

Sodium Components Maintenance Shop (SCMS) Carbonation Vessel – Partial HWMA/RCRA Closure Certification Report

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Battelle Energy Alliance, LLC

October 2023

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Idaho Falls, Idaho 83415**

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Sodium Components Maintenance Shop (SCMS) Carbonation Vessel – Partial HWMA/RCRA Closure Certification Report

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Approved by:

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RO-00
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10/26/2023
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10/26/2023
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10-26-2023
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ABSTRACT, SUMMARY, FOREWORD, AND ACKNOWLEDGEMENTS

This report documents the Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) Partial Closure Certification of the Sodium Components Maintenance Shop (SCMS) Carbonation Vessel. The HWMA/RCRA Closure followed the multi-step review and evaluation closure process identified in the Idaho National Laboratory (INL) Materials and Fuels Complex (MFC) HWMA/RCRA Partial Permit Closure Plan, October 1, 2015.

The closure performance standard for the SCMS Carbonation Vessel will be removal. This closure certification report documents that the SCMS Carbonation Vessel was removed from the SCMS, packaged as hazardous waste, and stored for future treatment and disposal, and therefore has met the closure performance standards in accordance with the Department of Energy Idaho National Laboratory Materials and Fuels Complex HWMA/RCRA Partial Permit Closure Plan (EPA No. ID4890008952, October 1, 2015).

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ACRONYMS

CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality (Idaho)
DOE	U.S. Department of Energy
EDMS	Electronic Document Management System
EPA	Environmental Protection Agency
gpm	gallons per minute
HEPA	high-efficiency particulate air
HW	hazardous waste
HWMA	Hazardous Waste Management Act
in.	inch(es)
IDAPA	Idaho Administrative Procedures Act
INL	Idaho National Laboratory
LLW	low-level waste
MCCE	Maintenance Characterization and Containment Enclosure
MFC	Materials and Fuels Complex
MLLW	mixed low-level waste
MW	mixed waste
PE	professional engineer
PR	preliminary review
psig	pounds per square inch gauge
RCRA	Resource Conservation and Recovery Act
SCMS	Sodium Components Maintenance Shop
TSD	Treatment, Storage and Disposal
VSI	visual site inspection

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Sodium Components Maintenance Shop (SCMS) Carbonation Vessel - HWMA/RCRA Partial Closure Certification Report

1. BACKGROUND

1.1 Purpose of Report and Certification

The closure performance standard for the SCMS Carbonation Vessel will be removal. This report documents that the SCMS Carbonation Vessel has been removed, characterized as hazardous waste, packaged, and managed in accordance with applicable procedures and requirements, and therefore has met the closure performance standards in accordance with the Department of Energy Idaho National Laboratory (INL) Materials and Fuels Complex (MFC) HWMA/RCRA Partial Permit Closure Plan (EPA No. ID4890008952, October 1, 2015). A 45-day notice was received by the Department of Environmental Quality (DEQ) on May 3, 2023, notifying the DEQ of the Idaho National Laboratory's intent to initiate closure of SCMS Carbonation Vessel. The closure of the SCMS Carbonation Vessel followed the multi-step review and evaluation closure process identified in the INL MFC HWMA/RCRA Partial Permit Closure Plan, October 1, 2015 (see Attachment 1).

The information collected from the closure activities will be maintained in the Electronic Document Management System (EDMS) as part of the overall SCMS operating record.

1.2 Report Organization

The following information, as ordered, is contained within the report:

- Background information on the HWMA/RCRA unit
- Removal and Storage for Treatment and Disposal of the SCMS Carbonation Vessel
- Cleanup Activities
- Report Certification.

1.3 SCMS Carbonation System HWMA/RCRA Tank System Description

SCMS contains one new tank system, the carbonation system, which was built in 1994 and installed in 1995. The feed and ancillary systems associated with the carbonation system are:

- Feed System: Scrubber Water System and Carbon Dioxide system.
- Ancillary Systems: Water Wash System, Service Water System, Solidification System, and Compressed Air System.

The carbonation vessel (a.k.a. caustic neutralization vessel) is a 30-gal (1 ft 6 in. diameter x 3 ft 3 in. height), stainless-steel tank with a conical bottom, and was bolted to the concrete floor (see Figure 1). The stainless-steel construction provided resistance to corrosion and was designed to hold aqueous solutions. Its operating pressure was not expected to exceed 10 psig and the vessel pressure was relieved directly to the water wash scrubber, which operated at a negative pressure. Pressure was monitored during carbonation operations. Hydroxide level was limited by the normal recirculating path—the carbonation vessel overflows to the scrubber drain. Flow and level were monitored through sight tubes in the vent and

overflow drain. After carbonation, the tank was verified empty through the overflow drain sight tube. A thermocouple and pressure gauge were installed to monitor tank temperature and pressure during the carbonation process. Carbon dioxide (CO₂) gas was supplied from the CO₂ system.

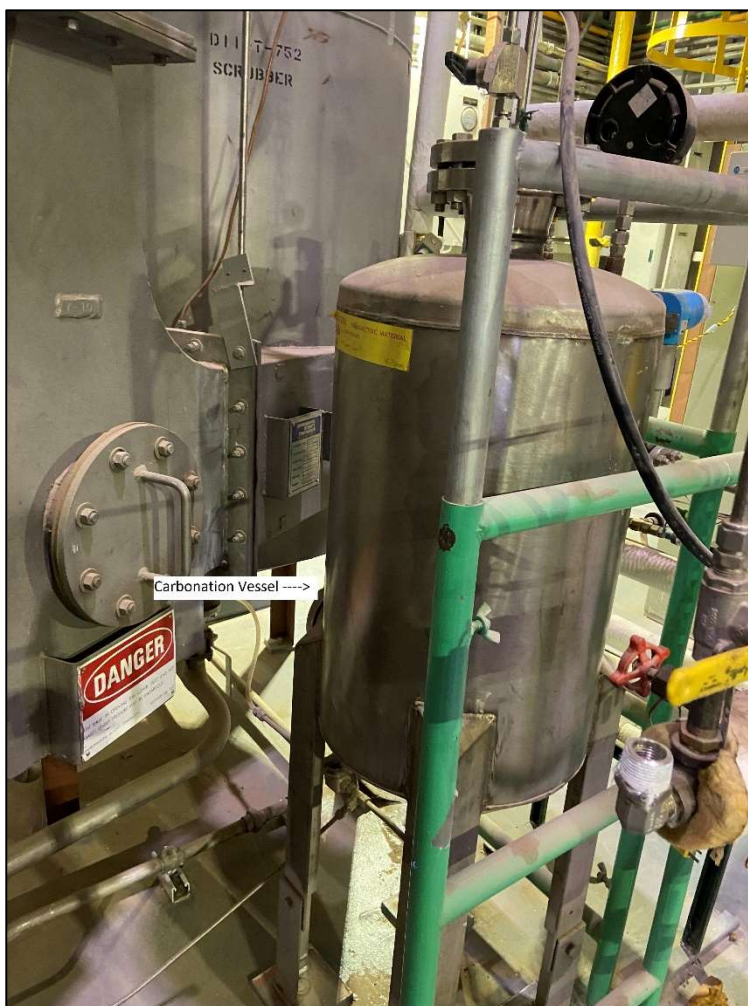


Figure 1. Carbonation Vessel.

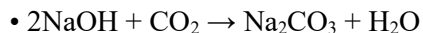
The corrosive characteristics of HW/MW that required deactivation ($\text{pH} \leq 2$ or ≥ 12.5) following and/or prior to additional treatment processes included:

- Hydroxide solutions produced in the SCMS water wash system
- Containerized liquid corrosive HW/MW received at SCMS.

These corrosive solutions or liquids could be deactivated by carbonating the hydroxide solution with CO₂ in the SCMS carbonation system or by neutralizing the hydroxide solution or corrosive liquids with nitric acid. Carbonation or neutralization were performed to within an acceptable pH range ($2 < \text{pH} < 12.5$) to deactivate the corrosive characteristic and/or to obtain the optimum pH for subsequent solidification/stabilization of the carbonated/neutralized solutions.

The carbonation system utilized some components of the scrubber water system to supply solutions to the carbonation vessel. Deactivation of ignitable and reactive HW/MW in the water wash system generated hydroxide solutions that drain to the scrubber water tank. This hydroxide solution is then recirculated and used in the water wash system until a maximum 15 wt% hydroxide concentration is

attained. The carbonation of the hydroxide solution began by transferring the solution from the scrubber water tank to the carbonation vessel using the scrubber pump(s). The hydroxide solution in the scrubber water tank was recirculated through the bottom of the carbonation vessel at a rate of approximately 1 gpm, where it was contacted with finely divided gaseous CO₂, introduced through a sintered metal sparge element of 10 μm porosity. The CO₂ reacted with the hydroxide solution by the following reaction:



The recirculated solution gravity drained from the carbonation vessel back to the scrubber water tank. A combination of the mass of CO₂ delivered and the carbonation vessel pressure and temperature provided an indication of hydroxide to carbonate conversion completion. Sampling and analysis from the scrubber water tank confirmed the conversion of hydroxide solution to a carbonate solution of pH > 2 and < 12.5.

