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1994

EPA Superfund
Record of Decision:

IDAHO NATIONAL ENGINEERING LABORATORY (USDOE)
EPA ID: ID4890008952
OU 19
IDAHO FALLS, ID
09/27/1994

Text:

DECLARATION OF THE RECORD OF DECISION

SITE NAME AND LOCATION

Naval Reactors Facility Industrial Waste Ditch and Landfill Are
Operable Units 8-07, 8-O6, and 8-05
Idaho National Engineering Laboratory
Idaho Falls, Idaho

STATEMENT OF BASIS AND PURPOSE

This document presents the remedial actions selected for the Naval React Industrial Waste Ditch (operable Unit 8-07) and Landfill Areas (operable at the Idaho National Engineering Laboratory. The remedy was selected i the Comprehensive Environmental Response, Compensation, and Liability Ac by the Superfund Amendments and Reauthorization Act, and to the extent p National Oil and Hazardous Substances Pollution Contingency Plan. This based on the information in the Administrative Record for the Naval Reac Industrial Waste Ditch and Landfill Areas.

The U.S. Environmental Protection Agency (EPA) approves of this remedy, Idaho concurs with the selected remedial actions.

ASSESSMENT OF THE SITE

The Naval Reactors Facility Industrial Waste Ditch and Landfill sites 8- 8-06-48, 8-06-49, and 8-06-50 do not present an unacceptable risk to human environment, and therefore, require no further action. Hazardous substance landfill areas 8-05-1,8-05-51, and 8-06-53 may present a potential threat t welfare, or to the environment if not addressed by implementing the respons in this Record of Decision.

DESCRIPTION OF THE SELECTED REMEDY

The Naval Reactors Facility has been designated as Waste Area Group (WAG WAGs at the INEL which are under investigation pursuant to the Federal Faci and Consent order (FFA/CO) between the Idaho Department of Health and Welfa the EPA, and the U.S. Department of Energy (DOE). The Industrial Waste Dit designated as operable Unit 8-07, and the Landfill Areas are designated as 05 and 8-06. No action is recommended for the Industrial Waste Ditch or La 59, 8-06-35, 8-06-36, 8-06-48, 8-06-49, and 8-06-50. The recommended remed landfill sites 8-05-1, 8-05-51 and 8-06-53 is in accordance with the Presum CERCLA Municipal Landfill Sites. This consists of containment of landfill gas monitoring to reduce the risks associated with potential exposure to th wastes. Ground water monitoring will be performed to provide information o these areas may have had on ground water and to support the NRF Comprehensi of Decision.

The major components of the selected remedy include:

Installation of a native soil cover, followed by planting with nat erosion;

Periodic inspection and maintenance to ensure the integrity of the

Soil gas monitoring to provide early detection of any release from the subsurface, ground water, or surface pathways;

Ground water monitoring to evaluate these and other areas at NRF;

Maintaining institutional controls, including signs, postings, and

STATUTORY DETERMINATION

The selected remedy is protective of human health and the environment, comp Federal and State applicable or relevant and appropriate requirements, and This remedy utilizes permanent solutions and presumptive remedies to the ma practicable; however, because the wastes can be reliably controlled in plac principle sources of contamination was not found to be cost effective. The does not satisfy the statutory preference for treatment as a principal elem

Because the remedy will result in hazardous substances remaining in some of areas onsite, a review will be conducted within five years after commenceme actions, and every five years thereafter, to ensure that the remedy continu adequate protection of human health and the environment.

SIGNATURE SHEET

Signature sheet for the foregoing Industrial Waste Ditch and Landfill Areas Facility at the Idaho National Engineering Laboratory Record of Decision be Department of Energy and the Environmental Protection Agency with concurren Idaho Department of Health and Welfare.

_____ _____

CHUCK CLARKE Date
Regional Administrator, Region 10
U.S. Environmental Protection Agency

SIGNATURE SHEET

Signature sheet for the foregoing Industrial Waste Ditch and Landfill Area Facility at the Idaho National Engineering Laboratory Record ot Decision be Department ot Energy and the Environmental Protection Agency with concurren

Idaho Department of Health and Welfare.

_____

THERON M. BRADLEY
Manager
U.S. Department of Energy Naval Reactors Idaho Branch

SIGNATURE SHEET

Signature sheet for the foregoing Industrial Waste Ditch and Landfill Areas Facility at the Idaho National Engineering Laboratory Record of Decision be Department of Energy and the Environmental Protection Agency with concur Idaho Department ot Health and Welfare.

_____ _____

JERRY L. HARRIS Date
Director
Idaho Department of Health and Welfare

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TABLES

FIGURES

ACRONYMS

A1W	Large Ship Reactor Prototype
ARAR	Applicable or Relevant and Appropriate Requirements
ASTM	American Society for Testing and Materials
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
BGS	Below Ground Surface
BESWL	Below Elevation of the Static Water Level
BLM	Bureau of Land Management
BTEX	Benzene, toluene, ethylbenzene, and total xylene
CEC	Cation Exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liabil
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
COCA	Consent Order and Compliance Agreement
CRP	Community Relations Plan
CSM	Conceptual Site Model
DOE	Department of Energy
DOE-ID	Department of Energy, Idaho Field Office
EPA	Environmental Protection Agency

FFA/CO	Federal Facility Agreement/Consent Order
FS	Feasibility Study
HQ	Hazard Quotient
ICR	Increased Cancer Risk
IDHW	Idaho Department of Health and Welfare
IWO	Exterior Industrial Waste Ditch
INEL	Idaho National Engineering Laboratory
km	kilometer
MDL	Method Detection Limit
mi	miles
NCP	National Contingency Plan
NPL	National Priorities List
NRF	Naval Reactors Facility
OU	Operable Unit
PCB	Polychlorinated biphenyls
PCE	Tetrachloroethylene
ppb	parts per billion
PPE	Personal protective equipment
ppm	parts per million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Desision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act of 1986
SRPA	Snake River Plain Aquifer
SOP	Standard Operating Procedure
SOW	Statement of Work
S1W	Submarine Thermal Reactor Prototype
SVOCs	Semi-Volatile Organic Compounds
TAN	Test Area North
TCA	1,1,1-trichloroethane
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TSD	Treatment, Storage, and Disposal facility
USGS	United States Geological Survey
UTL	upper tolerance limit
VOCs	Volatile Organic Compounds
WAG	Waste Area Group

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1.0 DECISION SUMMARY

Site Name, Location, and Description

The Idaho National Engineering Laboratory (INEL) is a government facilit U.S. Department of Energy located 51.5 kilometers (km) [32 miles (mi)] w Idaho, and occupies 2305 km2 (890 miý) of the northeastern portion of th River Plain. The Naval Reactors Facility is located on the west-central National Engineering Laboratory (Figure 1). This Record of Decision app portion of the Industrial Waste Ditch outside the NRF perimeter (Operabl hereinafter referred to the Industrial Waste Ditch). This segment exten the northeast from the northwest corner of the fence. The interior port addressed as Operable Unit 8-09. The Landfill Units (Operable Units 8-0 nine separate locations situated on the west and northeast sides of the maximum area of the combined landfill units is 0.16 kmý (0.06 miý).

Current land use at the INEL is primarily dedicated to nuclear research waste management. Surrounding areas are managed by the Bureau of Land M for multipurpose use. The developed area within the INEL is surrounded miý) buffer zone used for cattle and sheep pasture.

Of the 11,700 people employed at the INEL, approximately 830 are employe Reactors Facility. The nearest offsite populations are in Atomic City, and Terreton.

<IMG SRC 1094084>

Figure 1 The Idaho National Engineering Laboratory showing the location Reactors Facility.

The INEL is located on the northeastern portion of the Eastern Snake Riv volcanic plateau that is primarily composed of silicic and basaltic rock amounts of sediment. Underlying the INEL are a series of basaltic flows interbeds. The basalts immediately beneath the Naval Reactors Facility are covered by 6.1 to 9.1 meters (20 to 30 feet) of alluvium and loess.

The depth to the Snake River Plain Aquifer (SRPA) at the INEL varies fro feet) in the northern portion to 274.3 meters (900 feet) in the southern the aquifer at the Naval Reactors Facility is approximately 112.78 meter ground water flow is generally to the southwest.

The Idaho National Engineering Laboratory has semidesert characteristics and cold winters. Normal annual precipitation is 23.1 centimeters (9.1 surface water present at the INEL is the Big Lost River, which is approx south of the Naval Reactors Facility. However, this river is typically climate. The only naturally occurring surface water at the Naval Reacto heavy rainfall or snow melt, usually during the period from January to A

Twenty distinctive vegetative cover types have been identified at the IN being the dominant species, covering approximately 80% of the ground sur of habitats on the INEL support numerous species of reptiles, birds, and bird species warrant special concern because of senstivity to disturbanc

status. These species include the ferruginous hawk (Buteo regalia), bal leucocephalus), prairie falcon (Falco mexicanus), merlin (Falco columbar curlew (Numenius americanus), and the burrowing owl (Athlene cunicularia snake, whose occurrence is considered to be INEL-wide, is listed by the Fish and Game as a Category C sensitive species.

The areas of the Industrial Waste Ditch and landfill areas included with Decision have been evaluated for compliance with the Wetlands Protection legislation, and Historical and Cultural Preservation, and were found to and/or relevant and appropriate statutes.

The Naval Reactors Facility includes approximately 80 developed acres. nonhazardous industrial waste water from water treatment operations and has been discharged to the IWD since 1953. The ditch was originally an it has been modified to carry water away from the facility. The volume has varied greatly, depending on operational requirements. Due to recen operations, water is rarely present beyond 1.2 miles beyond the ouffall. and Landfill units are discussed in Sections 5 through 11 of this Record will be discussed first, or will be labeled as subsection 'a'.

The landfill areas are primarily located west and northeast of the Naval Operable Units 8-05 and 8-06 include nine separate areas which have been potential waste disposal sites. The wastes in these landfill areas are municipal landfills; cafeteria wastes, construction debris, petroleum pr small amounts of paints and solvents. Different landfill units were use 1951 through 1971. NRF discontinued use of the last landfill unit in 19 IWD and Landfill units are discussed in Sections 5 through 11 of this Re landfills will be discussed second, or will be labeled as subsection 'b'

Assessment of the Industrial Waste Ditch

The no action decision is applicable to the Industrial Waste Ditch becau unacceptable risk to human or ecological receptors in the present or fut scenarios.

Assessment of Landfill Units

Landfill sites 8-05-59, 8-06-35, 8-06-36, 8-06-48, 8-06-49, and 8-06-50 existing data, and risk calculations were performed for those constituen gas analyses, surface soil samples, or based on historic information. T determined to contain primarily construction debris, did not present any human or environmental receptors, and are recommended for no action. La 8-05-51, and 8-06-53 have contents similar to those found in municipal l by the three parties, intrusive sampling of the actual contents of the l performed. Containment with a native soil cover is the recommended alte areas, based on the Presumptive Remedy for Comprehensive Environmental R Compensation, and Liability Act (CERCLA) Municipal Landfill Sites, to pr there will not be a release of contaminants to the environment in the fu will be conducted to verify that the actions taken remain protective of environment.

Description of the Selected Remedy

The altenative selected for landfill sites 8-05-1, 8-05-51, and 8-06-53 Remedy for CERCLA Municipal Landfill Sites. Presumptive remedies are pr technologies for common categories of sites, based on historical pattern selection and EPA's scientific and engineering evaluation of performance implementation. The objective of the presumptive remedies process is to experience to streamline site investigation and the remedy selection pro improving consistency, reducing cost, and increasing the speed within wh waste sites are remediated. The specific actions are to survey and mark land use, monitor soil gases, and install and maintain a two foot thick the landfill contents by means of administrative controls. Ground water perfommed to evaluate these and other areas at NRF.

2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Naval Reactors Facility was established in 1949 as a testing site fo propulsion program. The Submarine Thermal Reactor Prototype (S1W) becam in 1953. At that time, the first section of the Industrial Waste Ditch accommodate the disposal of nonradioactive, nonsewage liquid discharges. landfill units received solid waste similar to that of municipal landfil cafeteria, and small quantities of paint products) from the prototype an operations.

The Large Ship Reactor Prototype (A1W) and the Expended Core Facility (E operational in 1958, and the S5G Prototype became operational in 1965. Reactors Facility expanded, the Industrial Waste Ditch was modified to a increased volume of waste water. The primary discharge constituents wer

cooling water, acidic and basic solutions from the water treatment facil with occasional oily residues, storm water runoff, and small amounts of

The landfill areas were used intermittently from the time construction s general, construction debris and waste material was burned, then covered volume of construction debris decreased after the construction of A1W an after the construction of S5G in 1965. Use of the last NRF landfill cea

In 198O, the Naval Reactors Facility ceased the discharge of all Resourc Recovery Act (RCRA) wastes to the Industrial Waste Ditch except the acid exchange regenerant solutions, which were self-neutralizing. In 1985, a constructed to neutralize these solutions prior to discharge. A Consent Compliance Agreement (COCA) was established between the Department of En U.S. Environmental Protection Agency pursuant to the Resource Conservati Act Section 3008(h) in August 1987. The COCA required an initial assess of all solid waste and/or hazardous waste disposal units at the INEL, an for conducting any necessary conective actions. In November 1989, the I the National Priorities List (NPL) by the EPA under CERCLA as amended by Amendments and Reauthorization Act of 1986 (SARA). The DOE, EPA, and St Department of Health and Welfare (IDHW) entered into the Federal Facilit Consent order (FFA/CO) on December 9, 1991.

Most of the discharge to the IWD has been directly proportional to plant

particularly the amount of cooling water utilized. The reduction in wor Reactors Facility over the past five years has resulted in a correspondi volume of water discharged to the IWD. When three prototype plants were was present to the 4 kilometer (2.5 mile) mark in the ditch channel. As inactivation of the S1W prototype in 198O, and the permanent shut down o prototype in 1994, water is only present in the first 1.6 kilometer (one S5G prototype inactivation scheduled to start in 1995 will further reduc discharged to the IWD.

The IWD was identified for a Remedial Investigation/Feasibility Study (R FFA/CO. The landfill Units were investigated in accordance with Track 2 for Assessing Low Probability Hazard Sites at the INEL. The entire NRF evaluated in the Waste Area Group (WAG) 8 Comprehensive RI/FS, which is begin in 1995.

3. HIGHLIGHTS OF COMMUNITY PARTICIPATION

In accordance with CERCLA 113(k)(2)(B)(i-v), information on the invest decision-making processes involved in the evaluation of the NRF Industri Landfill Areas was provided to the public from January through April 199 mailings, articles in the INEL Reporter, and public meetings. Opportuni these plans were provided during the public comment period from April 12 1994. A Fact Sheet and Proposed Plan were distributed to 7500 citizens calls were made, and announcements were made in the media and INEL publi infomation and scoping meetings and two open houses were also conducted. written comments were accepted.

Display ads describing upcoming meetings were published in the following Idaho Falls Post Register, Pocatello Idaho State Journal; Burley South I

Times News; Boise Idaho Statesman; Nampa Idaho Press Journal; Lewiston M and Moscow Idahonian between March 15 - 23, 1994 to encourage citizens t public meetings and provide oral or written comments. During the week o press release addressing the Naval Reactors Facility public meetings and on the investigations was released to approximately 40 media centers for the public. Articles were also published in the INEL Reporter, The INEL Environmental Restoration at the INEL, and the INEL News.

