

Engineering Design File

INEEL CERCLA Disposal Facility Complex On-Site Versus Off-Site Cost Comparison

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5. Summary: This report presents the current (November 2002) estimated costs along with the comparison for (1) on-Site disposal of Idaho National Engineering and Environmental Laboratory (INEEL) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) soils and debris at the INEEL CERCLA Disposal Facility (ICDF) and (2) off-Site disposal at a commercial disposal facility. The current cost estimate in this report for the ICDF Complex lifecycle is \$87 million. For the off-Site disposal option, there are two alternatives evaluated. The current off-Site treatment and disposal cost is estimated at \$674 million, and conducting the treatment on-Site with off-Site disposal (assuming waste disposed at the low-level waste rates and delisting the waste streams) is \$173 million. However, even based on changing the requirements for disposal of the waste streams, it is not conceivable that the cost of off-Site disposal could be reduced to the current cost of on-Site disposal at the ICDF Complex.			
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ABSTRACT

This report presents the current (November 2002) estimated costs along with the comparison for (1) on-Site disposal of Idaho National Engineering and Environmental Laboratory (INEEL) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) soils and debris at the INEEL CERCLA Disposal Facility (ICDF) and (2) off-Site disposal at a commercial disposal facility. The ICDF is the facility that is currently being constructed at the Idaho Nuclear Technology and Engineering Center, which includes the landfill and evaporation pond along with facilities to decontaminate, treat, and operate the ICDF Complex. Under the off-Site cost estimates, there are two alternatives considered: the first is to send all of the waste off-Site for treatment, as necessary, and disposal. The second is to treat the waste on-Site and then send the waste off-Site for disposal.

In comparing the cost of on-Site versus off-Site disposal of INEEL CERCLA waste, the new cost for on-Site disposal is estimated at \$87 million with off-Site treatment and disposal at \$674 million. The cost estimate in the Operable Unit 3-13 Feasibility Study Supplement for on-Site disposal was \$234 million and for off-Site treatment and disposal the cost was estimated at \$713 million. Both the cost of on-Site and off-Site disposal have been reduced. The reduction for on-Site disposal is 63% and for off-Site the reduction is 8%. When considering comparable waste disposal approaches (disposal of waste as mixed low-level waste), the cost of on-Site disposal is less than one-seventh the cost of off-Site treatment and disposal. By changing the evaluation and disposal criteria to allow for on-Site disposal of treated mixed low-level waste as low-level waste, the cost of off-Site disposal can be reduced to \$173 million. This results in off-Site disposal costing twice as much as on-Site disposal. This alternative would require delisting the waste streams prior to disposal. The General Accounting Office had previously stated that the cost of off-Site disposal could be reduced by 22%, which is comparable considering the waste as LLW for disposal purposes.

However, even based on changing the requirements for disposal of the waste streams, it is not conceivable that the cost of off-Site disposal could be reduced to the current estimated cost of on-Site disposal at the ICDF Complex.

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ACRONYMS

ARA	Auxiliary Reactor Area
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CPP	Chemical Processing Plan
CWP	Construction Work Plan
D&D&D	deactivation, decontamination, and decommissioning
DOE	Department of Energy
EPA	Environmental Protection Agency
FFA/CO	Federal Facility Agreement and Consent Order
FS	feasible study
GAO	General Accounting Office
HVAC	heating, ventilating, and air conditioning
HW	hazardous waste
ICDF	INEEL CERCLA Disposal Facility
IDEQ	Idaho Department of Environmental Quality
IDW	investigation-derived waste
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
LCRS	Leachate Collection Recovery System
LDR	land disposal restriction
LDRS	Leachate Detection and Recovery System
LLW	low-level waste
MLLW	mixed low-level waste
NOD	Notice of Disturbance
O&M	operation and maintenance

PPE	personal protective equipment
QA	quality assurance
QA/QC	quality assurance/quality control
RA	remedial action
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RD/CWP	Remedial Design/Construction Work Plan
RD/RA	remedial design/remedial action
ROD	Record of Decision
RWMC	Radioactive Waste Management Complex
SOW	Scope of Work
SRPA	Snake River Plain Aquifer
SSA	Staging and Storage Annex
SSSTF	Staging, Storage, Sizing, and Treatment Facility
SSTU	soils stabilization treatment unit
TCLP	toxicity characteristic leaching procedure
TRU	transuranic
TSF	Technical Support Facility
WAC	Waste Acceptance Criteria
WAG	waste area group
WBS	Work Breakdown Structure
WP	Work Plan

INEEL CERCLA Disposal Facility Complex On-Site Versus Off-Site Cost Comparison

1. INTRODUCTION

This report presents the current estimated costs along with the comparison for (1) on-Site disposal of Idaho National Engineering and Environmental Laboratory (INEEL) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) soils and debris at the INEEL CERCLA Disposal Facility (ICDF) and (2) off-Site disposal at a commercial disposal facility. The ICDF is the facility that is currently being constructed at the Idaho Nuclear Technology and Engineering Center (INTEC), which includes the landfill and evaporation pond along with facilities to decontaminate, treat, and operate the ICDF Complex. Under the off-Site cost estimates, there are two alternatives considered: the first is to send all of the waste off-Site for treatment as necessary and disposal. The second is to treat the waste on-Site and then send the waste off-Site for disposal.

In evaluating the remedial action alternatives in the Operable Unit (OU) 3-13 Feasibility Study (FS) Supplement Report (DOE-ID 1998a), cost estimates were developed for both on-Site and off-Site disposal alternatives. This cost information, along with the other evaluation criteria, was presented in the OU 3-13 Proposed Plan (DOE-ID 1998b). During the public comment period on the OU 3-13 Proposed Plan, comments dealing with the cost of on-Site versus off-Site disposal were submitted for consideration in development of the OU 3-13 Record of Decision (ROD) (DOE-ID 1999).

In the OU 3-13 ROD, on-Site disposal at the ICDF was selected as a component of the remedial action for dealing with some of the contaminated surface soils that exceed risk-based contaminant concentrations. These surface soils are referred to in the OU 3-13 ROD as Other Surface Soils (Group 3). In addition, as discussed in Section 11.1.3, the ICDF is intended to "...function as an INEEL-wide disposal facility to accommodate disposal of CERCLA soils and debris..." (DOE-ID 1999)

The OU 3-13 ROD also contains a requirement to evaluate the "...life cycle cost effectiveness of on- or off-site disposal and compliance with DOE policy..." This requirement was included in the OU 3-13 ROD to ensure that on-Site disposal at the ICDF is the cost-effective option in comparison to off-Site disposal. In addition, the Department of Energy's (DOE's) current policy is to utilize on-Site disposal capacity preferably to off-Site disposal capacity at commercial disposal facilities (DOE 1999).

Two recent General Accounting Office (GAO) reports (GAO 2000 and GAO 2001) consider the cost-effectiveness of on-Site versus off-Site disposal. In the GAO report titled *Nuclear Cleanup, DOE Should Reevaluate Waste Disposal Options Before Building New Facilities* (GAO 2001), the GAO stated that the cost of off-Site disposal could be reduced. From this report, GAO estimated that the cost of off-Site disposal could be reduced by 22% provided that the waste being considered for off-Site disposal was only low-level waste (LLW) and was able to meet the off-Site disposal facilities' Waste Acceptance Criteria (WAC).

This report discusses several issues that contribute to on-Site and off-Site disposal costs. The volume and characteristics of the various waste streams destined for the ICDF landfill have changed since the analysis that was conducted for the OU 3-13 FS Supplement Report, on which the OU 3-13 ROD was based. The cost estimate for the on-Site disposal at the ICDF is based on the final designs and construction specifications for the ICDF landfill and evaporation pond (DOE-ID 2002a) and the Staging, Storage, Sizing, and Treatment Facility (SSSTF) (DOE-ID 2002b). These issues, in addition to the requirements in the OU 3-13 ROD and GAO reports, are the basis for conducting this updated evaluation of the cost of on-Site disposal versus off-Site disposal.

This report is organized as follows:

Section 2 discusses the current (November 2002) classification of waste streams from the release sites and deactivation, decontamination, and decommissioning (D&D&D) projects being considered for disposal in the ICDF landfill. There have been changes in our knowledge of the contaminants and media types from the release sites between the publication of the FS Supplement Report Release Site Waste Classifications (Appendix A) (October 1998), on which the OU 3-13 ROD was based, and the current waste streams being considered for the ICDF Complex (Table 1 in Section 2).

Section 3 presents the current (November 2002) volumes of each waste type for the release sites and D&D&D projects being considered for disposal in the ICDF landfill. There have been changes in the release sites waste classifications and expected volumes between the publication of the FS Supplement Report Release Site Waste Volumes (Appendix B), on which the OU 3-13 ROD was based, and the current waste streams being considered for the ICDF Complex (Table 2 in Section 3).

Section 4 presents a summary of the current (November 2002) cost estimate for on-Site disposal using the ICDF Complex. There have been significant reductions in the cost estimates for on-Site disposal between the publication of the FS Supplement Report On-Site Disposal Cost Estimate (Appendix D), on which the OU 3-13 ROD was based, and the current cost estimate presented in Section 4 and Appendix C.

Section 5 presents a summary of the current (November 2002) cost estimate for off-Site disposal at a commercial disposal facility. There have been significant reductions in the cost estimates for off-Site disposal between the publication of the FS Supplement Report Off-Site Disposal Cost Estimate (Appendix F), on which the OU 3-13 ROD was based, and the current cost estimate presented in Section 5 and Appendix E. Section 5 and Appendix E also present a summary of the cost estimate for on-Site treatment with off-Site disposal.

Section 6 presents conclusions and comparisons between the estimated cost of disposal at the ICDF Complex and off-Site based on the current (November 2002) cost estimates presented in Sections 4 and 5. In addition, Section 6 also provides a comparison of the cost of on-Site and off-Site disposal based on the OU 3-13 FS Supplement Report cost estimates.

2. RELEASE SITE WASTE CLASSIFICATIONS

For the analysis of the waste classifications, some additional analysis beyond the information and analysis in the OU 3-13 FS Supplement Report was conducted. In the OU 3-13 FS Supplement Report, the classification of waste was based on several criteria (DOE-ID 1998a). These classifications are presented in Appendix A. Waste streams from INEEL CERCLA release sites were classified using a combination of process knowledge and analytical data. Release sites were classified as LLW, based on analytical data showing radionuclides to be present in the release site exceeding INEEL background concentrations. In the case of hazardous waste (HW) classifications, release sites were classified as being HW if the analytical data showed that the waste was characteristic for Resource Conservation and Recovery Act (RCRA) metals as demonstrated by toxicity characteristic leaching procedure (TCLP) results with background concentrations subtracted. If no TCLP results were available, the 20X rule (40 CFR 261.24, test method 1311, Section 1.2 SW846) was applied to the maximum concentrations for the RCRA metals in the waste stream. Waste streams exceeding the 20X rule concentrations were classified as potentially hazardous waste. Also, if the release site was associated with a process having listed waste, the listed hazardous waste codes were applied to the release site, making the waste from that site a hazardous waste. For waste streams that contained both radionuclides and hazardous waste components, the waste stream was classified as a mixed low-level waste (MLLW). For the waste expected to be generated by the D&D&D projects, the D&D&D Parametric Model was used (DOE-ID 2000a).

The waste streams identified for the current (November 2002) cost estimate were based on the identified waste stream that are being considered for the ICDF Complex. The release sites are from Waste Area Group (WAG) 1 (Test Area North, which includes the Technical Support Facility [TSF]); WAG 3 (Idaho Nuclear Technology and Engineering Center [INTEC], formerly known as the Chemical Processing Plant [CPP]); WAG 4 (Central Facilities Area [CFA]); WAG 5 (Auxiliary Reactor Area [ARA]); and WAG 7 (Radioactive Waste Management Complex [RWMC]). In addition, the OU 3-14 remedial investigation is expected to generate investigation-derived waste (IDW) soils which are being considered for disposal at the ICDF landfill. The identified waste streams also include the waste currently in storage at the Staging and Storage Annex (SSA) and in a waste pile (CPP-97) located within the INTEC facility.

The new analysis essentially used the same criteria as the OU 3-13 FS Supplement Report, discussed above. However, for the evaluation of potential hazardous characteristics for sites lacking TCLP results, the maximum concentration or 95% upper confidence level depending on the number of samples, were used in the assessment of the RCRA 20X rule. Also, for the D&D&D projects, the D&D&D Parametric Model continued to be used. However, the information provided in the CERCLA Waste Inventory Database Report (DOE-ID 2000a) for D&D&D did not distinguish between the various WAGs and was updated for this analysis of the waste characterization. The current information regarding contaminants and types for the release sites and D&D&D projects is presented in Table 1. Appendix A contains the information on contaminants and types used for the OU 3-13 FS Supplement Report.

Table 1. Contaminates and media type present at the release sites based on characteristics and process knowledge.

Release Site	Radionuclides ^a	Listed Waste										Potentially Characteristic										Comments	
		Constituents	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB	As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics		PCB
ARA-01	X																						Soil
ARA-12	X					X					X								X				Soil (97%) and debris (3%)
ARA-16A	X																						Waste currently in storage at the SSA (stabilized liquid into a soil like material)
ARA-16B	X																						Waste currently in storage at the SSA (grouted tank [debris])
ARA-23	X																						Soil
CFA-04A	X																						Soils exceeding the TCLP limit for Hg
CFA-04B	X																						Soils exceeding risk levels, but less than TCLP limit for Hg
CFA-04C	X																						Asbestos-contaminated debris
CPP-01/04/05	X																						Soils (99%) and debris (1%)
CPP-03	X																						Soils
CPP-08/09/10	X																						Soils (99%) and debris (1%)
CPP-11	X																					X	Soils (91%) and debris (9%)
CPP-13	X																						Soils

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic										Comments		
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB			
CPP-14	X						X	X	X						Soils (99%) and debris (1%)
CPP-19	X														Soils (99%+) and debris (<1%)
CPP-34	X	X				X									Soils
CPP-35	X	X						X							Soils (97%) and debris (3%)
CPP-36/91	X	X				X		X							Soils (99%) and debris (1%)
CPP-36/58	X	X				X		X							Waste currently in storage at the SSA (soil [99%] and debris [1%])
CPP-37A	X														Soils
CPP-37B	X	X				X				X					Soil (75%) and debris (25%)
CPP-37C	X					X		X		X					Soil (75%) and debris (25%)
CPP-37D	X					X		X		X					Waste currently in storage at the SSA (soil [32%] and debris [68%])
CPP-44	X					X		X		X					Soils (90%) and debris (10%)
CPP-48	X														Soils
CPP-55	X										X				Soils
CPP-67	X					X ^b		X		X					Soils (99%+) and debris (<1%)

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic										Comments		
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB			
CPP-69A	X	X ^c			X ^c										Soil (5%) and debris (95%)
CPP-69B	X	X ^c			X ^c										Waste currently in storage at the SSA (debris)
CPP-69C	X	X ^c			X ^c										Tank and contents
CPP-92	X	X							X						Waste currently in storage at the SSA (soil [78%] and debris [23%])
CPP-93										X					Soil
CPP-97	X	X													Waste currently in storage (soil [99%+] and debris [<1%])
CPP-98/99	X	X													Waste currently in storage at the SSA (soil [16%] and debris [84%])
CPP-83A, Group 4	X	X													Waste currently in storage at the SSA including drill cuttings and aqueous wastes (purge/development water)

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic										Comments		
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB			
CPP-83B, Group 4	X	X													Future waste stream including drill cuttings, debris, and aqueous wastes (purge/development water)
CPP-88A, NOD soils	X														Undetermined future volume of soil
CPP-88B	X														Waste currently in storage at the SSA (soil, debris, and personal protection equipment)
CPP-88C	X														Waste currently in storage at the SSA (soil)
CPP-95A, NOD	X														Undetermined future volume of soil
CPP-95B, NOD	X														Waste currently in storage at the SSA (soil)
OU 3-14, CPP-96	X				X					X					Soil
Group 5A, SRPA	X														Waste currently in storage at the SSA including drill cuttings and aqueous wastes (purge/development water)

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic										Comments		
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB			
Group 5B, SRPA	X	X													Future waste stream being generated from implementation of the Group 5 Monitoring System and Installation Plan (DOE-ID 2000b) including drill cuttings and aqueous waste (purge/development water)
CPP-41a	X ^d														Contaminated soil exceeding eco risk levels
ICDF construction	X	X													Waste to be stored at the SSA including drill cuttings and aqueous wastes (purge/development water)
TSF-06	X	X													Soils (95%) and debris (5%)
TSF-09/18, solidified liquid	X	X											X		Debris (grouted sludge)
TSF-09/18	X	X													Soils (93%) and debris including grouted decon water (7%)
TSF-26	X	X											X		Soil (99%+) and debris (<1%)

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic											Comments
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB		
Glovebox Excavator Project Site (Pit 9) secondary waste streams	X	X	X	X	X	X	X	X	X	X	X	X	X	Secondary waste streams from OU 7-10 operations (soil [9%] and debris [91%])
Glovebox Excavator Project Site (Pit 9) overburden	X													Overburden soils
WAG 1 D&D&D														Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 2 D&D&D														Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 3 D&D&D														Contaminated debris with classification of waste streams based on the D&D&D Parametric Model

Table 1. (continued)

Release Site	Radionuclides ^a	Listed Waste Constituents	Potentially Characteristic										Comments		
			As	Ba	Cd	Cr	Pb	Hg	Se	Ag	Organics	PCB			
WAG 4 D&D&D															Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 5 D&D&D															Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 6 D&D&D															Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 7 D&D&D															Contaminated debris with classification of waste streams based on the D&D&D Parametric Model
WAG 10 D&D&D															Contaminated debris with classification of waste streams based on the D&D&D Parametric Model

a. Radionuclides exceeding background concentrations.

b. Potentially listed waste.

c. Potentially characteristic for TCLP metals and possible listed waste code, awaiting a formal determination.

d. Radionuclides expected to be at background concentrations.

3. RELEASE SITE WASTE VOLUMES

In developing the OU 3-13 FS Supplement Report, an estimated volume of contaminated soils and debris of 465,312 yd³ was identified as requiring disposal. These volumes are presented in Appendix B. This volume did not account for any swell due to excavation and recompaction. For sizing purposes and to account for some swell, a disposal volume of 510,000 yd³ was authorized in the OU 3-13 ROD. For the current inventory (November 2002) of the volumes for the WAG 3 release sites, the areal and vertical extent contained in the OU 3-13 ROD were used. In the case of the other WAGs' release sites, the volumes were obtained from personnel working on the various projects. Using the current inventory information (November 2002), a volume of 398,700 yd³ of soil and debris from the various remedial actions selected in the RODs for WAGs 1, 3, 4, 5, and 7 is destined for disposal. This volume does not include future excavations related to INTEC construction and other projects that utilize the Notice of Disturbance (NOD) process, with the exception of waste currently in storage. Also, a volume of 70,700 yd³ of debris from D&D&D activities is being considered. This amounts to a total volume requiring disposal of 469,400 yd³ (see Table 2) without swell (from excavation/recompaction expansion, contingency, or increase due to treatment). This information supports the ICDF landfill being designed and constructed based on the OU 3-13 ROD-authorized volume of 510,000 yd³.

Historically, the volumes actually excavated from the remedial activities at the INEEL requiring disposal have not been as estimated and have ranged between 75% and 300% of the estimated volume. This upward trend in the volumes is likely to continue during the implementation of the planned remedial actions. The disposal capacity of 510,000 yd³ for the ICDF landfill is 2 ft down from the top of the berm. There is a volume of approximately 217,600 yd³ (including the 2 ft to the top of the berm volume) that will be required to contour the landfill prior to installation of the engineered barrier structure (cap). This volume can potentially be used for disposal capacity if the inventory disposed would remain within the ICDF landfill WAC limits (DOE-ID 2002c).