In addition to the carbonation system, neutralization could be used for deactivating the corrosive liquids generated in the Water Wash Vessel. Corrosive liquids are neutralized by adding a precalculated amount of acid or base (i.e., nitric acid or sodium hydroxide) as a neutralizing agent. The amount of neutralizing agent was based on the pH of the corrosive material and desired final pH.

1.4 Regulatory Status

The SCMS was HWMA/RCRA permitted in January 2001 to provide storage, verification, repackaging, examination, and/or treatment activities at MFC. Permitted waste types, acceptable Environmental Protection Agency (EPA) hazardous waste codes, process codes, and maximum waste volumes for the SCMS are shown in Table 1 (excerpt from Table B-1, INL MFC HWMA/RCRA Permit Attachment 1—MFC Facility Description November 4, 2020).

Table 1. HW/MW processes, waste types, services, and limits provided by SCMS.

Facility		SCMS	SCMS – Carbonation Vessel (only)
D001	Ignitable	X	
D002	Corrosive	X	X
D003	Reactive	X	
D004-11	Toxicity characteristic (inorganic)	X	X
D012-43	Toxicity characteristic (organic) (Ref. Part A)	X	
F Listed	Non-specific sources (Ref. Part A)	X	
P Listed	Commercial chemicals (Ref. Part A)	X	
U Listed	Commercial chemicals (Ref. Part A)	X	
S01	Container storage ¹	24,640	
S02	Tank Storage ¹	390	
T01	Tank Treatment ²	1,188	1,032
T04	Container/Debris Treatment ²	880	
Solids		X	
Liquids		X	
Contained Gases ³		X	
Debris		X	
Verification/sampling [solids/liquids/debris]		X	
Repackaging [solids/liquids/debris/contained gases]		X	
Absorption [free liquids]		X	
Deactivation [ignitable/reactives/corrosives]		X	
Melt/Drain [reactive metals]		X	
Neutralization [corrosives]		X	X
Solidification [immobilize liquids/inorganics]		X	
Water Washing/Spraying [debris surfaces]		X	
1. Maximum storage amount at any time in gal. 2. Maximum treatment amount per day in gal. 3. Contained gas include gas cylinders that will be stored in storage racks or in a container.			

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2. CLEANUP AND OPERATING RECORD REVIEW OF THE CARBONATION VESSEL

2.1 Overview

The cleanup and removal of the Carbonation Vessel was achieved using Work Order 342586 (see Attachment 2). Decontamination of the Carbonation Vessel was not required because the vessel was packaged and stored as hazardous waste for subsequent treatment and disposal.

2.2 Housekeeping, Cleanup and Waste Removal

The removal of the Carbonation Vessel components began on August 23, 2023. The actual removal of the vessel was conducted on September 12, 2023. The Carbonation Vessel and any hazardous waste contaminated components were packaged into accumulation container MFC230300 and moved to compliant hazardous waste storage in MFC-793G, a HWMA/RCRA Permitted Facility (see Figures 2 through 6).



Figure 2. Carbonation Vessel Being Hoisted Out of SCMS.



Figure 3. Carbonation Vessel Removed from SCMS.



Figure 4. Carbonation Vessel Being Lowered into Waste Container.



Figure 5. Carbonation Vessel and Components in Waste Container.



Figure 6. Waste Container MFC230300.

2.3 Preliminary Review/and Visual Site Inspection

2.3.1 Operating Record Review

A review of the operating records for the carbonation vessel was not required since the carbonation vessel was removed and will be dispositioned off-site as hazardous waste pursuant to IDAPA 58.01.05.008 (40 CFR 264.197). The Carbonation Vessel and its associated components were disconnected from the SCMS on August 23, 2023 through September 12, 2023, through Work Order 342586 (see Attachment 2). The Carbonation Vessel and components were packaged and stored as hazardous waste (see IWTS container profiles MFC230300, Attachment 3) in MFC-793G HWMA/RCRA Permitted Facility. The SCMS will continue to operate without the Carbonation Vessel.

2.3.2 Visual Site Inspection

A facility tour was given to the PE by Operations and Environmental personnel on April 19, 2023, prior to initiating closure to identify the Carbonation Vessel and its components (ancillary equipment). The visual site inspection (VSI) of the SCMS and Carbonation Vessel was performed on September 14, 2023, after the vessel removal. The PE confirmed that the vessel and its components were removed from the SCMS and that they were packaged into IWTS hazardous waste container MFC230300 for compliant storage in MFC-793G HWMA/RCRA Facility, pending future treatment and disposal.

2.4 Conclusions and Recommendations

Following the VSI, the closure performance standard is determined to be removal pursuant to IDAPA 58.01.05.008 (40 CFR 264.111) and Attachment 8 of the HWMA/RCRA Permit. Based on the fact that the Carbonation Vessel and all hazardous waste contaminated components, including all HW/MW generated as a result of housekeeping activities, were packaged as hazardous waste for subsequent hazardous waste treatment and disposal, the closure performance standards have been met.

3. CERTIFICATION

The PE certifies that the Carbonation Vessel, associated components and hazardous waste generated as a result of housekeeping activities were removed from the SCMS, packaged as hazardous waste, and stored in compliant storage for future hazardous waste treatment and disposal. Therefore, this meets the closure performance standards in accordance with the Department of Energy Idaho National Laboratory Materials and Fuels Complex HWMA/RCRA Partial Permit Closure Plan (EPA No. ID4890008952, October 1, 2015). The Certification is provided in Attachment 4.

4. REFERENCES

Hazardous Waste Management Act/Resource Conservation and Recovery Act Storage and Treatment Permit for the Materials and Fuels Complex (MFC) on the Idaho National Laboratory, EPA No. ID4890008952, May 11, 2022.

Idaho National Laboratory, Work Order 342586.

IWTS Containers MFC230300.

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Attachment 1

**Materials and Fuels Complex HWMA/RCRA Partial
Permit, Closure Plan, EPA No. ID4890008952**

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HWMA/RCRA STORAGE and TREATMENT PERMIT
for the
MATERIALS AND FUELS COMPLEX (MFC)

ATTACHMENT 8

Section I – Closure Plan

EFFECTIVE DATE: OCTOBER 1, 2015

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I. CLOSURE PLANS [IDAPA 58.01.05.012 and 58.01.05.008; 40 CFR 270.14(b)(13) and 264.111 through 264.115]

In accordance with the requirements of the Idaho Administrative Procedures Act (IDAPA) 58.01.05.008 and 58.01.05.012, and 40 Code of Federal Regulations (CFR) 264.111 through 264.115 and 270.14(b)(13), this section of the Materials and Fuels Complex (MFC) Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) Permit Application describes the closure plans that will be implemented at each MFC HWMA unit prior to and during closure of the HWMA unit. Implementation of the closure plans will ensure that the HWMA units are closed in a manner that will protect human health and the environment.

The information provided in this section is organized by subsection as follows:

- Subsection I-1, Plan Overview
- Subsection I-2, Closure Performance Standard
- Subsection I-3, Partial Closure Activities
- Subsection I-4, Maximum Waste Inventory
- Subsection I-5, Disposal or Decontamination of Equipment, Structures, and Soil
- Subsection I-6, Closure of Container Storage/Process Areas
- Subsection I-7, Closure of Tanks
- Subsection I-8, Closure of Miscellaneous Units
- Subsection I-9, Ancillary Closure Activities
- Subsection I-10, Schedule for Closure and Notification for Closure
- Subsection I-11, Certification of Closure

I-1 Closure Plan Overview

The HWMA units will be closed using a multi-step review and evaluation closure process (ref. Exhibit I-1) to ensure successful closure and certification to the applicable clean closure performance standards. The actual closure activities and clean closure performance standards may differ among HWMA units (different HWMA units have different operational processes to close), but the multi-step closure process itself is the overall general approach for closure of all the HWMA units. Exhibit I-1 illustrates this multi-step closure process. A detailed description of the multi-step closure process is provided in Exhibits I-2 through I-5. After approval to close a HWMA unit is received from the Idaho Department of Environmental Quality (DEQ), the multi-step process begins with waste transfer, treatment, and/or decontamination activities specific to the HWMA unit. Any waste generated during closure activities is characterized,

1 packaged, and managed as hazardous waste/mixed waste (HW/MW), as
2 applicable. Based on the results of the Preliminary Review and Visual Site
3 Inspection (PR/VSI), if closure standards have been met, closure will be certified
4 by a registered professional engineer (PE) and a closure certification report will
5 be sent to the DEQ. If closure performance standards cannot be met, a Facility
6 Investigation and Decontamination (FI&D) will be performed and if closure
7 standards are still not met, a revised closure plan will be prepared and submitted
8 to DEQ for review and approval.

9 In the future, as the actual closure of any MFC HWMA unit is considered, this
10 closure plan will be modified to reflect any information or condition that has
11 changed or occurred and may precipitate different closure options and to address
12 HWMA unit specific clean closure performance standards. This closure plan will
13 be modified in accordance with IDAPA 58.01.05.008 and 40 CFR 264.112(c).