Newspaper and radio advertisements were presented the week of April 10, public of the information sessions at Pocatello and Twin Falls. Adverti two local newspapers, and radio advertisements were broadcast by six loc times a day for three days in Pocatello, Burley and Twin Falls. Two rad broadcast from Burley on April 13, 1994 and Jerome on April 14, 1994 pro on the public meetings, and the locations of the INEL regional office. release, radio, and newspaper ads) gave public notice of two scoping mee notification of the beginning of the 30 day public comment period from A 1994.

Personal phone calls concerning the availability of Naval Reactors Facil public meetings were made to individuals, environmental groups, and orga Outreach office staff in Pocatello, Twin Falls, and Boise. The Communit Coordinator made calls in Idaho Falls and Moscow.

Information sessions were held at the Pine Ridge Mall in Pocatello on Ap
the INEL regional office in Twin Falls on April 14, 1994 prior to the pu
13, 1994, representatives from the DOE, EPA, and IDHW conducted a techni
teleconference calls with members of the League of Women Voters and the
Defense Institute in Moscow, Idaho.

All media presentations gave public notice that Naval Reactors Facility
available before the beginning of the comment period in the Administrati
the INEL Information Repositories located in the INEL Technical Library
as in the city libraries in Idaho Falls, Pocatello, Twin Falls, Boise, a
announced the same information.

Open houses were held in Pocatello on April 12, 1994, and Twin Falls on
Public meetings were held in Idaho Falls on April 19, 1994, Boise on Apr
Moscow on April 21, 1994. A total of 83 people attended these meetings.
forms were available at all meetings. The reverse side of the meeting a
form for the public to evaluate the effectiveness of the meetings. A co
present at each meeting to keep a verbatim transcript of discussions and
The meeting transcripts were placed in the Administrative Record section
Reactors Facility Industrial Waste Ditch (operable Unit 8-7), and Landfi
Units 8-O5 and 8-06) in eight INEL Information Repositories.

A Responsiveness Summary has been prepared as part of this Record of Dec
formal oral comments made at the public meetings, and all written commen
verbatim in the Administrative Record. Those comments are annotated to
response in the Responsiveness Summary addresses each comment.

A total of nine written comments and six oral comments were received dur
period. All comments received on the Proposed Plan were considered duri

of the Record of Decision. The decision for this action is based on the
Administrative Record for these Operable Units.

4. SCOPE AND ROLE OF OPERABLE UNITS AND RESPONSE ACTIONS

Under the FFA/CO, the INEL is divided into ten WAGs. The WAGs are further divided into Operable Units (OUs). The Naval Reactors Facility is designated as WAG 8, and consists of nine OUs. Monitoring data, process knowledge, written correspondence, and interviews with current and previous employees were used to evaluate the IWD and Landfill Units. The Remedial Investigation/Feasibility Study on the Industrial Waste Ditch and the Track 2 Investigations of the Landfill

<IMG SRC 1094084A>

Areas evaluated the potential for contamination and migration from the soil, water, and air affected by these areas. A complete evaluation of all cumulative risks associated with the CERCLA actions at WAG 8 will be conducted as part of the NRF Comprehensive RI/FS to ensure that all risks have been adequately evaluated. This Record of Decision is part of the overall WAG strategy, and is expected to be consistent with any planned future actions.

5. SUMMARY OF SITE CHARACTERISTICS

Industrial Waste Ditch

The exterior portion of the NRF IWD (Operable Unit 8-07) extends about 5.15 kilometers (3.2 miles) to the northeast from the northwest corner of the fenced perimeter of the Naval Reactors Facility. The Industrial Waste Ditch was first used to dispose nonsewage industrial waste water in 1953. The primary component of the

Figure 2 Photograph of NRF with the Northeast from the Northwest Corner

throughout the lifetime of the IWD has been cooling water from circulati and ion exchange regenerant solutions. The ditch channel was modified a direct the original waste stream and additional discharge from the newly plant toward the dry streambed at the northwest corner of the facility. was expanded to the point 2.66 kilometers (1.65 miles) downstream from t accommodate additional effluent as the S5G prototype became operational. ditch was dredged occasionally to improve drainage, but remained within The dredged sediments were placed along the ditch banks parallel to the

Table 5-1 identifies various categories of chemicals used at the NRF dur operations, and provides an estimate of the source volume which may have to the IWD. It is uncertain if all the listed compounds entered the dit information is based on procurement records, process knowledge, and plan records.

Table 5-1 Categories of Discharges and Typical Annual Discha

Categories of Discharges to the Industrial Waste Ditch	Estimated Annual Volume (Gallons/Year)	Examples of Wa Disc
Run-off (rain and	33,000,0001	Residual oils, met

snow melt)		
Prototype and Auxiliary operations	70,000,000ý	Waste oil, water t chemical reagents, chemicals, chlorin compounds
Cooling Systems	500,000	Water treatment ch
Ion Exchange Regeneration	4,000,0003	Acidic and basic solu
Laboratory operations	1,000	Laboratory chemica including dilute m reagents, chlorina preservatives, aci
Photographic Operations	1,000	Photographic solut preservatives
Total	107,503,000	gal/year

1 Volume may range as high as 40,000,000 gallons

2 Volume may range as high as 79,000,000 gallons

3 Volume may range as high as 4,750,000 gallons

In 1980, NRF ceased the discharge of all RCRA wastes to the IWD except a ion exchange regenerant solutions, which were self-neutralizing. This c practice was part of a site improvement project, and was accomplished by hazardous chemicals with non-hazardous chemicals, collecting and properl remaining waste streams, and implementing waste control procedures. Dis

and basic ion exchange regenerant solutions continued from June 1980 thr In April 1985, a neutralization facility consisting of two 15,000 gallon installed. Acidic and basic solutions were mixed, neutralized, and disc The optimal pH control level at the facility is between 6.0 and 9.0 pH u the IWD has received only rain/snow run-off, facility discharge containi hazardous industrial waste water, neutralization tank discharges contain and bases neutralized to a pH between 6.0 and 9.0, and infrequent discha chemical solutions.

The total volume of the sediment in the IWD containing inorganic waste w 7,542 cubic meters (270,744 ft3). This corresponds to a length of 1,768 width of 4.74 meters (15.56 feet), and a depth of 0.9 meters (3 feet). surface area was calculated to be 8,380 mý (90,248 ftý).

<IMG SRC 1094084B>

Figure 3 Schematic of Operable Units Described and NRF Wells

Landfill Units

The Landfill Units (Operable Units 8-05 and 8-06) include nine separate west and northeast sides of the facility. The maximum area of the combi 0.16 kmý (1.64 x 106 ftý). The landfill units are believed to have simi wastes, migration paths, and risk factors. The wastes consisted of offi debris, cafeteria garbage, waste oils, chromate compounds, and small qua

Table 5-2 Summary of Landfill Units (8-05 and 8-06)

Area	Primary Uses/Wastes	Dates of Operation	Dimensions
8-05-1	Similar to municipal landfill; construction debris and refuse such as petroleum products, small quantities of paints and solvents, cafeteria wastes	1951-1960	107 x 137 meters (35 450'), depth of refuse 1.2-7.6 meters (4-25
8-05-51	Similar to municipal landfill; construction debris and refuse such as petroleum products, small quantities of paints and solvents, cafeteria wastes, material staging area and construction debris disposal	1957-1963	137 meters x 30.5 to 53.4 meters x 3.05-4. meters deep (450' x 100- 175' x 10-15')
8-05-59	Possible landfill/burn pit	1951-1953	22.9 x 30.5 meters (75 100'), depth estimated 6.1 meters (20')
8-06-35	Construction debris disposal	1960-1971	91.4 x 121.9 meters (300' x 400') cont
			silty soil, concrete, wood, scrap metal
8-06-36	Construction debris disposal	1960-1971	Triangular; base about 91.4 meters (300') an attitude of 152.4 mete (500)
8-06-48	Material staging area and construction debris disposal	1956-1964	198.1 (650') long x 22 to 53.3 meters wide (7 to 175')
8-06-49	Construction staging	1961-1963	106.7 meters (350') lo

	area		x 7.6 to 45.7 meters (25' and to 150')
8-06-50	Construction material staging and parking (50' to 150')	1956-1959	137.1 meters (450') lo x 15.2 to 45.7 meters pr disposal
8-06-53	Similar to municipal landfill; construction debris and refuse such as petroleum products, small quantities of paints and solvents, cafeteria wastes	1956-1970	274.3 x 365.8 x 2 to 3 meters deep (900' x 1200' x 7' to 10')

Areas recommended for the selected remedy appear in bold type.

miscellaneous chemicals from the Naval Reactors Facility. Chemicals whi have been disposed of in the landfills include low concentrations of sil nitrate in solution, which were used in laboratory analyses. A review o interviews with former employees indicate that the waste was placed in u pits, burned, and the areas subsequently backfilled. Use of the last la in 1971.

The objectives of the investigations were to determine the boundaries of depth of the cover, and the potential for ground water contamination and organic vapor release. Intrusive sampling to determine the landfill con performed due to the heterogenous nature of the landfill contents. Tabl information about the landfill units.

Records of what materials were deposited in the NRF landfills were not k records were kept of the materials shipped from NRF to the INEL Central after use of the last NRF landfill was discontinued in 1971. Since the processes used at NRF remained constant, the types and quantities of was not believed to have changed significantly over time. Therefore, these used to estimate the volumes and concentrations of wastes disposed of pr NRF landfills. In addition, historic photographs were reviewed, and emp a records search were conducted.

Table 5-3 NRF Waste Generation After 1971 and Prior Inferred Generatio Units Volume Calculation

Waste Type	Form	Average Annual Volume after 1971 (Cubic meters/year)	In Annu to m
Office trash	Solid	4,655.8	
Construction debris	Solid	1,571.2	

Municipal waste	Solid	1,090	
Waste oil	Liquid	23.8	
Paint, thinner, solvents	Liquid	0.14	
Acidic, basic, or metal-based solutions used in plant operations or analytical chemistry procedures	Liquid	2.2	1.3
Chromate solutions	Liquid	2.5	
Chemicals used for water treatment	Solid	0.6	
Totals		7,346.2	

Based on the number of major construction evolutions which were in progress
time period the NRF landfills were in use, a considerable amount of the
construction debris. After 1965, the quantity of construction debris di
decreased due to the reduced number of construction projects. In additi
of plant-related waste was generated and sent to the Naval Reactors Faci
1965, since only two prototype plants were operating. This volume of wa
conservatively estimated from later records by applying a reduction fact
provides information about waste generated after 1971, and an estimate o
generated prior to that time. Table 5-4 estimates the volume of waste d
landfill unit. For the landfills, the three waste types of concern are
chemicals. Soil gas samples were collected and analyzed for volatile or
screen for waste oils and solvents.

Table 5-4 Estimated Total Volume of Waste Disposal to NRF Landfill Units (m3)

Year	8-05-1	8-05-51	8-06-53	Total
1956	2,540		2,382	4,922
1957	2,310	230	2,382	4,922
1958	2,310	230	2,382	4,922
1959	2,310	230	2,382	4,922
1960	2,310	230	2,382	4,922
1961		230	2,382	4,922
1962		230	2,382	4,922
1963		230	3,555	7,346 3,56

1964			3,555	7,346
1965			3,555	7,346
1966			3,555	7,346
1967			3,555	7,346
1968			3,555	7,346
1969			3,555	7,346
1970			3,555	7,346
Total	11,780	1,610	45,114*	93,222
Capacity	55,O64	1,612	22,585	79,261

*Assumes this volume was reduced by 50 percent as a result of inc

Radioactivity Controls

At NRF, systems which contain radioactive liquids (e.g. reactor coolant, laboratory liquid discharge) with beta, gamma, and alpha emitting radion

physically isolated from those systems wnich discharge to the IWD. Wast radioactivity is contained in separate, monitored systems which are isol carrying other site effluents. Waste water containing radioactivity is remove the radioactivity, and reused rather than discharged to the envir systems include collection tanks, particulate filters, activated carbon bed ion exchange columns to remove radioactivity from the water. Strict procedures have been used from the start of operations at NRF to control radioactive materials.

The effectiveness of this program is demonstrated by the results of sedi vegetation samples collected through routine environmental monitoring fr results indicate that radionuclides are not a contaminant of concern for provides a summary of the routine soil, sediment, vegetation, and water radiological analysis in 1991.

Table 5-5 Summary ot Routine Radiological Monitoring at the NRF IW

	Soil (pCi/gm)			Sedimentý (pCi/gm)		Vegetation (pCi/gm)		Water (10-8 uCi	
	MEAN	MAX	SL	MEAN	MAX	MEAN	MAX	MEAN	MAX
Cobalt-60	<0.1	0.22	4	<0.38	1.18	<0.36	<0.52	<5.5	<5.
Cesium-137	025	0.49	1.3	0.36	0.60	<0.18	<O.26	5	5

pCi/gm Picocurie (1O-12 curie) per gram
SL Risk based screening level

1 < in front of a maximum value signifies LESS THAN the minimum activity (MDA). A mean value preceded by < contains at least MDA.

2 Sediment samples are collected from the A1W and S5G cooling t sewage lagoons; i.e., material which has been deposited by wa

3 Water samples are analyzed for all gamma rays with energies b MeV. This energy range includes Cobalt-6O, Cesium-137, and a other radionuclides of both natural and man-made origin. The shown for Cobalt-60 are less than the minimum detectable conc analysis, assuming all gamma rays detected had come from that

4 While no specific screening level for Cobalt-60 has been esta 137 screening level may be used for comparison, since Cobalt- shorter halflife and comparable dose conversion factors for b external exposure.

5 Cesium-137 is included in the equivalent Cobalt-60 concentrat

Since 1953, routine radiological monitoring of process water, cooling wa and buildings and grounds has been performed at NRF. Currently, water s

collected weekly from the IWD and other discharge locations, and analyze radioactivity using gamma spectrometry. All samples collected for non-r are screened for radioactivity using a gamma detector prior to leaving N radiological surveys are performed along the IWD, and sediment, soil, an samples are collected and analyzed for gross gamma radioactivity on an a five locations in the interior and exterior IWD. Cobalt-60 and Cesium-1 predominant radionuclides identfied during this analysis. These two rad to assess the presence of radioactivity during environmental monitoring are easily detectable and are present with other NRF isotopes.

5.1 Summary of Environmental Monitoring Data

5.1.a IWD Remedial Investigation Soil Samples

Sediment samples from the IWD channel were first collected for character were analyzed for chromium and silver concentrations based on process kn Detailed characterization sampling was initiated in 1986. Core samples November 1986 indicated that chromium, copper, lead, mercury, nickel, si present in the channel sediments. The only volatile organic compound pr samples was methylene chloride, which is a common laboratory contaminant eighteen soil samples were collected to determine background levels. Co dredge pile samples were collected in 1987, and analyzed for metals and constituents (chemicals which have been shown to have toxic, carcinogeni teratogenic effects on humans). Only chromium and mercury were found to concentrations above background levels.

