been removed during routine washes. This may have occurred because this residual contamination was not detected by hand-held instruments that are used to check vehicles leaving radioactively contaminated areas.

The CFA Motor Pool Pond was sampled as part of an INEL-wide preliminary assessment of waste streams conducted in 1982 and 1983. One surface water sample and one surface soil/sediment sample were collected from the CFA Motor Pool Pond and analyzed for metals and organic compounds. The pond was sampled again in 1988 as part of a DOE Environmental Survey, designed to rank environmental risks at DOE facilities. Nine sediment samples were collected in the Motor Pool Pond. Samples were analyzed for volatile organics using the methodology given in the Contract Laboratory Program Statement of Work dated July 1987 and Appendix D of the DOE Environmental Survey Manual.

Radiation surveys of the CFA Motor Pool Pond were conducted during periods when the pond contained water and when the pond was dry. The most recent survey at the CFA Motor Pool Pond, which was performed on September 4, 1991, indicated only background levels of radiation. No water was in the pond during the 1991 survey. The survey was conducted using portable Geiger-Muller detectors, capable of detecting gamma and high energy beta radiation.

In 1989, samples were collected from soils and sediments in and around the CFA Motor Pool Pond to support Resource Conservation and Recovery Act (RCRA) closure activities under the COCA. These samples were evaluated for the CERCLA site characterization. These samples were collected at the surface, at intermediate depths, and from sediments just above bedrock, which varies from 0.6 to 5.5 m (2 to 18 ft) below the surface. Sample locations included the discharge pipe outlet, the ditch, sediment excavated from the ditch, pond sediments, and the northern perimeter of the pond. In addition, ten biased soil samples were collected in an area that was not affected by CFA activities to calculate background metal concentrations.

3. HIGHLIGHTS OF COMMUNITY PARTICIPATION

On June 26, 1992, a document containing Proposed Plans for three INEL sites, including the CFA Motor Pool Pond, was released to the public. The plan was mailed to approximately 6,500 individuals on the INEL mailing list, with a cover letter from the Director of the Environmental Restoration Division, DOE Idaho Field Office. The public comment period for the Proposed Plan was initially scheduled from July 6 to August 5, 1992. An extension was requested due to errors identified in a table in the Proposed Plan. The public comment period was extended to September 8, 1992. A corrected table was provided to those on the mailing list who received the Proposed Plan. Community participation activities have been conducted as required by Sections 113(k)(2)(B)(i-v) and 117 of CERCLA and part XXIV of the FFA/CO.

The CFA Motor Pool Pond Proposed Plan summarized the results of the human health risk assessment, which was based on modeled exposures to contaminants identified in the pond sediments. The modeling indicated that the contaminants at the site pose no unacceptable risk to human health and the environment. Therefore, the DOE, EPA, and IDHW recommended No Action for the Motor Pool Pond in the Proposed Plan.

The Notice of Availability for the Proposed Plan was published in the following newspapers:

- *The Post Register* (Idaho Falls) - July 1, 1992
- *The Idaho State Journal* (Pocatello) - July 2, 1992
- *Times News* (Twin Falls) - July 1, 1992
- *Idaho Statesman* (Boise) - July 2, 1992
- *Daily News* (Moscow-Pullman) - July 11 and 12, 1992
- *South Idaho Press* (Burley) - July 1, 1992
- *The Lewiston Morning Tribune* (Lewiston) - July 1, 1992.

Copies of the plan are available in the Administrative Record file in the INEL Technical Library, 1776 Science Center Drive, Idaho Falls. Copies of the file are also available in the INEL Information Repository section of public libraries in Idaho Falls, Pocatello, Twin Falls, Boise, Shoshone-Bannock Library at Fort Hall, Idaho State Library in Boise, and the University of Idaho Library in Moscow.

Technical briefings on the Proposed Plan were held on July 13 in Twin Falls, on July 14 in Moscow, and on July 15 in Pocatello. The Twin Falls briefing was presented to the Twin Falls City Council and was open to the public; the Moscow and Pocatello briefings were presented to the public.

Articles explaining the Proposed Plan for the CFA Motor Pool were printed in the May and July 1992 issues of the *INEL Reporter* newsletter, which is distributed to members of the public on the INEL mailing list. Additionally, during the public comment period (from July 6 to September 8), public meetings on the Proposed Plan were held in Idaho Falls on July 20, Burley on July 21, Boise on July 22, and Moscow on July 23. An INEL press release, informing members of the public of the upcoming meeting in their area, was distributed to state-wide media. Personal telephone calls were made by INEL Outreach Offices in Pocatello, Twin Falls, and Boise to inform key representatives from community groups of the opportunity for public comment.

The notices of the times and dates of public meetings were published in the following newspapers:

- *The Post Register* (Idaho Falls) - July 17, 1992
- *The Idaho State Journal* (Pocatello) - July 17, 1992
- *Times News* (Twin Falls) - July 20, 1992
- *Idaho Statesman* (Boise) - July 20, 1992
- *Daily News* (Moscow-Pullman) - July 21, 1992
- *South Idaho Press* (Burley) - July 20, 1992
- *The Lewiston Morning Tribune* (Lewiston) - July 21, 1992,

At the meetings, representatives from the DOE, EPA, and IDHW discussed the Proposed Plan, answered questions, and received public comment. Verbatim transcripts of each public meeting were prepared by a court reporter and are available, along with the written comments, in the Administrative Record. Comments received from the public were considered in the final decision and have been summarized and addressed in the Responsiveness Summary attached to this Record of Decision (Appendix A).

4. SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTION

Under the FFA/CO, the INEL was divided into 10 Waste Area Groups (WAGs) to better manage the investigation of potential waste sites. Each WAG contains several operable units (OUs) which consist of one or more potential waste sites. This strategy allows the DOE, EPA, and IDHW to focus available cleanup resources on those areas that potentially pose an unacceptable risk to human health and the environment. WAG 4 consists of 13 OUs located at CFA. The CFA Motor Pool Pond is designated as OU 4-11.

OU 4-11 includes the excavated sediments along the ditch and the sediments at the discharge pipe outlet, in the ditch, and in the pond. Data collected for the RI risk assessment indicate that the contaminated sediments within these areas of the CFA Motor Pool Pond do not pose an unacceptable risk to human health and the environment. Therefore, based on the results of the RI and risk management considerations, it was determined that the CFA Motor Pool Pond required no further action to protect human health and the environment. Any impacts from past releases to the pond that may affect the subsurface (vadose zone) or groundwater will be evaluated in OU 4-13, the WAG 4 Comprehensive Remedial Investigation/Feasibility Study (RI/FS).

5. SITE CHARACTERISTICS

The results of the 1982, 1988, and 1989 site investigations indicate that the CFA Motor Pool Pond sediments are contaminated with metals, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and radionuclides. The contamination appears to be concentrated in sediments in the ditch and the excavated sediments adjacent to the ditch.