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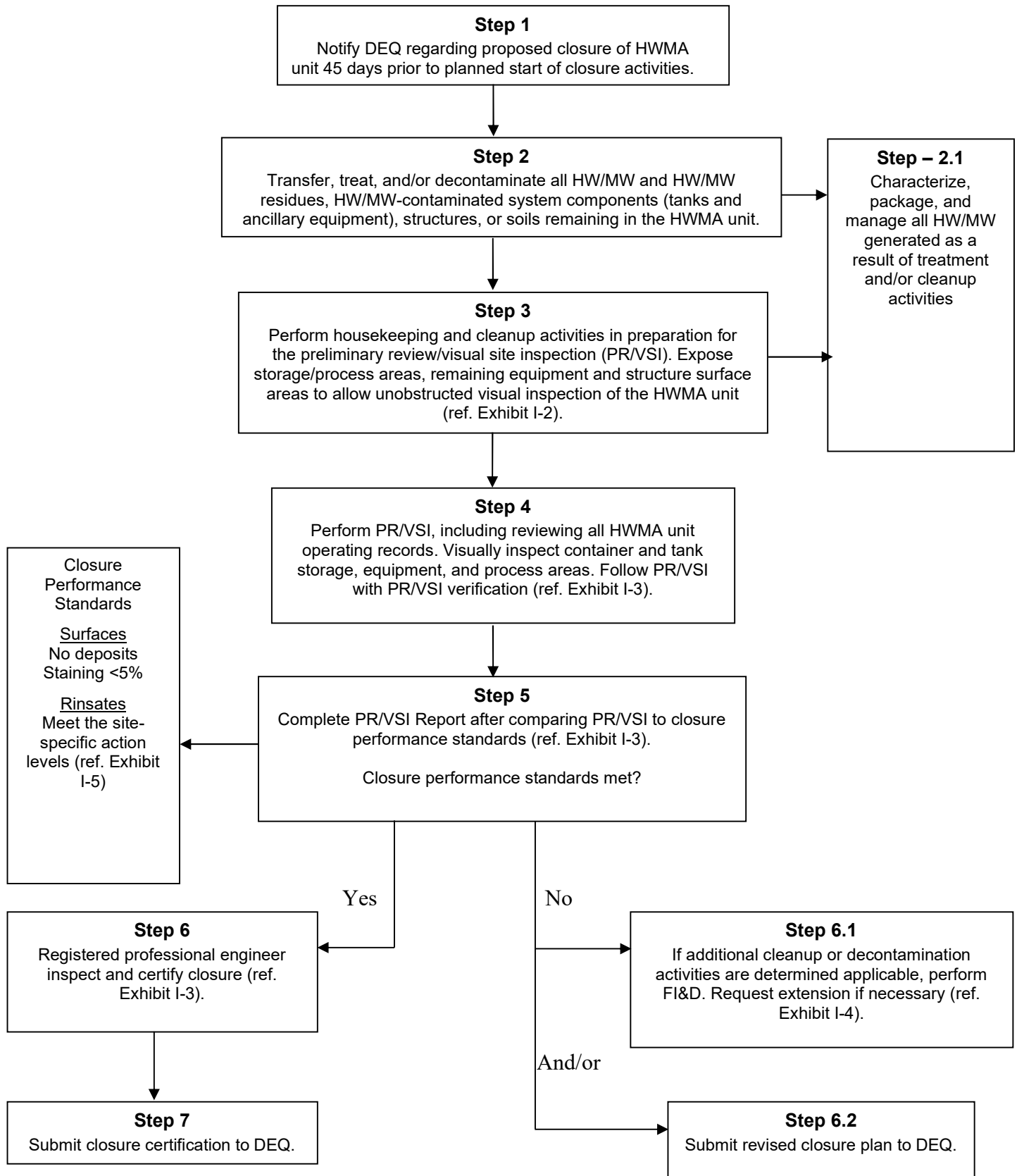


Exhibit I-2. HWMA Unit General Housekeeping and Cleanup	
Objective	Prepare HWMA unit for PR/VSI and final closure.
Prior Activity	Transfer, treat, and/or decontaminate all HW/MW, HW/MW residues, HW/MW-contaminated system components and equipment (tanks and ancillary equipment), structures, or soils remaining in the HWMA unit.
Housekeeping/ Cleanup	<p>Perform the following housekeeping and cleanup activities as necessary:</p> <ul style="list-style-type: none">• Perform general housekeeping and cleanup of the entire facility in preparation for the PR/VSI.• Expose the surfaces of the facility structures, tanks, and ancillary equipment to accommodate an unimpaired visual inspection of the facility• Collect non-HWMA waste or HW/MW generated as a result of housekeeping and cleanup activities (which generally consists of rags and personnel protective equipment).• All HW/MW generated as a result of housekeeping activities will be characterized, packaged, and managed in accordance with applicable procedures and requirements.• If evidence or suspect evidence of HW/MW exists, perform additional housekeeping and cleanup activities.
Conclusion	Proceed to PR/VSI as described in Exhibit I-3.

Exhibit I-3. HWMA Unit Preliminary Review and Visual Site Inspection (PR/VSİ)	
Objective	Prepare to compare PR/VSİ results to closure performance standards ⁽¹⁾ in order to prepare PR/VSİ Report. This report will determine if the HWMA unit can be closed without further closure activities or if further FI&D must be performed.
Prior Activity	General housekeeping and cleanup activities have been performed as described in Exhibit I-2.
Preliminary Review (PR) Development of Closure Performance Standard ⁽¹⁾	Review the HWMA unit operating records for the following, which will allow development of final performance closure standards ⁽¹⁾ and enable comparison to the standards in the PR/VSİ Report: <ul style="list-style-type: none"> • HW/MW codes stored in HWMA units • HW/MW constituents of concern • HW/MW matrixes of concern • HWMA unit design and operating characteristics • HW/MW inventory records and Waste Stream Profiles • Previous release cleanup records (if applicable) • Previous decontamination records (if applicable) • Housekeeping/cleanup activities and records.
Visual Site Inspection (VSİ) ⁽²⁾	Visually inspect the entire facility and surfaces for evidence that HW/MW may exist as indicated by HW/MW residuals remaining (deposits or staining).
PR/VSİ-Verification	If no evidence of HW/MW deposits/staining exists, perform a radiological survey and/or a wipe survey and analyze for radioactivity and/or hazardous constituents. If evidence of HW/MW deposits or stains exists, perform FI&D (ref. Exhibit I-4).
Finalize Closure Performance Standards ⁽¹⁾ PR/VSİ Report	Closure Performance Standards ⁽¹⁾ (ref. Subsection I-5) will include action levels for pH and hazardous constituents, visible deposits and/or staining. Based on the PR/VSİ: <ul style="list-style-type: none"> • Develop a PR/VSİ Report based on comparison of HWMA unit PR/VSİ to closure performance standards. • Specify if closure performance standards have/have not been met with recommendations from MFC management.
Conclusion	<ul style="list-style-type: none"> • If the closure performance standards have been met, perform closure certification using a registered PE and submit the certification report to DEQ. • If closure performance standards have not been met, complete a FI&D.

- 1 (1) The closure plan will be modified, in accordance with IDAPA 51.01.05.008 and 40 CFR 264.112(c), to include
2 the HWMA unit specific final performance closure standards prior to implementation of the closure plan.
3 (2) HWMA unit specific visual site inspection requirements and the visual inspection procedures will be included
4 in the closure plan that will be modified in accordance with IDAPA 51.01.05.008 and 40 CFR 264.112(c).

Exhibit I-4. Facility Investigation and Decontamination (FI&D) for Building/Equipment Sealed or Impermeable, and Cracked or Nonsealed Surfaces	
Objective	Meet PR/VSI Report closure performance standards and obtain closure certification.
Prior Activities	PR/VSI-verification has been performed as described in Exhibit I-3. Closure performance standards have not been met.
Facility Investigation and Decontamination (FI&D)	<p>By performing the following actions, contamination on building/equipment surfaces is eliminated:</p> <ul style="list-style-type: none"> • Determine hazardous constituents of concern (identified in PR/VSI Report). • Determine released HW/MW matrixes (identified in PR/VSI Report). • Visually (with the naked eye) inspect surfaces. Are there stains evident greater than 5% per square inch? For sealed or impermeable surfaces, are cracks present? For cracked or nonsealed surfaces, are stains present on cracked surfaces? • If yes and the surface is sealed or impermeable, wipe or rinse down the area. If yes and the surface/media is cracked or nonsealed, take a sample of the surface area/media. Analyze the rinsate⁽¹⁾, wipes, and/or samples for hazardous constituents of concern. <ul style="list-style-type: none"> • If hazardous constituents are not detectable above action levels, perform closure certification (i.e., closure performance standards have been met). • If hazardous constituents are detected above the appropriate action levels, perform decontamination using water washing and spraying, solvent extraction, or an equivalent technology (IDAPA 58.01.05.011 and 40 CFR 268.45). When hazardous constituents are no longer detected above action levels, perform closure certification (i.e., closure performance standards have been met). • If hazardous constituents continue to be present, a revised closure plan can be submitted to DEQ.
PR/VSI-Verification	Return to PR/VSI-Verification (ref. Exhibit I-3).
Finalize Closure Performance Standards PR/VSI Report	Return to PR/VSI Report (ref. Exhibit I-3).
Conclusion	<ul style="list-style-type: none"> • If the closure performance standards have been met, perform closure certification using a registered PE and submit to DEQ. • If closure performance standards specified in the PR/VSI Report cannot be met, submit a revised closure plan to DEQ and return to PR/VSI.