In developing the waste inventories, six different waste types have been identified and are used for the classification of the waste streams and associated volumes requiring either on-Site or off-Site disposal. These six waste types include the traditional waste types of LLW, land disposal restriction (LDR) -compliant MLLW (LDR-compliant MLLW), non-LDR-compliant MLLW, LLW debris, MLLW debris, and HW debris. These six waste types are generally described as follows:

- **LLW soils:** These are soils from the INEEL that have been contaminated with radionuclide concentrations exceeding the INEEL background values. LLW is waste that cannot be defined as high-level radioactive waste, spent nuclear fuel, transuranic (TRU) waste, by-product material (as defined in Section 11e (2) of the Atomic Energy Act of 1954, as amended) (42 USC 2011 et seq.), or naturally occurring radioactive material (DOE Order 435.1). LLW may contain TRU radionuclides less than a total of 100 nCi/g.
- **LDR-compliant MLLW soils:** These are soils from the INEEL that have been contaminated with radionuclide concentrations exceeding the INEEL background values, that are designated as hazardous by Environmental Protection Agency (EPA) regulations (40 CFR 261.3), and that contain the hazardous components as defined by 40 CFR 262. However, the concentration of the hazardous constituents is less than the concentration required following treatment in accordance with 40 CFR 268.49. MLLW may contain TRU radionuclides less than a total of 100 nCi/g.
- **Non-LDR-compliant MLLW soils:** These are soils from the INEEL that have been contaminated with radionuclide concentrations exceeding the INEEL background values, that are designated as hazardous by EPA regulations (40 CFR 261.3), and that contain the hazardous components as defined by 40 CFR 262. MLLW may contain TRU radionuclides less than a total of 100 nCi/g.

Table 2. Waste type volumes for the release sites and D&D&D projects based on the classification of waste streams.

Release Site	Volume (yd ³)	Volume LLW Soils (yd ³)	Volume MLLW Soils (LDR-compliant) (yd ³)	Volume MLLW soils (non-LDR-compliant) Soils (yd ³)	Volume LLW Debris (yd ³)	Volume MLLW Debris (yd ³)	Volume Hazardous Waste Debris (yd ³)
ARA-01	2,380	2,380	—	—	—	—	—
ARA-12	1,970	—	1,536	384	—	50	—
ARA-16A	6	—	6	—	—	—	—
ARA-16B	40	—	—	—	—	40	—
ARA-23	46,482	46,482	—	—	—	—	—
CFA-04A	800	—	—	800	—	—	—
CFA-04B	22,000	22,000 ^a	—	—	—	—	—
CFA-04C	850	—	—	—	—	850	—
CPP-01/04/05	4,290	—	4,260	—	—	30	—
CPP-03	10,940	10,940	—	—	—	—	—
CPP-08/09/10	3,527	3,522	—	—	5	—	—
CPP-11	641	—	1193	298	—	150	—
CPP-13	4,022	—	4,022	—	—	—	—
CPP-14	11,150	—	8,840	2,210	—	100	—
CPP-19	3,791	3,786	—	—	5	—	—
CPP-34	27,352	—	27,352	—	—	—	—
CPP-35	321	—	249	62	—	10	—
CPP-36/91	12,670	—	11,016	2,504	—	150	—
CPP-36/58	385	—	304	76	—	5	—
CPP-37A	10,889	10,889	—	—	—	—	—
CPP-37B	102,439	—	61,463	15,366	—	25,610	—
CPP-37C	4,200	—	3,150	—	—	1,050	—
CPP-37D	38	—	12	—	—	26	—
CPP-44	99	—	71	18	—	10	—
CPP-48	296	296	—	—	—	—	—
CPP-55	370	—	296	74	—	—	—
CPP-67	99,460	—	79,408	19,852	—	200	—
CPP-69A	61	—	2.4 ^b	.6 ^b	58	—	—

Table 2. (continued).

Release Site	Volume (yd ³)	Volume LLW Soils (yd ³)	Volume MLLW Soils (LDR- compliant) (yd ³)	Volume MLLW soils (non- LDR- compliant) Soils (yd ³)	Volume LLW Debris (yd ³)	Volume MLLW Debris (yd ³)	Volume Hazardous Waste Debris (yd ³)
CPP-69B	0.27	—	—	—	—	0.27 ^b	—
CPP-69C	4	—	—	—	—	4 ^b	—
CPP-92	1,907	—	1,186	296	—	425	—
CPP-93	2,670	—	2,136	534	—	—	—
CPP-97	1,503	—	1,500	—	—	3	—
CPP-98/99	376	—	60	—	—	316	—
CPP-83A, Group 4	380	—	380	—	—	—	—
CPP-83B, Group 4	110	—	100	—	—	10	—
CPP-88A, NOD	—	—	—	—	—	—	—
CPP-88B	0.50	0.25	—	—	0.25	—	—
CPP-88C, Group none	0.54	0.54	—	—	—	—	—
CPP-95A, NOD	—	—	—	—	—	—	—
CPP-95B, NOD	0.025	0.025	—	—	—	—	—
OU 3-14, CPP-96	80	—	64	16	—	—	—
Group 5A, SRPA	6	—	6	—	—	—	—
Group 5B, SRPA	1.85	—	1.85	—	—	—	—
CPP-41A	5	—	5	—	—	—	—
ICDF construction	104	104 ^a	—	—	—	—	—
TSF-06	4,861	—	4,630	—	—	231	—
TSF-09/18, solidified liquids	40	—	—	—	—	40	—
TSF-09/18	3,371	—	3,122	—	—	249	—
TSF-26	10,524	—	8,398	2,099	—	27	—
Glovebox Excavator Project Site (Pit 9) secondary	220	—	16	4	—	200	—

Table 2. (continued).

Release Site	Volume (yd ³)	Volume LLW Soils (yd ³)	Volume MLLW Soils (LDR- compliant) (yd ³)	Volume MLLW soils (non- LDR- compliant) Soils (yd ³)	Volume LLW Debris (yd ³)	Volume MLLW Debris (yd ³)	Volume Hazardous Waste Debris (yd ³)
waste streams							
Glovebox Excavator Project Site (Pit 9) overburden	60	60	—	—	—	—	—
WAG 1 D&D&D	5,211	—	—	—	5,205	4	1
WAG 2 D&D&D	6,834	—	—	—	6,829	4	1
WAG 3 D&D&D	38,718	—	—	—	38,672	37	9
WAG 4 D&D&D	0	—	—	—	—	—	—
WAG 5 D&D&D	13,954	—	—	—	13,941	10	3
WAG 6 D&D&D	0	—	—	—	—	—	—
WAG 7 D&D&D	5,942	—	—	—	5,938	3	1
WAG 10 D&D&D	0	—	—	—	—	—	—
Total	469,386	100,478	223,800	44,594	70,595	29,903	16

a. Treated as LLW as the radionuclide content exceed background concentrations.

b Assumed to be mixed waste while awaiting formal determination.

- **LLW debris:** These are debris materials from the INEEL that have been contaminated with radionuclide concentrations exceeding the INEEL background values and that present an unacceptable risk to human health and the environment. LLW is waste that cannot be defined as high-level radioactive waste, spent nuclear fuel, TRU waste, by-product material (as defined in Section 11e (2) of the Atomic Energy Act of 1954, as amended) (42 USC 2011 et seq.), or naturally occurring radioactive material (DOE Order 435.1). LLW may contain TRU radionuclides less than a total of 100 nCi/g.
- **MLLW debris:** These are debris materials from the INEEL that have been contaminated with radionuclide concentrations exceeding the INEEL background values and that present an unacceptable future risk to human health and the environment. MLLW is waste that meets the

criteria for LLW, given above, and that contains hazardous components as defined by 40 CFR 262. MLLW may contain TRU radionuclides less than a total of 100 nCi/g.

- **HW debris:** These are debris materials from the INEEL that have been contaminated with waste that is designated as hazardous by EPA regulations (40 CFR 261.3) and that contain the hazardous components as defined by 40 CFR 262.

In determining the volumes for LDR and non-LDR-compliant MLLW, it was assumed that during excavation activities it would be possible to segregate the waste requiring treatment (exceeds 40 CFR 268.49) from the waste not requiring treatment. This assumption results in 20% of the waste being classified as non-LDR-compliant and the other 80% as being LDR-compliant. Also, evaluating the concentration of organic constituents (characteristic and listed waste constituents) showed that there are no organic constituents above the soil disposal standards (40 CFR 268.49), which would require treatment. The contaminants of concern are presented in Table 1 and the associated volumes are presented in Table 2. Classification of the waste streams in Table 2 used the knowledge of excavation and disposal standards.

4. ON-SITE DISPOSAL COST ESTIMATE

The cost estimate for on-Site disposal is comprised of four major cost elements or phases. These major cost elements are (1) capital costs, (2) operations costs, (3) closure costs, and (4) postclosure costs. Each of these major cost elements has sub-element cost components. For this analysis, cost estimates are presented in terms of the major cost elements. The detailed cost estimate for on-Site disposal, including the sub-element cost components, is presented in Appendix C.

This capital cost estimate is the Final ICDF and SSSTF Remedial Design/Construction Work Plans (DOE-ID 2002a, 2002b) concerning the design and construction activities. The operations, closure, and postclosure care are based on the information contained in the *ICDF Complex Remedial Action Work Plan* (DOE-ID 2003). There are several major components that compose the ICDF Complex: (1) road work, (2) utilities, (3) admin trailer, (4) scales facility, (5) decon building, (6) treatment equipment, (7) ICDF landfill cells, (8) ICDF evaporation pond, (9) staging/storage areas, (10) ICDF operating equipment, and (11) a waste tracking system.

The road work consists of constructing a new road from Lincoln Boulevard to the INTEC perimeter road and into the ICDF Complex. The utility work consists of installation of the water, sewer, communications, and fire protection from INTEC to the ICDF Complex and the installation of electrical power into the ICDF Complex. The administration facility is a small modular building that will contain offices, a conference room, waste tracking equipment, and restroom facilities. A scale large enough to weigh a loaded truck composes the scale facility. The decontamination facility is a preengineered metal building that will be used for decontamination of equipment, change rooms, RadCon office, restroom facilities, and housing of both the soil stabilization and debris treatment operations. The treatment equipment is the soil stabilization equipment. The ICDF landfill consists of an expandable landfill cell that, when completed, will have a disposal capacity of 510,000 yd³. The ICDF evaporation pond is sized to deal with the expected leachate from the ICDF landfill cell(s) and other approved liquid waste streams. The waste tracking system, which is housed in the administration facility, is being developed to track the waste through the ICDF Complex to provide for inventory control, and to support compliance with the WAC at the ICDF Complex. Figure 1 shows the layout of the ICDF Complex.

In the cost estimate for on-Site disposal at the ICDF Complex, the cost items have been arranged into four major cost items. The scope of each item is discussed below. The cost estimates are based on the final design and construction documents (DOE-ID 2002a, 2002b) along with the approaches for operations, closure, and postclosure care presented in the ICDF Complex RAWP (DOE-ID 2003). The scope of the four major cost elements is discussed below. The specific scope used to estimate the activities is discussed in Appendix G.

Capital costs: These include the project documentation (Remedial Design/Remedial Action [RD/RA] Scope of Work [SOW], design document, WAC, etc.), procurement, work authorization, construction, quality assurance/quality control (QA/QC), and project management necessary for construction of the various facilities composing the ICDF Complex. Also, the operating equipment and startup activities are included in the capital costs.

Operations costs: These include 10 years of ICDF Complex operations (ICDF landfill and evaporation ponds operations, leachate management, and 10 years of treatment operations), records management/maintenance, and project management necessary to operate the ICDF Complex in compliance with the design and operational requirements.

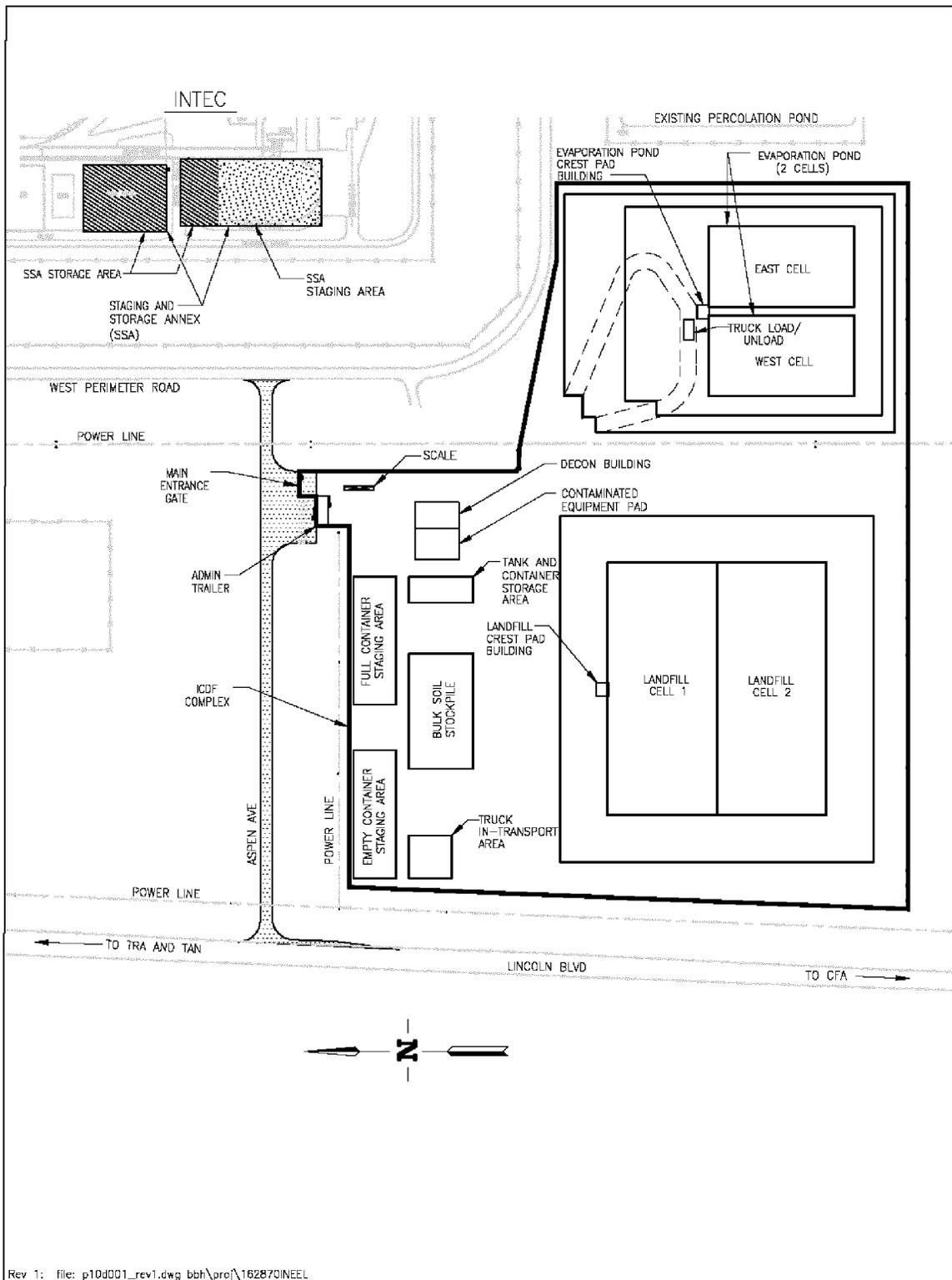


Figure 1. Layout drawing of the major facilities that compose the ICDF Complex.

Closure costs: These include the D&D&D of the administrative, decontamination, and evaporation pond facilities, constructing an engineered containment barrier (cap) over the ICDF landfill cells, record management/maintenance, and the project management necessary to close the facilities in compliance with the design and closure requirements (about 2 years).

Postclosure costs: These include aquifer monitoring (sampling and analysis) through the year 2095, maintenance of the engineered barrier structure (cap), maintaining institutional controls, records management/maintenance, and project management necessary to implement these programs.

These summary-level cost elements are presented in Table 3. Details concerning the cost elements and sub-elements are presented in Appendix C. Appendix G contains the scope and assumptions used to develop the cost estimate.

Table 3. Summary cost estimate for on-Site disposal at the ICDF Complex, including the four major cost elements along with the total estimated cost for on-Site disposal.

Cost Elements	Current Cost Estimate (2002 dollars)
Capital	\$46,852,000
Operations total	\$15,388,000
Closure total	\$18,699,000
Postclosure total	\$5,665,000
Grand total	\$86,604,000

5. OFF-SITE DISPOSAL COST ESTIMATE

The cost estimate for off-Site disposal is comprised of four major cost elements or phases. These major cost elements are (1) capital costs, (2) operations costs, (3) closure costs, and (4) postclosure costs. Each major cost element has sub-element cost components. For this analysis, cost estimates are presented in terms of the major cost elements. The detailed cost estimate for off-Site disposal, including the sub-element cost components, is presented in Appendix E.

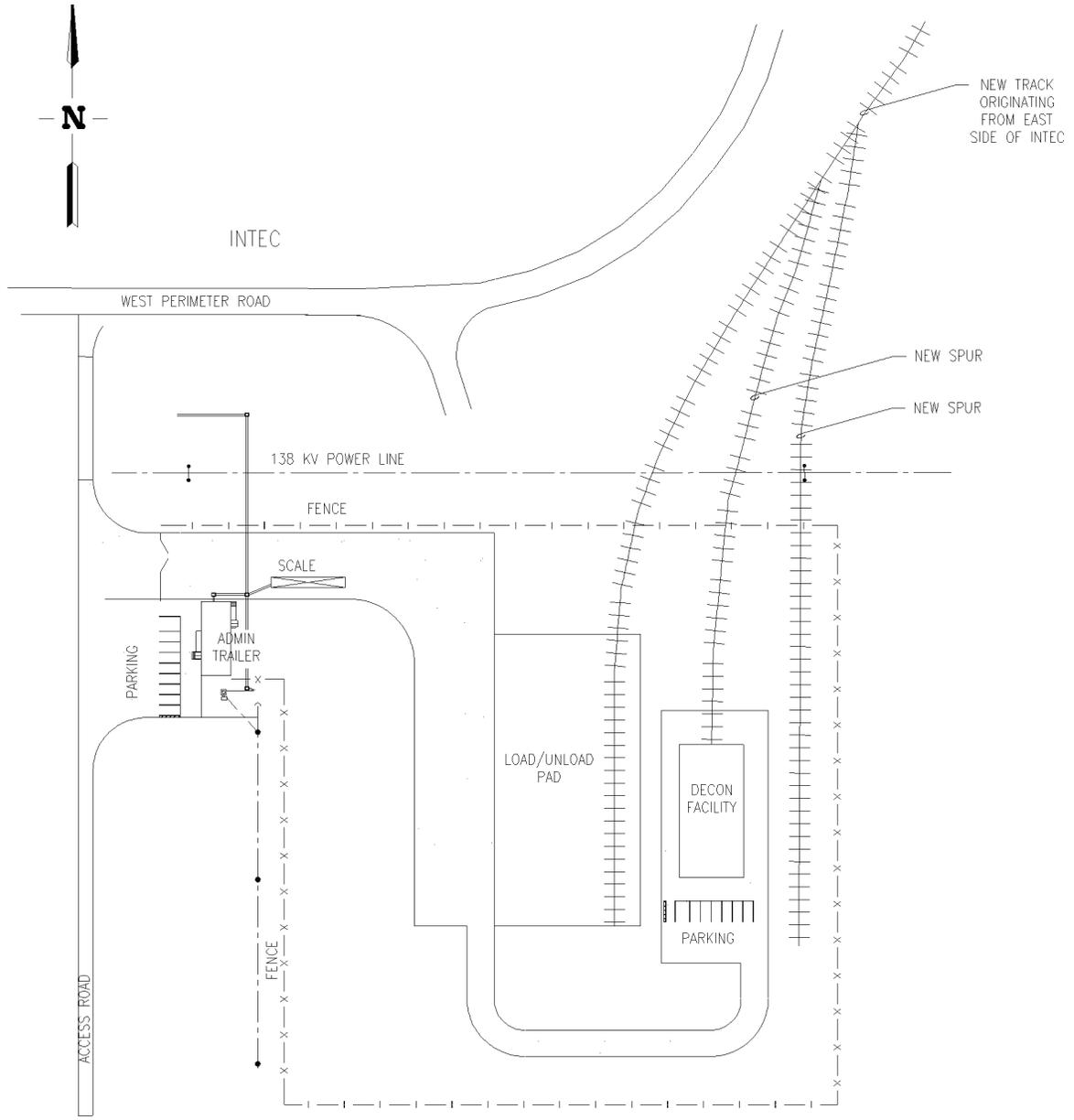
This capital cost estimate is based on using the information contained in the final SSSTF Remedial Design (RD)/Construction Work Plan (CWP) (DOE-ID 2002b) and other information as necessary. In conducting the cost analysis for the on-Site disposal remedy, several of the issues and functions necessary for handling the waste are applicable to either on-Site or off-Site disposal. Using the information and cost estimates from the on-Site disposal project, along with other assumptions, a cost estimate for off-Site disposal has been developed.