In 1989, 41 samples (excluding replicate samples) of the Motor Pool Pond sediments were collected and analyzed for metals and for VOCs. Thirty-eight of the samples were analyzed for gamma-emitting radionuclides, and three

for alpha-emitting radionuclides (See Table 1). Four samples were also collected and analyzed for a broad range of metals and organic compounds (Appendix IX of 40 Code of Federal Regulations 264). In addition, 10 soil samples were collected south of the pond and analyzed to establish background concentrations of metals (Figure 3).

Barium, beryllium, cadmium, chromium, lead, mercury, and thallium were found in concentrations exceeding background levels in the Motor Pool Pond area. Beryllium, cadmium, chromium and lead were most frequently detected above background levels. Beryllium concentrations ranged from 0.22 to 1.4 mg/kg (milligrams per kilogram or parts per million), cadmium from 0.53 to 38.8 mg/kg, chromium from 8.2 to 91.3 mg/kg, and lead from 10.6 to 631 mg/kg. The highest metals concentrations were found in the sediments in the ditch from 0 to 2 m (0 to 7 ft) in depth, and in sediments excavated from the ditch.

In addition, four organic compounds (acetone, 2-butanone, 4-methyl 2-pentanone, and methylene chloride) were detected at a depth of 4 m (13 ft) in the pond sediments. The maximum concentrations in the sediments were 85 µg/kg (micrograms per kilogram or parts per billion), 90 µg/kg, 40 µg/kg, and 40 µg/kg, respectively. Methylene

Table 1. Summary of analytical results for samples collected at the CFA Motor Pool Pond.

Chemical	Frequency of detection ^a	Frequency of detection greater than background ^b	Estimated upper range of background ^c	Range of detected concentrations	Units
Antimony	41/41	0/41	5.8	1.7 - 5.8	mg/kg
Arsenic	41/41	0/41	22.1	1.4 - 18.4	mg/kg
Barium	41/41	1/41	334.5	92.8 - 434	mg/kg
Beryllium	41/41	13/41	<0.23	0.22 - 1.4	mg/kg
Cadmium	41/41	11/41	1.6	0.53 - 38.8	mg/kg
Chromium	41/41	9/41	30.7	8.2 - 91.3	mg/kg
Lead	41/41	14/41	50.2	10.6 - 631	mg/kg
Mercury	2/4	2/4	<0.09	0.35 - 1.2	mg/kg
Nickel	41/41	0/41	42.8	13.6 - 37.7	mg/kg
Thallium	11/41	2/41	0.6	0.3 - 1.0	mg/kg
Methylene Chloride	6/41	6/41	(0)	3.0 - 40.0	µg/kg
Acetone	1/41	1/41	(0)	85.0	µg/kg
2-Butanone	1/41	1/41	(0)	90.0	µg/kg
4-Metyl-2-Pentanone	2/41	2/41	(0)	5.0 - 40.0	µg/kg
Tetrachloroethene	2/41	2/41	(0)	4.0 - 76.0	µg/kg
Aroclor-1260	1/2	1/2	(0)	1,470	µg/kg
Cesium-137	21/38	NA	(0)	0.17 - 8.41	pCi/g
Americium-241	3/3	NA	(0)	0.17 - 2.72	pCi/g
Plutonium-239	3/3	3/3	(0)	0.14 - 4.29	pCi/g

a. Replicate samples are not included in the total number of samples.

b. (0) - Background concentrations are assumed to be zero (assumed to be man-made and not naturally occurring).
NA - Background concentrations not available for CFA Motor Pool Pond.

c. Values determined by calculating the 95% upper confidence limit (UCL) of the arithmetic mean.

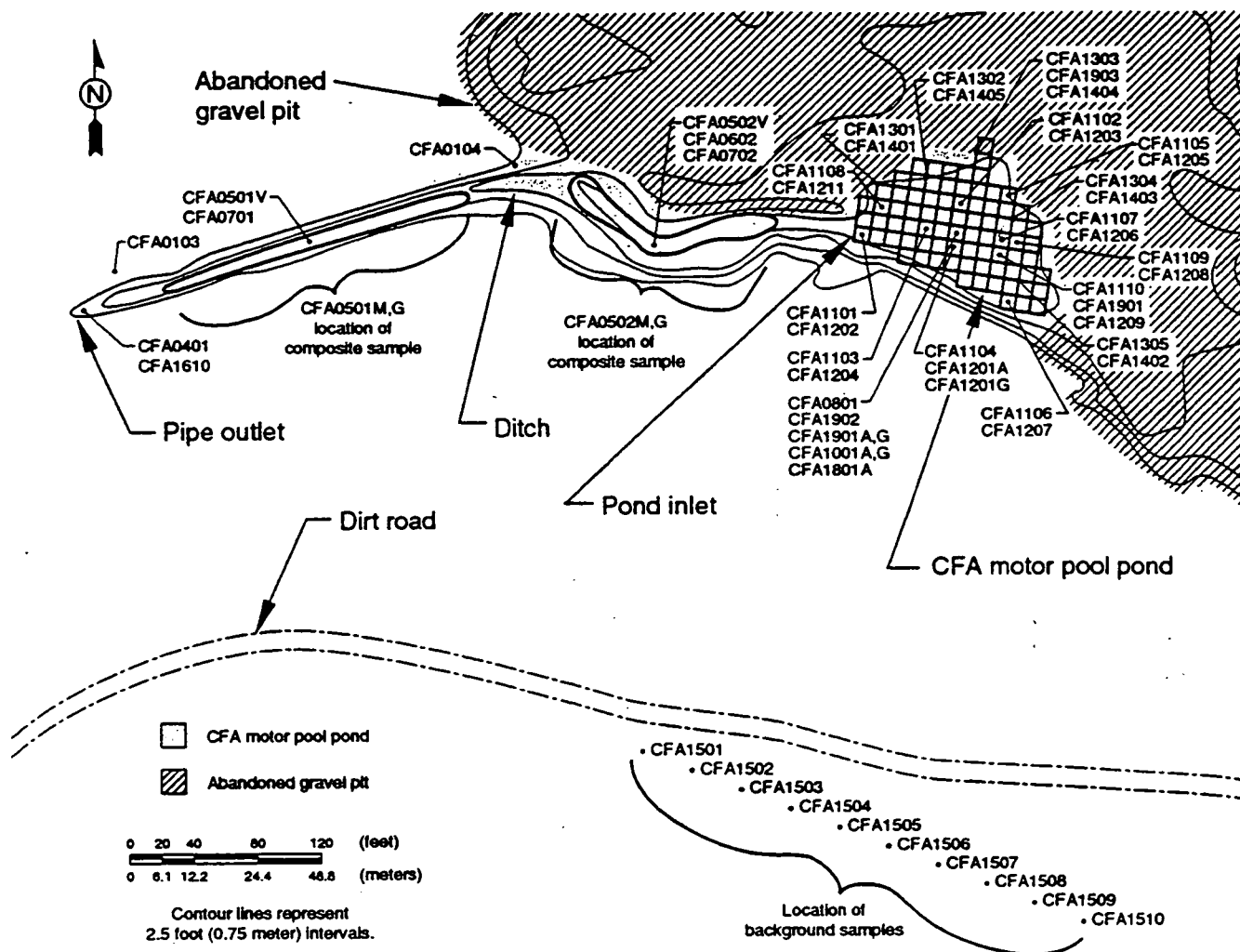


Figure 3. Map of the CFA Motor Pool Pond and sediment sample locations.