Soil samples collected for the Remedial Investigation in 1992 were categ types; sediment samples from the ditch channel, dredge pile samples, and samples from the beneath the ditch channel and on either side at set int samples were analyzed for metals, volatile organic compounds (VOCs), sem compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, total p hydrocarbons (TPH), and benzene, toluene, ethylbenzene, and totat xylene vast majority of VOC and SVOC analyses results reported concentrations b Detection Unit (MDL); however, there were a few indications of organic s acetone, detected in some samples. All of the volatile organic values r were interpreted as resulting from laboratory background, since many of are frequently used in the laboratory or are common laboratory contamina identified contaminants were considered during risk assessment calculati

Compounds only identified in the dredge piles include one observation ea trichlorobenzene, naphthalene, phenanthrene, benzo(a)anthracene, benzo(a benzo(g,h,i)perylene, and two observations each of chrysene and benzo(b) These SVOCs are sometimes associated with coal tar and are possibly air remnants burning heavy fuel oil (#5 & #6) at the NRF boilerhouse, which heating for the site. These compounds were detected in only a few locat considered to be contaminants of concern or representative of the site. the compound pentachlorophenol were made in the dredge piles, with the c averaging 0.256 ppm. This compound is commonly used as a wood preservat have leached from the treated wood used in the cooling towers (part of t water system).

The majority of volatile organic compounds were reported at concentratio of the chemical analyses. Volatile samples reporting concentrations abo identified as resulting from laboratory or field contamination, except f ethylbenzene, and total xylene (BTEX) values reported in one ditch sedim compounds are commonly associated with gasoline and other refined petrol and their presence is viewed as an isolated occurrence from a localized further analysis of the volatile data was conducted, and no calculations compounds were made in the risk assessment.

The majority of the semi-volatile organic compounds were reported at con the MDLs. Some of the semi-volatile compounds were detected in the qual samples and the trip blanks. Because these compounds were detected in t samples, they were not included in the risk assessment. Most of the sem compounds that were detected in the IWD sediments and dredge piles are r constituent in coal tar, and were only found in one or two samples, and representative of site conditions.

Pesticide, herbicide, and polychlorinated biphenyls (PCB) analyses were samples from eight ditch sediment locations. All results were reported except for one sample which showed lindane at 0.0006 milligrams per lite was not included in the risk assessment because this one sample was not representative of the site.

Total petroleum hydrocarbon (TPH) analyses were conducted on selected sa the petroleum products found in the IWD are releases from pumps, compres turbines during normal operations. Seven sediment samples reported TPH 3,600 ppm. TPH values in background samples ranged from <10 to 27 ppm w

16 ppm. There was not a consistent decrease in TPH concentration with d discharge point. The lack of elevated BTEX concentrations indicates the are the result of longer chain hydrocarbons (e.g., motor oil, diesel, et small quantities of these constituents. This data is for general evalua since TPH does not have a health-based standard for use in a risk assess

The inorganic sample results for the IWD indicated that the constituents barium, chromium, copper, mercury, nickel, silver, and zinc. Table 5-6 results of sampling inorganics in the IWD.

Subsurface soil samples were also collected from cross-sectional borings collected from these borings had slightly elevated metals concentrations elevated metals concentrations in subsurface soils appears to be restric two, but no more than ten feet laterally from the IWD, and primarily wit the elevation of the static water level (BSWL). Occasional elevated con observed at depths of between five and 3O feet below ground surface (BGS

Three areas of the IWD displayed peak constituent concentrations which w higher than surrounding areas. These "hot spot" areas of the IWD are lo (discharge point) in the first 500 feet, downstream between 3,000 and 3, downstream between 5,500 and 6,500 feet. This appears to be the result of accumulation of metals in the sediments plus the deposition of metal remobilized by upstream dredging activities.

Table 5-6 Contaminant Concentrations in

Constituent	95% UCL of Mean Background (Normal)	95% UCL of Mean Sediment (Log Normal)	95% UCL of Mean Dredge Pile (Log Normal)	Average of 95% of UCL Sediment	Hot S 3000' to 6500' Average Hot Spot from 5500' to Sed + Dredge Pile	Dre Dredge	Comb1 Sed	Dredge	Comb1 Distribution
Barium	263.61	271.07	234.44	252.76	282.1	246.33	325.77	300.68	
Total	30.79	102.16	109.99	106.08	91.3	58.47	136.28	111.71	
Chromium Hexavalent	1	1	1	1	1				
Chromiumý									
Copper	27.02	37.96	25.32	31.64	64.4	30.05	29.53		
Mercury	0.11	1.84	0.39	1.12	1.2	1.38			
Nickel	36.66	26.21	29.58	27.9	28.5	30.32	27.36		
Silver	0.77	1.13	1.00	1.07	1.2	1.17			
Zinc	162.68	156.46	176.06	166.26	130.4				

112.48 176.69 156.42

_____

1The combined averages for the hot spots ars ths averages of all sam
equal the
average sediment value + the average dredge pile value/2 shown on this t

ýThe method detection limit is used for hexavalent chromium in soil
time
requirement. See Section 4.5 of the Final RI/FS Report for the IWD for

3The wrong laboratory analysis number was submitted with the data gr
The 95% UCL
of mean sediment values is used for risk calculation purposes.

4Mercury analysis results from these samples were rejected by the da
was used for
risk calculations.

The dredge piles did not have areas identified as "hot spots". The tota
dredge piles was estimated to be 2,972.6 cubic meters (104.976 cubic fee
area of the dredge piles was calculated to be 7.583.7 m3 (81,633 ft3).

5.1.b Landfill Units

Geophysical and soil gas surveys were conducted to determine the overall
waste disposal areas, and if they exist, the boundaries of specific tren
Magnetometer surveys were conducted in 8-05-1, 8-05-51, and 8-06-53. So
were analyzed for benzene, ethylbenzene, toluene, xylenes, and 1,1,1-tri
Portable gas detection instruments were also used to monitor for methane
gases, hydrogen sulfide, and total volatile organic compounds. Surface
collected and analyzed for inorganic constituents. A soil gas/vapor sur
was conducted over the estimated locations of the trenches as delineated
magnetometer survey.

Based on process knowledge, photographs, employee interviews, visual ins
existing analytical data, 8-06-35, 8-06-36, 8-06-48, 8-06-49, and 8-06-5
pose no unacceptable risk.

Surface Soil Gas Emissions Survey

A surface soil gas emissions survey recorded values at 10 foot intervals
locations within zero and six inches of the ground surface. No readings
the ambient air upwind concentrations, except where vapors were released
vegetation.

Soil gas surveys detected volatile organic compounds (primarily ethylben
which may be associated with solvents at 8-05-1, 8-05-51, and 8-06-53, a
the boundaries of the landfills. Benzene was not detected in any of the
and toluene was detected in four samples.

Although there were some positive detections of meta- and para-xylene at

resuts were, in general, only slightly elevated above associated blank s considerably lower than the concentrations detected at 8-05-51). This a time discharge of 50,000 gallons of waste oil. There is a large amount assoasted with the location of the disposal pit, the presence of a build suspected site location, the short duration of the disposal period, and since the occurrence of the disposal. Modeling was conducted to determi effect to ground water of a one time release of 50,000 gallons of waste hazardous constituents. The results of this modeling showed that concen representative compounds would not exceed MCLs. These results are consi conservative because eyewitness reports indicate that the contents of th days following the oil discharge (which should have significantly reduce

Soil Samples Analyzed for Inorganic Constituents

Thirty-two surface soil samples were collected from 8-06-53, and were an content. Cadmium, mercury, selenium, and silver were not detected in an samples. Arsenic, barium, chromium, and lead were detected in all sampl

samples from NRF-51 had concentrations of barium and mercury which excee background Idaho National Engineering Laboratory threshold level.

Magnetometer Surveys

Six small linear anomalies in 8-05-51 were interpreted as possible debri broad, moderate-sized anomaly zone corresponded with a visible trench ap feet deep. A section of the trench was scraped to very shallow bedrock. moderate anomaly was also associated with a shallow depression. The mag over 8-06-53 was successful in identifying possible debris-filled trench with various orientations were interpreted as representing the extent of activity at 8-06-53.

5-2 Ground Water Samples

The NRF water supply has been monitored for physical parameters (conduct radioactivity, chromium, sodium, and chloride from 1980 to the present b Geological Survey (USGS). The quality of water in all samples was withi regulatory limits; there were no out-of-specification values noted. NRF domestic water system in accordance with Title 1 Chapter 8, Idaho Regula Drinking Water Systems, from 1987 through the present. Other data has b subcontractor personnel. NRF has published the results of analysis of s the annual Naval Reactors Facility Environmental Monitoring Report. Por and 1991 reports which summarize the results of sampling for those param concern are provided as Table 5-7. Figure 5-3 shows the location of NRF and 7. Approximate locations and distances of wells downgradient from N well 97, 1.0 mile south; well 98, 2.7 miles southwest; well 99, 2.2 mile miles west; and INEL-1, 2.5 miles west southwest. Approximate locations wells upgradient from NRF are: USGS well 12, 2.5 miles north; well 15, well 17, 3 miles northeast.

Predicted Ground Water Values

GWSCREEN is a semi-analytical model used for assessment of the ground wa

from the surface to an underlying aquifer. NRF used this program to ass contaminant release from the sediments associated with the IWD and from the landfill. The limiting soil concentration is the soil concentration and transport, maximum allowable concentrations in ground water are not Maximum allowable concentrations are based on chemical toxicity, and max contaminant levels (MCLs) as listed in Title 40 Code of Federal Regulati associated amendments. The concentration in ground water is proportiona concentration (excluding solubility limited releases). Table 5-8 provid predicted ground water concentration in each Operable Unit and ground wa of each constituent of concern.

Table 5-7 Comparison of Results of Water(a)

Parameters	Units	Standard/ Guideline	Upgradient(k) (USGS Wells 12, 15, 1		Downgradient (k) Wells 6, (USGS 97, 98, 99, 102, INEL-	
			1990	1991	1991 only	1990
Ammonia plus Organic N (as N)	mg/l	(c)	<0.3	<0.20	<0.3	<0.28
Bromide	mg/l	(c)	<0.02	0.05<plus	0.05<plusmn>0.04	0.11<plusmn>0.11
Chloride	mg/l	250(b)	18<plusmn>13	16<p	41<plusmn>7.2	110<plusmn>120
Chromium	mg/l	0.05(e)	0.006<plusmn>0.003	<0.00	0.010<plusmn>0.002	0.021<plusmn>0.014
Fluoride	mg/l	4.0(e)	<0.2	0.2<plus	0.2<plusmn>0.1	<0.2
Iron	mg/l	0.3(b)	<0.082	<0.11	0.33<plusmn>0.24	<0.274
Lead	mg/l	0.05(e)	<0.001	<0.00	<0.003	<0.002
Mercury	mg/l	0.002(e)	<0.0001	<0.0001		
Nickel	mg/l	(c)	<0.001	<0.001	<0.002	<0.002
			0.011<plusmn>0.007	<0.0002	<0.002	
Nitrite (as N)	mg/l	(d)	<0.01	<0.01	<0.01	<0.01

Nitrate plus Nitrate (as N)	mg/l	10(e,f)	1.0<plusmn>0.7	0.93<pl	
Nitrogen, Ammonia dissolved	mg/l	(g)	(j)	<0.01	
Organic Carbon Total	mg/l	(c)	<0.2	0.3<plusmn>0.01	
Orthophosphate (as P)	mg/l	(c)	<0.01	<0.01	
<0.02	0.03<plusmn>0.02	<0.01	<0.01		
pH	pH Units	6.5-8.5(b)	7.9<plusmn>0.2	8.0<plusmn>0.2	
Silver	mg/l	0.5(e)	<0.001	<0.001	
<0.001	<0.001	<0.001	<0.001		
Sodium	mg/l	20(d)	10<plusmn>4	9. <plusmn>4.1	
Specific Conductance	æmho/cm	(c)	425<plusmn>130	412<plusmn>	
Sulfate	mg/l	250(b)	25<plusmn>7	23<plusmn	

(a) Values preceded by < contain at least one less than minimum detecti the analysis results.
(b) Secondary maximum contaminant levels per Title 1, Chapter 8, Idaho Public Drinking Water Systems are provided for comparison.
(c) No standard or guideline available.
(d) No maximum per Title 1, Chapter 8, Idaho Regulations for Public Dri Systems. 20 mg/l is suggested as optimum.
(e) Maximum contaminant levels per Title 1, Chapter 8, Idaho Regulation Drinking Water Systems.
(f) The limit Is for Nitrate (As N) only. Since nitrite values are nea quantities represent Nitrate (As N).
(g) The following parameter values are anomalously high for USGS Well 1 sample: Chromium - 21 æg/l; Iron - 4600 æ9/l; Manganese - 100 æ9/l

æg/l; Organic Carbon, Total - 1.5 æg/l; Turbidity - 22 NTU. Thes included in the values for the upgradient wells.
(h) Anomalously high value of 1400 æg/l reported for NRF Well 4 in th This value is not included in the values for the onsite wells.
(i) Ammonia plus organic nitrogen (as N) was not performed for NRF we
(k) Not measured.
(k) Upgradient and downgradient wells are off the map provided by Fig

Table 5-8 GWSCREEN - Predicted Peak Ground Water Concentrations and Li for IWD and Landfill Unit Constituents

Contaminant	IWD1	8-05-1

	Pradicted Peak Ground Water Concentration (mg/L)	Limiting Soil Concentration (mg/m3)	Predicted Peak Ground Water Concentration (mg/L)	Limi Predicted Peak Conc Ground Water Concentration (mg/m3)
Barium	43.6	NA	NA	2.8 X 107
Chromium+3	3.5	1.3 X 104	5.87 X 10-ý	NA 10-ý
Copper	5.6	NA	NA	NA NA
Mercury	0.2	1.8 X 10-4	3.57 X 10-6	2.2 X X 10-6
Nickel	4.1	NA	NA	NA
Silver	0.01	2.7 X 10-6	3.6 X 10-4	NA
Zinc	144	NA	NA NA	NA

NA The Constituent was not identified in the waste disposa

1 Limiting soil concentration was not calculated for the the RI/FS was available for risk calculations

2 Limiting soil concentration from GWSCREEN Version 1.5

3 Limiting soil concentration from GWSCREEN Version 2.02

5.3 Shallow Perched Water Table

Shallow perched water was only evaluated in the IWD RI/FS. During the s two deep monitoring wells and 15 shallow piezometer wells were drilled i IWD. Six of these wells encountered shallow perched water, and the rest

Samples were collected from the shallow perched water table and analyzed constituents listed in Appendix VIII of Title 40 Code of Federal Regulat Data on background water quality are not available for the shallow perch all volatile and semi-volatile organic analytes were reported at concent Primary and Secondary drinking water standards, or were interpreted as r laboratory background influences. Observed concentrations of metals in water zone were below Federal Primary and Secondary drinking water stand represent background levels. These data suggest that any impacts from t

6. SUMMARY OF SITE RISKS

The Remedial Investigation/Feasibility Study performed on the IWD evalua

risks for both human health and environmental effects in accordance with Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Ma Environmental Assessment Manual, and other EPA guidance. The risks asso Landfill Units were evaluated under the Track II Guidance. The Agencies Presumptive Remedy for CERCLA Municipal Landfill Sites was applicable to 8-05-1, 8-05-51, and 8-06-53 because they are suspected to contain waste found in municipal landfills. This assumption allows corrective action characterization of the landfill contents, and therefore, applies availa action, rather than additional investigation. Because the landfill cont characterized, assessment of the associated risk presents a large amount

The Presumptive Remedy relates primarily to containment of the landfill collection and/or treatment of landfill leachate. Although some of the associated with the Landfill Units (8-05-1, -51, and 8-06-53) were evalu (see the Summary Reports for operable Units 8-05 and 8-06) because the c units were not sampled, there is a large amount of uncertainty inherent these areas. An ecological risk assessment was not conducted for the La However, the protectiveness of the presumptive remedy chosen for these s potential risk to ecological receptors, and a detailed ecological risk a conducted in the Naval Reactors Facility Comprehensive Remedial Investig Feasibility Study.