1 (1) Rinsate and associated sample/analysis details will be included in the closure plan that will be modified in
2 accordance with IDAPA 51.01.05.008 and 40 CFR 264.112(c).

I-2 Closure Performance Standard [IDAPA 58.01.05.008; 40 CFR 264.111 and 264.112(b)(1) and (b)(2)]

This closure plan is designed to ensure that the HWMA units will not require further maintenance and controls after closure. Implementation of the plan will minimize or eliminate any threats to human health and the environment and post closure release of HW/MW to ground or surface waters or to the atmosphere.

The HWMA unit is designed and operated in a manner that minimizes the potential for contamination of the facility structures and surrounding property. HW/MW storage and handling activities are limited to specific areas. The facility designs, coupled with frequent inspections and corrective maintenance, provide safe operations that will minimize the need for cleanup and decontamination at closure. All HW/MW inventories will be transferred to a HWMA storage or treatment facility prior to closure.

Final closure of the HWMA unit will be performed in a manner that achieves the closure performance standards defined in Exhibit I-5 and will:

- Minimize the need for further maintenance and controls after closure of the HWMA unit
- Control, minimize, and/or eliminate to the extent necessary to protect human health and the environment, the post-closure release of HW/MW to the ground, water, or atmosphere from the HWMA unit
- Comply with all applicable federal and state regulatory closure requirements for closure of the HWMA unit.

Exhibit I-5. Preliminary Closure Performance Standards for Sealed or Impermeable Surfaces and Cracked or Nonsealed Surfaces				
Sample Matrix	Evaluation Method	Standard	Action Levels	Analytical Method
Final water rinsate for impermeable surfaces	Analysis	pH ≤ 12.5 pH ≥ 2	pH ≥ 12.5 pH ≤ 2	pH meter
HW/MW deposits	Visual ⁽¹⁾	no deposit	deposit visible	naked eye or camera, as applicable
HW/MW staining	Visual	≤ 5% per square inch	≥ 5% per square inch	naked eye or camera, as applicable
Final water rinsate ⁽²⁾ for impermeable surfaces Porous surfaces samples or wipe samples ⁽²⁾	Compare contaminants of concern to action levels	< Action Levels	TBD ⁽²⁾	TBD ⁽²⁾

- (1) Visual Deposits detectable by the human eye. A visual examination of surface areas (floor, tanks, equipment, piping and valves) will be performed looking for signs of leaks and/or residuals.
- (2) The closure plan will be modified, in accordance with IDAPA 51.01.05.008 and 40 CFR 264.112(c), to include the HWMA unit specific final performance closure standards and demonstration methods prior to implementation of the closure plan.

The closure process will be performed in accordance with a DEQ approved closure plan and will be certified by a registered PE.

To ensure personnel safety during the performance of closure activities:

- Closure activities will be supervised and performed by qualified MFC personnel in accordance with comprehensive safety procedures.
- Personnel performing closure activities will be trained to adhere to applicable procedures and equipped with proper personal protective equipment (PPE).
- Personnel and equipment will be decontaminated to established MFC radiological control levels prior to leaving any contaminated work area.

I-3 Partial Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

Partial closure is allowed at MFC.

I-4 Maximum Waste Inventory [IDAPA 58.01.05.008; 40 CFR 264.112(b)(3)]

The maximum inventory of HW and MW in container and/or tank storage at any time during the operational life of each HWMA unit is provided in the MFC HWMA/RCRA Partial Permit Attachment 1, Part A and in Section B, MFC Facility Description, Table B-1.

I-5 Disposal or Decontamination of Equipment, Structures, and Soils [IDAPA 58.01.05.008; 40 CFR 264.112(b)(4) and 264.114]

During closures of the HWMA unit, all equipment, structures and soils contaminated/suspect contaminated with HW/MW (including HW/MW waste generated as a result of closure activities) will be disposed of/decontaminated in accordance with all applicable regulations. Subsection I-1 and Exhibits I-1 through I-5 provide detailed descriptions of the actions necessary to prepare the HWMA unit for closure certification.

I-6 Closure of Container Storage/Process Areas [IDAPA 58.01.05.008; 40 CFR 264.178]

Prior to closure, all HW managed in containers will be removed, transported to, and managed in an on-Site or off-Site storage and disposal unit. Container storage units may be closed in compliance with IDAPA 58.01.05.008 (40 CFR 264.178) upon verification and documentation that none of the HW/MW containers stored in the unit had been breached. HWMA unit container storage and/or process areas will be closed using a multi-step review and evaluation closure process to ensure successful certification of the clean closure performance standards. Exhibit I-1 illustrates the multi-step closure process that

will be implemented. Detailed descriptions of the steps in the process are provided in Exhibits I-2 through I-4.

In the future, as the actual closure of any MFC HWMA unit is considered, this closure plan will be modified to reflect any information or condition that has changed or occurred and may precipitate different closure options and to address HWMA unit specific clean closure performance standards. This closure plan will be modified in accordance with IDAPA 58.01.05.008 and 40 CFR 264.112(c).

I-7 Closure of Tanks [IDAPA58.01.05.008; 40 CFR 264.197]

I-7(a) Closure of SCMS Tanks/Tank Systems and Ancillary Equipment

SCMS has three tank systems requiring closure; the water wash system, scrubber water system, and carbonation system. These tank systems will be closed using a multi-step review and evaluation closure process to ensure successful certification of the clean closure performance standards. Exhibit I-1 illustrates the multi-step closure process that will be implemented during closure. Detailed descriptions of the steps in the process are provided in Exhibits I-2 through I-4.

In the future, as the actual closure of the SCMS tanks/tank systems and ancillary equipment is considered, this closure plan will be modified to reflect any information or condition that has changed or occurred and may precipitate different closure options and to address HWMA unit specific clean closure performance standards. This closure plan will be modified in accordance with IDAPA 58.01.05.008 and 40 CFR 264.112(c).

I-8 Closure of Miscellaneous Unit [IDAPA58.01.05.008; 40 CFR 264.600]

The Radioactive Scrap and Waste Facility (RSWF) will be closed as a miscellaneous unit following the same multi-step review and evaluation closure process to ensure successful certification of the clean closure performance standards. Exhibit I-1 illustrates the multi-step closure process that will be implemented. Detailed descriptions of the steps in the process are provided in Exhibits I-2 through I-4.

In the future, as the actual closure of the RSWF is considered, this closure plan will be modified to reflect any information or condition that has changed or occurred and may precipitate different closure options and to address HWMA unit specific clean closure performance standards. This closure plan will be modified in accordance with IDAPA 58.01.05.008 and 40 CFR 264.112(c).

I-9 Ancillary Closure Activities [IDAPA 58.01.05.008; 40 CFR 264.112(b)(5)]

Ancillary closure activities, for example, groundwater monitoring, will only be performed if ground water contamination is encountered during PR/VSI and FI&D.

I-10 Schedule for Closure and Notification of Closure [IDAPA 58.01.05.008; 40 CFR 264.112(b)(6) and (d)]

If the HWMA unit is not closed prior to the permit expiration date, a new application will be submitted extending the closure date an additional 10 years.

The Director, State of Idaho, DEQ, will be notified in writing, with the submittal of a closure plan, at least 45 days prior to the expected date that closure activities will begin. The closure process for the HWMA unit will be completed within 180 days following the removal of the final volume of HW/MW, or the approval of the closure plan, whichever is the latest. However, if a revised closure plan is determined to be applicable, an extension will be requested 30 days before day 180. The closure schedule for the HWMA unit is shown in Exhibit I-7.

Exhibit I-7. HWMA Unit Schedule for Closure		
Process Step	Activity	Day Completed
1	Notify the DEQ 45 days prior to the planned start of closure of the HWMA unit.	45 days before
2	Transfer, treat, and/or decontaminate all HW/MW, HW/MW residues, HW/MW contaminated system components and equipment (tanks, ancillary equipment, secondary containment), structures, or soils remaining in the HWMA unit.	Day 90
3	Perform general housekeeping and cleanup activities to expose surfaces and allow unobstructed visual inspection of the facility in preparation for the PR/VSI.	Day 135
4	Perform PR/VSI, including review of the applicable HWMA unit operating records, and visually inspect container and tank storage/process areas, as applicable. Closure performance standards can be finalized as a result of this activity. The PR/VSI includes conducting a PR/VSI verification.	Day 150
5	Complete PR/VSI Report after comparing PR/VSI to closure performance standards. Determine if closure performance standards have been met.	Day 150
6	If closure performance requirements have been met, inspect and certify closure using a registered PE.	Day 180 or per DEQ extension
7	Submit closure certification report to DEQ.	w/in 60 days of closure

1

I-10(a) Extensions for Closure Time [IDAPA 58.01.05.008; 40 CFR 264.113(a) and (b)]

Planned closure of the HWMA unit is not expected to exceed 180 days. However, if a revised closure plan is determined to be applicable, an extension will be requested 30 days before Day 180.