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chloride and tetrachloroethylene were also detected in two samples collected from excavated sediments, with maximum concentrations of 40 $\mu\text{g/kg}$ and 76 $\mu\text{g/kg}$, respectively. The PCB Aroclor-1260 was detected in the sample and its replicate collected from the ditch near the pipe outlet. The maximum concentration was 1,470 $\mu\text{g/kg}$. The radionuclides americium-241, cesium-137, and plutonium-239 were detected in surface sediments in the ditch and pond area. The highest concentrations of each detected radionuclide were 2.72 pCi/g for americium-241, 8.4 pCi/g for cesium-137, and 4.29 pCi/g for plutonium-239.

Metals of potential concern in the sediments are:

- Americium-241, chromium-VI, cesium-137, and plutonium-239, which are classified as Group A human carcinogens
- Cadmium, a Group B1 probable human carcinogen
- Beryllium and lead, Group B2 probable human carcinogens
- Barium and chromium-III, noncarcinogens which may have adverse human health effects.

Another contaminant of concern is the PCB Aroclor-1260, which is classified as a Group B2 probable human carcinogen.

The potential for migration of contaminants to groundwater was evaluated by two methods. The first method was the use of conservative assumptions and conventional flow equations to estimate the travel time to the aquifer. The second method was the use of a simplified contaminant transport model, GWSCREEN (See Section 5.2 of the RI Report). This evaluation indicates that regulatory standards for groundwater would not be exceeded due to migration of contaminants from the CFA Motor Pool Pond sediments.

The potential pathways for exposure to humans at the CFA Motor Pool Pond and those selected for risk assessment include (1) direct atmospheric transport (inhalation), (2) dermal contact with contaminants, (3) direct ingestion by workers or future residents, and 4) exposure to ionizing radiation emitted by radioactive contaminants in pond sediments.

Potential exposure scenarios for which the pathways were evaluated at the CFA Motor Pool Pond were limited to present occupational and future residential users. The potential for exposure to the public is currently limited due to the restricted access policy at the INEL. However, a residential scenario was evaluated because it is possible a home could be built on the site in the future. For the risk assessment, it was assumed that residential development will not occur for at least 30 years so a 30-year scenario was evaluated. A 100-year residential scenario was also evaluated. The timing of the residential scenario is considered in the radiological risk assessment because radionuclides decay over time.

6. SUMMARY OF SITE RISKS

The risk assessment for the CFA Motor Pool Pond considered both human health and ecological risks. The human health risk assessment was conducted in accordance with the EPA *Risk Assessment Guidance for Superfund* as supplemented by the EPA Region 10 risk assessment guidance. A qualitative ecological risk assessment was also conducted. Risk assessment results are summarized in the following sections.

6.1 Human Health Risk

The contaminants found in the CFA Motor Pool Pond were evaluated to identify those that contribute the greatest potential risk. A concentration-toxicity screen was used which involved ranking each contaminant by its highest detected concentration multiplied by a chemical-specific risk factor developed by EPA. Using this methodology, any contaminant that contributed more than 1% to the total risk was retained for consideration in the baseline risk assessment. The concentration-toxicity screen identified chromium, barium, and lead as the main contributors of noncarcinogenic risk. The main contributors to carcinogenic risk are chromium-VI, cadmium, beryllium, Aroclor-1260, and all detected radionuclides. The contaminant concentrations used in the risk assessment calculations are listed in Table 2.

A human health risk assessment was performed to evaluate current-use (occupational) and future-use (residential) scenarios. For each scenario, health risks were estimated using EPA default parameters and site-specific parameters. The EPA default exposure parameters are conservative and are used to establish a baseline for comparison. A site-specific risk assessment was then developed that reflects site conditions as they exist today and are likely to exist in the future.

The site-specific assessments used lower exposure frequencies (EF) than the default risk assessment (Table 3). These lower exposure frequencies were based on observations at CFA. The default EF value for the occupational scenario was 250 days per year for all exposure routes. Under the site-specific occupational scenario, the EF was

Table 2. Contaminant concentrations in the CFA Motor Pool Pond used in the baseline risk assessments.

Contaminant	Occupational (present day) ^{a,b}	Residential (30-year) ^a	Residential (100-year) ^a
Cesium-137	2.24	1.12	0.22
Americium-241	2.72 ^c	2.60	2.34
Plutonium-239	4.29 ^c	4.29	4.28
Aroclor-1260	1240 ^d	1240	1240
Barium	220	220	220
Beryllium	0.97	0.97	0.97
Cadmium	11.22	11.22	11.22
Chromium-VI	5.6	5.6	5.6
Chromium-III	34.4	34.4	34.4
Lead	176	176	176

a. Units are pCi/g for radionuclides and mg/kg for metals.

b. Values determined by calculating the 95% UCL of the arithmetic mean.

c. Highest detected alpha concentration was used.

d. For Aroclor-1260 an average of one sample with a detectable concentration and its replicate was used and the units used are µg/kg.

Table 3. Exposure Frequencies.

Exposure Pathway	Occupational Default (days/year)	Occupational Site-specific (days/year)	Future Residential Default (days/year)	Future Residential Site-specific (days/year)
Inhalation	250	12.5	350	350
Ingestion - child			350	50
Ingestion - adult	250	2.5	350	50
Dermal contact	250	2.5	350	50
Direct radiation	250	2.5	350	50

12.5 days per year for inhalation and 2.5 days per year for the other exposure routes. The 12.5 day figure represents the 5 percent of the time the buildings at CFA are downwind of the Motor Pool Pond. The 2.5 day figure is 1 percent of the default value of 250 days and is based on the fact that CFA workers do not occupy the pond to perform necessary work duties and therefore, are not expected to be exposed more than 2.5 days per year.

The default EF for the future residential scenario was 350 days per year for all exposure routes. Under the site-specific future residential scenario, the EF was 350 days per year for inhalation and 50 days per year for the other exposure routes. The time future residents would spend outdoors is the limiting factor for direct ingestion, dermal contact, and direct ionizing /radiation exposures. The amount of time spent outdoors has been estimated to be at

50 days per year for men and women (Exposure Factors Handbook, Final Report, U.S. EPA, EPA/600/8-89/043, May 1989). Limited data for children suggest the maximum average time spent outdoors during the school year is 14 days per year for boys, ages 12 to 17 years. This average only includes days of the school year; summer vacation time is not included (EPA, U.S. Environmental Protection Agency, Exposure Factors Handbook, EPA/600/8-89/043, March 1990b). The exposure frequency during the 12-week summer vacation was estimated to be three days outdoors per week, for a total of 36 days.