6.1 Human Health Risks

Evaluation of human health risk included contaminant identification, exp toxicity assessment, and health risk characterization. The potential co identified based on existing inventory records, process knowledge, and i exposure assessments detailed the current and future exposure pathways t sites for workers and residents. The toxicity assessments documented th that may be caused in an individual as a result of exposure to a site co

The human health risk assessment evaluated current and future potential noncarcinogenic risks associated with exposure to the identrfied contami assessment used the exposure concentrations and the toxicity data to det indices for potential noncarcinogenic effects and excess cancer risk lev carcinogenic contaminants. The chronic hazard index for each constituen exposure route was quantified as the constituent intake through the expo by the corresponding constituent and route-specific reference dose (RfD) index less than or equal to 1.0 indicates with a high degree of confiden health effects will be experienced by any member of the general populati greater than 1.0 require further considerations and risk management deci

The excess cancer risk is the increase in the probability of contracting exposure to hazardous constituents. The carcinogenic risk multiplies ea by the route-specific slope factor. The National Oil and Hazardous Subs Contingency Plan (NCP) acceptable risk range is 1 in 10,000 to 1 in 1,00 lifetime cancer risk of 1 in 1O,OOO indicates that an individual has up of developing cancer over a lifetime of exposure to a site-related conta

6.1.1 Contaminants of Potential Concern

6.1.1.a Industrial Waste Ditch

The results of previous investigations and the Remedial Investigation fo Ditch indicated that the constituents of concern were barium, chromium, nickel, silver, and zinc. Table 6-1 summarizes the analyses results for results for mercury and chromium had the greatest deviation from the mea values, and elevated levels of silver, zinc, copper, and barium were als

Table 6-1 Summary of IWD Metals Analysis Results in Parts per Mi (ppm)

Constituent	IWD Sediment Mean	IWD Sediment 95% UCL	Dredge Piles Mean	Dredge Piles 95% UCL	NR Bac M
Barium	231.34	271.07	210.32	234.44	2
Total Chromium	69.76	102.16	51.33	1O9.99	
Copper	31.16	37.96	21.24	25.32	
Lead	9.99	11.21	10.98	11.94	
Mercury	0.74	1.841	0.20	0.39	
Nickel	21.24	26.21	27.91	29.58	
Silver	0.91	1.13	0.83	1.00	
Zinc	120.84	156.46	133.79	176.06	1

Mean The arithmetic average of the analysis results
UCL Upper Confidence Level of the mean value

6.1.1.b Landfill Units

The initial scoping of the landfill units reviewed waste generation proc disposal records from the time of the landfill operations, sampling evol during subsequent construction evaluations, and subsequent records of wa the Central Facilities Landfill. Sampling for the Track 2 evaluation fo of potential concern identified through this data collection and evaluat presented in Table 6-2. Because the volume and heterogeneity of landfil characterization extremely difficult, constituent concentrations in the assumed, although magnetometer readings were used to better define the b landfill areas. Surface contents and offgases were directly sampled.

Tetrachloroethylene and 1,1,1-trichloroethane were detected in 8-05-1 an not included in the table because they were also present in control samp was detected at 8-05-1, and m,p-xylenes and o-xylenes were detected in m samples from 8-05-1 and 8-05-51. However, because no RfDs are available they are not included in the risk assessment.

Barium and mercury exceeded the background upper tolerance limit in soil sa
05-51 and chromium exceeded the background upper tolerance limit in one
sample from 8-06-53. Chromium, mercury, and siiver were identified as c
concern in buried waste in all units, based on historical records of was

Table 6-2 Summary of Chemicals of Potential Concern in Landf
Units

Chemical	Surface Soils (mg/kg)	Soil Gas (ug/L)	Predict Concentra
8-05-1			
Ethylbenzene	NS	0.2 - 1.0	NA
m,p-Xylenes	NS	0.3 - 5.2	NA
o-Xylene	NS	0.3 - 4.8	NA
8-05-51			
Barium	94.8 - 265	NS	NA
Mercury	0.15 - 0.65	NS	NA
m,p-Xylenes	NS	0.3 - 0.5	NA
o-Xylene	NS	0.3 - 0.5	NA
8-06-53			
1,1,1-Trichloroethane	NS	1.25	NA
Tetrachloroethylene	NS	1.39	NA
Chromium	21.1 - 72.3	NS	11.8*
Mercury	NA	NS	0.52*
Silver	NA	NS	4.6*

NA - Not Applicable
NS - Not Sampled
* - Assumed

6.1.2 Exposure Assessment

The potential populations at risk were identified for current and future
Occupational exposures were determined for current and future population
exposure was considered for future scenarios. The IWD evaluation includ
agriculture, scenario, and the Landfill Units included a recreational sc
assumptions of the frequency and duration of exposures were based on bot
default values and site-specific information. The Risk Assessment Guida
(RAGS) provided many of the default values for inhalation and ingestion

water consumption. Site-specific information, such as climate and geolo

to determine exposure pathways, and values. The exposure pathways evalu
and the Landfill Units were soil ingestion, dust inhalation, and ground
IWD assessment also considered dermal exposure to surface soil and surfa
ingestion of homegrown fruits and vegetables.

6.1.2.a IWD

The constituent concentrations used in the IWD risk assessment were prov

6.1.2.b Exposure Concentrations for Limiting Soil Concentrations for Lan

Because non-intrusive sampling was utilized for the Landfill Units, the
required to perform risk assessments had a high degree of uncertainty.
potential hazards associated with the area were thoroughly understood, r
concentrations for these areas were calculated (Table 6-3). The risk ba
is that level of a constituent at which it becomes a cause for concem (s
equations for determining these risk-based soil concentrations are stand
for exposure and risk assessment with modifications to calculate a conce
medium at a specific risk level or target level.

6.1.3 Toxicity Assessment

The toxicity assessment data was obtained from the Integrated Risk Infor
(IRIS), the Heath Effects Assessment Summary Tables (HEAST), and other E
Contaminants of concern were evaluated for both carcinogenic effects and
effects. The intake of each contaminant for each receptor along each ex
calculated.

The RfD is the toxicity value used to evaluate noncarcinogenic effects t
exposure to chemicals, and is based on the concept that there is a thres
reached before adverse effects occur. For carcinogenic contaminants, th
slope factor (SF) is the toxicity value used to evaluate potential human
These toxicity values have been derived based on the concept that for an
carcinogenic chemical, there is some risk of a carcinogenic response. T
risk assessment for the purpose of estimating an upper bound lifetime pr
individual developing cancer from the exposure to a specfic level of a c

6.1.4 Risk Characterization

6.1.4 a. Industrial Waste Ditch

The levels of risk associated with background levels of contaminants in
water were calculated to provide a comparison for future scenarios. The
samples were used for both dredge pile and sediment values. Ground wate
collected from the four NRF domestic water wells by the USGS from 1989 t
used to calculate concentrations in ground water.

Table 6-3 Risk Based Soil Concentrations for Landfill Units

Pathway/Unit/Constituent	RfD	Slope	Occupational Carcinogen	Occupational Noncarcinogen
Soil Ingestion			5.7/SF	RfD*2E6
8-05-1				
Cr3	1.00E + 00			2.00E + 06
Cr6	5.00E-03			1.00E + 04
Hg	3.00E-04			6.00E + 02
Ag	5.00E-03			1.00E + 04
Ethylbenzene	2.90E-01			5.80E + 05
8-05-51				
Ba	7.00E-02			1.40E + 05
Hg	3.00E-04			6.00E + 02
8-06-53				
Cr3	1.00E + 00		2.00E + 06	
05				
Cr6	5.00E-03			1.00E + 04
Hg	3.00E-04			6.00E + 02
Ag	5.00E-03			1.00E + 04
1,1,1-Trichbroethane	5.20E-02			1.04E + 05
Tetrachloroethylene	1.1OE + 02			2.20E + 08
Inhalation of Fugitive Dust			1.4E-05*PEF/SF	RfD*5.1*PEF
8-05-1 Particulate Emission Factor = 7.60E + 08				
Cr6	4.10E + 01		2.6OE + O2	
Hg	8.60E-05			3.33E + 05
8-05-51 Particulate Emission Factor = 4.75E + 08				
Ba	1.00E-04			2.42E + 05
Hg	8.60E-05			2.08E + 05
8-06-53 Particulate Emission Factor = 2.11E + 08				
Cr6	4.10E + 01		7.20E + 01	
Hg	8.60E-05			9.25E + 04
Inhalation of Volatiles			1.4E-05*VF/SF	RfD*5.1*VF
8-05-51 Volatization Factor for Ethylbenzene			Occupational 3.77E + 03	Resident
Ethylbenzene	2.90E-01			6.20E + 03
8-06-53 Volatization Factor for 1,1,1-Trichloroethane				Volatization Fact
Occupational 1.20E + 03	Residential 1.32E + 03			Occupational 2.90
1,1,1-Trichloroethane	3.00E-01			1.84E + 03
Tetrachloroethylene		2.00E-03	2.03E-03	

A Baseline Risk Assessment was performed to determine if any unacceptabl were associated with the Industrial Waste Ditch. Risk is characterized four scenarios (current and future occupational, future residential, and receptors), and Table 6-4 summarizes the results of the IWD Baseline Ris (BRA). The risk assessment calculated risk for exposure to receptors fr whole, using 95% upper confidence level of the mean soil concentration, of the IWD which may have elevated metals concentrations in comparison t values ("hot spots") to ensure these calculations were truly protective three hot spot areas are identified as outfall to 500', 3000' to 3300', many cases, the risks are probably overestimated due to the conservative assumptions. An example is assuming that residents are exposed to airbo 350 days a year.

The risk of cancer in all scenarios, including background, exceeded the 10-6 due to the consideration of inhalation of hexavalent chromium in gr of the lack of sampling data for hexavalent chromium in ground water, th hexavalent chromium was considered equal to the total chromium value.

In conclusion, although there may be some health risk associated with th the risk is not significant when compared to the background risk, and co conservative nature of the estimate.

Table 6-4 Summary of Baseline Risk Assessment for the IWD

	Current Occupational Hazard	Risk	Future Occupational Hazard	Risk	Future Hazard
Background	0.0557	165E-06	NA	NA	0.74
95% UCL	0.057	165E-06	0.0696	1.66E-06	1.37
Outfall to 500'	NA	NA	NA	NA	1.32
3000' to 3300'	NA	NA	NA	NA	1.99
5500' to 6500'	NA	NA	NA	NA	1.94

6.1.4.b Landfill Units

The evaluations performed in the Track 2 investigations of the Landfill there may be an unacceptable risk to future receptors from Landfill Unit O6-53 based on the results of soil gas surveys, surface soil samples, an Landfill sites 8-06-35 8-06-36, 8-06-48, 8-06-49, and 8-06-50 were evalu data and historical information, and it was determined that these areas material and equipment staging areas, and there was no unacceptable risk

6.1.5 Uncertainties and Limitations

Uncertainties are associated with all estimates of cancer and noncancer These uncertainties result from incomplete knowledge of many physical an processes, such as carcinogenesis. Where specific information is not av necessary to make assumptions and/or use predictive models to compensate information. The assumptions, models, and calculations are chosen so th

and hazard estimates are protective of human health. However, these ass result in a conservative estimate of risk.

6.1.5.a Industrial Waste Ditch

Residential scenarios assumed that receptors consume homegrown products day for 30 years and methylmercury would be present in future scenarios. because it does not account for the consumption of commercially prepared difficulty in converting inorganic mercury to methylmercury. The risk a assumes that the receptor inhales hexavalent chromium during showering, unlikely, and the toxicity data for the inhalation of hexavalent chromiu particulates from industrial processes, rather than a residential exposu

6.1.5.b Landfill Units

The uncertainty associated with the identification of organic chemicals this site is considered high. However, since it was assumed that the pr landfills (EPA, 1993) was going to be used at this site and this would r restrict access, and preventing contact with landfill contents, the sour additional chemicals of concern was not investigated. Assumptions inclu reduction in waste volume during incineration, and that metals contamina distributed throughout the landfill mass. Other uncertainties associate 59 were the location of the disposal pit, the presence of a building ove suspected site location, the short duration of the disposal period, and since the occurrence of the disposal.

6.2 Environmental Risk Assessment

6.2.1 Exposure Assessment

6.2.1.a IWD Qualitative Ecological Risk Assessment

The ecological risk assessment qualitatively evaluated the potential eco associated with the presence of the Industrial Waste Ditch. This invest in accordance with the EPA Risk Assessment Guidance for Superfund Volume ecological risk assessment identified sensitive nonhuman species, and ev same exposure pathways and contaminants as the human health assessment.

There is no evidence of sensitive plants in the IWD vicinity. The close sensitive plants to the IWD involves a tree-like Oxytheca (Oxytheca dend population of interest is located approximately six miles south of the I INEL Central Facilities Area (CFA). From the perspective of the ecologi endpoint, the risk posed to sensitive plants by the IWD appears to be ne

The only metals in the soil significantly above background are chromium sensitive species, such as raptors, to receive significant exposure, met from the soil to plants, the plants ingested by the small mammals, then consumed by the raptors. The uptake level of chromium and mercury is 15 percent, respectively. When the plant is eaten by the small mammal, it between 5 - 20 percent of the metals content from the plant to the anima between metal concentrations in plants and algae at the IWD with those o the control site at Mud Lake indicate that the IWD does not represent a risk through this segment of the food web than background areas.

The IWD poses no significant risk to sensitive plants at the INEL, since of these plants to the ditch is known. The risk posed to sensitive anim small, but is less well defined, since the animals are mobile. Comparis concentrations in IWD plants and in plants from a control area indicate responsible for a significantly greater risk through this segment of the web segments, as well as other exposure pathways, have not been quantifi available data.

6.2.1.b Lanfill Units

An ecological risk assessment was not performed as part of this evaluati risk will be assessed in the Naval Reactors Facility Comprehensive Remed and Feasibility Study.

7.0 DESCRIPTION OF NO ACTION DECISIONS

On the basis of the results of the human health and ecological risk asse for the RI/FS, it was concluded that there are no unacceptable risks ass Therefore, the DOE has determined that no remedial action is necessary f

In addition, the DOE has determined that no further action is needed for 35, -36, -48, -49, and -50. On the basis of the Track 2 evaluations, it significant sources of contamination exist at these sites. Consequently these sites pose no unacceptable risks to receptors, and therefore, no r necessary.