For the evaluation of off-Site disposal, two alternatives were considered. The first alternative is similar to the alternative evaluated in the OU 3-13 Feasibility Study (DOE-ID 1998a) in that the waste would be loaded onto railroad cars and sent to an off-Site commercial disposal facility. The second alternative would also dispose of the waste off-Site, but would include additional on-Site facilities for the treatment of the waste prior to shipment for off-Site disposal.

The first alternative (off-Site treatment and disposal) would be comprised of several major components that would be necessary for an off-Site shipping facility. These include (1) road work, (2) utilities, (3) administration facility, (4) scales facility, (5) decontamination facility, (6) railroad spur, and (7) a waste tracking system. The second alternative (on-Site treatment and off-Site disposal) would include the components of the first alternative, in addition to soils, debris, and aqueous waste treatment equipment/systems.

The road work consists of constructing a new road from Lincoln Boulevard to the INTEC perimeter road and into the ICDF Complex. The utility work consists of installing the water, sewer, communications, and fire protection from INTEC to the ICDF Complex and installing electrical power from overhead-power lines into the ICDF Complex. The administration facility is a small modular building that will contain offices, a conference room, waste tracking equipment, and restroom facilities. A scale large enough to weigh either a loaded railroad gondola car or loaded truck composes the scale facility. The decontamination facility is a preengineered metal building that will be used for decontamination of equipment, change rooms, RadCon office, and restroom facilities. A railroad spur would be dedicated to loading and shipping waste off-Site in railroad cars. The waste tracking system, which is part of the administration facility, is being developed to track the waste through the ICDF Complex, to provide for inventory control, and to support compliance with the WAC of the off-Site disposal facilities. Figure 2 shows the conceptual layout for both off-Site disposal alternatives. However, the treatment equipment would be located in the decontamination facility.

The cost estimate for off-Site disposal is comprised of the same four major cost elements as the estimate for on-Site disposal at the ICDF Complex. The scope of each of these four major cost items is discussed below. The cost estimate is based on the projects being implemented as described in the Final SSSTF RD/CWP (DOE-ID 2002b) along with the associated cost estimates. The specific scope used to estimate the activities is discussed in Appendix G.



OFF-SITE LOADING FACILITY PLAN

Figure 2. Conceptual drawing of the major facilities that would compose the off-Site shipping facility.

Capital costs: These include the project documentation (RD/RA SOW, design document, WAC, etc.), procurement, work authorization, construction, QA/QC, and project management necessary for the construction of the various facilities (administration facility, decontamination facility, loadout facility [large concrete pads], etc.) composing the off-Site shipping facility. Also, the equipment and startup activities are part of capital costs.

Operations costs: These include 10 years of off-Site shipping facility operations (loading, sampling, transportation to the off-Site disposal facility, and disposal at the off-Site disposal facility), records management/maintenance, and project management necessary to operate the off-Site shipping facility in compliance with the expected design and operational requirements. Also, the treatment costs for the on-Site treatment with off-Site disposal alternative is part of operations cost.

It should be noted that during the development of the OU 3-13 ROD, the reevaluation of cost would use the existing contract without speculation as to what new rates could be negotiated for off-Site disposal.

The current updated cost estimate for off-Site disposal was developed using an existing contract with Envirocare (Envirocare 1998) and set of rates received from Jeff Shadley, DOE-ID, (Shadley 2001), which was based on other existing contracts. Also, the rate for disposal of MLLW treated debris based on waste sent to Envirocare for disposal (Wells 2002) were used in the development of the cost estimate. In this contract, there are various unit rates for disposal of different types of wastes. For transportation rates, an existing report was used (LMITCO 1995). In this document, there are different rates for different modes of transportation (rail or truck). The rate for truck is much larger than for rail with a destination of the off-Site disposal facility considered (Envirocare). As such, the updated cost estimate for off-Site uses the rail transportation rate.

Closure costs: These include the D&D&D of the off-Site shipping (also treatment facilities for on-Site treatment) facilities, records management/maintenance, and the project management necessary to close the facilities in compliance with the design and closure requirements. D&D&D of the rail spur was not included.

Postclosure costs: No postclosure costs were included for the off-Site shipping facility.

These summary-level cost elements are presented in Table 4 for off-Site treatment and disposal alternative. Details concerning the cost elements and sub-elements are presented in Appendix E. Appendix G contains the scope and assumptions used to develop the cost estimate.

The summary-level cost elements are presented in Table 5 for on-Site treatment with off-Site disposal alternative. Details concerning the cost elements and sub-elements are presented in Appendix E. Appendix G contains the scope and assumptions used to develop the cost estimate.

In order for this on-Site treatment with off-Site disposal alternative to be implemented, the off-Site disposal facility would have to accept that the on-Site treatment met all regulatory requirements. This would require concurrence from several states and at least two EPA regional offices. This cost estimate assumes that the disposal facility can accept the waste at the LLW cost only because treatment has already occurred. If the waste cannot be accepted at the LLW cost, this estimate would increase significantly.

Table 4. Summary cost estimate for off-Site treatment and disposal, including the four major cost elements, along with the total estimated cost for off-Site disposal.

Cost Elements	Current Cost Estimate (2002 dollars)
Capital	\$17,791,000
Operations total	\$653,650,000
Closure total	\$2,221,000
Postclosure total	\$0
Grand total	\$673,663,000

Table 5. Summary cost estimate for on-Site treatment with off-Site disposal, including the four major cost elements, along with the total estimated cost for off-Site disposal.

Cost Elements	Current Cost Estimate (2002 dollars)
Capital	\$24,174,000
Operations total	\$146,045,000
Closure total	\$2,316,000
Postclosure total	\$0
Grand total	\$172,534,000

6. CONCLUSIONS

This section presents two types of comparisons for the cost of on-Site versus off-Site disposal of INEEL CERCLA waste. The first comparison is the cost of disposal including all costs associated with each of the four major cost elements as discussed above in Sections 4 and 5. In this comparison, the cost of on-Site disposal is less than one-fifth the cost of off-Site treatment and disposal (\$87 million versus \$673 million) and one-half the cost of on-Site treatment with off-Site disposal (\$87 million versus \$173 million).

The second comparison is the cost of disposal per cubic yard of waste. For on-Site disposal, the current estimate and FS Supplement Report estimate consider both the volumes of waste expected to be disposed without swell and the design volume for the ICDF. In the case of the off-Site disposal option, both the current and FS Supplement Report estimate use the volumes expected to be disposed at the time of analysis without swell. Also, the evaluation considered the volume that would be used to contour the landfill prior to installation of the engineered barrier structure (cap). This analysis is presented in Table 6.

Table 6. Comparison of the cost of on-Site versus off-Site disposal for both the current and FS Supplement Report estimates along with the calculated cost of disposal per yd³.

	2002 On-Site Estimate	FS Supplement On-Site Estimate	2002 Off-Site Treatment and Disposal Estimate	2002 On-Site Treatment and Off-Site Disposal Estimate	FS Supplement Off-Site Estimate
Cost (\$)	86,604,000	234,417,000	673,663,000	172,534,000	712,846,000
Expected disposal volume (yd ³)	469,386	465,307	469,386	469,386	465,307
ICDF design volume (yd ³)	510,000	510,000	NA	NA	NA
ICDF design volume using contour volume (yd ³)	727,600	727,600	NA	NA	NA
Average cost of disposal for expected inventory (\$/yd ³)	185	504	1393	368	1532
Average cost of disposal for ICDF design volume (\$/yd ³)	170	460	NA	NA	NA
Average cost of disposal for ICDF also using contour volume (\$/yd ³)	119	322	NA	NA	NA

As can be seen in Table 6, the costs of both on-Site and off-Site disposal have been significantly reduced.

Other comparisons illustrate the reductions in the cost of disposal for both on-Site and off-Site. For example, Table 7 presents the reduction in the cost of both on-Site and off-Site treatment and disposal from the time the FS Supplement was issued to the current time. As the table shows, both on-Site and off-Site treatment and disposal costs have been significantly reduced. This analysis shows that it is possible to reduce the cost of off-Site disposal by 8% while using the correct waste types versus the GAO reduction of 22% by assuming that all of the waste is LLW. However, the cost of on-Site disposal has been reduced to a much larger extent than for off-Site disposal.

Table 7. Comparison of the cost of on-Site versus off-Site disposal for both the current and FS Supplement Report estimates along with the calculated reductions in cost and the ratios of off-Site to on-Site disposal.

2002 on-Site estimate	\$86,604,000
FS Supplement on-Site estimate	\$234,417,000
2002 off-Site treatment and disposal estimate	\$673,188,000
2002 off-Site disposal with on-Site treatment	\$172,534,000
FS Supplement off-Site estimate	\$712,846,000
Cost reduction for on-Site disposal from FS Supplement to 2002 cost estimate	63%
Cost reduction for off-Site disposal from FS Supplement to 2002 cost estimate	6%
Cost reduction for off-Site disposal with on-Site treatment from FS Supplement to 2002 cost estimate	76%
Ratio of off-Site treatment and disposal to on-Site disposal using current estimate	7.5:1
Ratio of off-Site disposal with on-Site treatment to on-Site disposal using current estimate	2.0:1
Ratio of off-Site to on-Site disposal using FS Supplement	3.0:1

This last analysis shows that the ratio of cost between off-Site versus on-Site disposal has increased from approximately three times more expensive for off-Site at the time the FS Supplement was issued to over seven times more expensive in 2002.

The cost of off-Site treatment and disposal could possibly be further reduced, but this would require additional characterization data and different assumptions concerning the waste types. This possibility was examined and the cost estimate was \$173 million, but would require the disposing facility to accept the waste treated on-Site as LLW and delisting of the waste streams. However, the off-Site commercial disposal facility would only be paid for waste being disposed under this alternative as LLW instead of the higher-priced MLLW. This may be a future financial incentive, but the cost to the disposing facility would be considerably higher due to the type of facility (landfill) required for disposal of MLLW. It is inconceivable that the cost of off-Site disposal could be reduced to the current cost of on-Site disposal at the ICDF Complex.

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Appendix A
Feasibility Study Supplement Report Release Site Waste
Classifications

Appendix A

Feasibility Study Supplement Report Release Site Waste Classifications

Table A-1. Contaminant and media type information used for the development of the Operable Unit 3-13 Feasibility Study Supplement Report on-Site and off-Site cost estimates.

Release Site	Contamination and Media Type
TSF-06	Soil contaminated with radionuclides and potentially characteristic for Hg
TSF-07	Soil contaminated with radionuclides and potentially characteristic for Cr, Pb, Hg, Se, and Ag
TSF-08	Contaminated soil that is potentially characteristic for Hg
TSF-09/18	Soil contaminated with radionuclide and having listed waste for organics and potential PCB issues
TSF-21	Concrete debris contaminated with radionuclides and having listed waste for organics issues
TSF-26	Soil contaminated with radionuclides and having listed waste for organics issues
CPP-01/04/05	Soil contaminated with radionuclides
CPP-03	Soil contaminated with radionuclides
CPP-08/09	Soil contaminated with radionuclides
CPP-10	Soil contaminated with radionuclides
CPP-11	Soil contaminated with radionuclides
CPP-13	Soil contaminated with radionuclides and having listed waste issues
CPP-14	Soil contaminated with radionuclides and potentially characteristic for Hg and Pb along with PCB issues
CPP-19	Soil contaminated with radionuclides
CPP-34	Soil contaminated with radionuclides and potentially characteristic for Pb and listed waste issues
CPP-35	Soil contaminated with radionuclides and potentially characteristic for Hg and listed waste issues
CPP-36/91	Soil contaminated with radionuclides and potentially characteristic for Hg and listed waste issues
CPP-44	Contaminated soil that is potentially characteristic for Cr, Pb, and Hg
CPP-55	Contaminated soil that is potentially characteristic for Hg
CPP-67	Soil contaminated with radionuclides and potentially characteristic for RCRA metals and potential listed waste issues
CPP-69	Concrete debris contaminated with radionuclides and potentially characteristic for RCRA metals and organics

Table A-1. (continued).

Release Site	Contamination and Media Type
CPP-92	Soil contaminated with radionuclides and having listed waste issues
CPP-93	Contaminated soil that is potentially characteristic for Hg
CPP-94	Contaminated soil (86%) and debris (14%) having hazardous constituents (HF)
CFA-04	Soil contaminated with radionuclides and potentially characteristic for Hg
CFA-08	Soil contaminated with radionuclides and having PCB issues
CFA-10	Contaminated soil that is potentially characteristic for Cr and Hg along with PCBs
CFA-12	Soil contaminated with radionuclides
ARA-12	Soil contaminated with radionuclides and potentially characteristic for Cr and Pb
ARA-23	Soil contaminated with radionuclides
OU 10-02	Soil contaminated with radionuclides
BORAX-01	Soil contaminated with radionuclides and having potential RCRA metal issues
LCCDA-01	Soil contaminated with radionuclides and potentially characteristic for acids
LCCDA-02	Soil contaminated with radionuclides and potentially characteristic for acids
WAG 1 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 2 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 3 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 4 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 5 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 6 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 7 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model
WAG 10 D&D&D	Contaminated debris with classification of waste streams based on the D&D&D parametric model

Appendix B
Feasibility Study Supplement Report
Release Site Waste Volumes

Appendix B

Feasibility Study Supplement Report Release Site Waste Volumes

Table B-1. Release site waste volumes used for development of the Operable Unit 3-13 Feasibility Study Supplement Report on-Site and off-Site cost estimates.

Release Site	Volume (yd ³)	Volume LLW Soils (yd ³)	Volume MLLW Soils (yd ³)	Volume Hazardous Waste Soils (yd ³)	Volume LLW Debris (yd ³)	Volume MLLW Debris (yd ³)	Volume Hazardous Waste Debris (yd ³)
TSF-06	5,000	—	5,000	—	—	—	—
TSF-07	62,326	—	62,326	—	—	—	—
TSF-08	150	—	—	150	—	—	—
TSF-09/18	1,500	—	1,500	—	—	—	—
TSF-21	30	—	—	—	—	30	—
TSF-26	5,100	—	5,100	—	—	—	—
CPP-01/04/05	3,664	3,664	—	—	—	—	—
CPP-03	568	568	—	—	—	—	—
CPP-08/09	3,886	3,886	—	—	—	—	—
CPP-10	2,301	2,301	—	—	—	—	—
CPP-11	916	916	—	—	—	—	—
CPP-13	1,791	—	1,791	—	—	—	—
CPP-14	137	—	137	—	—	—	—
CPP-19	3,496	3,496	—	—	—	—	—
CPP-34	19,183	—	19,183	—	—	—	—
CPP-35	2,711	—	2,711	—	—	—	—
CPP-36/91	6,540	—	6,540	—	—	—	—
CPP-44	89	—	—	89	—	—	—
CPP-55	370	—	—	370	—	—	—
CPP-67	33,168	—	33,168	—	—	—	—
CPP-69	59	—	—	—	—	59	—
CPP-92	2,943	—	2,943	—	—	—	—
CPP-93	654	—	—	654	—	—	—
CPP-94	9	—	—	8	—	—	1

Table B-1. (continued).

Release Site	Volume (yd ³)	Volume LLW Soils (yd ³)	Volume MLLW Soils (yd ³)	Volume Hazardous Waste Soils (yd ³)	Volume LLW Debris (yd ³)	Volume MLLW Debris (yd ³)	Volume Hazardous Waste Debris (yd ³)
CFA-04	8,227	—	8,227	—	—	—	—
CFA-08	73,771	—	73,771	—	—	—	—
CFA-10	161	—	—	161	—	—	—
CFA-12	55	55	—	—	—	—	—
ARA-12	103	—	103	—	—	—	—
ARA-23	55,705	55,705	—	—	—	—	—
OU 10-02	1,308	1,308	—	—	—	—	—
BORAX-01	5	—	5	—	—	—	—
LCCDA-01	196	—	196	—	—	—	—
LCCDA-02	196	—	196	—	—	—	—
WAG 1 D&D&D	8,518	—	—	—	8,476	21	21
WAG 2 D&D&D	30,353	—	—	—	30,268	37	48
WAG 3 D&D&D	47,019	—	—	—	46,915	48	55
WAG 4 D&D&D	552	—	—	—	549	1	1
WAG 5 D&D&D	10,923	—	—	—	10,907	5	11
WAG 6 D&D&D	0	—	—	—	—	—	—
WAG 7 D&D&D	71,609	—	—	—	71,461	50	98
WAG 10 D&D&D	12	—	—	—	—	—	12
Total	465,307	71,898	222,900	1,432	168,577	252	247

— = No waste type at this location.

Appendix C
On-Site Disposal Cost Estimate

Appendix C

On-Site Disposal Cost Estimate

Table C-1. Current cost estimate for the on-Site disposal at the ICDF Complex, including the four major cost elements, along with the total estimated cost for on-Site disposal.

Cost Element	2002 Cost Estimate
Design/construction/startup total	\$46,852,000
Operations total (10 years)	\$15,388,000
Closure total	\$18,699,000
Postclosure total	\$5,665,000
Grand total	\$86,604,000

Table C-2. Detailed cost estimate for on-Site disposal at the ICDF Complex.

Item	Cost
ICDF Complex Project (Design/Build/Startup)	\$46,852,000
ICDF Design	\$8,010,000
ICDF conceptual design (10%)	\$684,000
ICDF Title I design (30%)	\$1,262,000
ICDF early dig and test pad design	\$541,000
ICDF design components (60%)	\$1,500,000
ICDF Title II design (90%)	\$3,820,000
Assess ICDF RD/CWP for construction of Cell 2	\$204,000
SSSTF Design	\$4,211,000
SSSTF conceptual design (10%)	\$942,000
SSSTF Title I design (30%)	\$1,629,000
SSSTF Title II design (90%)	\$1,338,000
Soils stabilization treatment unit design	\$303,000
Remedial Action Work Plan	\$917,000
ICDF Complex RAWP	\$917,000
ICDF Complex Startup (SSSTF and Cell 1)	\$3,319,000
Develop ICDF Complex waste tracking system	\$221,000
Develop ICDF Complex Operations and Maintenance (O&M) Manual	\$1,327,000
Develop DOE Order 435.1 compliance documents (crosswalk, PA, CA, Disposal Authorization Basis and Statement, etc.)	\$158,000
Personnel training	\$119,000
Startup assessment	\$1,146,000

Table C-2. (continued).

Item	Cost
ICDF Complex operation prefinal inspection	\$41,000
ICDF construction inspections (Cell 1)	\$20,000
SSSTF construction inspections	\$20,000
ICDF Complex RA report	\$267,000
ICDF Landfill Cell 2 Startup	\$651,000
Update ICDF Complex O&M Manual for Cell 2 operations	\$68,000
Personnel training	\$68,000
Startup assessment (Cell 2)	\$344,000
ICDF Complex operation prefinal inspection (Cell 2)	\$29,000
RA report changes for Cell 2	\$143,000
ICDF Complex Fleet Equipment	\$2,278,000
ICDF Complex Construction	\$21,472,000
ICDF early dig and test pad construction activities	\$2,021,000
ICDF Cell 1 construction (Phase II)	\$6,453,000
ICDF construction (Cell 2)	\$5,303,000
SSSTF construction	\$5,228,000
ICDF Complex groundwater monitoring system	\$2,467,000
Program/Project Management	\$5,996,000
Program management	\$950,000
Project management	\$4,364,000
Construction management	\$682,000
ICDF Complex Operations (for 510,000 yds³)	\$15,388,000
Waste Characterization	\$4,250,000
Waste stream verification sampling and analysis	\$3,169,000
Waste stream profile acceptance	\$385,000
Posttreatment sampling and analysis	\$221,000
Characterization of stored waste	\$475,000
Treatment and Disposal Operations	\$5,321,000
Waste receipt operations	\$1,524,000
Staging and storage operations	\$93,000
Soil stabilization treatment operations	\$294,000
Debris treatment by microencapsulation operations	\$267,000
Landfill operations	\$1,012,000

Table C-2. (continued).