I-11 Certification of Closure [IDAPA 58.01.05.008; 40 CFR 264.115]

At the conclusion of the closure process, the registered PE will certify that closure has been successfully completed in accordance with this closure plan, and the closure performance standard(s) has (have) been achieved. The certification will be submitted within 60 days of the closure to the:

Director, c/o Hazardous Waste Program Manager
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

A Final PR/VSI Closure Report will be written documenting compliance with the closure plan and plans for the final disposition of the waste generated as a result of the closure. The closure report will be retained as part of the HWMA unit operating records.

I-12 Post-Closure Plan [IDAPA 58.01.05.009; 40 CFR 264.110(b)(1)]

Because the MFC HWMA units are to be clean closed and are not disposal facilities, the post-closure requirements of IDAPA 58.01.05.009 and 40 CFR 264.116 through 264.120 do not apply.

I-13 Post-Closure Notices [IDAPA 58.01.05.009; 40 CFR 264.119]

This requirement does not apply because post-closure plans are not required.

I-14 Closure Cost Estimate [IDAPA 58.01.05.009; 40 CFR 264.142]

Under IDAPA 58.01.05.009 and 40 CFR 264.140(c), the Federal government, as owner of the INL, is exempt from requirements to provide cost estimates for closure.

I-15 Financial Assurance Mechanism for Closure [IDAPA 58.01.05.009; 40 CFR 264.143]

Under IDAPA 58.01.05.009 and 40 CFR 264.140(c), the Federal government, as owner of the INL, is exempt from requirements to provide a financial assurance mechanism for closure.

I-16 Post-Closure Cost Estimate [IDAPA 58.01.05.009; 40 CFR 264.144]

This requirement does not apply because post-closure plans are not required.

I-17 Financial Assurance Mechanism for Post-Closure Care [IDAPA 58.01.05.009; 40 CFR 264.145]

This requirement does not apply because post-closure plans are not required.

I-18 Liability Requirements [IDAPA 58.01.05.009; 40 CFR 264.147]

Under IDAPA 58.01.05.009 and 40 CFR 264.140(c), the Federal government, as owner of the INL, is exempt from liability requirements.

I-19 Use of State Required Mechanism and State Assumption of Responsibility [IDAPA 58.01.05.009; 40 CFR 264.149]

Under IDAPA 58.01.05.009 and 40 CFR 264.140(c), the Federal government, as owner of the INL, is exempt from these requirements.

Attachment 2

Work Order # 342586

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793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)	WO Number: 342586-03 1 of 2
USE TYPE 4	

Attachments:

Appendix A

MFC Maintenance Pre-Job Briefing Checklist (FRM-2923)

Drawing 1016676 and 1016657

HAZARDS AND CONTROLS

Hazard	Mitigation
Pressure	LOTO per MFC-ADM-9400
Contamination Exposure	Per RWP

SCOPE OF WORK:

Mechanics 793 REMOVE lines from carbonization tank to allow for its removal.

1. WORK INSTRUCTIONS

1.1 OPERATIONS/MECHANIC

1.1.1 **ENSURE** facility conditions will allow the performance of this maintenance.

- **CONTACT** Radiological control personnel (Rob Goodrich, 3-7204, or designated alternates) before starting work.
- **NOTIFY** WGS (Russ Leavitt, 3-7057, or designated alternates) prior to starting removal of equipment.
- **NOTIFY** Professional engineer Joseph Medeiros 208-526-3271 or Ed Hart 208-533-7772 before starting work.

- **MECHANICS**

- **IF AT ANY TIME** crafts are exposed to pressure hazard
THEN PERFORM LOTO per MFC-ADM-9400.
- **ENSURE** all lines are disconnected and removed from tank D21-T-757 Carbonation Vessel at least to the first disconnection point. (Drawing 1016676).
- **ENSURE** all lines are removed to a point that will allow the tank to be hoisted out and disposed of.

793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)WO Number: **342586-03**
2 of 2

- **ENSURE** lines that were removed are capped.

1.2 OPERATIONS/MECHANIC

- **IF** LOTO was installed
THEN RELEASE LO/TO per MFC-ADM-9400.

793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)	WO Number: 342586-03
--	-----------------------------

Appendix A

Step No.	Deficiencies (Initial and S# for each entry)	Action

Date	Comments/Problems/Resolution, etc. (Sign and S# for each entry)

793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)	WO Number: 342586-04 1 of 2
USE TYPE 4	

Attachments:

Appendix A

MFC Maintenance Pre-Job Briefing Checklist (FRM-2923)

Reference:

Drawing 1016676

HAZARDS AND CONTROLS

Hazard	Mitigation
Contamination Exposure	Per RWP
Hoisting and rigging	Per LWP-6500
Manual Material Handling (MMH)	Per LWP-6600

SCOPE OF WORK:

In MFC-793 HEO's will REMOVE Carbonation Vessel D21-T-757 per attached approved lift plan and sketch.

2. WORK INSTRUCTIONS

2.1 OPERATIONS/HEO

2.1.1 **ENSURE** facility conditions will allow the performance of this maintenance.

- **CONTACT** Radiological control personnel (Rob Goodrich, 3-7204, or designated alternates) before starting work.
- **NOTIFY** WGS (Russ Leavitt, 3-7057, or designated alternates) before starting work.
- **NOTIFY** Professional engineer Joseph Medeiros 208-526-3271 or Ed Hart 208-533-7772 before starting work.
- **ENSURE** mechanics have completed/are working 342586 task 3.

793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)WO Number: **342586-04**
2 of 2

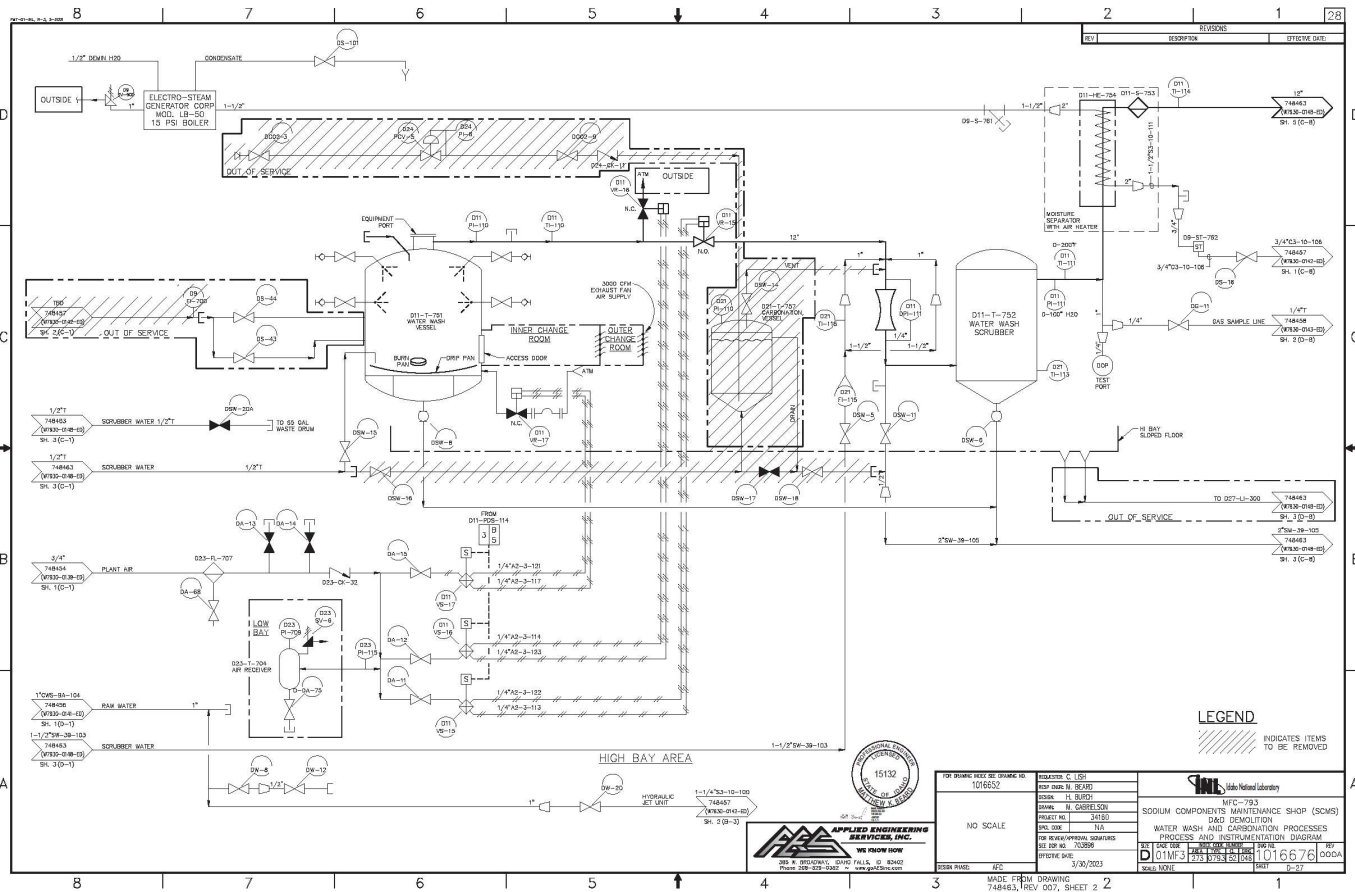
- **HEO**
 - **STAGE** all necessary equipment prior to work being performed.
 - **ENSURE** spotters are used while operating heavy equipment. **ENSURE** Area has been posted and roped off.
 - **REMOVE** Carbonation Vessel D21-T-757 per attached approved lift plan and sketch from MFC-793.
 - **PLACE** the Carbonation Vessel D21-T-757 in the hazardous waste container provided by WGS.
 - **REMOVE** all equipment after work has been completed.
 - **RECORD** any Comments/Problems/Resolution in Appendix A.

