

A topographic map of the state of Idaho, showing its geographical features, rivers, and terrain. The map is rendered in shades of brown and tan, with blue lines representing water bodies. The text of the permit is overlaid on the map.

HWMA/RCRA STORAGE and TREATMENT PERMIT

for the

MATERIALS AND FUELS COMPLEX (MFC)

on the

IDAHO NATIONAL LABORATORY

EPA ID NO. ID4890008952

- **Hot Fuel Examination Facility (HFEF) (MFC-785)**
- **Radioactive Scrap and Waste Facility (RSWF) (MFC-771)**
- **Sodium Components Maintenance Shop (SCMS) (MFC-793, 793C, 793G)**
- **Sodium Storage Building (SSB) (MFC-703)**

Effective Date: October 1, 2015

Revision Date: July 1, 2016

Book 2 of 2

HWMA/RCRA STORAGE and TREATMENT PERMIT

for the

MATERIALS AND FUELS COMPLEX (MFC)

ATTACHMENT 2

Section C – Waste Analysis Plan Description
Section C Attachments

EFFECTIVE DATE: October 1, 2015

REVISION DATE: JULY 1, 2016

1 Table C-2. Unit specific waste acceptance criteria.

Facility	Allowed Waste Types	Allowed EPA Hazardous Waste Codes	Other Waste Acceptance Criteria
HFEF	Ignitable, Corrosive, Reactive, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Endrin, Lindane, Methoxychlor, Toxaphene, 2,4 D, 2,4,5-TP (Silvex), Benzene, Carbon tetrachloride, Chlordane, Chlorobenzene, Chloroform, o-Cresol, m-Cresol, p-Cresol, Cresol, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, 4-Dinitrotoluene, Heptachlor and its epoxide, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Methyl ethyl ketone, Nitrobenzene, Pentachlorophenol, Pyridine, Tetrachloroethylene, Trichloroethylene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorolphenol, Vinyl chloride, Spent or used solvents, other listed wastes from non-specific sources, and a variety of both acutely hazardous and toxic chemicals. Solids, liquids, and debris	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043, F001, F002, F003, F004, F005, F006, F007, F008, F009, F039, P005, P012, P022, P024, P027, P028, P030, P031, P056, P073, P077, P098, P104, P105, P106, P113, P116, P119, P120, U003, U004, U007, U009, U012, U014, U019, U020, U032, U037, U044, U048, U052, U069, U079 - U081, U083, U084, U102, U103, U108, U116, U118, U120, U122, U123, U127, U128, U131, U133 - U135, U138, U140, U144, U145, U147, U151, U159, U162, U165, U169, U170, U171, U182, U188, U190, U191, U196, U201, U204, U207, U208, U210, U211, U215, U217-U220, U225-U228, U239, U328	None
RSWF	Ignitable, Reactive, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, (mercury-contaminated solid waste only); Selenium; Silver Solids and debris only	D001, D003, D004, D005, D006, D007, D008, D009, D010, D011	No free liquids (including NaK or Mercury) are allowed in newly received waste

Facility	Allowed Waste Types	Allowed EPA Hazardous Waste Codes	Other Waste Acceptance Criteria
SCMS	<u>SCMS tank storage and treatment system:</u> Ignitable, Corrosive, Reactive, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Na or NaK, and mixed radioactive wastes. Solids, liquids, and debris	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011	None
	<u>SCMS container storage and treatment:</u> Ignitable, Corrosive, Reactive, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Benzene, Carbon tetrachloride, Chlorobenzene, Chloroform, Cresol, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, 2,4-Dinitrotoluene, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Methyl ethyl ketone, Nitrobenzene, Pentachlorophenol, Pyridine, Tetrachloroethylene, Trichloroethylene, 2,4,6-Trichlorolphenol, Vinyl chloride, Spent or used solvents, other listed wastes from non-specific sources, and hazardous toxic chemical, Na, NaK, Radioactive, and Non-radioactive waste. Solids, liquids, and debris	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026-D030, D032-D040, D042, D043, F001 –F007, F009, U134	None
SSB	Ignitable, Reactive, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Benzene, Carbon tetrachloride, Chlorobenzene, Chloroform, Cresol, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, 2,4-Dinitrotoluene, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Methyl ethyl ketone, Nitrobenzene, Pentachlorophenol, Pyridine, Tetrachloroethylene, Trichloroethylene, 2,4,6-Trichlorolphenol, Vinyl chloride, Spent or used solvents, other listed wastes from non-specific sources, and hazardous toxic chemical, Na, NaK, Radioactive, and Non-radioactive waste. Solids, liquids, and debris	D001, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026-D030, D032-D040, D042, D043, F001 – F007, F009, U134	No corrosive waste (D002)