Contaminant intake rates were calculated for inhalation, ingestion, and dermal contact for metals and radionuclides. The parameters used to calculate intakes were based on EPA methods found in the *Risk Assessment Guidance for Superfund*, Volume I, "Human Health Evaluation Manual, Part A." For noncarcinogens, the calculated contaminant intake rates and absorbed doses for each contaminant and exposure route were compared to reference doses (RfDs) obtained from the EPA Integrated Risk Information System and the Health Effects Assessment Summary Tables or RfDs calculated using regulatory and occupational limits. The hazard quotients, which are the ratio of the calculated intake and the RfD for each contaminant, were summed by exposure route and scenario to obtain hazard indices. The hazard indices were compared to the EPA threshold value of 1 to determine whether non-carcinogenic effects from exposure to the contaminant may occur. No hazard indices greater than 1 were identified for the occupational scenarios, indicating that the contaminants at the CFA Motor Pool Pond do not pose unacceptable noncarcinogenic health effects to CFA workers. The hazard index for the default future residential scenario using EPA default parameters was 1.4; however, using site-specific parameters, the hazard index was 0.7 (Table 4).

Table 4. Summary of risks at the CFA Motor Pool Pond.

Scenario	Contaminants	Carcinogenic Risk		Hazard Index	
		Default	Site-specific	Default	Site-specific
Occupational	Radionuclides	6 in 100,000 (6E-05)	7 in 10,000,000 (7E-07)	NA ^a	NA
	Chemicals	5 in 100,000 (5E-05)	5 in 10,000,000 (5E-07)	0.7	
	Total	1 in 10,000 (1E-04)	1 in 1,000,000 (1E-06)	0.7	0.02
Future 30-year Residential	Radionuclides	2 in 10,000 (2E-04)	2 in 100,000 (2E-05)	NA	NA
	Chemicals	9 in 100,000 (9E-05)	1 in 100,000 (1E-05)	1.4	0.7
	Total	3 in 10,000 (3E-04)	3 in 100,000 (3E-05)	1.4	0.7
Future 100-year Residential	Radionuclides	4 in 100,000 (4E-05)	7 in 1,000,000 (7E-06)	NA	NA
	Chemicals	9 in 100,000 (9E-05)	1 in 100,000 (1E-05)	1.4	0.7
	Total	1 in 10,000 (1E-04)	2 in 100,000 (2E-05)	1.4	0.7

a. Hazard indices are not applicable to radionuclides.

Carcinogenic health effects were evaluated by multiplying the intake rates of each carcinogen by a body absorption factor and the pertinent EPA slope factor. The result is an estimated excess lifetime cancer risk. The excess cancer risks for each carcinogen are then summed to determine the total excess cancer risk for the given scenario. For the occupational scenario, the current total carcinogenic risk to workers near the CFA Motor Pool Pond is 1 in 10,000 (1×10^{-4}) using the default parameters, and 1 in 1,000,000 (1×10^{-6}) using site-specific parameters (see Table 4).

For the default 30-year future residential scenario, the total carcinogenic risk from radionuclides and inorganic metals is 3 in 10,000 (3×10^{-4}), and 3 in 100,000 (3×10^{-5}) for the site-specific scenario. For the default 100-year future residential scenario, the total carcinogenic risk is 1 in 10,000 (1×10^{-4}), and 2 in 100,000 (2×10^{-5}) for the site-specific scenario (see Table 4).

Several sources of uncertainty, such as those associated with sampling and analysis and the use of EPA established toxicity values, are common to risk assessments and generally have a low potential for adding uncertainty to the results. Other assumptions specific to the CFA Motor Pool Pond are more important to analysis of uncertainty. For example, exclusion of lead from the carcinogenic toxicity assessment may have resulted in underestimation of the carcinogenic risk. This effect is difficult to evaluate because toxicity values are not available for lead. The use of biased samples collected in the ditch and the pond is expected to overestimate total contaminant concentration in the Motor Pool Pond, making the risk assessment more conservative. Because the potential effects of the assumptions used in the risk assessment are not quantified, it is difficult to measure the effect on total risk in numerical terms. However, on a qualitative basis, it appears there is a greater potential for overestimation of exposures and risks.

6.2 Environmental Risk

A qualitative ecological risk assessment was performed to the extent practicable on a scale as small as the CFA Motor Pool Pond. The assessment included a review of available literature on contaminant toxicity to animal species. Based on the limited distribution of the contaminants, discontinued use of the pond, sparse vegetation, and limited habitat value, it is unlikely that contaminants will be accumulated in the food chain. For these reasons, the CFA Motor Pool Pond sediments are not expected to have significant disruptive effects on animal or plant populations or the local ecosystem. Ecological effects will be further evaluated in the WAG 4 RI/FS and the WAG 10 comprehensive RI/FS. These studies are broader in scope and will enable a more representative evaluation of varied and mobile populations.

7. DECISION

The DOE has determined that no further remedial action is necessary at the CFA Motor Pool Pond to ensure protection of human health and the environment. This decision is based on the results of the human health and ecological risk assessments, which indicate that conditions at the site pose no unacceptable risk to human health or the environment. The EPA has approved the DOE decision; the IDHW concurs.

8. EXPLANATION OF SIGNIFICANT CHANGES

The Proposed Plan for the CFA Motor Pool Pond sediments was released for public comment on June 26, 1992. The Proposed Plan identified No Action as the alternative preferred by the DOE, EPA, and IDHW. The three agencies have reviewed and considered all written and verbal comments submitted during the public comment period. Upon review of comments concerning the proposed action, it was determined that no significant changes to the preferred alternative as it was presented in the Proposed Plan were necessary.

APPENDIX A

Responsiveness Summary

Overview

On June 26, 1992, a "Dear Citizen" document containing Proposed Plans for three sites at the Idaho National Engineering Laboratory (INEL) was released to the public. This document included a Proposed Plan for the Central Facilities Area (CFA) Motor Pool Pond. The document solicited comments from the public on the plan and announced the public comment period, which was originally July 6 to August 5, 1992. The comment period was later extended to September 8, 1992 in response to a request made due to errors identified in a table in the Proposed Plan. On August 6, 1992, an errata sheet was sent to the individuals who were on the mailing list for the Proposed Plan. Comments from the public on the Proposed Plan were sought by the U.S. Department of Energy, U.S. Environmental Protection Agency, and Idaho Department of Health and Welfare.

The Federal Facility Agreement and Consent Order (FFA/CO) between the three agencies designates the CFA Motor Pool Pond as Waste Area Group (WAG) 4 Operable Unit (OU) 4-11. The FFA/CO identified the site for a Remedial Investigation/Feasibility Study (RI/FS).

The Proposed Plan discussed the operable unit background and the risks associated with exposure to contaminants found in the pond sediments. The Remedial Investigation Report, available in the Administrative Record, presents the risk assessment calculations and results. Because the Remedial Investigation Report (and accompanying risk assessment) indicated that contaminants at the site do not pose unacceptable risks to human health or the environment, the DOE, EPA, and IDHW recommended "No Action" for the CFA Motor Pool Pond in the Proposed Plan.

