Document ID: SOW-160
Revision ID: 0

Statement of Work

Treatment and Disposal of Mixed Low-Level Debris Generated During DD&D and Closure Activities at the INEEL

Idaho National Engineering
and Environmental Laboratory

Form 412.14
07/24/2001
Rev. 03

1. BACKGROUND

1.1 Introduction

Bechtel BWXT Idaho, LLC (BBWI), a prime management and operating contractor for the U.S. Department of Energy (DOE), requires that a commercial firm provide treatment, transportation and disposal of mixed low-level radioactive waste (MLLW) for the Idaho National Engineering and Environmental Laboratory (INEEL), located near Idaho Falls, Idaho. The INEEL Site is located approximately 50 miles west of Idaho Falls, Idaho, and is comprised of several facilities, including nuclear research and development laboratories and treatment, storage, and disposal facilities.

This Statement of Work (SOW) presents the requirements for the treatment, transportation and disposal of MLLW generated during decontamination, deactivation, and decommissioning (DD&D) and closure activities at the INEEL.

All activities associated with treatment, transportation and disposal of the INEEL debris, and any residuals generated as the result of the treatment process shall be conducted in accordance with applicable federal, state, and local statutes and regulations.

2. SCOPE

The Subcontractor shall treat, transport and dispose of MLLW generated during DD&D and closure activities at the INEEL. The Subcontractor shall currently possess and maintain all applicable licenses/permits, personnel, facilities, equipment, and materials to perform the following activities:

A. Sorting and sizing of the debris prior to treatment

B. Waste treatment to meet applicable regulatory standards and requirements

C. Waste treatment of incidental non-debris and any treatment residuals to meet applicable regulatory standards and requirements

D. Waste characterization of any treated wastes, as required, to verify treatment standards have been met prior to disposal

E. Transportation and disposal of the treated debris and any residuals at a permitted and licensed MLLW disposal facility.

2.1 Waste Description

This SOW has been prepared for treatment, transportation, and disposal of MLLW generated from DD&D and closure activities at the INEEL. The Waste Experimental Reduction Facility (WERF) incinerator system at the INEEL is currently undergoing closure and DD&D activities.

The WERF incinerator unit consists of the incinerator system and the air pollution control system (APCS). The incinerator components that will be dismantled and removed include the primary and secondary combustion chambers, ash ram/housing, bottom ash handling system, solid waste feed chute, combustion air system, the primary dilution air system, and incinerator off-gas ducting.

The APCS components that will be dismantled and removed include the heat exchanger, spark arrestor, secondary dilution air system, baghouse collectors, dust transfer system, high-efficiency particulate air (HEPA) filtration unit, isokinetic sampling system, continuous emissions monitoring system, off-gas blowers, north exhaust stack, and off-gas ducting.

The debris under consideration for treatment, transportation and disposal includes the dismantled WERF incinerator system, air pollution control system (APCS), miscellaneous components, and personal protective equipment (PPE). The estimated waste volume is between 11,000 cubic feet and 15,000 cubic feet. The individual components range in size from 20 cubic feet to 1,100 cubic feet and weigh between 500 pounds and 70,000 pounds. The estimated total weight of the waste is between 325,000 and 375,000 pounds. Table 1 details the anticipated waste volumes and includes an estimated schedule for waste generation. Table 1 identifies the major process equipment and defines waste types, but is not intended to be totally inclusive for all waste types and volumes.

The waste carries a multitude of Environmental Protection Agency (EPA) waste codes. Attachment 1 lists the EPA waste codes, as identified in the approved (Resource Conservation and Recovery Act) RCRA closure plan, that are associated with the WERF MLLW debris.

The waste is potentially contaminated with polychlorinated biphenyls (PCBs). Previous sampling results indicate that PCBs are not present in the waste; however, current sampling results per the RCRA/TSCA closure plan will specify the TSCA management requirements.

The radioactive component of the subject waste is classified as low-level radioactive material. The waste is not classified as transuranic (i.e., alpha emitting radionuclides with an atomic number greater than 92, half-life greater than 20

years, in concentrations greater than 100 nanocuries per gram) or high-level waste. Attachment 2 contains the radioactive source term associated with the WERF MLLW debris.

A small amount of non-debris waste, such as ash or dust from piping or equipment internals, may be generated during DD&D and closure activities and will require treatment. Attachments 1 and 2 detail the hazardous and radiological constituents associated with this waste. In addition to debris treatment, the Subcontractor shall have the necessary processes and permits to treat this non-debris MLLW that may result from DD&D and closure activities. The total estimated volume of non-debris will be less than 15 cubic feet (two-gallon drums).

Attachment 3 contains the INEEL waste determination and disposition forms for WERF DD&D and closure activities. Attachment 8 contains photos of the WERF process equipment.

Table 1. WERF Incinerator MLLW Debris.