1 Table C-3. Waste analysis parameters, methods, and rationale.

Parameter	Method		Rationale (see key)	
Physical state	As required		1	
Radioactivity	Acceptable knowledge, if appropriate, may be used. Alpha and beta detectors, gamma spectroscopy, etc.		2	
Ignitability	EPA SW-846 1010, Pensky-Martens Closed-Cup Method for Determining Ignitability, and/or 1020, Setaflash Closed-Cup Method for Determining Ignitability. Acceptable knowledge, if appropriate, may be used.		1, 3, 4,5	
Corrosivity	EPA SW-846 1110, Corrosivity Toward Steel; 9040, pH Electrometric Measurement; and/or 9041, pH Paper. Acceptable knowledge, if appropriate, may be used.		1, 3, 4	
Reactivity (cyanides, sulfides)	EPA SW-846 9010, 9013, 9014, 9030, 9031, 9034. Acceptable knowledge, if appropriate, may be used.		1, 3, 4,5	
Toxicity	1311, Toxicity Characteristic Leaching Procedure or EPA SW-846 1311, Toxicity Characteristic Leaching Procedure. Acceptable knowledge, if appropriate, may be used.		3, 4	
Metals	Hazardous Constituent	EPA SW-846 Method	Measurement Technique	1, 3, 4
	Arsenic	7000, Atomic Absorption Methods.	Hydride	
	Antimony	6010, Inductively Coupled Plasma—Mass Spectrometry, or 7000	ICP/Flame	
	Barium	6010 or 7000	ICP/Flame	
	Beryllium	6010 or 7000	ICP/Flame	
	Cadmium	7000	Furnace	
	Chromium	6010 or 7000	ICP/Flame	
	Lead	6010 or 7000	ICP/Flame	
	Mercury	7000	Cold Vapor	
	Nickel	6010 or 7000	ICP/Flame	
	Selenium	7000	Hydride	
	Silver	6010 or 7000	ICP/Flame	
	Thallium	6010 or 7000	ICP/Flame	
	Acceptable knowledge, if appropriate, may be used.			
Volatile	EPA SW-846 8015, 8010/8240, 8020/8260, or process knowledge		1, 3, 4	
Semi-volatile	EPA SW-846 8250/8270 or process knowledge		1, 3, 4	
Free liquids	9095, Paint Filter Liquids Test Procedure; EPA SW-846 9095, Paint Filter Liquids Test. Acceptable knowledge, if appropriate, may be used.		1	
F,P,U Listed	Acceptable knowledge		1, 3, 4	
Key: 1 - Ensure safe waste handling, storage, and/or treatment. 2 - Determine if the waste is HW or MW and any applicable radiological control limits (Hazard-Category-3 threshold quantities must not be exceeded). 3 - Determine if waste is regulated under the HWMA/RCRA. 4 - Determine LDR and treatment standards. 5 - Sodium is ignitable/reactive.				

C-2(c)(1) Test Methods for Debris [IDAPA 58.01.05.008; 40 CFR 264.13(b)(2)]

The heterogeneous nature of debris HW/MW streams makes collection of representative samples impractical and, as a result, characterization through sampling and analysis is not a reasonable option. Characterization of the debris HW/MW streams, therefore, relies heavily on generator acceptable knowledge documented on the IWTS profile, or equivalent documentation. EPA has recognized the inherent difficulty of debris characterization by promulgating alternative debris treatment standards based on performance and/or design and operating standards rather than numerical, concentration-based standards. As standard test methods for debris are not available, each debris HW/MW stream treated at the HWMA unit will be evaluated separately.

C-2(d) HW/MW Sampling Methods [IDAPA 58.01.05.008; 40 CFR 264.13(b)(3)]

A SAP will be developed for any waste stream needing verification prior to HW/MW receipt, and, if treated, the SAP will also cover post-treatment sampling of the waste. Sampling will be conducted in accordance with Chapter 9 of SW-846 and approved procedures. In general, where standard samples are collected, the following basic sampling procedure is used:

- Obtain samples using pre-cleaned sample equipment, in accordance with the applicable method.
- Document necessary information in the field record (e.g., location, time, characteristics). Fill sample containers. Uniquely identify and label each sample (Attachment C-3).
- Place containers in a durable ice-filled cooler or container for storage or transport to the laboratory. The sample containers may be wrapped in bubble packing or other protective material before placement in the cooler or container, if necessary.
- Install custody seals to ensure sample integrity (Attachment C-3).
- Complete the chain-of-custody (COC) record, and retain an administrative copy (Attachment C-4).
- Review all paperwork and attach the COC record to the cooler or comparable receptacle.
- Seal the coolers or containers, and mark them in accordance with Department of Transportation and/or procedural requirements.
- Transport samples to the MFC or off-Site analytical laboratory.