The EPA approves of these no action decisions, and the IDHW concurs. Bo the IDHW have been involved in the development and review of the RI/FS a reports, the Proposed Plan, this ROD, and other project activities such

The remainder of this ROD discusses landfill units 8-05-1, -51, and 8-06 may pose unacceptable risks to receptors, and thus require remedial acti

8.0 DESCRIPTION OF ALTERNATIVES

8.1 Remedial Action Objectives

The purpose of remedial action objectives (RAOs) is to set measureable g of human health and the environment. RAOs were not developed for the IW unacceptable risks to human health or the environment were found. RAOs

for the three Landfill Units (OUs 8-05-1, 8-05-51, and 8-06-53) at which taken.

The primary remedial action objective is to contain the landfill content associated with potential contact of the contents with ground water. Th were not sampled or characterized. Consequently, it was difficult to ac risk to future receptors. Development of the RAOs was guided by, and co Presumptive Remedy for CERCLA Municipal Landfill Sites. The Presumptive that containment be accomplished by installing a cover to reduce permeab land use restrictions to preserve the cover.

8.2 Summary of Alternatives for Landfill Units

The presumptive remedy for landfills (EPA, 1993) which requires monitori access, and prevention of contact with landfill contents will be used to receptors. General Response Actionss (GRAs) have been assembled into a action alternatives designed to represent a range of options. The remed developed include:

Alternative 1: No Action

Alternative 2: Containment with Native Soil Cover

Alternative 3: Containment with Single Barrier Cover

The following descriptions of the remedial action alternatives explain t assembly of GRAs into specific alternatives.

8.3 Alternative 1: No Action

Alternative 1 is required for consideration by NCP 300.430 (e)(6) as a b Under this alternative, the landfill contents, would be left in place. would be performed for the no action alternative under the Federal Facil Consent Order (FFA/CO).

8.4 Alternative 2: Containment with Native Soil Cover

This alternative involves the containment of landfill contents by coveri cover. There are four components of this alternative: obtaining a deed each landfill area; monitoring; and performing operations and maintenanc cover. (1) A deed restriction would be obtained for each area, includi beyond each landfill boundary to protect the integrity of the cover. Th and use of the property. The area would be surveyed and signs would be of the presence of the landfill and potentially contaminated soils. (2) be capped using conventional construction equipment to ensure a native s thick covers the entire landfill area to prevent contact with the conten potential for infiltration. The 24 inch thick cover is the minimum land soil cover would be graded, and natural vegetation planted to stabilize promote evapotranspiration, and decrease erosion of the soil cover. (3) would be performed to assess the effectiveness of the cover, and ground

would be performed to assess these areas and other areas at NRF. (4) P and maintenance would be performed to ensure the integrity ot the landfi

8.5 Alternative 3: Containment with Single Barrier Cover

Alternative 3 includes the same components as Alternative 2 except that consist of a single-barrier cover composed of a 12 inch layer of compact inch clay layer, and at least a 24 inch protective layer of vegetation a Conventional construction equipment would be used to cap the landfill. would be planted to stabilize the soil surface, promote evapotranspirati erosion of the soil cover.

9.0 SUMMARY OF COMPARATATIVE ANALYSIS OF ALTERNATIVES

Each remedial alternative must be compared according to nine evaluation as a basis for conducting the analysis of alternatives, and for subseque appropriate remedial action. The evaluation criteria are divided into t threshold criteria that relate directly to statutory findings and must b alternative; (2) primary balancing criteria that include long and short implementability, reduction of toxicity, mobility, and volume, and cost; criteria that measure the acceptability of the alternatives to State age community. The following sections summarize the evaluation of each reme according to these criteria.

9.1 Threshold Criteria

The remedial alternatives were evaluated in relation to the threshold cr protection of human health and the environmental, and compliance with AR criteria must be met by the remedial alternatives to be considered as po

9.1.1 Overall Protection of Human Health

The remedial alternatives for the Landfill Units were assessed to determ protect human health and the environment. Protection is determined by a the risks associated with each exposure pathway are eliminated, reduced, through treatment, engineering controls, or institutional controls.

Alternative 1, the No Action Alternative, would not satisfy the criterio human health and the environment. Alternative 2, Containment with Nativ Alternative 3, Containment with Single Barrier Cover, satisfy the criter both alternatives protect human health by potentially reducing the level migration to the ground water and the release of contaminants to the atm amount of reduction under Alternatives 2 and 3 is unclear because the po contaminants may be affected by factors other than moisture infiltration landfill.

9.1.2 Compliance with ARARs

The selected remedial action must comply with identified substantive app under Federal and State laws. Remedial actions must also comply with la that are not directly applicable, but do pertain to situations sufficien encountered at the site, so that use of the requirements is well suited Determining compliance with ARARs requires evaluation of the remedial al compliance with chemical, location, and action-specific ARARs.

The ARARs for Alternatives 2 and 3 are identified in Tables 11-1 and 11- meet the identified ARARs through engineering controls and operating pro Action alternative for the landfills is for comparative purposes only, a ARARs.

9.2 Balancing Criteria

Each alternative that satisfies the threshold criteria is evaluated agai criteria. The balancing criteria include: (1) long-term effectiveness reduction of toxicity, mobility, or volume through treatment; (3) short- implementability; and (5) cost.

9.2.1 Long-Term Effectiveness and Permanence

This criterion evaluates the long-term effectiveness of the alternatives protection of human health and the environment.

Alternatives 2 and 3 prevent direct contact with contaminated soils, and migration of contaminants from soils and landfill contents to the ground alternatives do not, however, provide permanent treatment. The covers p alternatives would be equally effective in the long-term with proper mai

and land use restrictions. The No Action Alternative provides the lowest effectiveness and permanence because it does not provide recovery or mea the migration of contaminants to the ground water.

9.2.2 Reduction of Toxicity, Mobility, or Volume Through Treatment

This criterion addresses the statutory preference for selecting remedial treatment technologies that permanently reduce toxicity, mobility, or vo substances.

Alternatives 2 and 3 reduce the mobility of contaminants by restricting water through the landfills. The alternatives do not, however, reduce e volume of contaminated soils, or treat any of the contaminants. The No provides no reduction in toxicity, mobility, or volume of the contaminan

9.2.3 Short-Term Effectiveness

Short-term effectiveness addresses the effects of each alternative durin implementation phase until remedial action objectives are met. The alte

with respect to their effects on human health and the environment during the alternative.

Both Alternative 2 and Alternative 3 will require a significant level of install a cover over the landfill units. Alternative 2 would require le Alternative 3 and therefore, provides greater short-term effectiveness. Alternative ranks the highest under this criterion because it requires n activities, and does not result in additional hazards to human health or

9.2.4 Implementability

The following three factors must be evaluated under the implementability technical feasibility; (2) administrative feasibility; and (3) the avail materials.

Alternatives 2 and 3 are both highly implementable because they use esta and materials. Alternative 2 is considered more implementable because t construction activity and soils may be available locally.

9.2.5 Cost

Evaluation of project costs requires an estimation of the net present va and operation and maintenance costs. The costs presented are estimates. could vary based on the final design and detailed cost itemization. Tab cost estimates for each Altemative.

Table 9-1 Cost Estimate for Alternatives for Landfill Units

Alternative	Sample Collection and O & M ($)	Deed Restrictions1 $	Monitoring Well Installation1 ($)	Exc Ca

Alternative 1	NA	NA	NA	
Alternative 2	21,400 2	12,000	800,000	379,000 3
Alternative 3	21,400 ý	12,000	800,000	6,3 379,000 3

NA Not Applicable

1 These are one time only costs to conduct the work in 1994 and have to be amortized.

ý These costs are costs associated for 1994 only, time value of are used to determine 30 year cost.

3 This is the life cycle cost for 30 years of operation and 5% d

4 The total cost is an upper-limit cost estimate. The actual co be less than these values, and will be determined during the R Design/Remedial Action (RD/RA) phase.

9.3 Modifying Criteria

The modifying criteria are used in the final evaluation of remedial alte modifying criteria are state and community acceptance. For both of thes that are considered include the elements of the alternatives that are su of the alternatives that are not supported, and the elements of the alte strong opposition.

9.3.1 State Acceptance

The IDHW concurs wffh the selected remedial alternative for the Landfill Section 10.0. The IDHW has been involved in the development and review report, the Proposed Plan, this ROD, and other project activities such a Comments received from IDHW were incorporated into these documents, whic issued with IDHW concurrence.

9.3.2 Community Acceptance

This assessment evaluates the general community response to the proposed presented in the Proposed Plan. Specific comments are addressed in the Summary (Appendix A) of this document.

10.0 SELECTED REMEDY

The results of the investigations of OU 8-05-1, 8-05-51, and 8-06-53 sho not fully characterized, and that some future unacceptable risk may exis of potential contaminants from the landfills to the Snake River Plain Aq intruction into the landfill contents. The selected remedy for these Op the installation of a native soil cover designed to incorporate erosion reduce the effects from rain and wind. The selected remedy provides for

landfill covers, including subsidence correction and erosion control. M landfills will include sampling of soil gas to assess the effectiveness sampling the ground water to evaluate these areas and other areas at NRF concentrations. The Agencies will continue to review this action within every five years thereafter. Institutional controls (access/land use re public access, posting signs, and erecting and maintaining barriers) wil prevent direct exposure to the landfill contents. Short-term risks will minimized during implementation of the selected remedy.

The selected remedy provides a barrier against direct contact, restricti land use, and early detection of potential contaminant migration.

The remediation goals for the landfill areas were developed in accordanc CERCLA Landfill Guidance (EPA 1991). These goals include preventing dir landfill contents, and meeting all ARARs.

11. STATUTORY DETERMINATION

Remedy selection is based on CERCLA, as amended by SARA, and the regulat contained in the NCP. All remedies must meet the threshold criteria est protection of human health and the environment, and compliance with ARAR requires that the remedy use permanent solutions and alternative treatme the maximum extent practicable, and that the implemented action must be Finally, the statute includes a preference for remedies that employ trea and significantly reduce the volume, toxicity, or mobility of hazardous principal element. The following sections discuss how the selected reme statutory requirements.

11.1 Protection of Human Health and the Environment

As described in Section 10, the selected remedy satisfies the criterion human health and the environment by minimizing the risk of potential con to ground water and by preventing direct contact with the landfill waste remedy will ensure that cumulative risks are maintained within the NCP r

11.2 Compliance with ARARs

The selected remedy of containment with a native soil cover with vegetat to meet all ARARs of Federal and State regulations. The ARARs that will selected alternative are described in Sections 10.2.1 and 10.2.2.

11.2.1 Chemical-Specific

No chemical-specific ARARs are identified for the selected remedy.

The future concentrations of inorganic contaminants in the groundwater a below the risk-based concentrations as determined by the GWSCREEN modeli However, due to the uncertainty regarding the source term (regarding bot inorganic constituents), long-term monitoring of the ground water and la provide early indications if migration of contaminants occurs. The soil not exceed any known soil contamination standards.

11.2.2 Action-Specific

The selected remedy triggers the applicable or relevant and appropriate requirements listed in Table 11-1. Although 40 CFR 258 is also appropri Units, the more rigorous requirements for Hazardous Waste Management Uni in this instance due to the uncertainty in the types of wastes disposed.

11.2.3 Location-Specific

The selected remedy will trigger ARARs under the Archeological Resources Archeological and Historic Preservation Act, and Preservation of America These acts are applicable to the remedy since the cultural resources mus

additional native soil from another site is needed for the installation Table 11-3 provides a description of the pertinent ARARs.

Table 11-1 Federal and State Action-Specific ARARS tor Landfill

Regulation	Title
40 CFR 264.310 (RCRA Subtitle C)	Closure and Post-Closure Care
IDAPA 16.01.05.008	Closure and Post-Closure Care
IDAPA 16.01.01.650 - 01651	Rules for Control of Fugitive Dust and General Rules

Table 11-2 Federal and State Location-Specific ARARS for Landf Units

Regulation	Title	Categ
36 CFR 8OO	Protection of Historic and Cultural Properties	Applic
43 CFR 7	Protection of Archeological Resources	Applic

11.2.4 To-be-Considered Guidance

In implementing the selected remedy, the agencies have agreed to conside procedures or guidance documents that are not legally binding. The foll documents are to be considered as guidance documents:

- OSWER 9234.2-04FS, October 1989, "RCRA ARARs: Focus on Closure Requirements";
- OSWER 9476.00-1, September 1982, "Evaluating Cover Systems for S Hazardous Waste" (Revised).

These OSWER directives provide additional guidance on the design specifi constructing and maintaining a cover system.

11.3 Cost Effectiveness

The selected remedial action is cost effective because it is protective environment, achieves ARARS, and its effectiveness in meeting the remedi proportional to its costs.

11.4 Use of Permanent Solutions and Alternative Treatment Technologies t Maximum Extent Practicable

The selected remedy represents the maximum extent to which permanent sol treatment technologies can be utilized in a cost-effective manner. In a EPA's Presumptive Remedy for CERCLA Municipal Landfill Sites, the select provides protection by minimizing the risk of contaminant migration to t access to the landfill contents. Presumptive remedies, such as the cont selected for the landfill units, are based on historical patterns of rem scientific and engineering evaluation of performance data on technology similar sites.

Implementation of the selected cover remedy will reduce the mobility of substances, pollutants, and contaminants from the landfill units to the cover remedy does not employ alternative treatment or resource recovery use of alternative treatment technologies was determined to be impractic availability and applicability of a presumptive remedy.

11.5 Preference for Treatment as a Principal Element

The statutory preference for remedies that employ treatment as a princip met. Extraction and treatment of the landfill contents is not considere means of reducing the risks to human health and the environment. The id be reduced to acceptable levels by implementing the presumptive remedy. which includes containment, monitoring, and land use controls, is based patterns of effective risk reduction.

12. DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes have been made from the recommendations presented Proposed Plan.

APPENDIX A: RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

Overview

A Remedial Investigation of the Naval Reactors Facility Industrial Waste 8-07) was performed due to known discharges of waste water containing or inorganic constituents. Track 2 investigations were performed on nine s landfill areas (operable Units 8-05 and 8-06) based on past disposal pra similar to those found in municipal landfills. The Proposed Plan was re on April 9, 1994, with a comment period from April 12 to May 12, 1994. summarized remedial action alternatives for the two different types of i the first to include Track 2 investigations for public comment. The age each Track 2 site would need to be presented in a Proposed Plan in order decisions on Track 2 sites. Agency representatives proposed no action f Waste Ditch and, based upon cleanup remedies used at similar sites, reco containment of three historical landfill areas.

This Responsiveness Summary recaps and responds to the comments received comment period. In general, comments supported the selected alternative commentors offered suggestions on cleanup methods for the Track 2 invest considered during the remedial design phase. A few comments opposed imp the preferred remedial alternatives, but supported an action of some typ were submitted in writing during the comment period and verbal comments during public meetings held the week of April 18, 1994.

Community Involvement Highlights

Informative Publications

The March issue of the INEL Reporter contained an events calendar highli involvement activities scheduled for the Naval Reactors Facility.

The INEL Citizens Guide to Environmental Restoration at the INEL contain projects at the Naval Reactors Facility and was distributed on April 9,

An informative update on the investigations completed at the Naval React provided through an update fact sheet on both the Industrial Waste Ditch The fact sheets were distributed to approximately 7,500 citizens via the Relations Plan mailing list on March 17, 1994, and conveyed general info public involvement opportunities.