793 CARBONATION TANK REMOVAL MECHANICAL (EC 2570)	WO Number: 342586-04
--	-----------------------------

Appendix A

Step No.	Deficiencies (Initial and S# for each entry)	Action

Date	Comments/Problems/Resolution, etc. (Sign and S# for each entry)



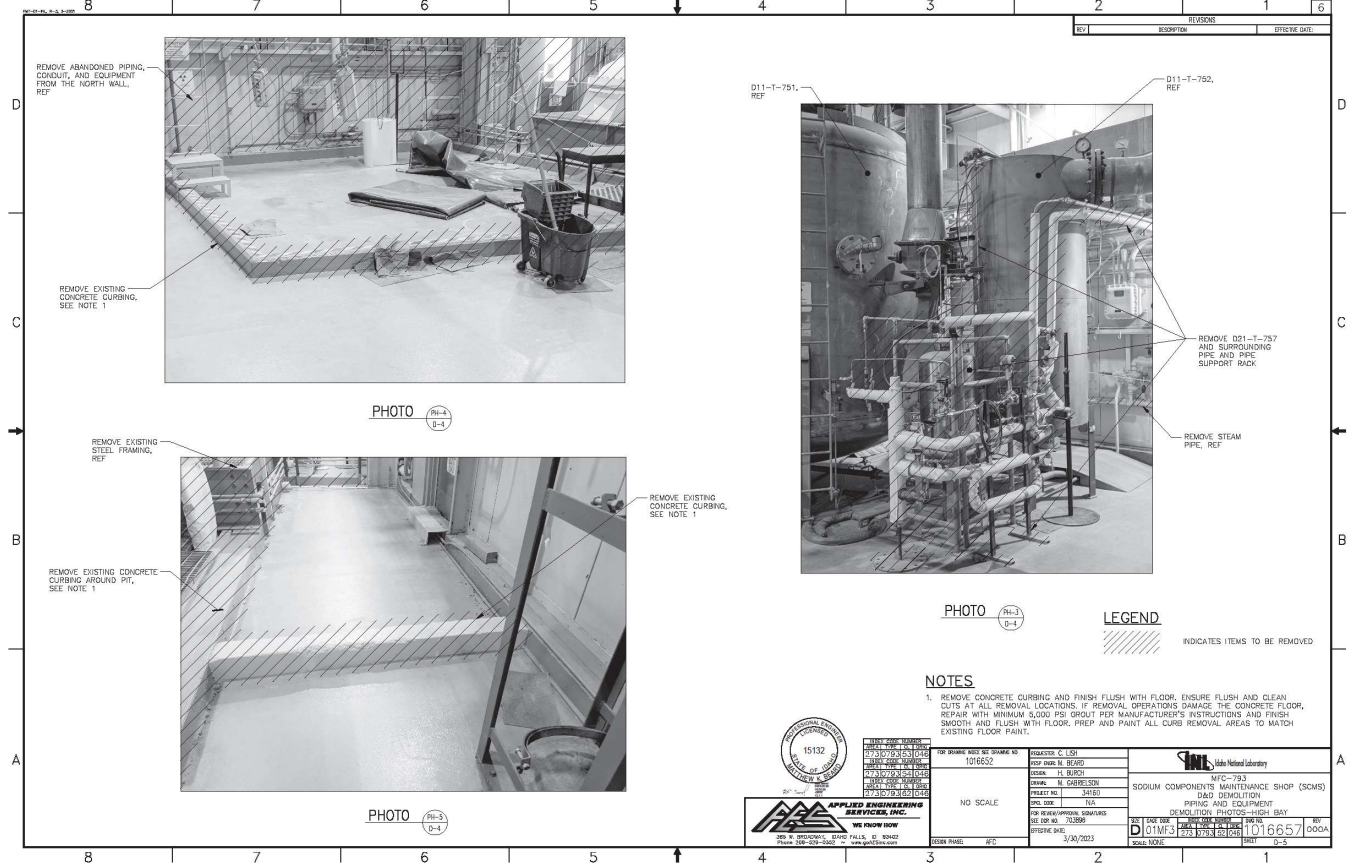
LEGEND

INDICATES ITEMS TO BE REMOVED



FOR SHOWN HERE SEE DRAWING NO.	1016652
DESIGNER	C. L. SH
DATE	11/10/03
PROJECT NO.	34180
SCALE	AS SHOWN
FOR REVIEW/REVISIONS	SEE SHEET NO. 1016657
DATE	3/30/2003
DESIGNER	WFC

PROJECT NO.	1016652
PROJECT NAME	SCMS
PROJECT LOCATION	SCMS
PROJECT DATE	3/30/2003
PROJECT NO.	1016652
PROJECT NAME	SCMS
PROJECT LOCATION	SCMS
PROJECT DATE	3/30/2003



LEGEND

INDICATES ITEMS TO BE REMOVED



FOR SHOWN HERE SEE DRAWING NO.	1016652
DESIGNER	C. L. SH
DATE	11/10/03
PROJECT NO.	34180
SCALE	AS SHOWN
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DATE	3/30/2003
DESIGNER	WFC

PROJECT NO.	1016652
PROJECT NAME	SCMS
PROJECT LOCATION	SCMS
PROJECT DATE	3/30/2003
PROJECT NO.	1016652
PROJECT NAME	SCMS
PROJECT LOCATION	SCMS
PROJECT DATE	3/30/2003

NOTES

1. REMOVE CONCRETE CURBING AND FINISH FLUSH WITH FLOOR. ENSURE FLUSH AND CLEAN CUTS AT ALL REMOVAL LOCATIONS. IF REMOVAL OPERATIONS DAMAGE THE CONCRETE FLOOR, REPAIR WITH MINIMUM 5,000 PSI GROUT PER MANUFACTURER'S INSTRUCTIONS AND FINISH SMOOTH AND FLUSH WITH FLOOR. PREP AND PAINT ALL CURB REMOVAL AREAS TO MATCH EXISTING FLOOR PAINT.

Attachment 3

IWTS Container Profile MFC230300

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Define MFC230300


Define Container Profile


Barcode or Container ID:	MFC230300	Additional Container ID:	NA
Container Date:	07/17/2023	Decommissioned:	<input type="checkbox"/>
Responsible Contractor:	BEA		
Parent Material Profile:	4807N.R3	Site-Wide RCRA Characteristic Metal Debris	
Waste Type:	MLLW	Contact Handled	
Generating Area:	MFC : MFC Generation area		
Name of Waste or Material:	Site-Wide RCRA Characteristic Metal Debris		
RCRA Waste Type:	NonWasteWater	Labpack:	No
Container's Original Location - Unit:	MFC-793 : MFC 793 Sodium Comp Maint Shop	Current/Last Location:	MFC-793
Grid X:		Grid X:	793_G
Grid Y:		Grid Y:	
Grid Z:		Grid Z:	
Container Type:	CM	Metal boxes, cartons, cases (including roll-offs)	
Container Subtype:	IP-1 4'X4'X6'	Container Size:	90.00 FT3
		Net Volume:	63.00 FT3
UN Code:	IP-1	Total Weight:	2,117.00 LBS
		Net Weight:	1,444.00 LBS
Record Status:	Active	Record Lock Parameters:	Locked
			10/11/2023 14:15:13
		Insert Parameters:	08/22/2023 16:35:59
			LeavittM
Container Profile Declaration Controls:		Applicability:	
Asbestos - Does this container have asbestos waste?		Yes	
CERCLA - Does this container have CERCLA waste?		No	
PCBs - Does this container have PCB waste?		Yes	

Relations MFC230300 No Data Available

Approvals MFC230300

Certification, Review, and Approval

WDDF	UserID: vadenh Date: 10/02/2023 WDDF: MFC-20-003	WDDF Approved - This WDDF was reviewed and confirmed to accurately and adequately describe the waste and document the hazardous waste determination for the waste to which it is assigned and for which it was developed, and it is complete.
		