Background on Community Involvement

During the weeks of June 29 and July 13, 1992, a Notice of Availability advertisement for the Proposed Plan was published in the following Idaho newspapers:

- *The Post Register* (Idaho Falls)
- *The Idaho State Journal* (Pocatello)
- *Times News* (Twin Falls)
- *Idaho Statesman* (Boise)
- *Daily News* (Moscow-Pullman)
- *South Idaho Press* (Burley)
- *The Lewiston Morning Tribune* (Lewiston).

The Proposed Plan was mailed to 6,500 individuals on the INEL mailing list with a cover letter from the Director of the Environmental Restoration Division of the DOE Idaho Field Office, urging citizens to comment on the plan and to attend public meetings. Copies of the plan are available in the Administrative Record file in the INEL Technical Library, 1776 Science Center Drive, Idaho Falls. Copies of the file are also available in the INEL Information Repository section of public libraries in Idaho Falls, Pocatello, Twin Falls, Boise, Shoshone-Bannock Library at Fort Hall, Idaho State Library in Boise, and the University of Idaho Library in Moscow.

Articles about the Proposed Plan for the CFA Motor Pool Pond were printed in the May and July 1992 issues of the *INEL Reporter* newsletter. Public meetings on the Proposed Plan were held July 20 in Idaho Falls, July 21 in Burley, July 22 in Boise, and July 23 in Moscow. An INEL press release was distributed to state-wide media to inform the public of upcoming meetings in their areas. Personal telephone calls were made by INEL Outreach Office personnel in Pocatello, Twin Falls, and Boise to inform community leaders and other interested individuals and groups of the opportunity for public comment.

At the meetings, representatives from the DOE, EPA, and IDHW discussed the CFA Motor Pool Pond, answered questions, and received public comment. Verbatim transcripts were prepared by a court reporter at each meeting, and are available in the Administrative Record.

Technical briefings on the Proposed Plan were held July 13 in Twin Falls, July 14 in Moscow, and July 15 in Pocatello. A newspaper advertisement announcing the Moscow briefing appeared in the Moscow/Pullman *Daily News* on July 11. The briefing in Twin Falls was presented to the Twin Falls City Council and general public; the Moscow and Pocatello briefings were presented to the general public.

Summary of Comments Received During Public Comment Period

All oral comments, transcribed verbatim at the public meetings, and all written comments, as submitted, are in the Administrative Record for the Record of Decision. The comments are annotated to indicate which response in this Responsiveness Summary addresses each comment. Responses to the comments received during the public comment period are included in this Responsiveness Summary, and were considered during development of the Record of Decision.

Predominant public opinions on the "No Action" recommendation, as described in the Proposed Plan, were: (1) The "No Action" proposal is unacceptable and contaminants in the pond should be cleaned up, (2) The "No Action" proposal is acceptable and the risk calculations are adequate, and (3) Fragmentation of the INEL into several operable units makes it difficult to evaluate the cumulative risks posed by the various operable units.

Comments and questions raised during the comment period are summarized in this Responsiveness Summary. Oral comments received at the public meetings and submitted written comments have been organized according to the general subject of the comments.

Comments and questions on a variety of subjects not specific to the CFA Motor Pool Pond were also received. These subjects included nuclear waste issues at the INEL, EPA drinking water standards, and the government's recognition of the public's opportunity to participate in the cleanup process.

Comments on public participation have been referred to the INEL Community Relations Plan Coordinator for consideration in the update of the INEL Community Relations Plan. General comments on INEL activities have been referred to the INEL Public Affairs Office. Additional information on these topics may be obtained from the INEL Public Affairs Office in Idaho Falls or from INEL Outreach Offices in Pocatello, Twin Falls, and Boise.

Summarized Comments on the CFA Motor Pool Pond

A comment tracking system has been utilized to aid the public in finding responses to individual comments on the Proposed Plan that were provided during the comment portion of the public meetings or submitted in writing. This system has been initiated by the DOE to respond to public comments concerning responsiveness summaries and is intended to aid the public in reviewing this Record of Decision and Responsiveness Summary. This system is described below.

- During the comment period held on the Proposed Plan, DOE received oral and written comments submitted by members of the public and public officials. A number of common topics and questions emerged.
- To provide a manageable response to comments, questions and comments with similar themes were condensed into a single comment or question. Immediately after each summarized comment, a series of

letters and numbers grouped in parentheses. This series of numbers identifies individual comments from the transcripts or written comments. The first two characters of each comment code identifies the transcript, or written document in which the comment is found. (For example, the "T1" in comment T1-01 identifies the comment as being from the first or Idaho Falls transcript.) The second set of numbers (following the hyphen) represents the sequence of the individual comments in the transcript ("T1-1" is the first comment identified in the Idaho Falls transcript).

- Each comment is identified by brackets, the comment code, and the response number to assist individuals in finding their comments and the corresponding responses. A set of indices is also provided that identifies comments by commenter name, comment code, response number, and the page number of the comment.
- The bracketed transcripts and written comments are available for review in the Administrative Record file. Appendix B of the Record of Decision provides the index for cross referencing the Responsiveness Summary with the transcripts and written comments. Appendix C of the Record of Decision contains the Administrative Record index.

Public Comments on the CFA Motor Pool Pond Proposed Plan

1. **Comment:** The "No Action" proposal is unacceptable because the risk to human health is too great. No action should be considered as an alternative only if the risk to human health is deemed to be one or less than one increased cancer per one million people. The risk to human health as presented in Table 2 of the June 26, 1992, "Dear Citizen" letter or its revision, exceeds one in one million increased cancers. It is a simple cleanup that should be done. (T1-2, T4-1, T4-2, T4-3, T4-4, T4-5, T4-10, W6-1, W6-2, W6-3, W6-8)

Response: Although removal of the sediments in the pond is possible, the purpose of doing so under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), program, would be to reduce contaminant levels sufficiently to bring the risks to within the acceptable range. The risks to human health and the environment from exposure to CFA Motor Pool Pond sediments were evaluated in accordance with EPA guidance and are within the 10^{-4} to 10^{-6} acceptable risk range established in National Oil and Hazardous Substances Pollution Contingency Plan (NCP)(40 Code of Federal Regulations 300). A summary of the risk assessment is in Section 6 of the Record of Decision; a more comprehensive discussion is included in the RI report.

2. **Comment:** The agency decision of "No Action" is noncompliant with applicable or relevant and appropriate requirements. The PCB Aroclor-1260 in concentrations of 1,470 $\mu\text{g}/\text{kg}$ alone dictates enforceable remedial action of exhuming contaminants to prevent further migration to the aquifer. (T2-1, T4-22, W1-8)

Response: Although the PCB standard does not apply as an ARAR where no action is being taken, it may be instructive to compare contaminant levels to available standards. The cleanup standard for PCBs in soils, as established by the Toxic Substances and Control Act (TSCA) program, is 10 parts per million or 10,000 parts per billion. The highest concentration of Aroclor-1260 detected was 1,470 parts per million or 1,470 parts per billion. Therefore, no further action would be required to meet the TSCA standard. However, the "No Action" recommendation was not based on meeting the TSCA standard, but on the results of the risk assessment which indicate that risks from exposure to Aroclor-1260 are within the NCP acceptable range for both carcinogenic and noncarcinogenic effects.