Item	Cost
Evaporation pond operations	\$157,000
Decontamination operations	\$201,000
Sizing operations	\$202,000
Packaging and off-Site disposal operations (alpha LLW 10 yd ³)	\$80,000
Miscellaneous access and operational activities	\$1,490,000
Records Management	\$1,173,000
Records management	\$1,001,000
Records storage and audit management	\$119,000
5-yr review support	\$53,000
Surveillance and Monitoring	\$2,675,000
Perched water monitoring	\$149,000
Snake River Plain Aquifer (SRPA) monitoring	\$238,000
Leachate monitoring	\$219,000
Institutional controls	\$58,000
Container storage area surveillances	\$224,000
Tank storage area surveillances	\$465,000
Decontamination facility	\$239,000
Treatment unit surveillances	\$216,000
Landfill surveillances	\$163,000
Evaporation pond surveillances	\$204,000
Administrative facility and grounds	\$236,000
Fleet equipment surveillances	\$263,000
Maintenance	\$1,087,000
Fencing and grounds	\$291,000
Administrative facility	\$83,000
Equipment	\$206,000
Soil stabilization treatment system	\$107,000
Landfill	\$118,000
Evaporation pond	\$132,000
Decontamination facility	\$151,000
Program/Project Management	\$882,000
Program management	\$185,000
Project management	\$697,000
ICDF Complex Closure	\$18,699,000

Table C-2. (continued).

Item	Cost
Deactivation and Characterization	\$15,841,000
Deactivate ICDF Complex structures	\$195,000
Update/modify RD/CWPs	\$360,000
Engineered barrier construction	\$14,580,000
D&D&D of SSSTF	\$590,000
Disposal of wastes from D&D&D activities	\$116,000
Evaporation Pond Closure	\$781,000
Deactivate ICDF evaporation pond	\$30,000
Update/modify RD/CWPs	\$221,000
D&D&D of evaporation pond	\$414,000
Disposal of wastes from D&D&D activities	\$116,000
Records Management	\$75,000
Records management	\$45,000
Records storage and audit management	\$15,000
5-yr review support	\$15,000
Surveillance and Monitoring	\$186,000
SRPA monitoring	\$68,000
Leachate monitoring	\$57,000
Institutional controls	\$17,000
Evaporation pond surveillances	\$44,000
Maintenance	\$51,000
Landfill	\$13,000
Evaporation pond	\$38,000
Program/Project Management	\$1,765,000
Program management	\$132,000
Project management	\$958,000
Construction management	\$675,000
ICDF Complex Postclosure (through 2095)	\$5,665,000
Records Management (through 2095)	\$1,040,000
Records management	\$380,000
Records storage and audit management	\$159,000
5-yr review support	\$501,000

Table C-2. (continued).

Item	Cost
Surveillance and Monitoring (through 2095)	\$3,177,000
SRPA monitoring	\$2,618,000
Institutional controls	\$560,000
Maintenance (through 2095)	\$751,000
Landfill	\$751,000
Program/Project Management (through 2095)	\$696,000
Program management	\$127,000
Project management	\$569,000

Appendix D
Feasibility Study Supplement Report
On-Site Disposal Cost Estimate

Appendix D

Feasibility Study Supplement Report On-Site Disposal Cost Estimate

Table D-1. Operable Unit 3-13 Feasibility Study Supplement Report summary cost estimate for on-Site disposal at the ICDF Complex, including the four major cost elements, along with the total estimated cost for on-Site disposal.

Cost Element	Feasibility Study Supplement Cost Estimate (1998 dollars)
Design/construction/startup total	\$62,796,000
Operations total	\$49,057,000
Closure total	\$91,626,000
Postclosure total	\$30,938,000
Grand total	\$234,417,000

Table D-2. OU 3-13 FS Supplement Report cost estimate for on-Site disposal at the ICDF Complex.

Item	Cost
ICDF Complex Project (Design/Build/Startup)	\$62,796,000
ICDF Design	\$1,068,000
ICDF conceptual design (10%)	\$70,000
ICDF Title I design (30%)	\$0
ICDF early dig and test pad design	\$0
ICDF design components (60%)	\$0
ICDF Title II design (90%)	\$998,000
Assess ICDF RD/CWP for construction of Cell 2	\$0
SSSTF Design	\$0
SSSTF conceptual design (10%)	\$0
SSSTF Title I design (30%)	\$0
SSSTF Title II design (90%)	\$0
Soils stabilization treatment unit design	\$0
Remedial Action Work Plan	\$82,000
ICDF Complex RAWP	\$82,000
ICDF Complex Startup (SSSTF and Cell 1)	\$170,000
Develop ICDF Complex waste tracking system	\$0
Develop ICDF Complex O&M Manual	\$0

Table D-2. (continued).

Item	Cost
Develop DOE Order 435.1 compliance documents (crosswalk, PA, CA, disposal authorization basis and statement, etc.)	\$0
Personnel training	\$98,000
Startup assessment	\$0
ICDF Complex operation prefinal inspection	\$0
ICDF construction inspections (Cell 1)	\$10,000
SSSTF construction inspections	\$0
ICDF Complex RA report	\$62,000
ICDF Landfill Cell 2 Startup	\$0
Update ICDF Complex O&M Manual for Cell 2 operations	\$0
Personnel training	\$0
Startup assessment (Cell 2)	\$0
ICDF Complex operation prefinal inspection (Cell 2)	\$0
RA report changes for Cell 2	\$0
ICDF Complex Fleet Equipment	\$1,495,000
ICDF Complex Construction	\$48,197,000
ICDF early dig and test pad construction activities	\$2,918,000
ICDF Cell 1 construction (Phase II)	\$25,326,000
ICDF construction (Cell 2)	\$0
SSSTF construction	\$17,565,000
ICDF Complex groundwater monitoring system	\$2,388,000
Program/Project Management	\$11,785,000
Program management	\$220,000
Project management	\$813,000
Construction management	\$10,752,000
ICDF Complex Operations	\$49,057,000
Waste Characterization	\$8,634,000
Waste characterization (QA/QC)	\$6,801,000
Hazardous waste determinations	\$1,833,000
Treatment and Disposal Operations	\$27,537,000
Treatment operations	\$15,501,000
Disposal operations	\$12,036,000

Table D-2. (continued).

Item	Cost
Records Management	\$4,388,000
Records management	\$3,900,000
Records storage and audit management	\$122,000
5-yr reviews	\$367,000
Surveillance and Monitoring	\$2,410,000
Perched water monitoring	\$1,189,000
SRPA monitoring	\$732,000
Leachate monitoring	\$405,000
Institutional controls	\$83,000
Maintenance	\$216,000
Fencing and grounds	\$216,000
Program/Project Management	\$5,872,000
Program management	\$440,000
Project management	\$1,611,000
Construction management	\$3,821,000
ICDF Complex Closure	\$91,626,000
ICDF Complex D&D&D	\$74,321,000
Cap construction	\$71,965,000
D&D&D of transfer area	\$2,356,000
Records Management	\$24,000
Records management	\$0
Records storage and audit management	\$24,000
5-yr reviews	\$0
Surveillance and Monitoring	\$609,000
Perched water monitoring	\$146,000
SRPA monitoring	\$146,000
Leachate monitoring	\$299,000
Institutional controls	\$17,000
Maintenance	\$43,000
Fencing and grounds	\$43,000

Table D-2. (continued).

Item	Cost
Program/Project Management	\$16,629,000
Program management	\$88,000
Project management	\$547,000
Construction management	\$15,994,000
ICDF Complex Postclosure	\$30,938,000
Records Management	\$4,553,000
Records management	\$0
Records storage and audit management	\$1,071,000
5-yr reviews	\$3,483,000
Surveillance and Monitoring	\$7,548,000
Perched water monitoring	\$146,000
SRPA monitoring	\$6,370,000
Leachate monitoring	\$299,000
Institutional controls	\$732,000
Maintenance	\$15,186,000
Fencing and grounds	\$1,899,000
Cap maintenance	\$13,287,000
Program/Project Management	\$3,651,000
Program management	\$3,651,000
Project management	\$0
Construction management	\$0

Appendix E
Off-Site Disposal Cost Estimate

Appendix E

Off-Site Disposal Cost Estimate

Table E-1. Current cost estimate for the off-Site treatment and disposal, including the four major cost elements, along with the total estimated cost for off-Site treatment and disposal.

Cost Element	Current Cost Estimate
Design/construction/startup total	\$17,791,000
Operations total (10 years)	\$653,650,000
Closure total	\$2,221,000
Grand total	\$673,663,000

Table E-2. Current cost estimate for the on-Site treatment and off-Site disposal, including the four major cost elements, along with the total estimated cost for off-Site disposal.

Cost Element	Current Cost Estimate
Design/construction/startup total	\$24,174,000
Operations total (10 years)	\$146,045,000
Closure total	\$2,316,000
Grand total	\$172,534,000

Table E-3. Detailed cost estimate for off-Site treatment and disposal.

Item	Cost
Off-Site Treatment and Disposal (Design/Build/Startup)	\$17,791,000
Loadout Facility Design	\$2,982,000
Loadout facility conceptual design (10%)	\$800,000
Loadout facility Title I design (30%)	\$977,000
Loadout facility Title II design (90%)	\$1,204,000
Remedial Action Work Plan	\$550,000
Loadout facility RAWP	\$550,000
Loadout Facility Startup	\$1,813,000
Develop loadout facility waste tracking system	\$221,000
Develop loadout facility O&M manual	\$663,000
Personnel training	\$71,000
Startup assessment	\$687,000
Loadout facility operation prefinal inspection	\$24,000
Loadout facility construction inspections	\$12,000
Loadout facility RA report	\$134,000

Table E-3. (continued).

Item	Cost
Loadout Facility Fleet Equipment	\$2,110,000
Loadout Facility Construction	\$7,339,000
Site preparation	\$959,000
Utilities	\$1,090,000
Administrative facility	\$250,000
Weigh scale	\$150,000
Decontamination facility	\$1,728,000
Concrete loading/unloading pad	\$2,280,000
New railroad spurline	\$882,000
Program/Project Management	\$2,998,000
Program management	\$475,000
Project management	\$2,182,000
Construction management	\$341,000
Loadout Facility Operations (469,000 yd³)	\$653,650,000
Waste Characterization	\$4,784,000
Waste stream QA/QC sampling and analysis	\$3,759,000
Waste stream profile acceptance	\$551,000
Characterization of stored waste	\$475,000
Treatment and Disposal Operations	\$642,887,000
Waste receipt operations	\$1,452,000
Staging and storage operations	\$133,000
Decontamination operations	\$287,000
Sizing operations	\$288,000
Packaging and off-Site disposal operations	\$638,518,000
Packaging and off-Site disposal operations (alpha LLW 10 yd ³)	\$80,000
Miscellaneous access and operational activities	\$2,129,000
Records Management	\$1,435,000
Records management	\$1,188,000
Records storage and audit management	\$171,000
5-yr review support	\$76,000
Surveillance and Monitoring	\$2,122,000
Institutional controls	\$83,000

Table E-3. (continued).

Item	Cost
Container storage area surveillances	\$320,000
Tank storage area surveillances	\$664,000
Decontamination facility	\$341,000
Administrative facility and grounds	\$337,000
Fleet equipment surveillances	\$375,000
Maintenance	\$899,000
Fencing and grounds	\$415,000
Administrative facility	\$118,000
Equipment	\$150,000
Decontamination facility	\$215,000
Program/Project Management	\$1,524,000
Program management	\$264,000
Project management	\$1,260,000
Construction management	\$0
Loadout Facility Closure	\$2,221,000
Deactivation and Characterization	\$1,332,000
Deactivate loadout facility structures	\$255,000
Update/modify RD/CWPs	\$250,000
D&D&D of loadout facility	\$702,000
Disposal of wastes from D&D&D activities	\$125,000
Records Management	\$67,000
Records management	\$37,000
Records storage and audit management	\$15,000
5-yr review support	\$15,000
Program/Project Management	\$822,000
Program management	\$119,000
Project management	\$453,000
Construction management	\$250,000

Table E-4. Detailed cost estimate for on-Site treatment and off-Site disposal.

Item	Cost
Off-Site Disposal (Design/Build/Startup)	\$24,174,000
Treatment and Loadout Facility Design	\$4,858,000
Treatment and loadout facility conceptual design (10%)	\$989,000
Treatment and loadout facility Title I design (30%)	\$1,791,000
Treatment and loadout facility Title II design (90%)	\$1,472,000
Soils stabilization treatment unit design	\$303,000
Aqueous waste treatment unit design	\$303,000
Remedial Action Work Plan (RAWP)	\$733,000
Treatment and loadout facility RAWP	\$733,000
Treatment and Loadout Facility Startup	\$2,557,000
Develop treatment and loadout facility waste tracking system	\$221,000
Develop treatment and loadout facility O&M Manual	\$1,061,000
Personnel training	\$95,000
Startup assessment	\$917,000
Treatment and loadout facility operation prefinal inspection	\$33,000
Treatment and loadout facility construction inspections	\$16,000
Treatment and loadout facility RA report	\$214,000
Treatment and Loadout Facility Fleet Equipment	\$2,125,000
Treatment and Loadout Facility Construction	\$9,105,000
Site preparation	\$959,000
Utilities	\$1,090,000
Admin trailer	\$250,000
Weigh scale	\$150,000
Decon building	\$1,728,000
Concrete loading/unloading pad	\$2,280,000
New railroad spurline	\$882,000
Soils stabilization treatment unit	\$1,004,000
Debris waste treatment equipment	\$12,000
Aqueous waste treatment unit	\$750,000
Program/Project Management	\$4,797,000
Program management	\$760,000
Project management	\$3,491,000
Construction management	\$546,000

Table E-4. (continued).

Item	Cost
Treatment and Loadout Facility Operations (469,000 yd³)	\$146,045,000
Waste Characterization	\$13,874,000
Waste stream QA/QC sampling and analysis	\$3,759,000
Waste stream profile acceptance	\$551,000
Posttreatment sampling and analysis (soils/aqueous waste)	\$4,565,000
Posttreatment shipping container analysis (debris)	\$4,525,000
Characterization of stored waste	
Treatment and Disposal Operations	\$124,390,000
Waste receipt operations	\$1,452,000
Staging and storage operations	\$133,000
Soil stabilization treatment operations	\$5,761,000
Debris treatment by microencapsulation operations	\$2,925,000
Aqueous waste treatment unit operations	\$1,172,000
Decontamination operations	\$287,000
Sizing operations	\$288,000
Packaging and off-Site disposal operations	\$110,163,000
Packaging and off-Site disposal operations (alpha LLW 10 yd ³)	\$80,000
Miscellaneous access and operational activities	\$2,129,000
Records Management	\$1,495,000
Records management	\$1,249,000
Records storage and audit management	\$171,000
5-yr review support	\$76,000
Surveillance and Monitoring	\$2,739,000
Institutional controls	\$83,000
Container storage area surveillances	\$320,000
Tank storage area surveillances	\$664,000
Decontamination facility	\$341,000
Treatment unit surveillances	\$308,000
Aqueous waste treatment unit surveillances	\$308,000
Administrative facility and grounds	\$337,000
Fleet equipment surveillances	\$375,000
Maintenance	\$1,230,000
Fencing and grounds	\$415,000
Administrative facility	\$118,000
Equipment	\$150,000

Table E-4. (continued).

Item	Cost
Soil stabilization treatment system	\$153,000
Aqueous waste treatment unit	\$178,000
Decontamination facility	\$215,000
Program/Project Management	\$2,317,000
Program management	\$264,000
Project management	\$2,053,000
Construction management	\$0
Treatment and Loadout Facility Closure	\$2,316,000
Deactivation and Characterization	\$1,402,000
Deactivate treatment and loadout facility structures	\$313,000
Update/modify RD/CWPs	\$250,000
D&D&D of treatment and loadout facility	\$714,000
Disposal of wastes from D&D&D activities	\$125,000
Records Management	\$67,000
Records management	\$37,000
Records storage and audit management	\$15,000
5-yr review support	\$15,000
Program/Project Management	\$847,000
Program management	\$119,000
Project management	\$453,000
Construction management	\$275,000

Appendix F
Feasibility Study Supplement Report
Off-Site Disposal Cost Estimate

Appendix F

Feasibility Study Supplement Report Off-Site Disposal Cost Estimate

Table F-1. Operable Unit 3-13 Feasibility Study Supplement Report summary cost estimate for off-Site disposal, including the three major cost elements, along with the total estimated cost for off-Site disposal.

Cost Element	Feasibility Study Supplement Cost Estimate (1998 dollars)
Design/construction/startup total	\$10,150,000
Operations total	\$700,384,000
Closure total	\$2,312,000
Grand total	\$712,846,000

Table F-2. Operable Unit 3-13 Feasibility Study Supplement Report cost estimate for off-Site disposal.

Item	Cost
Loadout Facility Project (Design/Build/Startup)	\$10,150,000
Loadout Facility Design	\$477,000
Loadout facility conceptual design (10%)	\$70,000
Loadout facility Title I design (30%)	\$0
Loadout facility Title II design (90%)	\$407,000
Soils stabilization treatment unit design	\$0
Remedial Action Work Plan	\$261,000
Loadout facility RAWP	\$82,000
Packaging, shipping, and transportation documents	\$179,000
Loadout Facility Startup	\$127,000
Develop loadout facility waste tracking system	\$0
Develop loadout facility O&M Manual	\$0
Develop DOE Order 435.1 compliance documents (crosswalk, PA, CA, disposal authorization basis and statement, etc.)	\$0
Personnel training	\$55,000
Startup assessment	\$0
Loadout facility operation prefinal inspection	\$0
Loadout facility construction inspections	\$10,000
Loadout facility RA report	\$62,000
Loadout Facility Fleet Equipment	\$0

Table F-2. (continued).

Item	Cost
Loadout Facility Construction	\$7,231,000
Loadout facility construction	\$7,231,000
Program/Project Management	\$2,054,000
Program management	\$0
Project management	\$488,000
Construction management	\$1,567,000
Loadout Facility Operations	\$700,384,000
Waste Characterization	\$8,634,000
Waste characterization (QA/QC)	\$6,801,000
Hazardous waste determinations	\$1,833,000
Disposal Operations	\$564,069,000
Hazardous waste treatment and disposal	\$2,552,000
MLLW disposal	\$207,428,000
LLW disposal	\$348,131,000
Decontamination activities	\$5,957,000
Records Management	\$6,338,000
Records storage and documentation	\$6,338,000
Maintenance	\$3,067,000
Loadout facility maintenance	\$3,067,000
Program/Project Management	\$118,276,000
Program management	\$0
Project management	\$2,009,000
Construction management	\$116,267,000
Loadout Facility Closure	\$2,312,000
Loadout Facility D&D	\$1,594,000
D&D&D of transfer area	\$1,594,000
Program/Project Management	\$718,000
Program management	\$0
Project management	\$286,000
Construction management	\$432,000

Appendix G
**Cost Estimate Basis for On-Site
Versus Off-Site Disposal Evaluation**

Appendix G

Cost Estimate Basis for On-Site Versus Off-Site Disposal Evaluation

In evaluating the cost of on-Site versus off-Site disposal, cost estimates of sufficient detail are needed to make a comparison between the alternatives. During the development of the Operable Unit 3-13 Feasibility Study Supplement Report (DOE-ID 1998), both the cost of on-Site disposal at a new facility and the cost of off-Site disposal were estimated. In the Operable Unit 3-13 ROD (DOE-ID 1999), DOE committed to continue to evaluate the cost effectiveness of on-Site versus off-Site disposal. The ICDF Complex design has been completed and the implementation plan (RAWP) has been developed. As a result, it is time to complete the estimates for the remaining activities from a life-cycle perspective for the ICDF Complex. In addition, the cost of off-Site disposal needs to be reevaluated.