In March 1994, the INEL News, a newspaper distributed to all employees, concerning the Naval Reactors Facility Proposed Plan and associated publ

Notice of Availability

The first public informational meetings ever held concerning environment investigations performed at the Naval Reactors Facility were announced i Availability display ad. Display ads were published in eight major Idah March 15 and March 23, 1994: the Post Register in Idaho Falls, Idaho St

Pocatello, South Idaho Press in Burley, Times News in Twin Falls, Idaho Idaho Press Tribune in Nampa, Lewiston Morning Tribune in Lewiston, and Moscow. Personal telephone calls were made to key individual stakeholde

groups, and community organizations from INEL regional offices in Pocate Boise, and Moscow.

Press Release

During the week of March 27, 1994, a press release regarding the Naval R public meetings and general information on the investigations was releas 4O media centers for dissemination to the public. Also during this time press release was sent to INEL employees.

Information Sessions/Briefings

Prior to holding the public meetings, information sessions were held at Pocatello on April 12, 1994, from 10 a.m. to 9 p.m., and the INEL region on Aprli 14, 1994, from 10 a.m. to 7 p.m. Representatives from the Depa Environmental Protection Agency Region 10, and Idaho Department of Healt attended these events to discuss the project and answer questions. On A agency representatives conducted a technical briefing via a teleconferen of the League of Woman Voters in Moscow and the Environmental Defense In

The Community Relations Plan coordinator and INEL Twin Falls regional of participated in two radio talk shows; talk shows were broadcast from Bur from Jerome on April 14, 1994. Topics covered during the radio shows in on the public meetings, how the public could obtain information on the p the local INEL regional office, and other upcoming public involvement op

Newspaper and radio advertisements regarding the information sessions at Twin Falls were run during the week of April 1O, 1994. Advertisements w local newspapers and radio advertisements were broadcast by six local st Pocatello, Burley and Twin Falls for three days - five times a day at ea

Public Meetings

Public meetings on the Naval Reactors Facility Industrial Waste Ditch an areas were held in Idaho Falls on April 18, Boise on April 20, and in Mo 1994. A total of 83 people attended the public meetings. Display sessi locations from 10 a.m. to 9 p.m., and informal discussion periods preced meeting. Representatives from the Department of Energy, Environmental P Region 1O, and Idaho Department of Health and Welfare attended the meeti the project and answer questions. Project managers were also available or provide detailed information during the informal discussion periods a public meetings. Each public meeting was recorded by a court reporter.

Newspaper advertisements regarding the public meetings were placed in on newspaper in Boise, Moscow, and Idaho Falls the week of Aprii 18, 1994. advertisements were also run by nine local radio stations in Boise, Mosc during the week of April 18, 1994 for three days - five times a day at e

Public Comment Period

The public comment period on the Proposed Plan for the Naval Reactors Fa from April 12 to May 12, 1994. No requests to extend the public comment

received. A total of nine written comments and six verbal comments were
the comment period for both projects presented in the Naval Reactors Fac
No oral comments were received during the information sessions in Pocate

This Responsiveness Summary has been prepared as part of the Record of D
comments, as given at the public meetings, and all written comments, as
repeated verbatim. If appropriate, individual comments have been furthe
categorized in order for DOE to address specific issues raised by each c
matrix is provided that associates the numbered comment in the Responsiv
to the commentor. The Department of Energy has provided a response to e
and or issue raised by the commentors. If the comment impacted the agen
outlined in the Record of Decision, this fact is highlighted and impacts

The Naval Reactors Facility Record of Decision presents the No Action al
Industrial Waste Ditch, the presumptive remedy of containment for three
No Action for six landfill areas. The decisions meet and satisfy the in
Comprehensive Environmental Response, Compensation, and Liability Act, a
the Superfund Amendments and Reauthorization Act. The decision for thes
based on information contained in the Administrative Record.

Copies of the proposed plan and the entire Administrative Record are ava
in six regional INEL information repositories: the INEL Technical Libra
University of Idaho Library in Moscow; Shoshone-Bannock Library in Fort
regional offices located in Pocatello, Twin Falls, and Boise.

Summary of Comments Receivea During Public Comment Period

Comments on both the Naval Reactors Facility Industrial Waste Ditch and
submitted during the entire comment period are addressed and categorized
sections below. Responses address issues pertinent to the IWD and Landf
Alpha/numerical characters contained in brackets after the comment relat
the commentor in the matrix provided in Appendix B.

Naval Reactors Facility Industrial Waste Ditch

General Comments on Proposed Alternatives

General Background Information on the Naval Reactors Facility

1. Comment: The way these systems operate is that when you put water i
most of it seeps in the ground. A little bit evaporates,
percent or less evaporated. Most of it infiltrates into t
down through the sand, gravel, silt, and clay down to the
basalt.

And while basalt in itself is highly permeable, some of th
permeable rocks any where in the country, the top of the b
spreads the water out, contrary to your drawing which was
But it spreads the water out, and the perched water is abo
not in the top of the basalt.

It spreads it out, which is a really good system because t as the water moves through, removes a lot of the contamina then spreads out and seeps down in much smaller quantities can be perched on other sediment beds within the basait be each one of these helps remove contaminants. And so the s a lot of natural cleanup just during the operation of it.

And the fact that the aquifer is like 365 feet below there with a lot of these processes to attenuate the waste. And monitoring we have done over the past 30 years in the Snak Plain Aquifer below Naval Reactors Facility has only shown sodium and chloride principally and a little bit of nitrat doesn't show any of the heavy metals. And so the system h operated over the years, you already have the conclusion t not many contaminants going down. (T-I3)

And I carried a deal in the legislature this year that to the first in Idaho that introduces the fact that risk is a looking at any contaminants. We'll never be able to affor all the waste to what Lewis and Clark would have found had

a well there. But we need to spend our money wisely and a in what is the risk to humans with these contaminants. (T

And so I strongly support the No Action alternative with And then when NRF is ever closed, I would use some native and fill it in. (T-I9)

Response: The agencies appreciate the time and effort that the comme evaluate the material, attend the presentations, and provi on the information. Visual aids used in future presentati reviewed in detail to ensure that they are more representa conditions.

Risk Assessment

2. Comment: While the hazard index ratings of 1.2 and 1.3 are indicati fruits and vegetables, etc., are grown in the area and per consumed these materials. The probability of this means o extremely small due to the arid climatic conditions which area unsuitable for farming and due to the fact that acces Previous irrigation attempts under the Powell project in 1 showed insufficient water reserves for surface irrigation land that is involved.

I am concerned however that the tack taken by the Environm Protection Agency is overly conservative and costly in tha considered the associated risks based on methyl mercury (a form of mercuric compound frequently found in grain treatm fungicide and rodenticide). While this is a hazardous mat the form of mercury that is involved in the NRF ditch. Th areas in the western United States where mining activities

contaminated soils with non-organic forms of mercury. Ele mercury or nitrated forms such as found in the ditch shoul risks applied which are applicable to their type as oppose non-related methyl mercury. When one looks at the broad o the many mining sites, which may require cleanup, the util incorrect compounds in the figuring of associated risk fac translate into excessive costs. When this is multiplied b locations it demonstrates a callous lack of prudence and f responsibility towards the taxpayers. (W-I25)

Response: The species of mercury was not identified in the laborator The methylmercury form was used for risk assessment purpos two reasons; microorganisms in an aquatic environment can inorganic mercury to methylmercury, and the risk assessmen is conservative by nature. The uncertainties of the calcu presented in Section 6.5 of the Remedial Investigation rep used by risk managers to reach the no further action decis EPA guidance provides a process for obtaining toxicologica

on substances. such as inorganic mercury, when information available in the published sources. If the risk calculati an unacceptable risk, then the uncertainty and conservatis been reduced with more specific information. However, una risks were not shown using the conservative assumptions. further refinement of the species of mercury present was n

3. Comment: Assessment and planning seem exceptionally thorough and we Too much reliance on computer modeling, unless assumptions technical basis are periodically reevaluated based on actu inspection, can be very misleading and result in gross err (W-B6)

Response: The commentor is correct that modeling alone should not be Modeling is used to standardize assessments and predict fu impacts from potential releases. The selected remedy incl monitoring and periodic evaluations (every five years) of actions to ensure early detection of any potential migrati contaminants and periodically assess modeling results.

No Action Recommendation

4. Comment: As far as the ditch project goes, I would much rather see evaporation pond being used for on-site discharges, becaus have...I would not like to see continued washing leachate those contaminants that are already in that ditch and the introducing more contaminants into the ditch. (T-M1)

Response: Field investigations indicate that there is little leachin time, and the Baseline Risk Assessment determined that the unacceptable risks. The agencies have determined that the potential for migration does not warrant the need for addi Additionally, the shut down of two of the three prototype

significantly reduced the volume of water discharged to th Waste Ditch because most of the discharge was cooling wate prototype plants. The planned shut down of the remaining plant will further reduce the discharge.

5. Comment: I'd like to come back to the industrial waste ditch and th recommendation. I'm still struggling with the implied...o that it's okay to have continued six million gallons per y which presumably would consist largely of site runoff and continuing to go through this area. To me, I guess, I'd h little bit more about the costs involved if possibly reloc site runoff could go versus leaving it here. If it costs dollars to relocate it, why not relocate it versus--you kn million dollars to relocate it so it no longer runs throug ditch, why, that's a different story. So I guess it's a q

geography is and what it would cost to convince the runoff somewhere else. (T-M7)

Response: The NRF site drainage flows naturally to the northwest cor the outfall of the Industrial Waste Ditch. In order to re a new run off collection system would be required which wo excavation and installation of at least 2,000 feet of pipi stations. Creation of a new discharge point would cost in million. Because the Remedial Investigation showed that c levels are only slightly above background levels, and the assessment determined that there is no significant health environmental risk present, these additional costs would n

6. Comment: Four comments (three written and one verbal) agreed with t Action Alternative for the NRF Industrial Waste Ditch. (W I11, T-I12)

Response: The Agencies appreciate the time and effort that the comme to evaluate the material, attend the presentations, and pr comments on the information.

Naval Reactors Facility Landfill Units

General Comments to Proposed Alternatives

7. Comment: Several years ago DOE-ID created a large gravel pit about of NRF along the road way to Test Area North. It is locat the Big Lost River bridge on the west side of the road as north. Gravel mining stopped as the lacustrine clay layer Ancient Lake Terreton were encountered. The utilization o for the cover of the landfills serves several purposes:

1. It avoids natural surface disturbance of additional ar site, hence larger amounts of forage and native grasse remain for wild life. Environmental impact for this a already been determined and money could be saved by re

this same area.

2. It provides a short haul path for materials to NRF the tax dollars. I would estimate that it could be accomp within the $2 million budget estimate of option #2.

3. It provides a clay and silt content greater than nativ tend to be largely alluvial gravels and loess type mat would improve the impervious nature of the cap.

4. The final closure of the pit could be done with a port clay materials and thereby sealing the bottom of the p would transform a dry pit into a water storage reservo to the Big Lost River.

During high-water years when there is flow in the Big Lost gravel pit basin could be filled and provide a 20 to 25-fo While the INEL area near NRF area has about an 8 to 9-inch rainfall, the evaporation rate is about 3 to 4 times that in a net evaporation loss of about 2 feet per year. A pon could provide a wetland environment for migrating waterfow watering hole for wildlife. With the depth created, it co carry-over for several years. Some funding offset may be under wetland improvement programs or Idaho state wildlife improvement programs.

With the downsizing of NRF and the reduced flows of sewage lagoons, and reduced industrial waste ditch flows, the ava ditch for wildlife watering will diminish. Remediation of a pond could provide the needed transitional establishment water source.

Currently, the state of Idaho is paying deprivation money to the north as antelope and other wildlife seek forage an farmers irrigated acreages. This is largely caused by DOE of the Big Lost River to diversion areas near the Big Sout Upstream irrigation uses of the water have also contribute of this traditional water source for wildlife. Nowadays w flows to the traditional "sink" areas of the playas where migrated for centuries.

By using this pit I feel that the following can be accompl

a. Costs could be controlled
b. An improved product could be delivered
c. Another dry hole in the desert will not be formed
d. It provides the DOE the opportunity to finally do some positive for the environment. (W-I13)

Response: The gravel pit described in the comment will be considered of material during the engineering evaluation and design o covers. The landfill covers will consist of native soil,

factor is the permeability of the cover material. The pri of the cover are to prevent direct contact with the landfi reduce infiltration, which can be effectively done with na which meets the design criteria at a minimum cost can be f to the landfill areas than the referenced gravel pit, it w landfill cover. Other cost factors indude excavation, tra contouring, compaction, and revegetation. Although the cr pond may improve the wildlife habitat in the area, it is u outside the scope of this remedial action. The commentors

suggestion will be shared with the INEL organizations resp evaluating wildlife habitat.

8. Comment: As far as the characterization, that is, the self-characte constituents in the landfills, I'm real dubious of that pa the context of what's going on right now when the Navy has nearly two years to release its worker exposure and dosime to the National Centers for Disease Control that's conduct dossier construction study of workers on the INEL site and effective off-site populations. You know, when the Navy i stunts like that and refusing to release those records for studies, I'm a little bit concerned when there's not an in assessment of some of those records of material that may h into those landfill sites. That's it. (T-M14)

Response: The Agencies acknowledge that the contents of the landfill not fully characterized. Available historical information estimate the landfill contents. However, because of the u involved, the agencies support the selected remedy, which monitoring. The full characterization of a heterogenous s that found in municipal landfills is a costly and difficul stated in the Investigation Reports, Feasibility Study, an Decision, the Agencies believe that Government funds are b on remedial actions rather than further characterization. remedy is designed to control and monitor any releases fro

9. Comment: Regarding the Naval Reactors Facility Industrial Waste Dit areas, I have read the three remedial alternatives and I r none of the alternatives be used. Too much risk in assumi the alternatives could be successful.

Use the same logic as used in the disposal of underground gasoline tanks (this portion of statement was unreadable d damage to the response form in the mail)...By EPA and All. There will be no deviation, no changes, regardless. The s decisions should be used on landfill units.

The Federal Govemment caused the problem, they should repl land like it was originally. (W-I18)

Response: The methodology used for the assessment of the NRF Landfil the Presumptive Remedy for CERCLA Municipal Landfill Sites

method of capping and monitoring landfill sites has been d
across the country in a variety of settings to be protecti
environment. The Agencies' expectation was that containme
technologies generally would be appropriate for municipal
because the volume and heterogeneity of the waste generall
treatment impracticable. On the other hand, petroleum pro
generally liquid, and leave a homogeneous waste pattern in

The investigation tecnniques, the remediation technologies
risks associated with these two types of remediation sites
significantly different, and are not readily comparable.

10. Comment: But my thoughts about the landfills kept coming back that
much worse sites in the U.S. that need to be cleaned up an
now a threat to drinking water supplies of a larger popula
problem of potential contamination after 30 years of being
appear to be an emergency whereas $2 million - the propose
expenditure - could be used better elsewhere. (W-M19)

Response: The Agencies agree that the funding for aggressive remedia
be used for high priority sites. We have evaluated the po
associated with these sites in comparison to other remedia
on the INEL. Since these areas are not fully characterize
uncertainties regarding the site risk. To reduce these un
would cost nearly as much as the selected alternative. Th
Agencies believe that this level of funding is appropriate
Capping the landfills and monitoring is a reasonable actio
compensate for the uncertainties, and yet be protective of
and the environment.