3. **Comment:** Based on the risk calculations and facts presented, DOE, EPA, and IDHW have made the right recommendation. This is especially true in light of the risk calculation that assumes a 250-day exposure, which in itself seems unrealistic [conservative]. (T1-1, T1-3, W2-1, W2-2, W2-3)

Response: On the basis of the data collected and the risk assessment calculations, the DOE, EPA, and IDHW agree that the estimated risks are within the acceptable range and that no further action is necessary for the CFA Motor Pool Pond sediments.

4. **Comment:** Either of the following alternatives to the "No Action" proposal are suggested: (a) incineration of contaminated soils under controlled conditions with cement stabilization and disposal of the residuals, or (b) exhuming contaminants, containerizing, and storing the containers at monitored retrievable storage sites, or placing the containers in a permitted repository. (T3-1, T4-6, T4-12, T4-23, W6-4)

Response: The objective of evaluating and implementing cleanup alternatives such as those suggested would be to reduce risks to within the acceptable range. Because estimated risks for this OU were within the acceptable range, an evaluation of cleanup alternatives is not required by CERCLA or the NCP.

5. **Comment:** For the following reasons, the model's assumptions for occupational and residential exposures understate risk:

- a) Risk calculations for worker exposure only allow for inhalation at five percent and direct contact at one percent. This is grossly understated due to the close proximity of the pond to the CFA.
- b) Exposure frequencies are based on estimates of outdoor activity of 50 days per year; therefore, exposure beyond 50 days increases the risk. In addition, the risk for houses built on this land was not considered. (T4-11, T4-17, W1-3, W6-2)

Response: The site-specific scenarios evaluated for the CFA Motor Pool Pond sediments represent the reasonable maximum exposure, given the limited area of the pond and extent of associated contamination.

- a) The inhalation exposure frequency used for CFA workers was five percent of the EPA default value because data from the meteorology station at CFA indicate that CFA is downwind of the CFA Motor Pool Pond approximately five percent of the time. The exposure frequency for direct contact and other exposure routes was set at one percent (2.5 days per year) of the default value because there are no activities at the CFA Motor Pool Pond that require CFA workers to be routinely on the site. The CFA Motor Pool Pond is permanently deactivated and there are no plans for additional activities. In addition, risk assessment calculations were performed for CFA workers using the more conservative default scenarios as recommended in the EPA risk assessment guidance.
- b) Future residential scenarios assumed a house is constructed adjacent to the pond. The time future residents would spend outdoors is the limiting factor for direct ingestion, dermal contact, and direct ionizing radiation exposures. The amount of time spent outdoors has been estimated in EPA guidance at 50 days per year for men and women (Exposure Factors Handbook, Final Report, U.S. EPA, EPA/600/8-89/043, May 1989). Limited data for children suggest the maximum average time spent outdoors is 14 days per year for boys, ages 12 to 17 years. This average only includes days of the school year; summer vacation time is not included. An average of three days per week outdoors was used as a reasonable estimate at the CFA Motor Pool Pond

during the 12-week summer vacation, for totals of 36 days for the summer and 50 days for the entire year. Values of 50 days per year for adults and children are considered to be reasonable for estimating exposures by ingestion, dermal contact, and direct ionizing radiation. Risk assessment calculations using default scenarios were also done on the Motor Pool Pond. Even using the default scenarios, carcinogenic risks were within the acceptable 10^{-4} to 10^{-6} range. The Hazard Index for noncarcinogenic risk for the default future residential scenario was 1.4 which is slightly above the threshold of 1. The Hazard Indices were added across all pathways for all contaminants.

6. Comment: It was noted that EPA had the following concerns with regard to the risk assessment methodology in the plan:

- a) Heavy metals such as silver and selenium are not acknowledged.
- b) Cesium is not included in the exposure assessment nor was testing done for alpha and beta emitters at the waste pit.
- c) The use of average values is inconsistent with EPA guidance which requires the use of a 95 percent upper level confidence limit.
- d) The soil to groundwater pathway for contaminant migration was dismissed. (T4-18, T4-19, T4-20, W1-4, W1-5, W1-6, W1-7)

Response: Comments from EPA Region 10 and the Idaho Department of Health and Welfare on the Draft Remedial Investigation Report were incorporated into the Final Remedial Investigation Report. The final report was revised to ensure consistency with EPA guidance.

- a) The metals silver and selenium were not included in the risk assessment because they were not detected above naturally occurring levels (or background).
- b) Historical radiation surveys of the Motor Pool Pond included gamma and high-energy beta radiation surveys. Results were slightly above background in surveys of the area conducted prior to 1982. The most recent survey, performed in September 1991, showed only background levels of radiation.

During the remedial investigation, samples were analyzed using both gamma- and alpha-spectroscopy. The radionuclides americium-241, cesium-137, and plutonium-239 were detected in surface sediments in the ditch and pond area. The highest concentrations of each detected radionuclide were 2.72 pCi/g for americium-241, 8.4 pCi/g for cesium-137, and 4.29 pCi/g for plutonium-239.

Radionuclide concentrations were evaluated in the risk assessment for both current occupational and future residential scenarios. Exposure to cesium was included. However, for direct radiation exposure, cesium-137 is not a significant contributor to risk as compared to its daughter product, barium-137, which was also included in the assessment (barium-137 is also commonly reported as cesium-137). The calculated risks from exposure to all detected radionuclides were within the acceptable risk range of 10^{-4} to 10^{-6} .

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- c) The Final Remedial Investigation Report was revised to indicate that the risk assessment was performed using the upper 95 percent confidence interval values.
 - d) The Final Remedial Investigation Report was revised to include an evaluation of the soil to groundwater pathway. However, based on the groundwater modeling results, regulatory standards for groundwater would not be exceeded. The groundwater pathway was not included further in this remedial investigation. The potential for groundwater contamination from wastewater previously disposed of at the CFA Motor Pool Pond will be evaluated further in the WAG-4 final RI/FS, which is scheduled to begin in 1996.

7. Comment: Averaging the concentrations of contaminants found in different areas seems inappropriate. Using the highest concentrations would change the picture drastically. Revisions to "safe" concentrations for these contaminants have always been downward instead of upward, and it makes more sense to err on the conservative side. (W7-3)

Response: For metals and gamma emitting radionuclides, the contaminant concentrations used in the risk assessment were the 95% Upper Confidence Limit (UCL) of the arithmetic mean. The 95% upper confidence limit is "on the conservative side" and in most cases represents the reasonable maximum exposure over the time used to calculate risk.