To accomplish an evaluation of on-Site versus off-Site disposal, there are three alternatives for which cost estimating on various components were required. These alternatives are ICDF on-Site disposal, off-Site treatment and disposal, and off-Site disposal. In the case of ICDF on-Site disposal, the project baseline through startup (design, construction, and startup) was previously developed and is being implemented. The remaining scope items for operations, closure, and postclosure activities were estimated. For both of the off-Site disposal alternatives, the various components of design/build/startup, operations, and closure activities were estimated.

The scope activities for each of the three alternatives are presented below along with the Work Breakdown Structure (WBS) (Levels 1 through 3) for the various activities. In addition to the WBS and scope title, the scope of the activity is described along with the estimated cost of the various activities.

G-1. ICDF Complex

The scope of this alternative is the design, construction, startup, operations, closure, and postclosure monitoring of the necessary facility to support disposal of INEEL CERCLA waste streams at the ICDF Complex. Under this alternative, all of the waste streams are disposed of at the ICDF Complex with the exception of a small amount that does not meet the ICDF WAC (off-Site disposal). Aqueous waste generated during WAG 3 remedial investigation, well development, and routine groundwater monitoring activities is treated/disposed in the evaporation pond along with leachate from the landfill and other waste generated during operations of the ICDF Complex. Design, construction, and startup costs are the actual expenditures and estimated cost through startup. To develop operation costs, the operations necessary at the ICDF Complex were divided into specific tasks that were evaluated for personnel and other expenses, resulting in the estimated cost for the various tasks. The closure approach for this alternative is capping of the landfill with clean closure (removal of all hazardous/radioactive wastes from the structures/facilities) of the other facilities/structures with a small amount of contaminated materials sent off-Site for disposal and the clean waste disposed in the on-Site bulk landfill.

G-1.1 ICDF Complex Project (Design/Build/Startup) – \$46,852,164

Estimates for all components of the ICDF Complex project associated with design, construction (build), and startup were completed for the development of the ICDF Complex Project Execution Plan (DOE-ID 2002a). The design and construction approach for ICDF landfill and evaporation pond is presented in the ICDF RD/CWP (DOE-ID 2002b). Also, the design and construction approach for the SSSTF is presented in the SSSTF RD/CWP (DOE-ID 2002c).

G-1.2 ICDF Complex Operations – \$2,953,547 Per Year (with All Components Yearly)

G-1.2.1 Waste Characterization - \$1,092,987 Per Year

G-1.2.1.1 Waste Stream Verification Sampling and Analysis - \$452,688 Per Year

This activity deals with selecting the sampling strategy, collecting samples, analyzing the samples, and reporting the results for both the verification and quality assurance requirements to demonstrate compliance with the ICDF Complex WAC documents. The scope of this activity is for verification and QA sampling analysis on 75,000 yd³/yr using the sampling requirements to comply with the applicable WAC and operational limits. Assumed to be one sample per 200 yd³ analyzed using a combination of field instruments and an onsite mobile laboratory with 5% QA/QC samples sent off-Site for quality assurance analysis. This includes the following tasks:

- Select verification sampling strategy
- Collect verification & QA/QC samples
- Analyze Verification & QA/QC samples
- Report verification sample results.

G-1.2.1.2 Waste Stream Profile Acceptance - \$55,053 Per Year

This activity deals with the review and approval of the Material Profiles (20 waste streams) for waste destined for the ICDF Complex. This includes the following tasks:

- Material profile review/approval

G-1.2.1.3 Posttreatment Sampling and Analysis - \$110,655 Per Year

This activity deals with the development of the treatment recipe (treatability study for five waste streams) at an on-Site mobile laboratory including having four samples sent off-Site for sample analysis. The verification of posttreatment of 1,200 yd³ of the waste following treatment through the soil stabilization process using the sample frequency and rationale discussed in the posttreatment verification sampling and analysis plan (DOE-ID 2003) with the sample analysis conducted in the on-Site mobile laboratory and includes sending four samples off-Site for quality assurance analysis. This includes the on-Site analysis for verification at a mobile laboratory along with off-Site analysis at 5% QA samples. This includes the following tasks:

- Treatability study
- Collect verification & QA/QC samples
- Analyze verification & QA/QC samples
- Report verification sample results.

G-1.2.1.5 Characterization of Stored Waste – \$474,611 Per Year

This activity consists of the development of a sampling and analysis plan for characterization of the waste streams currently in storage at the SSA. This involves the characterization of 21 waste streams by collecting samples and analyzing the samples at an on-Site mobile laboratory. In addition to the samples analyzed at the on-Site mobile laboratory, 18 samples would be sent off-Site for quality assurance analysis. This task also includes the development of 22 Waste Profiles (Material Profiles) for the waste that is in storage at the SSA.

- Develop sampling and analysis plan
- Finalize sampling and analysis plan
- Collect characterization samples
- Analyze characterization samples
- Report characterization sample results
- Develop Material Profiles for stored waste streams.

G-1.2.2 Treatment and Disposal Operations – \$1,029,503 Per Year

G-1.2.2.1 Waste Receipt Operations – \$217,711 Per Year

This activity deals with the receipt of waste into the ICDF Complex (i.e., paper work, receipt inspection, weighing, and other waste receipt activities) based on receipt of 75,000 yd³/yr. This includes the following tasks:

- Scheduling and planning (logistics)
- Scale readout and maintenance
- Waste receipt
- Survey incoming trucks.

G-1.2.2.2 Staging and Storage Operation - \$13,283 Per Year

This activity deals with the staging and storage operations (moving in 50 boxes and storing 6,000 gal of liquid per year) at the ICDF Complex (sufficient capacity available for 1,500 boxes and 12 double-contained tanks) but does not include the inspection activities. This includes the following tasks:

- Store, stage (waste, bulk materials)
- Load/unload (vehicles and containers).

G-1.2.2.3 Soil Stabilization Treatment Operations - \$147,221 Per Year

This activity deals with the treatment of 1,200 yd³/yr of waste soils in the soil stabilization treatment unit (i.e., loading the treatment unit, mixing, and unloading into the treated waste staging container) using Portland cement at 400 lb/yd³ treated. This includes the following tasks:

- Stabilization
- Load/unload vehicles and containers
- Receive bulk materials.

G-1.2.2.4 Debris Treatment by Microencapsulation Operations - \$133,727 Per Year

This activity deals with the treatment of the boxed debris by the micro-encapsulation process for debris treatment at a rate of 1,550 yd³/yr or 330 boxes/yr with the boxes being filled to 75% with waste. This includes the following tasks:

- Debris treatment
- Load/unload vehicles and containers.

G-1.2.2.5 Landfill Operations - \$144,561 Per Year

This activity deals with the disposal of waste (75,000 yd³/yr) into the landfill (i.e., moving waste containers into the landfill, unloading containers, surveying out, spreading the waste, compacting the waste, etc.). This includes the following tasks:

- Deliver waste to landfill
- Identify grid
- Direct truck to active face
- Dump waste
- Control dust
- Move truck out and survey
- Spread and compact waste
- Handle containers
- Apply dust Fixodent
- Transfer leachate to evap pond
- Instrument control (winter).

G-1.2.2.6 Evaporation Pond Operations - \$22,431 Per Year

This activity deals with the receipt (by truck: one per week and from landfill leachate transfers) and management of liquid wastes in the evaporation pond cells. This includes the following tasks:

- Receive nonleachate by truck
- Transfer solids
- Transfer decon liquid to pond
- Add makeup water
- Loading truck (facility).

G-1.2.2.7 Decontamination Operations – \$28,716 Per Year

This activity deals with the decontamination operations (dry decon for 10% and wet decon for 1% of the trucks/equipment). This includes the following task:

- Decon (equip, tools, parts, facility).

G-1.2.2.8 Sizing Operations – \$28,810 Per Year

This activity deals with the minimal amount of sizing (100 yd³/yr) necessary for disposal in the landfill or packaging for off-Site disposal. This includes the following tasks:

- Sizing
- Load/unload vehicles and containers.

G-1.2.2.9 Packaging for Off-Site Disposal Operations – \$80,141 Per Year

This activity deals with packaging and off-Site disposal (10 yd³/yr of alpha LLW [10 to 100 nCi/g TRU constituents]) of waste materials that do not meet the ICDF WAC for disposal. This includes the following tasks:

- Off-Site packaging
- Off-Site shipping
- Load/unload vehicles and containers.

G-1.2.2.10 Miscellaneous Access and Operational Activities – \$212,903 Per Year

This activity deals with the day-to-day operations of the ICDF Complex along with controlling access to the ICDF Complex and other miscellaneous activities necessary for operation of the ICDF Complex. This includes the following tasks:

- Access control
- Prejob briefing
- Operations training
- Procurement
- Store and control spare parts
- Dosimetry control
- Spill control
- Work control (day-to-day)
- Radio communications
- Emergency management
- Spill kit.

G-1.2.3 Records Management – \$167,629 Per Year

G-1.2.3.1 Records Management – \$142,990 Per Year

This activity is the management of the databases and routine records associated with the ICDF Complex operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Verify waste placement
- Data tracking reports
- Track liquid waste to pond (A and B).

G-1.2.3.2 Records Storage and Audit Management – \$17,053 Per Year

This activity is the annual storage of records associated with the ICDF Complex operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support ICDF Complex audits.

G-1.2.3.3 Five-Year Review Support – \$7,587 Per Year

This activity is the annual maintenance of project record file on the ICDF Complex necessary to support the 5-yr reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-1.2.4 Surveillance and Monitoring – \$382,159 Per Year

G-1.2.4.1 Perched Water Monitoring – \$21,262 Per Year

This activity is the monitoring of the perched water in the vicinity of the ICDF Complex including sample collection, analysis, and reporting in accordance with the ICDF Complex groundwater monitoring plan. This includes the following tasks:

- Monitor vadose zone
- Perched groundwater sampling and analysis.

G-1.2.4.2 SRPA Monitoring – \$34,042 Per Year

This activity is the monitoring of the SRPA in the vicinity of the ICDF Complex including sample collection, analysis, and reporting in accordance with the ICDF Complex groundwater monitoring plan. This includes the following task:

- SRPA groundwater sampling and analysis.

G-1.2.4.3 Leachate Monitoring – \$31,313 Per Year

This activity is the monitoring of the ICDF leachate being generated in the landfill for treatment/disposal in the evaporation pond cells (four times per year for detailed analysis and monthly for I-129, pH, and specific conductivity) including sample collection, analysis, and reporting in accordance with the ICDF Complex monitoring plans. This includes the following tasks:

- Monitor levels in Leachate Collection Recovery System (LCRS)
- Monitor levels in Leachate Detection and Recovery System (LDRS)
- Leachate sampling and analysis.

G-1.2.4.4 Institutional Controls – \$8,319 Per Year

This activity is the implementation of the institutional controls for the ICDF Complex including some limited monitoring for implementation. This includes the following task:

- Maintain institutional controls/requirements.

G-1.2.4.5 Container Storage Area Surveillances – \$32,046 Per Year

This activity is the monitoring of the containers (boxes and other containers for solid materials) at the ICDF Complex (i.e., SSA) encompassing the weekly visual inspection of 1,000 boxes. Also, this activity includes the monitoring the new staging and storage areas constructed at the SSSTF. This includes the following task:

- Surveillance/inspection.

G-1.2.4.6 Tank Storage Area Surveillances – \$66,447 Per Year

This activity is the monitoring of the storage tanks (tanks with secondary containment) at the ICDF Complex (i.e., SSA) encompassing the daily visual inspection of 8 tanks. This includes the following task:

- Surveillance/inspection.

G-1.2.4.7 Decontamination Facility – \$34,142 Per Year

This activity is the monitoring of the decontamination facility in the ICDF Complex and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillance/inspection
- Rad testing
- Process monitor/operations.

G-1.2.4.8 Treatment Unit Surveillances – \$30,838 Per Year

This activity is the monitoring of the treatment unit in the decontamination facility in the ICDF Complex and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillance/inspection
- Rad testing
- Process monitor/operations.

G-1.2.4.9 Landfill Surveillances – \$23,354 Per Year

This activity is the weekly monitoring of the landfill in the ICDF Complex and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Routine surveillance (berm)
- Surveillance/inspection.

G-1.2.4.10 Evaporation Pond Surveillances – \$29,175 Per Year

This activity is the weekly monitoring of the evaporation pond cells in the ICDF Complex and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillances
- Leak detection
- Evaporation pond liquid sampling and analysis
- Surveillance/inspection.

G-1.2.4.11 Administrative Facility and Grounds – \$33,691 Per Year

This activity is the monitoring of the grounds, utilities, and administrative facility for the ICDF Complex and includes surveillances and monitoring activities along with freeze protection issues. This includes the following tasks:

- Surveillances
- Process monitoring and operations
- Monitor/report freeze protection.

G-1.2.4.12 Fleet Equipment Surveillances – \$37,531 Per Year

This activity is the monitoring of the equipment including the heavy equipment used in the landfill disposal operations along with maintaining freeze protection on the equipment. This includes the following tasks:

- Freeze protection of equipment
- Surveillance/inspection.

G-1.2.5 Maintenance – \$155,308 Per Year

G-1.2.5.1 Fencing and Grounds – \$41,537 Per Year

This activity is maintenance on the utilities, grounds, and roads associated with the ICDF Complex. This includes the following task:

- Utilities, roads, and grounds.

G-1.2.5.2 Administrative Facility – \$11,824 Per Year

This activity is the building maintenance on the administrative facility for the ICDF. This includes the following task:

- Building maintenance.

G-1.2.5.3 Equipment – \$29,383 Per Year

This activity is the preventive and other maintenance on the ICDF Complex equipment including equipment used in the landfill disposal operations. This includes the following tasks:

- Equipment (heavy) maintenance
- Maintain pit equipment.

G-1.2.5.4 Soil Stabilization Treatment System – \$15,285 Per Year

This activity is the preventive and other maintenance on the soils stabilization treatment unit equipment. This includes the following task:

- Process equipment maintenance.

G-1.2.5.5 Landfill – \$16,864 Per Year

This activity is the preventive maintenance on pumps and other equipment necessary for leachate management in the landfill along with maintenance on the berms of the landfill. This includes the following tasks:

- Pump maintenance
- Landlord maintenance.

G-1.2.5.6 Evaporation Pond – \$18,887 Per Year

This activity is the preventive maintenance on instruments and other equipment necessary for leachate management in the evaporation pond along with maintenance on the berms of the evaporation pond and limited liner repairs. This includes the following tasks:

- Landlord maintenance
- Maintain instruments
- Repair liner.

G-1.2.5.7 Decontamination Facility – \$21,528 Per Year

This activity is the building maintenance on the decontamination facility including the HVAC system and janitorial services for the ICDF. This includes the following task:

- Building maintenance (HVAC, janitorial).

G-1.2.10 Program/Project Management – \$125,961 Per Year

G-1.2.10.1 Program Management - \$ 26,430 Per Year

This activity is the oversight and integration of the ICDF Complex into the WAG 3 project and consists of 4 hr of work per week. This includes the following task:

- Program management.

G-1.2.10.2 Project Management – \$99,531 Per Year

This activity is the specific project management associated with operating the ICDF Complex and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management
- Project management (routine).

G-1.2.10.3 Construction Management - \$0 Per Year

There are no construction activities covered in the operations of the ICDF Complex and therefore no construction management required.

G-1.3 ICDF Complex Closure - \$18,698,806

The closure of the ICDF Complex will consist of constructing the engineered containment structure (cap) over the ICDF landfill and clean closure (complete removal and disposal) for both the SSSTF structures and ICDF evaporation pond.

G-1.3.1 Deactivation and Characterization - \$15,840,770

G-1.3.1.1 Deactivate ICDF Complex Structures - \$195,063

This activity involves shutting down systems, removal of wastes, characterizing the residual contamination, and placing the structures in safe conditions that minimize the future surveillance and maintenance activities. This includes the following tasks:

- Decontamination facility
- Soils stabilization treatment unit
- Container Storage Areas
- Tank Storage Areas
- Facility acceptance.

G-1.3.1.2 Update/Modify Remedial Design/Construction Work Plan/Remedial Action Work Plans - \$360,425

This activity involves updating/modifying the RD/CWP/RAWP documents for the ICDF and SSSTF under the Federal Facility Agreement and Consent Order (FFA/CO) to deal with the specific closure requirements and technical specification necessary for implementing the final closure activities. This includes the following tasks:

- Develop modifications to the RD/CWP/RAWP documents
- Submit modifications to EPA and Idaho Department of Environmental Quality (IDEQ)
- Revise modifications based on EPA and IDEQ comments
- Submit finalized revisions to the RD/CWP/RAWP documents.

G-1.3.1.3 Engineered Barrier Construction - \$14,579,648

This activity involves the procurement of the subcontractor and installation of the engineered barrier (cap) on the ICDF landfill. For this estimate it is assumed that structural soil (283,600 yd³) will be used to contour the top of

the landfill beneath the engineered barrier prior to the installation of the various layers and protective berms. However, it should be noted that 217,600 yd³ of this volume could potentially be used for the disposal of waste (reducing the engineered barrier construction to \$13,374,798). This includes the following:

- Procurement of subcontractor
- Structural fill
- Compacted clay
- Geomembrane
- Lower Type 1 filter sand
- Lower Type 2 filter gravel
- Type 3 armor
- Upper Type 2 filter gravel
- Upper Type 1 filter sand
- Engineered structural fill (water storage component)
- Topsoil/gravel mixture
- Vegetation
- Type 1 filter sand for outer edge of cap
- Type 2 filter gravel for outer edge of cap
- Type 3 armor for outer edge of cap
- Type 1 armor for outer edge of cap
- Place monument markers.

G-1.3.1.4 D&D&D of SSSTF - \$590,128

This activity involves the procurement of the subcontractor and removal of the SSSTF including disposal of the uncontaminated materials at an on-Site landfill. The contaminated materials are set aside for subsequent off-Site disposal. Also, following the removal of the structures, characterization activities are conducted to ensure that the residual contamination is below the remedial action objectives established in the OU 3-13 ROD. This includes the following tasks:

- Procurement of subcontractor
- Removal of the soils stabilization treatment unit

- Removal of the decontamination facility
- Removal of the container storage areas
- Removal of the tank storage areas
- Removal of the administrative facility
- D&D&D of the utilities
- Post-D&D&D characterization of the SSSTF areas.

G-1.3.1.5 Disposal of Waste from D&D&D Activities - \$115,506

During the D&D&D of the SSSTF structures an estimated 60 yd³ of mixed low-level debris will be generated and require disposal. This activity involves the packaging, shipment, and disposal of the remaining mixed low-level debris off-Site. This includes the following tasks:

- Off-Site packaging
- Load MLLW debris onto railroad cars
- Shipping MLLW debris to off-Site commercial disposal facility
- Disposal of MLLW debris at the off-Site commercial disposal facility.

G-1.3.2 Evaporation Pond Closure - \$780,927

G-1.3.2.1 Deactivate ICDF Evaporation Pond - \$30,393

This activity involves shutting down systems, removal of wastes (liquid and solid/sediments and solidification of the liquid waste. This results in the evaporation pond being placed in a safe condition that minimize the future surveillance and maintenance activities. This includes the following tasks:

- Remove liquid from evaporation pond
- Remove sludge/sediment from evaporation pond
- Solidify aqueous waste.