Certified	Name: Heath Vaden	

	Date: 10/11/2023	CERTIFICATION OF CHARACTERIZATION Container characterization data was derived by approved analytical methods or process knowledge information and any data limitations have been documented. Legally and scientifically defensible data was used for characterization whenever possible. The required data provided in this Container Profile is complete and accurate based on the analytical data or process knowledge information used for characterization. Container data is within the bounds of the parent Material and Waste Characterization Profile and a waste determination process has been performed for the parent material or waste stream.
	Phone: 2085337531 Fax: E-Mail: Heath.Vaden@inl.gov	
Reviewed	Name:	
	Date:	
	Phone:	
	Fax:	
	E-Mail	
Approved	Name:	
	Date:	
	Phone:	
	Fax:	
	E-Mail	
Traffic Review	Name:	
	Date:	
	Phone:	
	Fax:	
	E-Mail	

Gen. & PCB MFC230300

General and PCB Information

TID Seal No. (if applicable)	NA	Out of Service Date:	07/27/2023
Physical Form:	Solid	PCB Capacitors?	No
Chemical Form (for PSN):	NA	Number of Items in Package:	
Container Vented?	No	Size of Capacitors:	
Vent Type:		Leaking?	
Bulk Lead?	Yes	PCB Transformer or Regulators?	No
Bulk Lead Type:	Pig	Dimensions:	
Container includes asbestos?	Yes	Name Plate Gallons:	
Asbestos Type:	Non-Friable	Weight (lb)/Item:	
Other:	NA		
Other:	NA		
Other:	NA		
Generating Program:	Materials and Fuels Complex		
Program Scope:			

Treatment/Disposal Charge # : See Add Cont Info

Does this waste contain PCBs? Yes

Applicable PCB Conc: >=500ppm

PCB Form: Non-Liquid

PCB Waste Type: PCB Bulk Product Waste (3)

PCB Waste Type Description: 40 CFR Part 761, Section3, Paragraph (PCB_bulk_product_waste)(3): Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; adhesives; paper; Galbestos; sound deadening or other types of insulation; and felt or fabric products such as gaskets.

PCB Item: PCB Article Container

PCB Item Description: PCB Article Container means any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

Physical Verification Information

Contents Verified:	Yes	Verifier:	Heath Vaden
Date:	10/3/2023		
Verification Signature Statement:	General	I have performed a rigorous documentation review of the waste characterization information and conducted interviews with personnel knowledgeable of the waste and verified that the material composition specified on this container profile is accurate.	

Add Cont Info MFC230300

Additional Container Information

Additional Description For Materials:

Additional Description for Materials:

Contents:
MFC-793 Carbonation tank and ancillary piping.
Electronics, Items transfered from ARL SAA and TAA in 2- 55-Gallon Drums
Constituents weights calculated using TEV-1136 assumptions.

Generator: Ryan Tonks, Andrew Burg, Justin Burton, Solin Garcia, Colt Killion, Morgan Daw, Scott Dallimorr, Douglas Murdock, Ren Stepnenson, Trevor Bowers, Garrett Churba, Konnar Gilstrap, Pamela Wiscaver, Lindsey Lecrivain, Cory Kynasten, Tiffany Schorzman, Alec Lopez, Kelsie Nerdner, Amber Rowe

Charge Codes (Split Evenly):550149200, 103190618

Additional Packaging Description:

Rad Survey: RCLSA23758
QA363855

Special Handling Instructions and Additional Information:

Other Data:

- a. **Other** SDS Paint Remover
- b. **Other**

CAQ / NCR #:

Related Documents (ECAR, EDF, etc.): 435.42, 435.C16

MP STP ID (default): ID-INL-1YR

CP STP ID:

Site Treatment Plan Comments:**MP BLDD ID (default):****CP BLDD ID:****Waste Description:** Solid waste from operations, maintenance or cleanup**Source Code:** G15

Other Intermittent Events or Processes: Process equipment change-out or discontinuation of equipment use

Source Code Comments:**Form Code:** W002

Mixed Media/Debris/Devices: Contaminated debris: paper/clothing/rags/wood, empty containers, glass/piping/other solids

Form Code Comments:**Void Space:** % (INL RHLLW Disposal Facility Use Only)**EPA Codes MFC230300****Hazardous Constituents**

Unique ID	DOT RQ	EPA Code	WC	Amount/Units	Constituent and Treatment Subcategory
D004A	No	D004	<input checked="" type="checkbox"/>	5 mg/L	Arsenic: Arsenic
D005A	No	D005	<input checked="" type="checkbox"/>	100 mg/L	Barium: Barium
D006A	No	D006	<input checked="" type="checkbox"/>	1 mg/L	Cadmium: Cadmium
D007A	No	D007	<input checked="" type="checkbox"/>	5 mg/L	Chromium: Chromium (Total)
D008A	No	D008	<input checked="" type="checkbox"/>	5 mg/L	Lead: Lead
D009D	No	D009	<input checked="" type="checkbox"/>	0.2 mg/L	Mercury: Low mercury <260 mg/kg total mercury
D010A	No	D010	<input checked="" type="checkbox"/>	1 mg/L	Selenium: Selenium
D011A	No	D011	<input checked="" type="checkbox"/>	5 mg/L	Silver: Silver

UHCs MFC230300**Underlying Hazardous Constituents**

CAS Number	Amount	Units	Constituent
7440-47-3	30	wt%	Chromium (Total)
7440-02-0	28	wt%	Nickel

Chem. Comp. MFC230300**Chemical Composition Data**

CAS Number	Flammable	EPCRA	TSCA	Chemical	Mass	Units
7429-90-5	No	Yes	No	Aluminum	3.0000E+00	LBS
7440-47-3	No	Yes	No	Chromium	4.5000E+01	LBS
7440-50-8	No	Yes	No	Copper	5.0000E+01	LBS
7439-92-1	No	Yes	No	Lead	3.7500E+02	LBS
7440-02-0	No	Yes	No	Nickel	4.1000E+01	LBS
7440-22-4	No	Yes	No	Silver	5.0000E-01	LBS

Rad Calcs MFC230300**Radioactive Source Term Calculations**

Total Activity (Ci)	1.99E-02	SNM per NUREG/BR-0204 (g)	5.81E-03
Total Activity (TBq)	7.38E-04	SNM with 0.712 wt% U-235 (g)	5.81E-03
DOT Fissile (g)	5.62E-03	NRC Class	Class A
Weight % U-235	4.77	EnergySolutions Class	Class A
Total U (g)	8.25E-02	TRU Activity (nCi/g)	2.40E+00
U-235 Equivalency (g)	7.70E-03	Is TRU Waste? (>=100 nCi/g)	No
Weight % Pu-240	6.00	PECs	1.57E-03
Total Pu (g)	1.89E-03	Pu-239 FGE	4.23E-03
Total Pu-239+Pu-241 (g)	1.70E-03		

Rad. Char. MFC230300**Radiological Characteristics****1. Waste****Package:**

- a. Radiation Dose Rate at Contact with Waste Package: = 7.5 mrem/hr

Radiation Dose Rate at 30 cm from Waste Package: = 4 mrem/hr

Radiation Dose Rate at One Meter from Waste Package: = 0.9 mrem/hr

- b. Neutron Dose Rate at Contact from Waste Package: mrem/hr

Neutron Dose Rate at One Meter from Waste Package: mrem/hr

2. Are Dose rates for the Shipping Package different from the Waste Package?

**3. Shipping
Package (i.e.,
shielded cask):**

- | | | |
|-----------|--|---------|
| a. | Radiation Dose
Rate at Contact
with Shipping
Package: | mrem/hr |
| | Radiation Dose
Rate at 30 cm
from Shipping
Package: | mrem/hr |
| | Radiation Dose
Rate at One
Meter from
Shipping
Package: | mrem/hr |
| b. | Neutron Dose
Rate at Contact
from Shipping
Package: | mrem/hr |
| | Neutron Dose
Rate at One
Meter from
Shipping
Package: | mrem/hr |

Rad Worksheet MFC230300

Source Term Worksheet

Worksheet ID / Source / Measurement Date / Calc Method	Task ID / Task Name/ Task Date	Nuclide	Nuclide Reported	Measured Activity	Measured Uncertainty 2 Sigma	Amount Value/Units	Activated Metal Percent	DOT A2 Form
424931Q / Generator Submission / / Rad Data Upload		Am-241				2.9376E-04 Ci	0	Yes
		Am-243				1.1370E-06 Ci	0	Yes
		Ba-137m				5.4374E-03 Ci	0	Yes
		C-14				9.1790E-09 Ci	0	Yes
		Ce-144				2.0062E-04 Ci	0	Yes
		Cm-244				1.9179E-04 Ci	0	Yes
		Co-60				6.5530E-06 Ci	0	Yes
		Cs-134				6.2031E-05 Ci	0	Yes
		Cs-137				5.7524E-03 Ci	0	Yes
		Eu-154				2.4153E-05 Ci	0	Yes
		Eu-155				4.4800E-05 Ci	0	Yes
		Fe-55				4.1536E-08 Ci	0	Yes
		Mn-54				4.1849E-06 Ci	0	Yes
		Ni-63				2.5094E-08 Ci	0	Yes
		Np-237				3.6091E-08 Ci	0	Yes
		Pa-233				2.7603E-10 Ci	0	Yes
		Pa-234m				7.1319E-10 Ci	0	Yes
		Pr-144				2.0062E-04 Ci	0	Yes
		Pr-144m				3.1301E-10 Ci	0	Yes
		Pu-238				1.1431E-03 Ci	0	Yes
		Pu-239				1.0554E-04 Ci	0	Yes
		Pu-240				2.5757E-05 Ci	0	Yes
		Pu-241				3.2754E-07 Ci	0	Yes
		Pu-242				4.3633E-08 Ci	0	Yes
		Rh-106				3.0475E-04 Ci	0	Yes
		Ru-106				3.0475E-04 Ci	0	Yes
		Sb-125				4.9334E-05 Ci	0	Yes
		Sr-90				2.8909E-03 Ci	0	Yes
		Tc-99				8.9809E-09 Ci	0	Yes
		Th-231				2.1594E-09 Ci	0	Yes
		Th-234				7.1319E-10 Ci	0	Yes
		U-234				1.9195E-06 Ci	0	Yes
		U-235				8.4740E-09 Ci	0	Yes