Because only one sample and its duplicate were available for the PCB Aroclor-1260, the average of these two samples was used for the exposure concentration. There were insufficient data to calculate a representative value for plutonium-123 and americium-241. Therefore, the highest concentration detected by alpha analysis was used.

8. Comment: What are "safe" concentrations for all populations, flora, and fauna found on the INEL? The safe concentration level for the harvester ant, for example, is unknown. Yet the conclusion is made that no harm will occur to humans or the environment. This seems inappropriate. (W7-4)

Response: It is recognized that risk based contaminations are not established for all flora and fauna found in the INEL. However, a qualitative ecological risk assessment was performed to the extent practicable on a scale as small as the CFA Motor Pool Pond. The assessment included a review of available literature on contaminant toxicity to animal species. Based on the limited distribution of the contaminants, and the lack of water, vegetation, and habitat value, it is unlikely that contaminants will be accumulated in the food chain. For these reasons, the contaminants identified in the CFA Motor Pool Pond sediments are not expected to have significant disruptive effects on animal or plant populations or the local ecosystem. Ecological effects will be further evaluated in the WAG 4 RI/FS and the WAG 10 Comprehensive RI/FS. These studies are broader in scope and will enable a more representative evaluation of varied and mobile populations.

9. Comment: Agency plans to clean up the CFA Motor Pool Pond do not accurately acknowledge the source of nor the quantities of significant radioactive contamination of the pit. The DOE's plan states only that on several occasions vehicles and equipment with small amounts of radioactive contamination were decontaminated at the station. Concentrations of cesium-137, americium-241 and plutonium-238, and plutonium-239 as well as cobalt-60, potassium-40, lead-212, and radium-226 are not adequately accounted for. There is already tritium under CFA, so additional contaminant loading from the Motor Pool Pond must not be allowed. (T4-15, W1-1)

Response: Washing of vehicles and equipment at the Service Station is considered to be the only likely source for radioactive contamination detected at the CFA Motor Pool Pond because the Service Station is the only facility that was connected to the CFA Motor Pool Pond. The CFA, especially the Service Station, is not an area where large amounts of radioactive materials are routinely handled. The risk assessment for the pond was based on the concentration of contaminants in the sediments. The results of groundwater modeling show that regulatory standards, would not be exceeded by contaminants migrating to the aquifer from the pond sediments.

10. **Comment:** The Proposed Plan does not accurately state the volatile organic ranges detected in the pond. The Oak Ridge Survey sampling found 2-butanone at 190 µg/kg, trichloroethane at 25 µg/kg, toluene at 23 µg/kg, methylene chloride at 460 µg/kg, acetone at 85 µg/kg, tetrachloroethylene at 76 µg/kg, and 4-methyl-2-pentanone at greater than 8,300 µg/kg. Nine of the organic contaminants exceed EPA Contract Required Quantification Limit criteria. (T4-16, W1-2)

Response: The Proposed Plan is intended to be a summary of highlights of the Remedial Investigation Report, which served as the basis for the Agencies' recommendation. The Remedial Investigation Report is available in the Information Repositories. The 1989 data were used rather than the Oak Ridge data for risk calculations because the 1989 sampling effort was more comprehensive and data quality was better documented. The 1989 maximum concentrations for the contaminants referenced above are: 90 µg/kg for 2-butanone, 25 µg/kg for trichloroethane, 2 µg/kg for toluene, 40 µg/kg for methylene chloride, 85 µg/kg for acetone, 76 µg/kg for tetrachloroethylene, and 40 µg/kg for 4-methyl-2-pentanone. It is acknowledged that several of the contaminants listed in the comments were detected during the Oak Ridge sampling; however, concentrations for tetrachloroethylene and 4-methyl-2-pentanone stated in the comment could not be found.

The volatile organic compounds detected during the 1989 sampling effort were subjected to a concentration-toxicity screen to evaluate their contribution to total risk. The concentration-toxicity screen, which was performed according to EPA guidance, indicated that the volatile organic compounds do not contribute significantly, less than one percent, to total risk. Therefore, these compounds were not evaluated further in the toxicity assessment.

Contract-required quantification limits (CRQLs) are chemical-specific levels that a laboratory contracted to EPA must be able to routinely and reliably detect and quantify. This limit is not a risk-related value.

11. **Comment:** The preliminary assessments of WAG 10 should begin immediately. It is not in the best interest of public health for all toxic, hazardous, and radioactive materials to continue to contaminate the Snake River Aquifer for another seven years before the cumulative consequences of these "No Action" decisions will begin to be evaluated. Continuing evaluation of the cumulative consequences of contamination from each subsequent "No Action" alternative will allow for the earliest detection of an unacceptable risk. This information should be included in the Proposed Plans for each OU in each WAG. This procedure will allow the public to comprehend and track the cumulative risk of the cleanup program as it progresses, rather than wait until the end as it is now scheduled. (T4-7, W6-6, W7-2)

Response: It is recognized that cumulative risks from the various sites are an important issue and that it is possible for several sites which do not pose an unacceptable risk on an individual basis to do so if evaluated on a cumulative basis. However, it would depend on several factors such as the percentage of exposure an individual received from each site, and the toxicological effects of the contaminants and exposure pathways at each site. For example, it would not be reasonable to assume that one individual obtains his drinking water from two different wells at the same time. To effectively evaluate the risks in

the WAG 10 comprehensive RI/FS, it is necessary to first collect and evaluate data from the individual OUs. This approach was developed in the INEL FFA/CO and agreed upon by the DOE, EPA, and IDHW in accordance with the NCP. The intent was to ensure that all potential contamination sources were evaluated before the comprehensive RI/FS was completed. Data collection for the comprehensive RI/FS has been initiated; however, it is too early to draw conclusions regarding the contribution of individual OUs to overall risk.

12. Comment: OUs are related and are not three separate facilities where "No Action" is proposed. DOE needs to treat them as systems that work together, not divide them up and expect the public not to make the connection. The public wants to see how each element fits together. If a source of contamination or portion of a facility will be considered under a separate plan or a separate OU, these relationships must be spelled out in detail in the information provided to the public. The appropriate OU and time-frame for consideration must be identified in the text or as a note. (T4-8, T4-14, W6-7, W7-2)

Response: The INEL was divided into several WAGs and OUs to provide an efficient, systematic method for collecting and evaluating information and to focus resources on high priority sites first. This approach was developed by DOE, EPA, and IDHW for the FFA/CO in accordance with the NCP. The FFA/CO was presented to the public for comment during the months of August through October 1991. Section 300.430 of the NCP states that complex sites should generally be addressed in OUs to simplify and expedite investigations and any necessary remedial action at the sites. In recognition, that risk should be evaluated from a larger perspective than each individual site or OU, a comprehensive RI/FS will be performed for each WAG and subsequently, for the entire INEL (WAG 10) to evaluate the contribution of individual elements to cumulative risk. Schedules for addressing each OU and for the comprehensive evaluations are provided in the FFA/CO, which is included in the Administrative Record file. The WAG 4 Comprehensive RI/FS for CFA is scheduled to begin in 1996. This study, along with other WAG-level RI/FSs will then feed into the INEL-wide RI/FS, scheduled to begin in 1998.