G-1.3.2.2 Update/Modify Remedial Design/Construction Work Plan/Remedial Action Work Plans - \$220,763

This activity involves updating/modifying the RD/CWP/RAWP documents for the ICDF evaporation pond under the FFA/CO to deal with the specific closure requirements and technical specification necessary for implementing the final closure activities. This includes the following tasks:

- Develop modifications to the RD/CWP/RAWP documents
- Submit modifications to EPA and IDEQ

- Revise modifications based on EPA and IDEQ comments
- Submit finalized revisions to the RD/CWP/RAWP documents.

G-1.3.2.3 D&D&D of Evaporation Pond - \$414,265

This activity involves the procurement of the subcontractor and removal of the various materials from the evaporation pond including disposal of the uncontaminated materials at an on-Site landfill. The contaminated materials are set aside for subsequent off-Site disposal. Also, following the removal of the various evaporation pond, characterization activities are conducted to ensure that the residual contamination is below the remedial action objectives established in the OU 3-13 ROD. This includes the following tasks:

- Procurement of subcontractor
- Removal of the primary geomembranes
- Removal of the primary geosynthetic clay liner
- Removal of the operations layer materials
- Removal of the secondary geomembrane
- Removal of the secondary geosynthetic clay liner
- Removal of contaminated base soil
- Removal/closure of transfer pipelines
- Post-D&D&D characterization the evaporation pond area.

G-1.3.2.4 Disposal of Waste from D&D&D Activities - \$115,506

During the D&D&D of the SSSTF structures, an estimated 50 yd³ of LDR-compliant (treated) mixed low-level debris will be generated and require disposal. This activity involves the packaging, shipment, and disposal of the remaining mixed low-level debris off-Site. This includes the following tasks:

- Off-Site packaging
- Load MLLW debris onto railroad cars
- Ship MLLW debris to the off-Site commercial disposal facility
- Dispose MLLW debris at the off-Site commercial disposal facility.

G-1.3.3 Records Management - \$74,688

G-1.3.3.1 Records Management – \$44,812

This activity is the management of the databases and routine records associated with the ICDF Complex operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Data tracking reports
- Track liquid waste to pond (A and B).

G-1.3.3.2 Records Storage and Audit Management – \$14,703

This activity is the annual storage of records associated with the ICDF Complex operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support ICDF Complex audits.

G-1.3.3.3 Five-Year Review Support – \$15,173

This activity is the annual maintenance of project record file on the ICDF Complex necessary to support the 5-year reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-1.3.4 Surveillance and Monitoring – \$185,875

With the implementation of the OU 3-13 Group 4 perched water remedy in effect, the perched water bodies at INTEC will be desaturated removing the requirement for sampling and analysis activities.

G-1.3.4.2 SRPA Monitoring – \$68,084

This activity is the monitoring of the SRPA in the vicinity of the ICDF Complex including sample collection, analysis, and reporting in accordance with the ICDF Complex groundwater monitoring plan. This includes the following task:

- SRPA groundwater sampling and analysis.

G-1.3.4.3 Leachate Monitoring – \$57,439

This activity is the monitoring of the ICDF leachate being generated in the landfill for treatment/disposal in the evaporation pond cells (four times per year for detailed analysis and monthly for I-129, pH, and specific conductivity) including sample collection, analysis, and reporting in accordance with the ICDF Complex monitoring plans.

- Monitor levels in LCRS
- Monitor levels in LDRS
- Leachate sampling and analysis.

G-1.3.4.4 Institutional Controls – \$16,638

This activity is the implementation of the institutional controls for the ICDF Complex including some limited monitoring for implementation. This includes the following task:

- Maintain institutional controls/requirements.

G-1.3.4.10 Evaporation Pond Surveillances – \$43,714

This activity is the weekly monitoring of the evaporation pond cells in the ICDF Complex and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillances
- Leak detection
- Evaporation pond liquid sampling and analysis
- Surveillance/inspection.

G-1.3.5 Maintenance – \$51,262

G-1.3.5.5 Landfill – \$13,488

This activity is the preventive maintenance on pumps and other equipment necessary for leachate. This includes the following task:

- Pump maintenance.

G-1.3.5.6 Evaporation Pond – \$37,774

This activity is the preventive maintenance on instruments and other equipment necessary for leachate management in the evaporation pond along with maintenance on the berms of the evaporation pond and limited liner repairs. This includes the following tasks:

- Landlord maintenance

- Maintain instruments
- Repair liner.

G-1.3.10 Program/Project Management – \$1,765,283

G-1.3.10.1 Program Management - \$132,150

This activity is the oversight and integration of the ICDF Complex into the WAG 3 project and consists of 10 hr of work per week. This includes the following task:

- Program management.

G-1.3.10.2 Project Management – \$958,366

This activity is the specific project management associated with closure of the ICDF Complex and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management
- Project management (routine).

G-1.3.10.3 Construction Management - \$674,767

This activity is the construction management associated with the construction components of the project.

- Construction management.

G-1.4 ICDF Complex Postclosure - \$70,810 Per Year

G-1.4.3 Records Management - \$13,005 Per Year

G-1.4.3.1 Records Management – \$4,748 Per Year

This activity is the management of the databases and routine records associated with the ICDF Complex operations. This includes the following tasks:

- Records management
- IWTS management and maintenance.

G-1.4.3.2 Records Storage and Audit Management – \$1,991 Per Year

This activity is the annual storage of records associated with the ICDF Complex operations and is support for producing the records during audits. This includes the following task:

- Store records.

G-1.4.3.3 Five-Year Review Support – \$6,265 Per Year

This activity is the annual maintenance of project record file on the ICDF Complex necessary to support the 5-yr reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-1.4.4 Surveillance and Monitoring – \$39,718 Per Year

With the implementation of the OU 3-13 Group 4 Perched Water remedy in effect, the perched water bodies are INTEC will be desaturated removing the requirement for sampling and analysis activities.

G-1.4.4.2 SRPA Monitoring – \$32,721 Per Year

This activity is the monitoring of the SRPA in the vicinity of the ICDF Complex including sample collection, analysis, and reporting in accordance with the ICDF Complex groundwater monitoring plan. This includes the following task:

- SRPA groundwater sampling and analysis.

G-1.4.4.4 Institutional Controls – \$6,997 Per Year

This activity is the implementation of the institutional controls for the ICDF Complex including some limited monitoring for implementation. This includes the following task:

- Maintain institutional controls/requirements.

G-1.4.5 Maintenance – \$9,392 Per Year

G-1.4.5.5 Landfill – \$9,392 Per Year

This activity is the preventive maintenance on pumps and other equipment necessary for leachate management along with maintenance of the engineered barrier. This includes the following task:

- Maintenance of the engineered barrier.

G-1.4.10 Program/Project Management – \$8,695 Per Year

G-1.4.10.1 Program Management - \$1,586 Per Year

This activity is the oversight and integration of the ICDF Complex into the WAG 3 project and consists of 1 hr of work per week. This includes the following task:

- Program management.

G-1.4.10.2 Project Management – \$7,109 Per Year

This activity is the specific project management associated with long-term postclosure care of the ICDF Complex and includes the routine project management (reporting, etc.). This includes the following task:

- Project management (routine).

G-1.4.10.3 Construction Management - \$0

There are no construction activities covered in the postclosure care of the ICDF Complex and therefore no construction management required.

G-2. Off-Site Treatment and Disposal

The scope of this alternative is the design, construction, startup, operations, and closure of the necessary facilities and structures to support shipping the INEEL CERCLA waste streams off-Site for treatment and disposal. Under this alternative, there is no on-Site treatment but the liquids (aqueous waste generated during remedial investigation, well development, and routine groundwater monitoring activities) are solidified without any attempt to reduce volumes. Design, construction, and startup costs are scaled from the existing cost that have occurred and are expected during the construction and startup activities of the ICDF Complex. Several components for the loadout facility have no comparable component in the ICDF Complex and therefore additional construction estimating was conducted to determine the cost of these components. For the operation activities, the same process that was used for the ICDF Complex is used. The closure approach for this alternative is clean closure (removal of all hazardous/radioactive wastes from the structures/facilities) of the facilities/structures with a small amount of contaminated materials sent off-Site for disposal and the clean waste disposed of in the on-Site bulk landfill.

G-2.1 Loadout Facility (Design/Build/Startup) - \$17,791,622

G-2.1.2 Loadout Facility Design - \$2,981,793

G-2.1.2.1 Loadout Facility Conceptual Design (10%) - \$800,403

This activity is the development of a conceptual design for the loadout facility. Due to the elimination of treatment for this alternative from the SSSTF conceptual design, the estimated cost is 85% (25% of scope dealt with treatment and the addition of 10% scope for dealing with the massive off-Site shipping and disposal issues) of the expense to develop the SSSTF conceptual design.

G-2.1.2.2 Loadout Facility Title I Design (30%) - \$977,111

This activity is the development of a Title I design for the loadout facility. Due to the elimination of treatment for this alternative from the SSSTF Title I design, the estimated cost is 60% (50% of scope dealt with treatment and the addition of 10% scope for dealing with the massive off-Site shipping and disposal issues) of the expense to develop the SSSTF Title I design.

G-2.1.2.3 Loadout Facility Title II Design (90%) - \$1,204,279

This activity is the development of a Title II design for the loadout facility. Due to the elimination of treatment for this alternative from the SSSTF Title II design, the estimated cost is 90% (20% of scope dealt with treatment and there is a on-going design activity for the Title II treatment design and the addition of 10% scope for dealing with the massive off-Site shipping and disposal issues) of the expense to develop the SSSTF Title II design.

G-2.1.3 Remedial Action Work Plan - \$550,075

G-2.1.3.1 Loadout Facility Remedial Action Work Plan - \$550,075

This activity is the development of the RAWP for operation of the loadout facility. Due to the elimination of treatment and the landfill/evaporation pond operations and with the addition of considerable characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 60% (50% of the scope dealt with treatment, landfill, and evaporation pond along with the off-Site treatment and disposal issues adding 10% to the scope) of the expense to develop the ICDF Complex RAWP.

G-2.1.4 Loadout Facility Startup - \$1,813,163

G-2.1.4.1 Develop Loadout Facility Waste Tracking System - \$220,500

This activity is the development of the waste tracking system for operation of the loadout facility. The same level of waste tracking system is required for off-Site treatment and disposal as necessary for the ICDF Complex. Therefore, the estimated cost for the loadout facility waste tracking system is 100% of the ICDF Complex waste tracking system cost.

G-2.1.4.2 Develop Loadout Facility O&M Manual - \$663,426

This activity is the development of the O&M Manual for operation of the loadout facility. Due to the elimination of treatment and the landfill/evaporation pond operations and with the addition of considerable characterization, packaging, and shipping for off-site treatment and disposal, the estimated cost is 50% (60% of the scope dealt with treatment, landfill, and evaporation pond along with the off-Site treatment and disposal issues adding 10% to the scope) of the expense to develop the ICDF Complex O&M Manual.

G-2.1.4.4 Personnel Training - \$71,400

This activity is training the personnel for operation of the loadout facility. Due to the elimination of treatment and the landfill/evaporation pond operations and with the addition of considerable characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 60% (50% of the scope dealt with treatment, landfill, and evaporation pond along with the off-Site treatment and disposal issues adding 10% to the scope) of the expense to train the personnel for operation of the facilities.

G-2.1.4.5 Startup Assessment - \$711,977

This activity is conducting the startup assessment for the loadout facility prior to commencing operations. Due to the elimination of treatment and the landfill/evaporation pond operations and with the addition of considerable characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 60% (50% of the scope dealt with treatment, landfill, and evaporation pond along with the off-Site

treatment and disposal issues adding 10% to the scope) of the expense to conduct the startup assessment. This activity includes both the internal (DOE and INEEL contractor) startup assessment and the EPA/IDEQ prefinal inspection for operations.

G-2.1.4.7 Loadout Facility Construction Inspections - \$12,240

This activity deals with the EPA and IDEQ prefinal inspection during and at the completion of construction of the loadout facility. Due to the elimination of treatment for this alternative from the SSSTF facilities/structures, the estimated cost is 60% (40% of the scope dealt with treatment) of the expense to conduct the prefinal construction inspection on the SSSTF.

G-2.1.4.8 Loadout Facility Remedial Action Report - \$133,620

This activity is the development of the RA report for operation of the loadout facility. Due to the elimination of treatment and the landfill/evaporation pond operations and with the addition of considerable characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 50% (60% of the scope dealt with treatment, landfill, and evaporation pond along with the off-Site treatment and disposal issues adding 10% to the scope) of the expense to develop the ICDF Complex RA report.

G-2.1.6 Loadout Facility Fleet Equipment - \$2,109,800

This activity is the procurement of the equipment necessary to operate the loadout facility. An evaluation of the equipment necessary to operate the loadout facility resulted the need for a front-end loader, forklift, several trucks, roll-on/roll-off containers with tarps, other miscellaneous operating equipment, mobile analytical laboratory with limited capacity, office equipment, and radiation control monitoring equipment.

G-2.1.7 Loadout Facility Construction - \$7,338,976

G-2.1.7.1 Site Preparation - \$959,460

This activity is the site preparation activities associated with the construction of the loadout facility. The same general facility footprint would be required for the loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the loadout facility site preparation activity is 100% of the SSSTF site preparation activity cost.

G-2.1.7.2 Utilities - \$1,090,254

This activity is the installation (construction) of utilities for the loadout facility. The same utilities would be required for the loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the loadout facility utilities activity is 100% of the SSSTF utilities activity cost.

G-2.1.7.3 Administrative Facility - \$249,829

This activity is the construction of the administrative facility for the loadout facility. The same type and size of administrative facility would be required for the loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the loadout facility administrative facility activity is 100% of the SSSTF administrative facility activity cost.

G-2.1.7.4 Weigh Scale - \$149,977

This activity is the constructions of the truck weigh scale for the loadout facility. The same type and size of scale would be required for the loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the loadout facility weigh scale activity is 100% of the SSSTF weigh scale activity cost.

G-2.1.7.5 Decontamination Facility - \$1,727,644

This activity is the construction of the decontamination facility for the loadout facility. The same general facility footprint would be required for the loadout facility as required for the SSSTF at the ICDF Complex. Although the soil stabilization treatment equipment is not included under this alternative, that area in the SSSTF decontamination facility will be used for solidification of aqueous wastes and storage under this alternative. Therefore, the loadout facility decontamination facility activity is 100% of the SSSTF site preparation activity cost.

G-2.1.7.6 Concrete Loading/Unloading Pad - \$2,279,526

This activity is the construction of the loading/unloading pad for the loadout facility. This concrete pad would measure 350 × 100 ft and be constructed of posttensioned concrete.

G-2.1.7.7 New Railroad Spurline into Loadout Facility - \$882,286

There are no railroad spurs that are located in the correct location that could be used for the loadout facility so a new railroad spur would be needed. This activity is the construction of the railroad spur associated with the loadout facility. This railroad spur would be 1.6 miles (8,450 ft) long and include three switches (one from the main rail line behind INTEC and two for the loadout facility to switch between the decontamination facility, loadout loading/unloading pad area, and loaded railcar staging area). Empty railroad cars would be staged on the railroad rail line behind INTEC.

G-2.1.10 Program/Project Management - \$2,997,815

G-2.1.10.1 Program Management - \$474,750

This activity is the management and engineering of the design/construction/startup components of the project at the WAG level. Due to the elimination of treatment and the landfill/evaporation pond from the design/construction/startup activities, the estimated cost is 50% (60%

of the scope dealt with treatment, landfill, and evaporation pond and addition of off-Site disposal add 10% to the scope) of the ICDF Complex expense to manage the project at the WAG level.

G-2.1.10.2 Project Management - \$2,182,029

This activity is the specific management of the design/construction/startup components of the project. Due to the elimination of treatment and the landfill/evaporation pond from the design/construction/startup activities, the estimated cost is 50% (60% of the scope dealt with treatment, landfill, and evaporation pond and the addition of off-Site disposal adds 10% to the scope) of the ICDF Complex expense to manage specific project activities.

G-2.1.10.3 Construction Management - \$341,036

This activity is the construction management associated with the construction components of the project. Due to the elimination of treatment and the landfill/evaporation pond from the design/construction/startup activities, the estimated cost is 50% (60% of the scope dealt with treatment, landfill, and evaporation pond and the addition of off-Site disposal adds 10% to the scope) of the ICDF Complex expense to manage the construction activities.

G-2.2 Loadout Facility Operations – \$65,784,165 Per Year (with All Components Yearly)

G-2.2.1 Waste Characterization - \$905,572 Per Year

G-2.2.1.1 Waste Stream Verification Sampling and Analysis - \$375,908 Per Year

This activity deals with selecting the sampling strategy, collecting samples, analyzing the samples, and reporting the results for both the verification and quality assurance requirements to demonstrate compliance with the off-Site treatment and disposal facility WAC documents. The scope of this activity is for verification and QA sampling analysis on 50,000 yd³/year using the sampling requirements to comply with the applicable WAC and operational limits. Assumed to be one sample per 200 yd³ analyzed using a combination of field instruments and an on-Site mobile laboratory with 10% QA/QC samples sent off-Site for quality assurance analysis. This includes the following tasks:

- Select verification sampling strategy
- Collect verification & QA/QC samples
- Analyze verification & QA/QC samples
- Report verification sample results.

G-2.2.1.2 Waste Stream Profile Acceptance - \$55,053 Per Year

This activity deals with the review and approval of the Material Profiles (20 waste streams) for waste destined for the loadout facility. This includes the following task:

- Material Profile review/approval.

G-2.2.1.5 Characterization of Stored Waste – \$474,611 Per Year

This activity consists of the development of a sampling and analysis plan for characterization of the waste streams currently in storage at the SSA. This involves the characterization of 21 waste streams by collecting samples and analyzing the samples at an on-Site mobile laboratory. In addition to the samples analyzed at the on-Site mobile laboratory, 18 samples would be sent off-Site for quality assurance analysis. This task also includes the development of 22 Waste Profiles (Material Profiles) for the waste that is in storage at the SSA. This includes the following tasks:

- Develop sampling and analysis plan
- Finalize sampling and analysis plan
- Collect characterization samples
- Analyze characterization samples
- Report characterization sample results
- Develop Material Profiles for stored waste streams.

G-2.2.2 Treatment and Disposal Operations – \$64,279,7859 Per Year

G-2.2.2.1 Waste Receipt Operations – \$145,200 Per Year

This activity deals with the receipt of waste into the loadout facility (i.e. paper work, receipt inspection, weighing, and other waste receipt activities) based on receipt of 50,000 yd³/yr. This includes the following tasks:

- Scheduling and planning (logistics)
- Scale readout and maintenance
- Waste receipt
- Survey incoming trucks.

G-2.2.2.2 Staging and Storage Operation - \$13,283 Per Year

This activity deals with the staging and storage operations (moving in 50 boxes and storing 6,000 gal of liquid per year) at the loadout facility (sufficient capacity currently exists at INTEC (SSA) available for 1,500 boxes and 12 double-contained tanks) but does not including the inspection activities. This includes the following tasks:

- Store, stage (waste, bulk materials)
- Load/unload (vehicles and containers).

G-2.2.2.7 Decontamination Operations – \$28,716 Per Year

This activity deals with the decontamination operations (dry decon for 10% and wet decon for 1% of the trucks/equipment delivering the waste to the loadout facility). This includes the following task:

- Decon (equip, tools, parts, facility).

G-2.2.2.8 Sizing Operations – \$28,810 Per Year

This activity deals with the minimal amount of sizing (100 yd³/yr) necessary for packaging/loading for off-Site disposal. This includes the following tasks:

- Sizing
- Load/unload vehicles and containers.