11. Comment: Agree with INEL preferred alternatives. Suggest that land
treated even more conservatively, if possible, i.e., highe
and frequent monitoring to assure contamination has not sp
waste contains high levels of lead and other hazardous com
other industrial chemicals could have included VOCs which
more rapidly than anticipated. (W-B20)

Response: The primary purposes of a soil cover are twofold: (1) pre
contact by personnel with the landfill contents, and (2) r
infiltration. Based on the low precipitation and infiltra
the installation of a clay cover would not provide enough
benefit to warrant the additional expense. Monitoring wil
to provide early detection of any potential contaminant mi

12. Comment: On the landfills, I did mention the bio-barrier, and the v
at all is something that has a geomembrane and then about
material on it so that the -- and the gravel sold cover fo
animals so that the water can infiltrate the cap, be held
evaporation removes all the water, and you actually can--
how caliche is formed. So you actually make the soil cove
permeable with time by natural processes. (T-I21)

Response: The excact design of the soil cap will be determined by an evaluation during the remedial design stage. This comment considered when the final design specifications are determ

Risk Assessment

13. Comment: I didn't see any results of a baseline risk assessment for and 3 considered for landfill areas. Was there any perfor

Response: Due to the incomplete characterization of these sites, a q baseline risk assessment was not possible. The Agencies a presumptive remedy process to these areas to reduce the ov of the project and still implement the appropriate remedia baseline risk assessment was performed. The qualitative r calculations are provided in the Summary Assessment report show there is no significant risk to human health.

14. Comment: ...in my judgement, the amount of risk from the contaminan landfills and the relatively small amount of water infiltr going to be an insult to the aquifer. So, I really suppor alternative on that: on the landfills.

And again, I think your analysis is very good ... basicall confirms my preconceived notion. (T-I16)

Response: The agencies appreciate the time and effort that the comme evaluate the material, attend the presentations, and provi on the infommation.

Landfill Units Alternative #1. No Action

15. Comment: Gentlemen, again, given an un-pressured choice, it would m sense to apply alternative 1, No Action. It is doubtful t be an occasion to build homes and playgrounds over that si or four lifetimes. When we become serious about spending the above would apply. (W-T22)

[Having said that,] the only alternative would be alternat should be more than adequate to meet the criteria of the N We see the day when our government will be bankrupt. Then alternative will you apply? (W-T24)

Response: The Agencies rejected Alternative One (No Action) because were not fully characterized, and the cost to support a No decision would be prohibitive. Alternative One has no pro restrict access to these areas. Although it may appear un these areas will be used for residential purposes, it is p Agencies believed that the cost of Alternative Two is reas protection it will provide to public health and the enviro

Landfill Alternative #2. Containment with Native Soil Cover

16. Comment: I do not agree that a $2,026,000 expense is warranted for operable units. With finite funds available and the minus these landfill units, it would appear that an inexpensive "monitoring only" program would be satisfactory. If there little migration of contaminants that some landfill units found after 30 to 40 years, it is a waste of resources to monitor (call it Alternative 1).

With either alternative 2 or 3, monitoring could show the action after 30 years. Do the same with alternate 1 and s dollars to attack the problems that can use additional res (W-I23)

Response: Currently, the landfill areas are unevenly covered and deb on the surface in some places. This condition does not re potential for wind erosion, infiltration by rain or snowme minimize the potential migration of leachate to the aquife there is no current evidence that migration has occurred, not protective of the environment.

The installation of the soil cover is only a small portion implement this action. The installation of monitoring wel term analysis of water samples make up the majority of the Agencies believe that the cost to install the cover is rea worthwhile for the added protection achieved.

The Agencies concur that Alternative 2 is the best choice.

17. Comment: At the public presentation, I noted that the proposed nati (option #2) is the proposed method of capping the landfill Option #3, which was over 3 times more costly would includ engineered soil covering with clay to prevent the infiltra through the cap.

I support the proposed action of capping, however, I feel combination of these two options could be accomplished in reasonably easy manner. (W-I25) (See comment W-I13 for co comment).

Response: Alternative 2 will prevent contact with the landfill conte native soil will cost less than any combination of soil wi arid climate, such as that present at the INEL, leaching i concern as it would be in other areas, and the additional result in any additional benefit.

Landfill Alternative #3, Containment with Single Barrier Cove

18. Comment: Two or more of the audience and a respected engineer with experience differed regarding whether or not the imperviou should be installed over the municipal waste. The impervi

vital and might be as presented the preferred choice (#3 - million) but less costly and more effective in the long ru #2 (about $12 Million). (W-B26)

Response: The Agencies have determined that a native soil cover is a prevent direct contact with the landfill contents; in an a of an impervious layer does not necessary provide a signif benefit. Monitoring will also be performed to ensure the the covers.

General Comments on Public Meeting/Public Participation

19. Comment: I'd like to thank the presenters for bringing this to us t that they were kind of lumped together in that I would hav have blown a perfectly good evening on a landfill and a di that in mind, I think that the landfills and ditches certa minor part of the problems we have at INEL. I would hope, that DOE and others do continue to monitor these sites for problems and that they continue to bring these sites, as i they may seem, forward to the public and let the public ma decisions based on the information that is available rathe assuming that these are too small for our concern. Thank y

Response: Monitoring will continue at the Industrial Waste Ditch and and the Agencies will continue to provide public comment o for all INEL remediation projects.

20. Comment: I would like to comment on your plans for clean up at nine landfills at your Naval Reactors Facility at INEL. I atte information meeting in Moscow, ID on April 21, 1994 and wa impressed by the presentation. I feel that any cleanup is good and worthy. (W-M28)

Response: The Agencies appreciate the time and effort that the comme evaluate the material, attend the presentations, and provi on-the information presented by the Agencies.

21. Comment: The amount of advertising on radio and T.V. before the 20 Boise meeting was commendable and probably responsible for public attendance.

The visuals of the presentation boards on easels were supe speakers seemed cordial and well prepared with others avai on-site experience to address questions and other aspects.

I hope the presentation boards and visuals will be preserv again at schools and other public meetings. We do hope fo continuous consideration of costs for effective solutions.

Response: The Agencies will evaluate the use of the presentation mat settings. The INEL Community Relations once retains these for future use. A comparison of cost versus benefit will

performed for all environmental restoration activities at

22. Comment: No comments at this time, but would like to receive a copy Record of Decision and Responsiveness Summary. (W-P30)

Response: The Agencies appreciate the time and effort that the comme evaluate the material. Copies of the Record of Decision w Responsiveness Summary will be provided to individuals who them.

23. Comment: First, I would like to thank both you and the Westinghouse Corporation representative. Mr. Nieslanik, for the presen at the Grand Teton Mall. It was informative, well present visual displays were easily understood. (W-I31)

Response: The Agencies appreciate the time and effort that the comme evaluate the material, attend the presentations, and provi on the information presented.

APPENDIX B: PUBLIC COMMENT/RESPONSE LIST

PUBLIC COMMENT/RESPONSE LIST

All of the comments submitted by the public in either written or verbal and assigned a code number. The commentors are listed alphabetically in the comment code appears in the second column. The first symbol in the the comment was written (W) or transcribed by the court reporter present meetings. The second symbol indicates the geographic area the comment w from; 'B' for Boise, 'I' for Idaho Falls, 'M' for Moscow, 'P' for Pocat The page number the response to the comment appears on is listed in the

NAME	COMMENT CODE	RESPONSE
Barraclough, Jack	T-I3	A-5
Barraclough, Jack	T-I4	A-5
Barraclough, Jack	T-I9	A-5
Barraclough, Jack	T-I16	A-11
Barraclough, Jack	T-I21	A-10
Barry, Warren	W-T24	A-11
Barry, Warren	W-T22	A-11
Bjornsen, Fritz	T-B27	A-13
Brissenden, Marjorie	W-B26	A-13
Brissenden, Marjorie	W-B29	A-14
Broscious, Chuck	T-M1	A-6
Broscious, Chuck	T-M14	A-9
Creek, Alex	W-I18	A-10

Drewes, Kenneth	W-I11	A-7, A
Drewes, Kenneth	W-I13	A-8
Drewes, Kenneth	W-I25	A-5, A
Drewes, Kenneth	W-I31	A-14
Hamilton, Joel	T-M7	A-7
Hampsen, W. L.	W-B6	A-6
Hampsen, W. L.	W-B10	A-7
Hampsen, W. L.	W-B20	A-10
Leedom, George L.	W-M19	A-10
Leedom, George L.	W-M28	A-13
Rice, Charles M.	W-I8	A-7
Rice, Charles M.	W-I23	A-12
Sorensen, Stan	W-P30	A-14
Straka, M.	W-I5	A-11
White, C. E.	T-I12	A-7

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APPENDIX C: ADMINISTRATIVE RECORD INDEX

IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE NRF
TRACK 2 INVESTIGATION OPERABLE UNIT 8-05
05/25/94

FILE NUMBER

AR3.6 TRACK 2 INVESTIGATION

Document #: NR-IBO-94/082
Title: DOE Decision Statement and Feasibility Study for Opera
8-05 and 8-06 and Summary Report for Operable Unit 8-0
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 04/11/94

AR3.14 TRACK 2 SUMMARY REPORTS

Document #: NR:IBO-93/301
Title: Track 2 Summary Report for NRF Operable Unit 8-05
Author: Newbry, R.D.E.
Recipient: Nygard, D., Pierre, W.
Date: 11/15/93

AR4.2 FEASIBILITY STUDY REPORTS

Document #: NR-IBO-94-048
Title: Draft Feasibility Study for NRF Landfill Areas (Operab
05 and 8-06)
Author: Newbry, R.D.E.

Recipient: Nygard, D., Pierre, W.
Date: 03/11/94

Document #: 5668
Title: Feasibility Study for NRF Landfill Areas (Operable Uni 8-06)
Author: Newbry, R.D.E.
Recipient: Nygard, D., Pierre, W.
Date: 11/15/93

TRACK 1 INVESTIGATION OF OU 8-05 05/25/94

FILE NUMBER

AR4.3 PROPOSED PLAN

Document #: NR:IBO-94/034
Title: Transmittal Letter and Draft Proposed Plan for NRF Ope Units 8-03, -20 and 22 (Track 1 Investigations), 8-05 (Landfill Site Track 2 Investigations, and 8-07 (Exter Waste Ditch RI/FS)
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 02/28/94

Document #: 5770
Title: Proposed Plan for NRF OU 8-03, -20 and 22 (Track 1), 8 (Landfill Site Track 2) and 8-07 (Exterior Industrial RI/FS)
Author: INEL Community Relations
Recipient: N/A
Date: 04/01/94

AR6.1 COOPERATIVE AGREEMENTS

Document #: ERD1-070-91*
Title: Pre-signature Implementation of the CERLA Interagency Agreement Action Plan
Author: EPA, Findley, C.E.
Recipient: DOE, Solecki, J.E.
Date: 05/17/91

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

Document #: 2919*
Title: INEL Action Plan For Implementation of the Federal Fac Agreement and Consent Order
Author: N/A

Recipient: N/A
Date: 07/22/91

TRACK 1 INVESTIGATION OF OU 8-05 05/25/94

FILE NUMBER

AR6.1 COOPERATIVE AGREEMENTS (continued)

Document #: 1088-06-29-120*
Title: U.S. DOE INEL Federal Facility Agreement and Consent O
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 Orde
Author: N/A
Recipient: N/A
Date: 02/21/92

Document #: DOE/ID-10340(92)*
Title: Track 1 Sites: Guidance for Assessing Low Probability Sites at the INEL
Author: INEL, EPA, IDHW
Recipient: N/A
Date: 07/21/92

Document #: DOE/ID-10389 Rev. 6*
Title: Track 2 Sites: Guidance for Assessing Low Probability Sites at the INEL
Author: INEL, EPA, IDHW
Recipient: N/A
Date: 01/01/94

AR9.1 NOTICES ISSUED

Document #: AM/SES-ESD-92-256*
Title: Natural Resource Trustee Notification
Author: Pitroli, A.A.
Recipient: Andrus, C,D,
Date: 07/07/92

TRACK 1 INVESTIGATION OF OU 8-05 05/25/94

FILE NUMBER

AR9.1 NOTICES ISSUED (continued)

Document #: AM/SES-ESD-92-257*
Title: Natural Resource Trustee Notification
Author: Pitrolo, A.A.
Recipient: Polityka, C.
Date: 07/07/92

Document #: AM/SES-ESD-92-258*
Title: Natural Resource Trustee Notification
Author: Pitrolo, A.A.
Recipient: Edmo, K.
Date: 07/07/92

Document #: AM/SES-ESD-93-007*
Title: Invitation to Natural Trustee Representatives to Discu
Resources and Environmental Restoration at the INEL
Author: Hinman, M.B.
Recipient: Addressee List
Date: 01/25/93

Document #: AM/SES-ESD-93-097*
Title: Agenda for Meeting of Potential Natural Resource Trust
March 17, 1993
Author: Twitchell, R.L.
Recipient: Addressee List
Date: 03/02/93

Document #: AM/SES-ESD-93-159*
Title: INEL Natural Resource Trustee Meeting "Group Memory" M
17, 1993
Author: Hinmann, M.B.
Recipient: Addressee List
Date: 03/30/93

FILE NUMBER

AR9.1

NOTICES ISSUED (continued)

Document #: AM/SES-ESD-93-162*
Title: Department of Energy Idaho Field Office (DOE-ID) Propo
Consultation and Coordination between Natural Resource
Author: Hinman, M.B.
Recipient: Addressee List
Date: 04/02/93

Document #: AM/SES-ESD-93-276*
Title: Department of Energy Idaho Field Office (DOE-ID) Actio
Report to Potential Natural Resource Trustees
Author: Hinmann, M.B.
Receipt: Addressee List

Date: 06/16/93

Document #: 5357*
Title: Natural Resource Trustee Representation Designation
Author: Andrus, C.D., Governor
Recipient: Pitrolo, A.A.
Date: 08/11/92

Document #: 5338*
Title: Response to Natural Resource Notification
Author: Polityka, C.S.
Recipient: Pitrolo, A.A.
Date: 08/28/92

AR10.4 PUBLIC MEETING TRANSCRIPTS

Document #: 5703
Title: Public Meeting Transcripts for the NRF Industrial Wast and Landfill Areas
Author: Ecology and Environment, Inc.
Recipient: N/A
Date: 05/24/94

This document can be found in the INEL OU 8-07 Administrative Record Bin

TRACK 1 INVESTIGATION OF OU 8-05 05-25-94

FILE NUMBER

AR10.6 PRESS RELEASES

Document #: 5640
Title: DOE Seeks Public Comment on Industrial Waste Ditch and Landfills at the NRF
Author: N/A
Recipient: N/A
Date: 03/01/94

AR11.1 EPA GUIDANCE

Document #: 5163 Revision 3*
Title: Administrative Record List of Guidance Documents
Author: EPA
Recipient: N/A
Date: 08/12/92

AR11.4 TECHNICAL SOURCES

Document #: NR-IBO-94-076
Title: Radioactivity controls In Prototype Plants at the Nava Facility
Author: Newbry, R.D.E.