13. Comment: More information should be provided to the public so that informed decisions can be made; not everyone is able to obtain information from the Administrative Record. (T4-9, T4-13)

Response: The purpose of the Proposed Plan is to provide the public with a summary of the Remedial Investigation Report. More detailed information regarding the investigation is included in the Administrative Record, as required by the NCP. Prior to beginning the comment period, copies of the Administrative Record file were placed in Information Repository sections of public libraries, and remain available at the six locations listed on page B-7 of the Proposed Plan.

14. Comment: Are new waste ponds being built to replace the Motor Pool Pond? (T3-2)

Response: No new pond is planned or needed to replace the CFA Motor Pool Pond. Use of the pond was discontinued in 1985. Wastes that were previously sent to the CFA Motor Pool Pond are now sent to the CFA Sewage Treatment Plant.

15. Comment: A 30-day extension to the comment period on the Proposed Plan is requested so that the three agencies may notify the public of an error in the risk assessment summary data in Table 2 of the June 26, 1992, "Dear Citizen" letter. This error came to light at the public meeting held in Moscow on July 23, 1992. To our knowledge, those members of the public who were not in attendance at that meeting have no way of knowing the information on which they are making their comments is in error. The public should be notified of the error and provided with the correct data. (W9-1, W9-2)

Response: On August 6, 1992, an errata sheet was sent to the individuals who received the Proposed Plan by mail. These individuals were also notified at that time that the comment period would be extended as requested. The comment period was extended from August 5 to September 8, 1992. The extension was required due to errors in a table in the Proposed Plan which overstated risk values.

APPENDIX B
Public Comment/Response List

<u>Name</u>	<u>Comment#</u>	<u>Transcript Page</u>	<u>Category</u>
Chuck Broschious	T4-2	381	ARA-08
Chuck Broschious	T4-3	381	ARA-02
Chuck Broschious	T4-3	382	ARA-02
Chuck Broschious	T4-4	382	ARA-10
Chuck Broschious	T4-5	382	ARA-10
Chuck Broschious	T4-6	382	ARA-02
Chuck Broschious	T4-6	383	ARA-02
Chuck Broschious	T4-7	383	ARA-01
Chuck Broschious	T4-8	383	ARA-01
Chuck Broschious	T4-8	384	ARA-01
Chuck Broschious	W1-1	400	ARA-08
Chuck Broschious	W1-2	400	ARA-02
Chuck Broschious	W1-3	400	ARA-10
Chuck Broschious	W1-4	400	ARA-10
Chuck Broschious	W1-5	400	ARA-02
Chuck Broschious	W1-6	400	ARA-01
Chuck Broschious	W1-7	400	ARA-01
Chuck Broschious	W1-8	401	ARA-03
Chuck Broschious	W1-9	401	ARA-05
Dennis Donnelly	T1-2	105	ARA-08
John Horan	T1-1	77	ARA-07
John Horan	T1-1	78	ARA-07
Lynn Mineur	T4-1A	373	ARA-09
Lynn Mineur	T4-1B	373	ARA-09
Lynn Mineur	T4-1B	374	ARA-09
Lynn Mineur	W6-1	417	ARA-09
Lynn Mineur	W6-2	417	ARA-09
Lynn Mineur	W6-2	418	ARA-09
Bruce Schmalz	W2-1	402	ARA-07
Bruce Schmalz	W2-2	402	ARA-07
Bruce Schmalz	W2-3	402	ARA-07
Patricia and Donald Scott	T4-1	322	ARA-08
Patricia and Donald Scott	W7-1	419	ARA-08
Patricia and Donald Scott	W7-2	419	ARA-09
Patricia and Donald Scott	W7-3	419	ARA-03
Patricia and Donald Scott	W7-4	419	ARA-04
John E. Tanner	T1-3	105	ARA-07
Michael J. Ushman	T3-1	233	ARA-06

APPENDIX C

Administrative Record Index

**IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX**

**CENTRAL FACILITY AREA MOTOR POOL POND
REMEDIAL INVESTIGATION / FEASIBILITY STUDY OPERABLE UNIT 4-11**

FILE NUMBER

AR1.1 BACKGROUND

- Document #: 5134
Title: Technical Memorandum - Future Land Use Scenarios for the Central Facilities Area, INEL
Author: Pigott, W. R.
Recipient: N/A
Date: 07/01/92

AR3.3 RI/FS WORK PLAN

- Document #: 5105
Title: Transmittal - CFA-05 Motor Pool Pond and ARA-01 Chemical Evaporation Pond Schedule
Author: EPA, Pierre, W.
Recipient: DOE, Lyle, J. J.
Date: 02/24/92

AR3.4 RI REPORTS

- Document #: EGG-WM-9973
Title: Final RI for the CFA Motor Pool Pond
Author: Spry, M. J.
Recipient: N/A
Date: 06/01/92

AR5.1 RECORD OF DECISION

- Document #: 5232
Title: Record of Decision for the CFA Motor Pool Pond
Author: INEL Community Relations
Recipient: N/A
Date: 12/10/92

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

**CFA MOTOR POOL POND RI/FS
OPERABLE UNIT 4-11
01/22/93**

FILE NUMBER

AR6.1 COOPERATIVE AGREEMENTS (continued)

- 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

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

- Document #: 1088-06-29-120*
Title: U.S. DOE INEL Federal Facility Agreement and Consent Order (FFA/CO) W/Citizen's Guide
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

AR10.1 COMMENTS AND RESPONSES

- Document #: 5139
Title: Request for an extension of the comment period on the Proposed Plan for the Motor Pool Pond at the Central Facilities Area
Author: League of Women Voters of Moscow
Recipient: Nygard, Dean
Date: 07/24/92

**CFA MOTOR POOL POND RI/FS
OPERABLE UNIT 4-11
01/22/93**

FILE NUMBER

AR10.3 PUBLIC PARTICIPATION

- Document #: 5130
Title: Dear Citizen Pamphlet, Proposed Plan for the Motor Pool Pond
Author: INEL Community Relations
Recipient: N/A
Date: 06/26/92
- Document #: 5136
Title: Attention: Agencies Seek Public Comment on Three Proposed Plans
Author: INEL Community Relations
Recipient: N/A
Date: 07/01/92
- Document #: 5141
Title: Page B-6 Correction of the Dear Citizen Pamphlet, Proposed Plan for the Motor Pool Pond
Author: INEL Community Relations
Recipient: N/A
Date: 08/05/92

AR10.4 PUBLIC MEETING TRANSCRIPTS

- Document #: 5164-CFA
Title: Public Comments on the Proposed Plan
Author: N/A
Recipient: N/A
Date: 07/20/92

AR10.6 PRESS RELEASES

- Document #: 5142
Title: DOE NEWS - Public Comment Period Extended on Proposed Plan for Motor Pool Pond Sediments at INEL
Author: Coe, M.
Recipient: N/A
Date: 08/05/92

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