U-236	2.1087E-08 Ci	0	Yes
U-238	2.6200E-08 Ci	0	Yes
Y-90	2.8909E-03 Ci	0	Yes

ISWWTR MFC230300 No Data Available

Phys. Comp. MFC230300

Physical Composition of Material

Related Characteristic (Use *Other* Where NA)	Name of Material	Carcinogen	Composition Concentration/Units
Other	Batteries: lead acid, nickel cadmium, lithium ion etc.	No	0.01 wt%
Other	Electrical components: balances, scanners, circuit boards, etc.	No	8 wt%
Other	Lead bricks, plugs, pigs, sheet, shot, scrap, blankets, etc.	No	25 wt%
Other	Metal structural debris and misc scrap metal pieces.	No	20 wt%
Other	Misc PPE (gloves, rubber boots, tyvek, etc), poly, paper, plastic, wood debris	No	22 wt%
Other	Misc. RCRA Scrap Metal: brass, brass w/copper, copper with solder, Wire, etc.	No	22 wt%
Asbestos - Radioactively Contaminated	Components with non-friable asbestos	Yes	1.98 wt%
Filters, HEPA	HEPA Filters	No	0.01 wt%
PCBs >= 50 ppm	PCB Bulk Product- painted items	Yes	1 wt%

**Lab Pack
MFC230300
No Data
Available**

Genealogy Source Containers MFC230300

Repack - Material Transferred In MFC230300

<u>Source Container</u>		<u>Source Container</u>					
Container ID	Vol/Units	Mass/Units	Last Location	Decom.	Source Task	Processing Unit Name	Task Date
MFC230130	14.70 FT3	503.00 LBS	MFC-793RPK	No	MFC-23-9-28-01	MFC 793 Sodium Comp Maint Shop Repackaging	09/28/23
MFC230322	10.00 FT3	330.00 LBS	MFC-793RPK	No	09/21/2023	MFC 793 Sodium Comp Maint Shop Repackaging	09/21/23

**Genealogy
Receiving
Containers
MFC230300
No Data
Available**

**DOT Ship. Desc.
MFC230300 No
Data Available**

Clock Info MFC230300**Clock Area Information**

Clock Area Start Date (start clock): 07/17/2023 leavittm Days on Clock: 96

30 Day Date: 08/15/2023 180 Day Date: 01/12/2024

60 Day Date: 09/14/2023 270 Day Date: 04/11/2024

90 Day Date: 10/14/2023 365 Day Date: 07/15/2024

Date Entered Clock Area: 08/22/2023 leavittm

Date Removed from Clock Area (stop clock):

Person Responsible for Container: Heath Vaden (208)533-7531 Heath.Vaden@inl.gov

Clock Area (Unit): MFC 793 Sodium Comp Maint Shop

Clock Area (Grid X): 793G

Clock Area Day Limit (Unit): 365

Clock Area Day Limit (Grid X):

WMU Custodian (Unit): M Russell Leavitt

WMU Custodian (Grid X):

Clock Area Start Date: This data starts the Clock Area time limit clock for a container i.e., 90 days.

Date Entered Clock Area: The date a container is physically placed into a Clock Area.

Date Removed from Clock Area: The date a container is physically removed from a Clock Area and the time limit clock is stopped.

Person Responsible for Containers: Ensures a container is removed from a Clock Area Storage within the established storage limit, i.e., 90 days.

Task Hist. MFC230300**Task History**

		<u>Task Status</u>		<u>Destination Unit</u>				
Task	Task Date	Send	Receive	Unit Abbr.	Unit Type	Grid X	Grid Y	Grid Z
MFC-23-9-21-01	09/21/23	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MFC-793	Storage	793_G		

Manifests

MFC230300

No Data

Available

Prop. TSD MFC230300**Proposed / Approved TSD's**

Unit Abbr	Approved	Approval Date	Custodian Name
MFC-793	<input checked="" type="checkbox"/>	09/21/2023 08:26:48	Leavitt, M Russell

Comments MFC230300 No Data Available**Qual. Rec.**

MFC230300

No Data

Available

Edit Log MFC230300

Explanation and References

Name	Date/Time	Explanation
VadenH	10/11/2023 14:15:12	*** Container Barcode ***** : MFC230300 BEGIN VALIDATION FOR CONTAINER PROFILE CERTIFY VADENH. WGS. Call Point-5. Authorized on Gen. Unit (MFC). Authorized on Current Location (MFC-793). CP HAZ DATA VALIDATION: EPA CODES PASSED UHCs PASSED: SOURCE CODE/FORM CODE PASSED: WASTE DESCRIPTION PASSED: RCRA WASTE TYPE PASSED: CP RAD DATA VALIDATION: RAD WORKSHEET PASSED: RAD NUCLIDES PASSED: RAD CHARACTERISTICS PASSED: RAD CURIES PASSED: CONTAINER PROFILE DECLARATION CONTROLS CHECK: ASBESTOS PASSED: CERCLA PASSED: PCBS PASSED: PHYSICAL DATA CHECK: Container subtype, Total weight and unit, Net volume and unit, Net weight and unit, UN Code. PASSED OVERALL VALIDATION PASSED
VadenH	10/11/2023 14:15:11	VADENH. WGS. Call Point-5. Authorized on Gen. Unit (MFC). Authorized on Current Location (MFC-793).
vadenh	10/11/2023 14:14:03	Upload of nuclide information from file. Worksheet ID = 424931Q Passed: Am-241 0.000293762 Ci Passed: Am-243 1.13702E-6 Ci Passed: Ba-137m 0.005437352 Ci Passed: C-14 9.17896E-9 Ci Passed: Ce-144 0.00020062 Ci Passed: Cm-244 0.00019179 Ci Passed: Co-60 6.55303E-6 Ci Passed: Cs-134 0.0000620313 Ci Passed: Cs-137 0.005752393 Ci Passed: Eu-154 0.0000241529 Ci Passed: Eu-155 0.0000447998 Ci Passed: Fe-55 4.15364E-8 Ci Passed: Mn-54 4.18486E-6 Ci Passed: Ni-63 2.50936E-8 Ci Passed: Np-237 3.60909E-8 Ci Passed: Pa-233 2.76029E-10 Ci Passed: Pa-234m 7.13185E-10 Ci Passed: Pr-144 0.00020062 Ci Passed: Pr-144m 3.13009E-10 Ci Passed: Pu-238 0.00114314 Ci Passed: Pu-239 0.000105536 Ci Passed: Pu-240 0.0000257565 Ci Passed: Pu-241 3.27537E-7 Ci Passed: Pu-242 4.36329E-8 Ci Passed: Rh-106 0.000304748 Ci Passed: Ru-106 0.000304748 Ci Passed: Sb-125 0.0000493342 Ci Passed: Sr-90 0.002890884 Ci Passed: Tc-99 8.98085E-9 Ci Passed: Th-231 2.15937E-9 Ci Passed: Th-234 7.13185E-10 Ci Passed: U-234 1.91952E-6 Ci Passed: U-235 8.47398E-9 Ci

Passed: U-236 2.10871E-8 Ci
Passed: U-238 2.61996E-8 Ci
Passed: Y-90 0.002890884 Ci

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Attachment 4
Certification


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Attachment 4 Certification

I, Joseph Medeiros, Idaho Registered Professional Engineer No. 10973, registered pursuant to Idaho Code, Chapter 12 of Title 54, hereby Certify that the SCMS Carbonation Vessel located at the Materials and Fuels Complex in Bingham County, Idaho, has been removed, packaged and stored as hazardous waste for future treatment and disposal of as hazardous waste and therefore meets the performance standards in accordance with the *Department of Energy Idaho National Laboratory Materials and Fuels Complex HWMA/RCRA Partial Permit Closure Plan* (EPA No. ID4890008952, October 1, 2015).

Certification Signatory

Approved by:



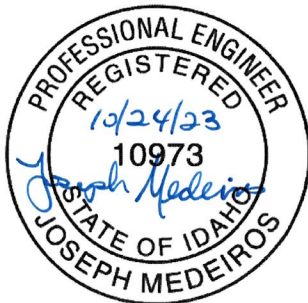
Joseph Medeiros
Professional Engineer



Date

Battelle Energy Alliance, LLC, 1955 N. Fremont Ave., Idaho Falls, ID 83415
Business and Address

(208) 520-1879
Telephone



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