Recipient: Nygard, D.; Pierre, W.
Date: 03/31/94

This document can be found in the INEL OU 8-01 Administrative Record Bin

AR12.1 EPA COMMENTS

Document #: 5636
Title: Track 2 Summary Report for the Naval Reactors Facility Unit 8-05
Author: Meyer, L.
Recipient: Newbry, R.D.E.
Date: 12/20/93

TRACK 1 INVESTIGATION OF OU 8-05 05-25-94

FILE NUMBER

AR12.1 EPA COMMENTS (continued)

Document #: 5663
Title: Draft Feasibility Study for NRF Landfill Areas (Operab (OU) 8-05 and 8-06)
Author: Meyer, L.
Recipient: Newbry, R.D.E.
Date: 03/29/94

AR12.2 IDHW COMMENTS

Document #: 5657
Title: IDHW-DEQ Recommendations for Track-Two Operable Units 8-05 and 8-06
Author: English, M.
Recipient: Newbry, R.D.E.
Date: 03/23/94

Document #: 5664
Title: Review of the Draft Proposed Plan for Operable Units (8-06, and 8-07
Author: English, M.
Recipient: Newbry, R.D.E.
Date: 03/31/94

Document #: 5666
Title: IDHW Comments - Review of the Draft Focused Feasibilit for Operable Units (OU) 8-05 and 8-06
Author: English, M.
Recipient: Newbry, R.D.E.
Date: 04/04/94

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

IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE NRF
TRACK 2 INVESTIGATION OPERABLE UNIT 8-06
05/25/94

ADMINSTRATIVE RECORD VOLUME 1

FILE NUMBER

AR3.14 TRACK 2 SUMMARY REPORT

Document #: 5669
Title: Track 2 Summary Report for Naval Reactors Facility OU
Author: Golder Associates, Inc.
Recipient: N/A
Date: 04/01/94

ADMISNITRATIVE RECORD VOLUME II

AR3.6 TRACK 2 INVESTIGATION

Document #: NR:IBO-94/082
Title: DOE Decision Statement and Feasibility Study for Opera
and 8-06 and Summary Report for Operable Unit 8-06
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 04/11/94

AR3.21 SCHEDULES

Document #: NR:IBO-94/018
Title: Revised Schedules for OU 8-06 and 8-09 Track 2 Investi
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 02/07/94

AR4.2 FEASIBILITY STUDY REPORTS

Document #: NR-IBO-94/048
Title: Draft Feasibility Study for NRF Landfill Areas
(Operable Units 8-05 and 8-06)
Author: Newbry, R.D.E.
Recipient: Nygard, D., Pierre, W.
Date: 03/11/94

IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE NRF
EXTERIOR INDUSTRIAL WASTE DITCH RI / FS OPERABLE UNIT 8-07
05/25/94

ADMINISTRATIVE RECORD VOLUME I

FILE NUMBER

AR3.3 RI/FS WORK PLAN

Document #: 5195
Title: RI/FS Final Work Plan For the Exterior Industrial Wast
Naval Reactors Facility, Idaho Falls, Idaho
Author: Westinghouse Electric Corporation
Recipient: N/A
Date: 09/24/94

Document #: NR-IBO-92/328
Title: DOE/IBO Transmittal of Final Work Plan for the RI/FS f
Industrial Waste Ditch
Author: Newbry, R.D.E., DOE-IBO
Recipient: Nygard, D., EPA
Date: 11/26/91

Document #: 5196
Title: Corespondence between EPA, State of Idaho, and DOE-IBO
Author: N/A
Recipient: N/A
Date: 09/24/92

ADMINISTRATIVE RECORD VOLUME II

AR3.4 REMEDIAL INVESTIGATION REPORTS

Document #: NR-IBO-93/198, VOL. 1
Title: Transmittal Letter and Draft Remedial Investigation Re
Operable Unit 8-07
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 07/15/93

ADMINISTRATIVE RECORD VOLUME III

FILE NUMBER

AR3.4 REMEDIAL INVESTIGATION REPORTS (continued)

Document #: NR:IBO-93/198, VOL. 2
Title: Draft Remedial Investigation Report for NRF OU 8-07
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 07/15/93

ADMINISTRATIVE RECORD VOLUME IV

AR3.12 RI/FS REPORTS

Document #: NR:IBO-93/296, VOL. 1
Title: Transmittal Letter and Draft Remedial Investigation / Report for NRF Operable Unit 8-07 (Exterior Industrial
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 11/08/93

ADMINISTRAITVE RECORD VOLUME V

Document #: NR-IBO-93/296, VOL. 2
Title: Draft Remedial Investigation / Feasibility Study Repor Unit 8-07 (Exterior Industrial Waste Ditch)
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 11/08/93

ADMINISTRATIVE RECORD VOLUME VI

Document #: 5626, VOL. 1
Title: Final Remedial Investigation / Feasibility Study Repor Unit 8-07, (Exterior Industrial Waste Ditch)
Author: Lee, S.D.
Recipient: N/A
Date: 02/01/94

ADMINSTRATIVE RECORD VOLUME VI

FILE NUMBER

AR3.12 RI/FS REPORTS (continued)
Document #: 5626, VOL. 2
Title: Final Remedial Investigation / Feasibility Study Repor Unit 8-07 (Exterior Industrial Waste Ditch)
Author: Lee, S.D.
Recipient: N/A
Date: 02/01/94

ADMINISTRATIVE RECORD VOLUME VII

AR4.3 PROPOSED PLAN

Document #: NR-IBO-94/034
Title: Transmittal Letter and Draft Proposed Plan for NRF OU

8-03, -20 and 22 (Track 1), 8-05 and 06 (Landfill Site
(Exterior Industrial Waste Ditch RI/FS)
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 02/28/94

Document #: 5770
Title: Proposed Plan for NRF OU 8-03, -20 and 22 (Track 1), 8
(Landfill Site Track 2) and 8-07 (Exterior Industrial
Author: INEL Community Relations
Recipient: N/A
Date: 04/01/94

AR6.1 COOPERATIVE AGREEMENTS

Document #: ERDI-070-91*
Title: Pre-signature Implementation of the CERLA Interagency
Action Plan
Author: EPA, Findley, C.E.
Recipient: DOE, Solecki, J.E.
Date: 05/17/91

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05/25/94

FILE NUMBER

AR6.1 COOPERATIVE AGREEMENTS (continued)

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

Document #: 2919*
Title: INEL Action Plan For Implementation of the Federal Fac
and Consent Order
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 O
Author: N/A
Recipient: N/A
Date: 12/04/91

Document #: 3298*
Title: Response to Comments on the Idaho National Engineering
Federal Facility Agreement and Consent Order
Author: N/A

Recipient: N/A
Date: 02/21/92

Document #: DOE/ID-10340(92)*
Title: Track 1 Sites: Guidance for Assessing Low Probability
INEL
Author: INEL, EPA, IDHW
Recipient: N/A
Date: 07/01/92

Document #: DOE/ID-10389 Rev.6*
Title: Track 2 Sites: Guidance for Assessing Low Probability
INEL
Author: INEL, EPA, IDHW
Recipient: N/A
Date: 01/01/94

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05/25/94

FILE NUMBER

AR9.1 NOTICES ISSUED

Document #: AM/SES-ESD-92-256*
Title: Natural Resource Trustee Notification
Author: Pitrolo, A.A.
Recipient: Andrus, C,D,
Date: 07/07/92

Document #: AM/SES-ESD-92-257*
Title: Natural Resource Trustee Notification
Author: Pitrolo, A.A.
Recipient: Polityka, C.
Date: 07/07/92

Document #: AM/SES-ESD-92-258*
Title: Natural Resource Trustee Notification
Author: Pitrolo, A.A.
Recipient: Edmo, K.
Date: 07/07/92

Document #: AM/SES-ESD-93-007*
Title: Invitation to Natural Trustee Representatives to Discu
and Environmental Restoration at the INEL
Author: Hinman, M.B.
Recipient: Addressee List
Date: 01/25/93

Document #: AM/SES-ESD-93-097*
Title: Agenda for Meeting of Potential Natural Resource Trust
March 17, 1993
Author: Twitchell, R.L.

Recipient: Addressee List
Date: 03/02/93

Document #: AM/SES-ESD-93-159*
Title: INEL Natural Resource Trustee Meeting "Group Memory" M
Author: Hinman, M.B.
Recipient: Addressee List
Date: 03/30/93

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05/25/95
FILE NUMBER

AR9.1 NOTICES ISSUED (continued)

Document #: AM/SES-ESD-93-162*
Title: Department of Energy Idaho Field Office (DOE-ID) Propo
Consultation and Coordination between Natural Resource
Author: Hinman, M.B.
Recipient: Addressee List
Date: 04/02/93

Document #: AM/SES/ESD-93-276*
Title: Department of Energy Idaho Field Office (DOE-ID) Actio
to Potential Natural Resource Trustees
Author: Hinman, M.B.
Recipient: Addressee List
Date: 06/16/93

Document #: 5337*
Title: Natural Resource Trustee Representative Designation
Author: Andrus, C.D., Governor
Recipient: Pitrolo, A.A.
Date: 08/11/92

Document #: 5338*
Title: Response to Natural Resource Notification
Author: Polityka, C.S.
Recipient: Pitrolo, A.A.
Date: 08/28/92

AR10.4 PUBLIC MEETING TRANSCRIPTS

Document #: 5703
Title: Public Meeting Transcripts for the NRF Industrial Wast
Landfill Areas
Author: Ecology and Environment, Inc.
Recipient: N/A
Date: 05/24/94

AR10.6 PRESS RELEASES

Document #: 5640

Title: DOE Seeks Public Comment on Industrial Waste Ditch
Author: N/A
Recipient: N/A
Date: 03/01/94

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05/25/94

FILE NUMBER

AR11.1 EPA GUIDANCE

Document #: 5163 Revision 3*
Title: Administrative Record List of Guidance Documents
Author: EPA
Receipt: N/A
Date: 08/21/92

AR11.4 TECHNICAL SOURCES

Document #: NR-IBO-94-076
Title: Radioactivity controls In Prototype Plants at the Nava
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 03/31/94

This document can be found in Administrative Record Binder OU 8-01

AR12.1 EPA COMMENTS

Document #: 5634
Title: EPA Comments: Draft Remedial Investigation for the Ex
Waste Ditch Operable Unit 8-07
Author: Meyer, L.
Recipient: Newbry, R.D.E.
Date: 09/02/93

Document #: 5638
Title: EPA Comments: Draft Remedial Investigation/Feasibilit
Exterior Industrial Waste Ditch
Author: Meyer, L.
Recipient: Newbry, R.D.E.
Date: 12/23/93

AR12.2 IDHW COMMENTS

Document #: 5635
Title: IDHW Comments: Technical Review of the Draft RI/FS
Author: English, M.
Recipient: Bradley, T.M.
date: 09/02/93

FILE NUMBER

AR12.2 IDHW COMMENTS (continued)

Document #: 5637
Title: IDHW Comments: Technical Review of the Draft RI/FS
Author: English, M.
Recipient: Newbry, R.D.E.
Date: 12/21/93

Document #: 5664
Title: Review of the Draft Proposed Plan for Operable Units (and 8-07
Author: English, M.
Recipient: Newbry, R.D.E.
Date: 03/31/94

AR12.3 DOE RESOLUTIONS TO COMMENTS

Document #: NR-IBO-93/272
Title: Response to EPA/IDHW Comments On IWD RI Report
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 10/04/93

* Document filed in INEL Federal Facility Agreement and Consent Order (F Administrative Record Binder

IDAHO NATIONAL ENGINEERING LABORATORY
ADMINISTRATIVE RECORD FILE INDEX FOR THE NRF
EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OPERABLE UNIT 8-07
05-25-94

ADMINISTRATIVE RECORD VOLUME 1

FILE NUMBER

AR3.3 RI/FS WORK PLAN

Document #: 5195
Title: RI/FS Final Work Plan For the Exterior Industrial Wast Naval Reactors Facility, Idaho Falls, Idaho
Author: Westinghouse Electric Corporation
Recipient: N/A
Date: 09/24/92

Document #: NR:IBO-92/328

Title: DOE/IBO Transmittal of Final Work Plan for the RI/FS f
Industrial Waste Ditch
Author: Newbry, R.D.E., DOE-IBO
Recipient: Nygard, D., EPA
Date: 11/26/91

Document #: 5196
Title: Correspondence between EPA, State of Idaho, and DOE-IB
Author: N/A
Recipient: 09/24/92
Date: 7/15/93

ADMINISTRATIVE RECORD VOLUME II

AR3.4 REMEDIAL INVESTIGATION REPORTS

Document #: NR:IBO-93/198, VOL. 1
Title: Transmittal Letter and Draft Remedial Investigation Re
Operable Unit 8-07
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 07/15/93

ADMINISTRATIVE RECORD VOLUME III

FILE NUMBER

AR3.4 REMEDIAL INVESTIGATION REPORTS (continued)

Document #: NR:IBO-93/198, VOL. 2
Title: Draft Remedial Investigation Reports for NRF OU 8-07
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 07/15/93

ADMINISTRATIVE RECORD VOLUME IV

AR3.12 RI/FS REPORTS

Document #: NR:IBO-93/296, VOL. 1
Title: Transmittal Letter and Draft Remedial Investigation /
Report for NRF Operable Unit 8-07 (Exterior Industrial Waste Di
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 11/08/93

ADMINISTRATIVE RECORD VOLUME V

Document #: NR-IBO-93/296, VOL.2
Title: Draft Remedial Investigation / Feasibility Study Repor

Unit 8-07 (Exterior Industrial Waste Ditch)
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 11/08/93

ADMINISTRATIVE RECORD VOLUME VI

Document #: 5626, VOL. 1
Title: Final Remedial Investigation / Feasibility Study Repor
Unit 8-07 (Exterior Industrial Waste Ditch)
Author: Lee, S.D.
Recipient: N/A
Date: 02/01/94

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05-25-94

ADMINISTRATIVE RECORD VOLUME VI

FILE NUMBER

AR3.12 RI/FS REPORTS (continued)

Document #: 5626, VOL. 2
Title: Final Remedial Investigation / Feasibility Study Report f
Unit 8-07 (Exterior Industrial Waste Ditch)
Author: Lee, S.D.
Recipient: N/A
Date: 02/01/94

ADMINISTRATIVE RECORD VOLUME VII

AR4.3 PROPOSED PLAN

Document #: NR:IBO-94/034
Title: Transmittal Letter and Draft Proposed Plan for NRF OU
8-03, -20 and 22 (Track 1), 8-05 and 06 (Landfill Site Track) a
(Exterior Industrial Waste Ditch RI/FS)
Author: Newbry, R.D.E.
Recipient: Nygard, D.; Pierre, W.
Date: 02/28/94

Document #: 5770
Title: Proposed Plan for NRF OU 8-03, -20 and 22 (Track 1), 8
(Landfill Site Track 2) and 8-07 (Exterior Industrial
Author: INEL Community Relations
Recipient: N/A
Date: 04/01/94

AR6.1 COOPERATIVE AGREEMENTS

Document #: ERD1-070-91*
Title: Pre-signature Implementation of the CERLA Interagency

Action Plan
Author: EPA, FIndley, C.E.
Recipient: DOE, Solecki, J.E.
Date: 05/17/91

EXTERIOR INDUSTRIAL WASTE DITCH RI/FS OU 8-07 05-25-94

FILE NUMBER

AR6.1 COOPERATIVE AGREEMENTS (continued)

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AR12.2 IDHW COMMENTS (continued)

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Date: 12/21/93

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