Equipment Category	Description	Estimated Volume (ft^3)	Packaging Method	Estimated DD&D Date (Note 4)
Large Process Equipment	Heat Exchanger	177	Note 1	May - July 2002
	Incinerator Hatch	200	Note 1	May - July, 2002
	Combustion Chambers (PCC & SCC)	800	Note 1	May - July 2002
	Ash Ram	35	Note 1	May - July 2002
	30 inch duct (Schedule 10S)	551	Note 1	As Generated
	HEPA Filter Housing	258	Note 1	Aug.- Sept. 2002
	Main Bag Houses (2 items)	2,176	Note 1	Aug.- Sept. 2002
	Baghouse Transition Ducting	452	Note 1	Aug.- Sept. 2002
Misc. Process Equipment	CA Blowers	168	Note 2	May - July 2002
	Burners	35	Note 2	May - July 2002
	O2 system	20	Note 2	May - July 2002
	control Systems	35	Note 2	May - July 2002
	Ash Hopper (Ash Handling system)	200	Note 2	Oct. 2002 – Jan. 2003
	Fly Ash Basement (Dust Transfer)	200	Note 2	Oct. 2002 – Jan. 2003
	Emissions Monitoring Cabinets	35	Note 2	Oct. 2002 – Jan. 2003
	Off-gas Blowers	168	Note 2	Oct. 2002 – Jan. 2003
	HEPA Ducting	608	Note 2	Aug.- Sept. 2002
	Spark Arrestors (24" Schedule 5.)	170	Note 2	Aug.- Sept. 2002
	North Stack	500	Note 2	Oct. 2002 – Jan. 2003
Piping and duct	12 inch duct (schedule 10S)	68	Note 2	As Generated
	14 inch duct (schedule 10S)	77	Note 2	As Generated
	20 inch duct (schedule 10S)	156	Note 2	As Generated
	22 inch duct (schedule 10S)	68	Note 2	As Generated
	24 inch duct (schedule 10S)	287	Note 2	As Generated
	36 inch duct (schedule 10S)	422	Note 2	As Generated
PPE/Miscellaneous	PPE -- LDR compliant	2,400	Note 3	As Generated
	PPE -- Non-LDR compliant	2,400	Note 3	As Generated
	(10% misc. Materials)	988	Note 3	As Generated

Note 1: It is anticipated that the large process equipment will be shrink wrapped for shipment as a "strong tight" container. Drawings for this equipment are included in Attachments 4 through 7.

Note 2: At the discretion of BBWI, the miscellaneous process equipment and the piping and duct may be shrink wrapped and shipped as a "strong tight" container and/or this equipment will be sized to fit and shipped in DOT approved metal containers (i.e. B-12 or B-25 bins).

Note 3: It is anticipated that PPE and miscellaneous materials will be packaged and shipped in DOT approved metal containers (i.e., B-12 or B-25 bins). Non- LDR compliant PPE will be segregated from LDR compliant PPE. Non-LDR compliant PPE may be packaged with process equipment to minimize container void spaces.

Note 4: The "Estimated DD&D Date" is based on the current WERF Incinerator closure schedule. Actual shipment dates may vary.

3. TECHNICAL REQUIREMENTS

3.1 Transportation of Raw Waste

BBWI is responsible for completing the radioactive and hazardous materials manifests and other required shipping papers. All shipping papers shall be approved by the BBWI Packaging and Transportation Department before the transporter is allowed to leave the INEEL boundary. BBWI will act as shipper of record for outbound shipments.

BBWI will verify that the containers holding the MLLW meet the applicable U.S. Department of Transportation (DOT) regulations and are properly labeled. The majority of INEEL waste containers will be either DOT compliant boxes or "strong tight" wrapping. BBWI will procure the services of a licensed shipping company(s) to transport the MLLW debris to the Subcontractor's facilities. BBWI personnel will load the containerized MLLW onto the transport vehicle. All shipping containers will be surveyed to ensure that there is no radioactive surface contamination on the outside of the containers.

The Subcontractor shall identify any state-specific transportation requirements. If the Subcontractor's host state requires state-specific manifests to ship MLLW, the Subcontractor shall provide copies of such to BBWI for completion.

3.2 Waste Acceptance

The Subcontractor shall sign and return all radioactive and hazardous materials manifests to BBWI once the MLLW arrives and is accepted at the Subcontractor's facility. The Subcontractor is responsible for accepting the INEEL MLLW in accordance with the Subcontractor's waste acceptance criteria.

3.3 Waste Characterization

BBWI is responsible for characterizing the waste sufficiently to ensure it meets DOT and state regulations for manifesting, EPA requirements, and the waste acceptance criteria of the subcontracted treatment facility.

The Subcontractor shall properly characterize the treated wastes and treatment residuals to ensure that all land disposal requirements and waste acceptance criteria have been met.