G-2.2.2.9a Packaging for Off-Site Disposal Operations – \$63,850,874 Per Year

This activity deals with packaging/loading of the waste streams (soils, debris, and solidified aqueous waste) into railroad cars for off-Site treatment and disposal. A volume of 46,941 yd³/yr (10,048 yd³/yr LLW soil; 22,380 yd³/yr MLLW LDR-compliant soil; 4,460 yd³/yr MLLW requiring treatment; 7,060 yd³/yr LLW debris; 2,991 yd³/yr MLLW debris; and 2 yd³/yr hazardous debris) would be loaded into railroad cars for disposal at an off-Site disposal facility (Envirocare of Utah assumed as disposal facility for estimating purposes). Waste currently contained in boxes at the SSA would be shipped on flatbed railroad cars and bulk soil and debris received into the loadout facility would be shipped in gondola railroad cars. Aqueous waste streams (36,400 gal of purge water in storage to be disposed over a 10-year period, 15,000 gal of purge water will be generated per year, and decontamination liquids – 11,000 gal/yr) would be solidified using a product such as SP-400 WaterWorks Crystals to produce a solid material that would be shipped like soil. To eliminate confusion on what waste stream is associated with the particular railroad car, only one waste stream would be shipped per railroad car. This results in approximately 846 railcar shipments per year for a 10-year period. Currently, existing contracts are used as the basis for the disposal cost unit rates. This includes the following tasks:

- Load LLW soil onto railroad cars
- Shipping LLW soils to off-Site commercial disposal facility
- Annual taxes for use of the off-Site commercial disposal facility
- Disposal of LLW soils at the off-Site commercial disposal facility
- Load MLLW (LDR-compliant) soil onto railroad cars

- Shipping MLLW (LDR-compliant) soils to off-Site commercial disposal facility
- Disposal of MLLW (LDR-compliant) soils at the off-Site commercial disposal facility
- Load MLLW (treatment required) soil onto railroad cars
- Shipping MLLW (treatment required) soils to off-Site commercial disposal facility
- Disposal of MLLW (treatment required) soils at the off-Site commercial disposal facility
- Load LLW debris onto railroad cars
- Shipping LLW debris to off-Site commercial disposal facility
- Disposal of LLW debris at the off-Site commercial disposal facility
- Load MLLW debris onto railroad cars
- Shipping MLLW debris to off-Site commercial disposal facility
- Disposal of MLLW debris at the off-Site commercial disposal facility
- Load hazardous debris onto railroad cars
- Shipping hazardous debris to off-Site commercial disposal facility
- Disposal of hazardous debris at the off-Site commercial disposal facility
- Solidify aqueous waste
- Load solidified aqueous waste onto railroad cars
- Shipping of solidified aqueous waste to off-Site commercial disposal facility
- Disposal of solidified aqueous waste at the off-Site commercial disposal facility.

G-3.2.2.9b Packaging for Off-Site Disposal Operations - \$80,141 Per Year

This activity includes packaging and off-Site disposal (10 yd³/yr of alpha LLW [10 to 100 nCi/g TRU constituents]) of waste materials that do not meet the off-Site commercial disposal facility WAC for disposal at the Nevada Test Site disposal facilities. This includes the following tasks:

- Load/unload (vehicles and containers) (alpha LLW)

- Off-Site packaging (alpha LLW)
- Off-Site shipping and disposal (alpha LLW).

G-2.2.2.10 Miscellaneous Access and Operational Activities – \$212,903 Per Year

This activity deals with the day-to-day operations of the loadout facility along with controlling access to the loadout facility and other miscellaneous activities necessary for operation of the loadout facility. This includes the following:

- Access control
- Prejob briefing
- Operations training
- Procurement
- Store and control spare parts
- Dosimetry control
- Spill control
- Work control (day-to-day)
- Radio communications
- Emergency management
- Spill kit.

G-2.2.3 Records Management – \$143,475 Per Year

G-2.2.3.1 Records Management – \$118,836 Per Year

This activity is the management of the databases and routine records associated with the loadout facility operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Data tracking reports.

G-2.2.3.2 Records Storage and Audit Management – \$17,053 Per Year

This activity is the annual storage of records associated with the loadout facility operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support loadout facility audits.

G-2.2.3.3 Five-yr Review Support – \$7,587 Per Year

This activity is the annual maintenance of project record file on the loadout facility necessary to support the 5-year reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-2.2.4 Surveillance and Monitoring – \$212,176 Per Year

G-2.2.4.4 Institutional Controls – \$8,319 Per Year

This activity is the implementation of the institutional controls for the loadout facility including some limited monitoring for implementation. This includes the following task:

- Maintain institutional controls/requirements.

G-2.2.4.5 Container Storage Area Surveillances – \$32,046 Per Year

This activity is the monitoring of the containers (boxes and other containers for solid materials) currently existing at INTEC (i.e., SSA) encompassing the weekly visual inspection of 1,000 boxes. Also, this task would include the surveillances for the new staging and storage areas constructed for the loadout operations. This includes the following task:

- Surveillance/inspection.

G-2.2.4.6 Tank Storage Area Surveillances – \$66,447 Per Year

This activity is the monitoring of the storage tanks (tanks with secondary containment) currently existing at INTEC (i.e., SSA) encompassing the daily visual inspection of eight tanks. This includes the following task:

- Surveillance/inspection.

G-2.2.4.7 Decontamination Facility – \$34,142 Per Year

This activity is the monitoring of the decontamination facility in the loadout facility and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillance/inspection

- Rad testing
- Process monitor/operations.

G-2.2.4.11 Administrative Facility and Grounds – \$33,691 Per Year

This activity is the monitoring of the grounds, utilities, and administrative facility for the loadout facility and includes surveillances and monitoring activities along with freeze protection issues. This includes the following tasks:

- Surveillances
- Process monitoring and operations
- Monitor/report freeze protection.

G-2.2.4.12 Fleet Equipment Surveillances – \$37,531 Per Year

This activity is the monitoring of the equipment including the heavy equipment used loadout facility operations along with maintaining freeze protection on the equipment. This includes the following tasks:

- Freeze protection of equipment
- Surveillance/inspection.

G-2.2.5 Maintenance – \$89,889 Per Year

G-2.2.5.1 Fencing and Grounds – \$41,537 Per Year

This activity is maintenance on the utilities, grounds, and roads associated with the loadout facility. This includes the following task:

- Utilities, roads, and grounds.

G-2.2.5.2 Administrative Facility – \$11,824 Per Year

This activity is the building maintenance on the administrative facility for the loadout facility. This includes the following task:

- Building maintenance.

G-2.2.5.3 Equipment – \$15,000 Per Year

This activity is the preventive and other maintenance on the loadout facility equipment including equipment used in the landfill disposal operations. This includes the following task:

- Equipment (heavy) maintenance.

G-2.2.5.7 Decontamination Facility – \$21,528 Per Year

This activity is the building maintenance on the decontamination facility including the heating, ventilating, and air conditioning (HVAC) system and janitorial services for the loadout facility. This includes the following task:

- Building maintenance (HVAC, janitorial).

G-2.2.10 Program/Project Management – \$152,391 Per Year

G-2.2.10.1 Program Management - \$ 26,430 Per Year

This activity is the oversight and integration of the loadout facility into the WAG 3 project and consists of 4 hr of work per week. This includes the following task:

- Program management.

G-2.2.10.2 Project Management – \$125,961 Per Year

This activity is the specific project management associated with operating the loadout facility and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management
- Project management (routine).

G-2.2.10.3 Construction Management - \$0 Per Year

There are no construction activities covered in the operations of the loadout facility and therefore no construction management required.

G-2.3 Loadout Facility Closure - \$2,221,353

The closure of the loadout facility will consist of clean closure (complete removal and disposal) for both the loadout facility structures.

G-2.3.1 Deactivation and Characterization - \$1,332,457

G-2.3.1.1 Deactivate ICDF Complex Structures - \$255,437

This activity involves the shutting down systems, removal of wastes, characterizing the residual contamination, and placing the structures in safe conditions that minimize the future surveillance and maintenance activities. This includes the following tasks:

- Decontamination facility
- Loading/unloading pad
- Container storage areas
- Tank storage areas.

G-2.3.1.2 Update/Modify Remedial Design/Construction Work Plan/Remedial Action Work Plans - \$249,892

This activity involves updating/modifying the RD/CWP/RAWP documents for the loadout facility under the FFA/CO to deal with the specific closure requirements and technical specification necessary for implementing the final closure activities. This includes the following tasks:

- Develop modifications to the RD/CWP/RAWP documents
- Submit modifications to EPA and IDEQ
- Revise modifications based on EPA and IDEQ comments
- Submit finalized revisions to the RD/CWP/RAWP documents.

G-2.3.1.4 D&D&D of Loadout Facility - \$702,307

This activity involves the procurement of the subcontractor and removal of the loadout facilities including disposal of the uncontaminated materials at an on-Site landfill. The contaminated materials are set aside for subsequent off-Site disposal. Also, following the removal of the structures, characterization activities are conducted to ensure that the residual contamination is below the RA objectives established in the OU 3-13 ROD. This includes the following tasks:

- Procurement of subcontractor
- Removal of the loading/unloading pad
- Removal of the decontamination facility
- Removal of the container storage areas
- Removal of the tank storage areas
- Removal of the administrative facility
- D&D&D of the utilities
- Post-D&D&D characterization of the loadout facility areas.

G-2.3.1.5 Disposal of Waste from D&D&D Activities - \$124,821

During the D&D&D of the loadout structures an estimated 60 yd³ of LDR-compliant (treated) mixed low-level debris will be generated and require disposal. This activity involves the packaging, shipment, and disposal of the remaining mixed low-level debris off-Site. This includes the following tasks:

- Off-Site packaging
- Load MLLW debris onto railroad cars

- Shipping MLLW debris to offsite commercial disposal facility
- Disposal of MLLW debris at the offsite commercial disposal facility.

G-2.3.3 Records Management - \$66,578

G-2.3.3.1 Records Management – \$36,702

This activity is the management of the databases and routine records associated with the loadout facility operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Data tracking reports.

G-2.3.3.2 Records Storage and Audit Management – \$14,703

This activity is the annual storage of records associated with the loadout facility operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support loadout facility audits.

G-2.3.3.3 Five-Year Review Support – \$15,173

This activity is the annual maintenance of project record file on the loadout facility necessary to support the 5-yr reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-2.3.10 Program/Project Management – \$822,319

G-2.3.10.1 Program Management - \$118,935

This activity is the oversight and integration of the loadout facility into the WAG 3 project and consists of 10 hr of work per week. This includes the following task:

- Program management.

G-2.3.10.2 Project Management – \$453,384

This activity is the specific project management associated with closure of the loadout facility and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management

- Project management (routine).

G-2.3.10.3 Construction Management - \$250,000

This activity is the construction management associated with the construction components of the project.

G-3. Off-Site Disposal

The scope of this alternative is the design, construction, startup, operations, and closure of the necessary facilities to treat the INEEL CERCLA waste on-Site and to support shipping the INEEL CERCLA waste streams off-Site for disposal. Under this alternative there is on-Site treatment for soils, debris, and aqueous waste streams. Design, construction, and startup costs are scaled from the existing cost that have occurred and are expected during the construction and startup activities of the ICDF Complex. Several components for the treatment and loadout facilities have no comparable components in the ICDF Complex and therefore additional construction estimating was conducted to determine the cost of these components. For the operation activities, the same process that was used for the ICDF Complex is used. The closure approach for this alternative is clean closure (removal of all hazardous/radioactive wastes from the structures/facilities) of the facilities/structures with a small amount of contaminated materials sent off-Site for disposal and the clean waste disposed in the on-Site bulk landfill.

G-3.1 Treatment and Loadout Facility (Design/Build/Startup) - \$24,173,674

G-3.1.2 Treatment and Loadout Facility Design - \$4,857,510

G-3.1.2.1 Treatment and Loadout Facility Conceptual Design (10%) - \$988,734

This activity is the development of a conceptual design for the treatment and loadout facility. Due to the addition of an aqueous waste treatment system for this alternative from the SSSTF conceptual design, the estimated cost is 105% (addition of 5% scope to deal with aqueous waste treatment) of the expense to develop the SSSTF conceptual design.

G-3.1.2.2 Treatment and Loadout Facility Title I Design (30%) - \$1,791,370

This activity is the development of a Title I (30%) design for the treatment and loadout facility. Due to the addition of an aqueous waste treatment system for this alternative from the SSSTF Title I design, the estimated cost is 110% (addition of 10% scope to deal with aqueous waste treatment and off-Site shipping issues) of the expense to develop the SSSTF Title I design.

G-3.1.2.3 Treatment and Loadout Facility Title II Design (90%) - \$1,471,897

This activity is the development of a Title II (90%) design for the treatment and loadout facility. Due to the addition of an aqueous waste treatment system for this alternative from the SSSTF Title II design, the estimated cost is 110% (addition of 10% scope to deal with aqueous waste treatment system definition and off-Site shipping issues) of the expense to develop the SSSTF Title II design.

G-3.1.2.4 Soils Stabilization Treatment Unit Design - \$302,755

This activity is the development of a Title II design for the soils stabilization treatment unit (SSTU). The same type and size of scale would be required for the SSTU as required for the SSSTF at the ICDF Complex. Therefore the SSTU for the treatment and loadout facility activity is 100% of the SSSTF SSTU activity cost.

G-3.1.2.5 Aqueous Waste Treatment System Design - \$302,755

This activity is the development of a Title II design for the treatment of aqueous waste received into the treatment and loadout facility. The treatment unit would consist of a small scale evaporator and the integration of the treatment unit into the treatment and loadout facility infrastructure systems. As the design for the treatment unit would be similar to the SSSTF SSTU design (off the shelf treatment unit with the design mainly dealing with the connections to the infrastructure and loading/unloading issues), the cost of the design would be the same as for the SSSTF SSTU design.

G-3.1.3 Remedial Action Work Plan - \$733,434

G-3.1.3.1 Treatment and Loadout Facility Remedial Action Work Plan - \$733,434

This activity is the development of the RAWP for operation of the treatment and loadout facility. Due to the elimination of the landfill/evaporation pond operations and with the addition of considerable treatment, characterization, packaging, and shipping for off-Site disposal issues, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the off-Site disposal and aqueous waste treatment issues adding 20% to the scope) of the expense to develop the ICDF Complex RAWP.

G-3.1.4 Treatment and Loadout Facility Startup - \$2,556,597

G-3.1.4.1 Develop Treatment and Loadout Facility Waste Tracking System - \$220,500

This activity is the development of the waste tracking system for operation of the treatment and loadout facility. The same level of waste tracking system is required for off-Site treatment and disposal as necessary for the ICDF Complex. Therefore, the estimated cost for the treatment and loadout facility waste tracking system is 100% of the ICDF Complex waste tracking system cost.

G-3.1.4.2 Develop Treatment and Loadout Facility O&M Manual - \$1,061,482

This activity is the development of the O&M Manual for operation of the treatment and loadout facility. Due to the elimination of the landfill and evaporation pond operations and with the addition of considerable aqueous waste treatment, characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the aqueous waste treatment and off-Site disposal issues adding 20% to the scope) of the expense to develop the ICDF Complex O&M Manual.

G-3.1.4.4 Personnel Training - \$95,200

This activity is training the personnel to operate the treatment and loadout facility. Due to the elimination of the landfill and evaporation pond

operations and with the addition of considerable aqueous waste treatment, characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the aqueous waste treatment and off-Site disposal issues adding 20% to the scope) of the expense to train the personnel for operation of the facilities.

G-3.1.4.5 Startup Assessment - \$949,303

This activity is conducting the startup assessment for the treatment and loadout facility prior to commencing operations. Due to the elimination of the landfill and evaporation pond operations and with the addition of considerable aqueous waste treatment, characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the aqueous waste treatment and off-Site disposal issues adding 20% to the scope) of the expense to conduct the startup assessment. This activity includes both the internal (DOE and INEEL contractor) startup assessment and the EPA/IDEQ prefinal inspection for operations.

G-3.1.4.7 Loadout Facility Construction Inspections - \$16,320

This activity deals with the EPA and IDEQ prefinal inspection during and at the completion of construction of the treatment and loadout facility. Due to the elimination of the landfill and evaporation pond operations and with the addition of considerable aqueous waste treatment, characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the aqueous waste treatment and off-Site disposal issues adding 20% to the scope) of the expense to conduct the prefinal construction inspection on the SSSTF.

G-3.1.4.8 Loadout Facility Remedial Action Report - \$213,792

This activity is the development of the RA report for operation of the treatment and loadout facility. Due to the elimination of the landfill and evaporation pond operations, and with the addition of considerable aqueous waste treatment, characterization, packaging, and shipping for off-Site treatment and disposal, the estimated cost is 80% (40% of the scope dealt with landfill and evaporation pond along with the aqueous waste treatment and off-Site disposal issues adding 20% to the scope) of the expense to develop the ICDF Complex RA report.

G-3.1.6 Treatment and Loadout Facility Fleet Equipment - \$2,124,882

This activity is the procurement of the equipment necessary to operate the treatment and loadout facility. An evaluation of the equipment necessary to operate the treatment and loadout facility resulted the need for a front-end loader, forklift, several trucks, roll-on/roll-off containers with tarps, other miscellaneous operating equipment, mobile analytical laboratory with limited capacity, office equipment, and radiation control monitoring equipment.

G-3.1.7 Loadout Facility Construction - \$9,104,749

G-3.1.7.1 Site Preparation - \$959,460

This activity is the site preparation activities associated with the construction of the treatment and loadout facility. The same general facility footprint would be required for the treatment and loadout facility as required for the SSSTF at the ICDF Complex. Therefore the treatment and loadout facility site preparation activity is 100% of the SSSTF site preparation activity cost.

G-3.1.7.2 Utilities - \$1,090,254

This activity is the installation (construction) of utilities for the treatment and loadout facility. The same utilities would be required for the treatment and loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the treatment and loadout facility utilities activity is 100% of the SSSTF utilities activity cost.

G-3.1.7.3 Administrative Facility - \$249,829

This activity is the construction of the administrative facility for the treatment and loadout facility. The same type and size of administrative facility would be required for the treatment and loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the treatment and loadout facility administrative facility activity is 100% of the SSSTF administrative facility activity cost.

G-3.1.7.4 Weigh Scale - \$149,977

This activity is the constructions of the truck weigh scale for the treatment and loadout facility. The same type and size of scale would be required for the treatment and loadout Facility as required for the SSSTF at the ICDF Complex. Therefore, the treatment and loadout facility weigh scale activity is 100% of the SSSTF weigh scale activity cost.

G-3.1.7.5 Decontamination Facility - \$1,727,644

This activity is the construction of the decontamination facility for the treatment and loadout facility. The same general facility footprint would be required for the treatment and loadout facility as required for the SSSTF at the ICDF Complex. Therefore, the treatment and loadout facility decontamination facility activity is 100% of the SSSTF site preparation activity cost.

G-3.1.7.6 Concrete Loading/Unloading Pad - \$2,279,526

This activity is the construction of the loading/unloading pad for the loadout facility. This concrete pad would measure 350 × 100 ft and be constructed of posttensioned concrete.

G-3.1.7.7 New Railroad Spurline into Loadout Facility - \$882,286

There are no railroad spurs that are located in the correct location that could be used for the loadout facility, a new railroad spur would be needed. This activity is the construction of the railroad spur associated with the loadout facility. This railroad spur would be 1.6 miles (8,450 ft) long and include three switches (one from the main rail line behind INTEC and two for the loadout facility to switch between the decontamination facility, loadout loading/unloading pad area, and loaded railcar staging area). Empty railroad car would be staged on the rail line behind INTEC.

G-3.1.7.8 Soils Stabilization Treatment Unit – \$1,003,773

This activity is the construction and installation of soils stabilization treatment unit for the treatment and loadout facility. The same treatment unit would be required for the treatment and loadout facility as required for the SSSTF at the ICDF Complex. However, there is sufficient throughput capacity for the mixing unit to increase the treatment rate to 20 yd³/day. Therefore, the treatment and loadout facility utilities activity is 100% of the SSSTF soils stabilization treatment unit activity cost.

G-3.1.7.9 Debris Waste Treatment Equipment – \$12,000

This activity is the construction and installation of the debris treatment equipment. This equipment would consist of three steel forms (4 × 4 × 8 ft) with fold-down sides that debris can be placed into the form. Allowing for grout to be placed on top of the debris, which would then cover the debris and result is a solid block.

G-3.1.7.10 Aqueous Waste Treatment Unit – \$750,000

This activity is the construction and installation of an electrically heated evaporator with a 25 gph throughput. In addition, the necessary piping, pumps, and tanks are part of this aqueous waste treatment unit. This evaporator would also be installed in the treatment area within the decontamination building.