Attachment C-6

Example of Waste Streams Managed at each MFC HWMU

Hot Fuels Examination Facility (HFEF, MFC-785)

Originating Facility	Containers	STP Waste Stream ID	Material Profile	Material or Waste Type	Waste Type	Treatment	Destination
MFC	Drum	CH-ANL-505Ta	3657P	Glovebox Debris from: Testing , Alpha, & Special Projects, Casting Labs , etc.	MTRU-CH	WIPP Disposal	offsite disposal
MFC	Drums	CH-ANL-553	5399N	Transuranic samples from the AL, HEPA Filters	MTRU-CH	WIPP Disposal	offsite disposal
MFC	Boxes	CH-ANL-716CH	4807N.R2	Site-Wide RCRA Characteristic Metal Debris	MLLW	Commercial treatment	offsite disposal

Radioactive Scrap Waste Facility (RSWF, MFC-771)

Originating Facility	Containers	STP Waste Stream ID	Material Profile	Material or Waste Type	Waste Type	Treatment	Destination
MFC	paint cans, HFEF 5 Cans, SLSF Cans, nonstandard containers	CH-ANL-180RH	ANL180RH	Debris and Equipment Contaminated with Sodium-Remote Handled	MLLW	RWDP	offsite disposal
MFC	paint cans, HFEF 5 Cans, SLSF Cans, nonstandard containers	CH-ANL-180RH	6516Q	RH-MLLW due to Sodium Content	MLLW	RWDP	offsite disposal
MFC	HFEF-5 Cans	CH-ANL-182RH	6517Q	RH-MLLW due to Sodium - Potassium Alloy (NaK) Content	MLLW	RWDP	offsite disposal
MFC	HFEF-5 Cans, SLSF Cans	CH-ANL-241Ta	ANL241T	RH-MTRU (Solidified fuel samples, debris contaminated with RCRA Metals (Cd, Cr, Ba and/or Pb) and HEPAs	MTRU-RH	RWDP	offsite disposal
MFC	Paint cans, HFEF-5 Cans, SLSF Cans	CH-ANL-716RH	6518Q	RH-MLLW due to RCRA Metals	MLLW	RWDP	offsite disposal
MFC	HFEF-5 Cans	CH-ANL-716RH	5212N	RH-MLLW (FCF Hot-Cells generated Misc. Rags, Tools, Filters, Sweepings, Plastics, etc.)	MLLW	RWDP	offsite disposal
Non-standard container - cold trap, EBR-II nuclide traps							

Sodium Components Maintenance Shop (SCMS, MFC-793)

Originating Facility	Containers	STP Waste Stream ID	Material Profile	Material or Waste Type	Waste Type	Treatment	Destination
MFC	Drums, Non-Standard containers	CH-ANL-180CH	ANL180CH	Debris and Equipment Contaminated with Sodium - Contact Handled	MLLW	Deact	offsite disposal
MFC	Drum	CH-ANL-180CH	6825N	Sodium metal or sodium filled equipment (radioactive)	MLLW	Deact	offsite disposal
MFC	Non-Standard container	CH-ANL-182CH	ANL182CH	Debris or Equipment Contaminated with Sodium-Potassium (NaK) Alloy	MLLW	Deact	offsite disposal
MFC	Boxes	CH-ANL-716CH	4807N.R2	Site-Wide RCRA Characteristic Metal Debris	MLLW	Commercial Treatment	offsite disposal
MFC	Drum	CH-ANL-722	5447N.R1	Radioactive Contaminated Alkali Metal	MLLW	Deact	offsite disposal
MFC	Drum	NA	6435N.R1	Broken Lead Acid Batteries at MFC	HAZ	Commercial Treatment	offsite disposal
Nonstandard container - Process components							

Sodium Storage Building (SSB, MFC-703)

Originating Facility	Containers	STP Waste Stream ID	Material Profile	Material or Waste Type	Waste Type	Treatment	Destination
MFC	Drums, Boxes	CH-ANL-179	ANL179	Tin-Bismuth Alloy contaminated with Sodium	MLLW	Deact	offsite disposal
MFC	Drums, Non-Standard containers	CH-ANL-180CH	ANL180CH	Debris and Equipment Contaminated with Sodium - Contact Handled	MLLW	Deact	offsite disposal
MFC	Drums	CH-ANL-180CH	6825N	Sodium metal or sodium filled equipment (radioactive)	MLLW	Deact	offsite disposal
MFC	Non-Standard container	CH-ANL-180RH	ANL180RH	Debris and Equipment Contaminated with Sodium-Remote Handled	MLLW	RWDP	offsite disposal
MFC	Drums, Non-Standard container	CH-ANL-182CH	ANL182CH	Debris or Equipment Contaminated with Sodium-Potassium (NaK) Alloy	MLLW	Deact	offsite disposal
MFC	Drums	CH-ANL-241Ta	ANL241T	RH-MTRU (Solidified fuel samples, debris contaminated with RCRA Metals (Cd, Cr, Ba and/or Pb) and HEPAs	MTRU-RH	RWDP	offsite disposal
MFC	Non-Standard container	CH-ANL-722	2225P	Lithium Hydride/Lithium Chloride/Potassium Chloride	MLLW	Deact	offsite disposal
MFC	Drum	CH-ANL-722	7262Q	Radioactive Contaminated Alkali Metal Newly Generated	MLLW	Deact	offsite disposal
Non-standard container - Process equipment							