The Subcontractor must sample and characterize all treated wastes in accordance with a random, statistically valid, sampling and analysis plan to demonstrate that all wastes pass the land disposal restriction treatment standards; meet the disposal

facility waste acceptance criteria; and are acceptable for disposal. BBWI reserves the right to audit the certification process that the Subcontractor uses for verifying that wastes meet land disposal restriction requirements, meet the disposal facility waste acceptance criteria, and to ensure that the proper certifying documentation has been completed.

All sampling, sample handling, analysis, data management, and QA/QC procedures must be in accordance with the current revision of the EPA document, SW-846, "Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods," unless applicable state law or permit provisions impose different requirements that are inconsistent with SW-846. The Subcontractor must ensure that all documentation and analytical procedures employed meet applicable requirements of this SOW.

3.4 Waste Treatment

The Subcontractor shall treat the INEEL MLLW in accordance with applicable federal, state, and local regulations. Hazardous waste and waste residues shall be disposed of in a RCRA Subtitle C landfill. Upon the Subcontractor accepting and taking possession of INEEL MLLW, to the maximum extent allowed by law, the Subcontractor will assume title, risk of loss, and all other incidents of ownership to the waste.

A. Before initiating any treatment activities, the Subcontractor shall ensure that all equipment to be used will not cross-contaminate INEEL waste with other customers waste such that it will adversely affect disposal of the treated waste. If the Subcontractor cross-contaminates and adversely affects disposal of INEEL MLLW, the Subcontractor shall pay all costs for reprocessing, transportation, storage, and handling, and any additional or excess disposal costs incurred as a result of the cross-contamination.

B. The Subcontractor must perform all inspections required at the Subcontractor's facilities to ensure proper execution of treatment, and demonstrate compliance to all regulations required by RCRA and TSCA regulations and radiological materials license conditions.

C. BBWI will coordinate waste shipments with the Subcontractor to ensure that all waste inventory requirements are met. The Subcontractor must maintain an accurate inventory of all waste at the Subcontractor's site, including secondary waste generated during treatment.

D. Any secondary wastes generated as a result of the waste treatment process shall be the responsibility of the Subcontractor. This secondary waste shall

be managed, tracked, treated, and disposed of by the Subcontractor as Subcontractor waste.

E. All containers of waste selected for treatment must be emptied of their contents, and the contents treated and disposed. Empty containers must be cleaned (including removal of all labels and tags) and either processed, packaged, and transported for disposal or reuse, at the discretion of the Subcontractor. Any reused containers must be managed in accordance with applicable laws and regulations. BBWI will not accept liability for any further use of the containers beyond transporting the waste to the treatment facility, nor will BBWI accept return of the empty containers. If any waste arrives at the Subcontractor's treatment facility on pallets, the pallets must be dispositioned in accordance with applicable laws and regulations and at the discretion of the Subcontractor. BBWI will not accept liability for any further use of the pallets beyond transporting the waste to the treatment facility.

3.5 Transportation and Disposal

The Subcontractor shall arrange for the transportation of all treated MLLW from the Subcontractor's facility to the disposal facility, as necessary. Before the treated MLLW leaves the Subcontractor's facility, the Subcontractor shall verify compliance to all federal, state, and local regulations for waste transportation. The Subcontractor shall provide BBWI with copies of all applicable shipping manifests prior to shipment from the Subcontractor's facility. The Subcontractor shall also provide Certificates of Disposal after disposal is accomplished, or Certificates of Destruction if applicable.

4. DELIVERABLES

The Subcontractor shall provide shipping manifests, and certificates of disposal/destruction, as required, during performance of the tasks described in this SOW.

5. SPECIAL CONSIDERATIONS & MISCELLANEOUS INFORMATION

Per the RCRA closure plan, BBWI will accurately and completely characterize the MLLW to be treated and disposed. BBWI will apprise the Subcontractor of hazards and risks known to be associated with the waste material. If BBWI receives information indicating that the waste material or components of the waste material present or may present a hazard to a person or the environment not disclosed in the waste profile documentation, BBWI will promptly inform the Subcontractor.

Nonconforming waste (that is, waste not in accordance with the descriptions, limitations, or specifications stated in the waste profile documentation and not conforming to the Subcontractor's waste acceptance criteria) shall be returned to BBWI, at BBWI's expense. The Subcontractor shall coordinate schedules and notifications for shipping of the nonconforming waste with the BBWI Procurement Agent and the BBWI Packaging and Transportation Department.

6. APPENDICES

Appendix A, Acronyms

7. ATTACHMENTS

Attachments 1-11

APPENDIX A

ACRONYMS

APCS	air pollution control system
BBWI	Bechtel BWXT Idaho, LLC
DD&D	decontamination, deactivation, and decommissioning
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
HEPA	high-efficiency particulate air
INEEL	Idaho National Engineering and Environmental Laboratory
MLLW	mixed low-level waste
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NRC	United States Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PPE	personnel protective equipment
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
SOW	Statement of Work
TSDF	Treatment Storage and Disposal Facility
WAC	Waste Acceptance Criteria
WERF	Waste Experimental Reduction Facility