G-3.1.10 Program/Project Management - \$4,796,503

G-3.1.10.1 Program Management - \$759,600

This activity is the management and engineering of the design/construction/startup components of the project at the WAG level. Due to the elimination of the landfill and evaporation pond from the design/construction/startup activities, the estimated cost is 80% (50% of the scope dealt with landfill and evaporation pond and the addition of aqueous waste treatment and off-Site shipping/disposal increases the scope by 30%) of the ICDF Complex expense to manage the project at the WAG level.

G-3.1.10.2 Project Management - \$3,491,246

This activity is the specific management of the design/construction/startup components of the project. Due to the elimination of the landfill and evaporation pond from the design/construction/startup activities, the estimated cost is 80% (50% of the scope dealt with landfill and evaporation pond and the addition of aqueous waste treatment and off-Site shipping/disposal increases the scope by 30%) of the ICDF Complex expense to manage specific project activities.

G-3.1.10.3 Construction Management - \$545,657

This activity is the construction management associated with the construction components of the project. Due to the elimination of the landfill and evaporation pond from the design/construction/startup activities, the estimated cost is 80% (50% of the scope dealt with landfill and evaporation pond and the addition of aqueous waste treatment and off-Site shipping/disposal increases the scope by 30%) of the ICDF Complex expense to manage the construction activities.

G-3.2 Treatment and Loadout Facility Operations – \$14,548,977 Per Year

G-3.2.1 Waste Characterization - \$1,339,957 Per Year

G-3.2.1.1 Waste Stream Verification Sampling and Analysis - \$375,908 Per Year

This activity deals with selecting the sampling strategy, collecting samples, analyzing the samples, and reporting the results for both the verification and quality assurance requirements to demonstrate compliance with the off-Site treatment and disposal facility WAC documents. The scope of this activity is for verification and QA sampling analysis on 50,000 yd³/year using the sampling requirements to comply with the applicable WAC and operational limits. Assumed to be one sample per 200 yd³ analyzed using a combination of field instruments and an on-Site mobile laboratory with 10% QA/QC samples sent off-Site for quality assurance analysis. This includes the following tasks:

- Select verification sampling strategy
- Collect verification and QA/QC samples
- Analyze verification and QA/QC samples
- Report verification sample results.

G-3.2.1.2 Waste Stream Profile Acceptance - \$55,053 Per Year

This activity deals with the review and approval of the Material Profiles (20 waste streams) destined for the Treatment and Loadout Facility. This includes the following task:

- Material Profile review/approval.

G-3.2.1.3 Posttreatment Sampling and Analysis (Soils/Aqueous Waste) - \$456,502 Per Year

This activity deals with the development of the treatment recipe (treatability study for five waste streams) at an on-Site mobile laboratory including having four samples sent off-Site for sample analysis. The verification of post treatment of 4,500 yd³ of the waste following treatment through the soil stabilization process using the sampling frequency and rationale discussed in the posttreatment verification sampling and analysis plan (DOE-ID 2003) with the sample analysis conducted in the on-Site mobile laboratory and includes sending 16 samples off-Site for QA analysis. This includes the onsite analysis for verification along with off-Site analysis for QA. In addition, the necessary documentation (five waste streams) would be developed to support that this waste should not be considered listed waste any longer allowing for disposal as LLW soils. This includes the following tasks:

- Treatability study
- Develop no-longer-contained-in documentation for treated soils and aqueous wastes
- Collect verification and QA/QC samples
- Analyze verification and QA/QC samples
- Report verification sample results.

G-3.2.1.4 Posttreatment Shipping Container Analysis (Debris) - \$452,494 Per Year

This activity deals with the development of the treatment recipe/process refinements (treatability study for five waste streams) and analysis/inspection/certification of treated debris wastes made into 4 × 4 × 8 -ft blocks of grouted waste (3,000 yd³/yr prior to treatment or 3,750 yd³/yr following treatment) as suitable for off-Site disposal and acceptable as shipping containers following the treatment process. In addition, the necessary documentation (five waste streams) would be developed to support that this waste should not be considered listed waste any longer allowing for disposal as LLW debris. This includes the following tasks:

- Treatability study
- Develop no-longer-contained-in documentation for treated debris
- Analyze treated debris shipping container
- Report treated debris shipping container results.

G-3.2.1.5 Characterization of Stored Waste – \$474,611 Per Year

This activity consists of the development of a sampling and analysis plan for characterization of the waste streams currently in storage at the SSA.

This involves the characterization of 21 waste streams by collecting samples and analyzing the samples at an on-Site mobile laboratory. In addition to the samples analyzed at the onsite mobile laboratory, 18 samples would be sent off-Site for quality assurance analysis. This task also includes the development of 22 Waste Profiles (Material Profiles) for the waste that is in storage at the SSA. This includes the following tasks:

- Develop sampling and analysis plan
- Finalize sampling and analysis plan
- Collect characterization samples
- Analyze characterization samples
- Report characterization sample results
- Develop Material Profiles for stored waste streams.

G-3.2.2 Treatment and Disposal Operations – \$12,430,894 Per Year

G-3.2.2.1 Waste Receipt Operations – \$145,200 Per Year

This activity deals with the receipt of waste into the treatment and loadout facility (i.e., paperwork, receipt inspection, weighing, and other waste receipt activities) based on receipt of 50,000 yd³/yr. This includes the following tasks:

- Scheduling and planning (logistics)
- Scale readout and maintenance
- Waste receipt
- Survey incoming trucks.

G-3.2.2.2 Staging and Storage Operation - \$13,283 Per Year

This activity deals with the staging and storage operations (moving in 50 boxes and storing 6,000 gal of liquid per year) at the treatment and loadout facility (sufficient capacity currently exists at INTEC [SSA] available for 1,500 boxes and 12 double-contained tanks) but does not including the inspection activities. This includes the following tasks:

- Store, stage (waste, bulk materials)
- Load/unload (vehicles and containers).

G-3.2.2.3 Soil Stabilization Treatment Operations - \$576,1172 Per Year

This activity deals with the treatment of 4,500 yd³/yr of waste soils in the soil stabilization treatment unit (i.e., loading the treatment unit, mixing, and unloading into the treated waste staging container) using Portland cement at 400 lb/yd³ treated. This includes the following tasks:

- Stabilization
- Load/unload vehicles and containers
- Receive bulk materials.

G-3.2.2.4 Debris Treatment by Microencapsulation Operations - \$292,472 Per Year

This activity deals with the treatment of the boxed and bulk debris by the microencapsulation process for debris treatment at a rate of 3,000 yd³/yr (prior to treatment 3,750 yd³/yr following treatment – boxes or forms are at 75% of capacity prior to grout addition). The debris currently in boxes or other containers would be microencapsulated in the box/container. The bulk debris waste would be placed into concrete forms and grouted into a solid mass. Following the grouting operations, the boxes/containers/grouted mass would be inspected and prepared for shipment to an off-Site commercial disposal facility (Envirocare of Utah used for cost estimating purposes). This includes the following tasks:

- Debris treatment
- Load/unload vehicles and containers.

G-3.2.2.6 Aqueous Waste Treatment Unit Operations - \$117,238 Per Year

This activity involves operating and treating 30,000 gal/yr of aqueous waste using the treatment unit consisting of a small scale evaporator. In addition, waste would be received into this treatment unit, transferred out of the treatment unit for use in the soil and debris treatment operations, and necessary decontamination conducted as part of routine operations. This includes the following tasks:

- Receive aqueous waste by truck
- Operate aqueous waste evaporator
- Transfer concentrated aqueous waste to soil stabilization treatment unit
- Routine evaporator decontamination.

G-3.2.2.7 Decontamination Operations – \$28,716 Per Year

This activity deals with the decontamination operations (dry decon for 10% and wet decon for 1% of the trucks/equipment delivering the waste to the treatment and loadout facility). This includes the following task:

- Decon (equipment, tools, parts, facility).

G-3.2.2.8 Sizing Operations – \$28,810 Per Year

This activity deals with the minimal amount of sizing (100 yd³/yr) necessary for disposal in the landfill or packaging for off-Site disposal. This includes the following tasks:

- Sizing
- Load/unload vehicles and containers.

G-3.2.2.9a Packaging for Off-Site Disposal Operations – \$11,016,155 Per Year

This activity deals with packaging/loading of the waste streams (soils, debris, and treated aqueous waste) into railroad cars for off-Site treatment and disposal. A volume of 49,054 yd³/yr following treatment (10,048 yd³/yr LLW soil; 22,380 yd³/yr MLLW LDR-compliant soil; 5,575 yd³/yr treated MLLW soil; 7,060 yd³/yr LLW debris; 3,988 yd³/yr MLLW debris; and 3 yd³/yr hazardous debris) would be loaded into railroad cars for disposal at an off-Site disposal facility (Envirocare of Utah assumed as disposal facility for estimating purposes). The MLLW soil (non-LDR-compliant) waste would be treated along with the MLLW debris and hazardous debris. Using the no-longer-contained-in documentation discussed in G-3.2.1.3 and G-3.2.1.4, the waste would be disposed of as LLW (LLW soil and debris). The residuals from the aqueous waste treatment unit (treatment of 36,400 gal of purge water currently in storage, 15,000 gal/yr of purge water, and 11,000 gal/yr of decontamination fluids prior to treatment) would have solidified in the soils stabilization treatment unit and disposed of as LLW soil. To eliminate confusion on what waste stream is associated with the particular railroad car, only one waste stream would be shipped per railroad car. This results in approximately 878 railcar shipments per year for a 10-year period. Currently, existing contracts are used as the basis for the disposal cost unit rates. This includes the following tasks:

- Load LLW soil (LLW soils include MLLW soil that no longer has listed waste or characteristic waste issues) onto railroad cars
- Shipping LLW soils to off-Site commercial disposal facility
- Annual taxes for use of the off-Site commercial disposal facility
- Disposal of LLW soils at the off-Site commercial disposal facility

- Load LLW debris (LLW debris include MLLW and hazardous debris that no longer has listed waste or characteristic waste issues) onto railroad cars
- Shipping LLW debris to off-Site commercial disposal facility
- Disposal of LLW debris at the off-Site commercial disposal facility.

G-3.2.2.9b Packaging for Off-Site Disposal Operations - \$80,141 Per Year

This activity includes packaging and off-Site disposal (10 yd³/yr of alpha LLW [10 to 100 nCi/g TRU constituents]) of waste materials that do not meet the off-Site commercial disposal facility WAC for disposal at the Nevada Test Site disposal facilities. This includes the following tasks:

- Load/unload (vehicles and containers) (alpha LLW)
- Off-Site packaging (alpha LLW)
- Off-Site shipping and disposal (alpha LLW).

G-3.2.2.10 Miscellaneous Access and Operational Activities – \$212,903 Per Year

This activity deals with the day-to-day operations of the treatment and loadout facility, along with controlling access and other miscellaneous activities necessary for operation of the treatment and loadout facility. This includes the following:

- Access control
- Prejob briefing
- Operations training
- Procurement
- Store and control spare parts
- Dosimetry control
- Spill control
- Work control (day-to-day)
- Radio communications
- Emergency management
- Spill kit.

G-3.2.3 Records Management – \$149,494 Per Year

G-3.2.3.1 Records Management – \$124,855 Per Year

This activity is the management of the databases and routine records associated with the treatment and loadout facility operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Data tracking reports
- Track liquid waste to evaporator.

G-3.2.3.2 Records Storage and Audit Management – \$17,053 Per Year

This activity is the annual storage of records associated with the treatment and loadout facility operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support ICDF Complex audits.

G-3.2.3.3 Five-yr Review Support – \$7,587 Per Year

This activity is the annual maintenance of project record file on the treatment and loadout facility necessary to support the 5-year reviews under CERCLA. This includes the following tasks:

- Maintain project file to support 5-yr reviews.

G-3.2.4 Surveillance and Monitoring – \$273,851 Per Year

G-3.2.4.4 Institutional Controls – \$8,319 Per Year

This activity is the implementation of the institutional controls for the treatment and loadout facility including some limited monitoring for implementation. This includes the following task:

- Maintain institutional controls/requirements.

G-3.2.4.5 Container Storage Area Surveillances – \$32,046 Per Year

This activity is the monitoring of the containers (boxes and other containers for solid materials) currently existing at INTEC (i.e., SSA) encompassing the weekly visual inspection of 1,000 boxes. Also, this task includes the surveillances for staging and storage areas constructed for loadout operations. This includes the following task:

- Surveillance/inspection.

G-3.2.4.6 Tank Storage Area Surveillances – \$66,447 Per Year

This activity is the monitoring of the storage tanks (tanks with secondary containment) currently existing at INTEC (i.e., SSA) encompassing the daily visual inspection of eight tanks. This includes the following task:

- Surveillance/inspection.

G-3.2.4.7 Decontamination Facility – \$34,142 Per Year

This activity is the monitoring of the decontamination facility in the treatment and loadout facility and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillance/inspection
- Rad testing
- Process monitor/operations.

G-3.2.4.8 Treatment Unit Surveillances – \$30,838 Per Year

This activity is the monitoring of the treatment unit in the decontamination facility in the treatment and loadout facility and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillance/inspection
- Rad testing
- Process monitor/operations.

G-3.2.4.10 Aqueous Waste Treatment Unit Surveillances – \$30,838 Per Year

This activity is the weekly monitoring of the evaporator treatment unit in the treatment and loadout facility and includes periodic radiation surveying (testing) along with other surveillances and monitoring activities. This includes the following tasks:

- Surveillances
- Leak detection
- Evaporation pond liquid sampling and analysis
- Surveillance/inspection.

G-3.2.4.11 Administrative Facility and Grounds – \$33,691 Per Year

This activity is the monitoring of the grounds, utilities, and administrative facility for the treatment and loadout facility and includes surveillances and

monitoring activities along with freeze protection issues. This includes the following tasks:

- Surveillances
- Process monitoring and operations
- Monitor/report freeze protection.

G-3.2.4.12 Fleet Equipment Surveillances – \$37,531 Per Year

This activity is the monitoring of the equipment including the heavy equipment used in the treatment and loadout facility operations along with maintaining freeze protection on the equipment. This includes the following tasks:

- Freeze protection of equipment
- Surveillance/inspection.

G-3.2.5 Maintenance – \$122,959 Per Year

G-3.2.5.1 Fencing and Grounds – \$41,537 Per Year

This activity is maintenance on the utilities, grounds, and roads associated with the treatment and loadout facility. This includes the following task:

- Utilities, roads, and grounds.

G-3.2.5.2 Administrative Facility – \$11,824 Per Year

This activity is the building maintenance on the administrative facility for the treatment and loadout facility. This includes the following task:

- Building maintenance.

G-3.2.5.3 Equipment – \$15,000 Per Year

This activity is the preventive and other maintenance on the treatment and loadout facility equipment including equipment used in the landfill disposal operations. This includes the following task:

- Equipment (heavy) maintenance.

G-3.2.5.4 Soil Stabilization Treatment System – \$15,285 Per Year

This activity is the preventive and other maintenance on the soils stabilization treatment unit equipment. This includes the following task:

- Process equipment maintenance.

G-3.2.5.6 Aqueous Waste Treatment Unit – \$17,785 Per Year

This activity is the preventive maintenance on instruments and other equipment necessary for proper operation of the aqueous waste treatment system. This includes the following task:

- Process equipment maintenance.

G-3.2.5.7 Decontamination Facility – \$21,528 Per Year

This activity is the building maintenance on the decontamination facility including the HVAC system and janitorial services for the treatment and loadout facility. This includes the following task:

- Building maintenance (HVAC, janitorial).

G-3.2.10 Program/Project Management – \$231,681 Per Year

G-3.2.10.1 Program Management - \$ 26,430 Per Year

This activity is the oversight and integration of the ICDF treatment and loadout facility into the WAG 3 project and consists of 4 hr of work per week. This includes the following task:

- Program management.

G-3.2.10.2 Project Management – \$205,251 Per Year

This activity is the specific project management associated with operating the treatment and loadout facility and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management
- Project management (routine).

G-3.2.10.3 Construction Management - \$0 Per Year

There are no construction activities covered in the operations of the treatment and loadout facility and therefore no construction management required.

G-3.3 Treatment and Loadout Facility Closure - \$2,316,105

The closure of the treatment and loadout facility will consist of clean closure (complete removal and disposal) for both the treatment and loadout facility structures.

G-3.3.1 Deactivation and Characterization - \$1,402,208

G-3.3.1.1 Deactivate ICDF Complex Structures - \$313,401

This activity involves the shutting down systems, removal of wastes, characterizing the residual contamination, and placing the structures in safe

conditions that minimize the future surveillance and maintenance activities. This includes the following tasks:

- Decontamination facility
- Loading/unloading pad
- SSTU
- Aqueous waste treatment equipment
- Container storage areas
- Tank storage areas.

G-3.3.1.2 Update/Modify Remedial Design/Construction Work Plan/Remedial Action Work Plans - \$249,892

This activity involves updating/modifying the RD/CWP/RAWP documents for the treatment and loadout facility under the FFA/CO to deal with the specific closure requirements and technical specification necessary for implementing the final closure activities. This includes the following tasks:

- Develop modifications to the RD/CWP/RAWP documents
- Submit modifications to EPA and IDEQ
- Revise modifications based on EPA and IDEQ comments
- Submit finalized revisions to the RD/CWP/RAWP documents.

G-3.3.1.4 D&D&D of Treatment and Loadout Facility - \$714,094

This activity involves the procurement of the subcontractor and removal of the loadout facilities including disposal of the uncontaminated materials at an on-Site landfill. The contaminated materials are set aside for subsequent off-Site disposal. Also, following the removal of the structures, characterization activities are conducted to ensure that the residual contamination is below the RA objectives established in the OU 3-13 ROD. This includes the following tasks:

- Procurement of subcontractor
- Removal of the loading/unloading pad
- Removal of SSTU
- Removal of aqueous waste treatment equipment
- Removal of the decontamination facility
- Removal of the container storage areas

- Removal of the tank storage areas
- Removal of the administrative facility
- D&D&D of the utilities
- Post-D&D&D characterization of the loadout facility areas.

G-3.3.1.5 Disposal of Waste from D&D&D Activities - \$124,821

During the D&D&D of the treatment and loadout structures an estimated 60 yd³ of LDR compliant (treated) mixed low-level debris will be generated and require disposal. This activity involves the packaging, shipment, and disposal of the remaining mixed low-level debris off-Site. This includes the following tasks:

- Off-Site packaging
- Load MLLW debris onto railroad cars
- Shipping MLLW debris to off-Site commercial disposal facility
- Disposal of MLLW debris at the off-Site commercial disposal facility.

G-3.3.3 Records Management - \$66,578

G-3.3.3.1 Records Management – \$36,702

This activity is the management of the databases and routine records associated with the treatment and loadout facility operations. This includes the following tasks:

- Records management
- IWTS management and maintenance
- Data tracking reports.

G-3.3.3.2 Records Storage and Audit Management – \$14,703

This activity is the annual storage of records associated with the treatment and loadout facility operations and is support for producing the records during audits. This includes the following tasks:

- Store records
- Support treatment and loadout facility audits.

G-3.3.3.3 Five-Year Review Support – \$15,173

This activity is the annual maintenance of project record file on the treatment and loadout facility necessary to support the 5-yr reviews under CERCLA. This includes the following task:

- Maintain project file to support 5-yr reviews.

G-3.3.10 Program/Project Management – \$847,319

G-3.3.10.1 Program Management - \$118,935

This activity is the oversight and integration of the loadout facility into the WAG 3 project and consists of 10 hr of work per week. This includes the following task:

- Program management.

G-3.3.10.2 Project Management – \$453,384

This activity is the specific project management associated with closure of the loadout facility and includes the routine project management (reporting, etc.) along with specific personnel management issues. This includes the following tasks:

- Personnel management
- Project management (routine).

G-3.3.10.3 Construction Management - \$275,000

This activity is the construction management associated with the construction components of the project.

G-4. REFERENCES

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