Tooele Army Depot-South Area
Attachment 1
Waste Analysis Plan

Waste Analysis Plan

1.0 Background and Scope [Utah Admin. Code R315-3-2.5(b)(3), Utah Admin. Code R315-13-1;]

1.1 This attachment contains the Tooele Army Depot-South Area (TEAD-S or Facility) Waste Analysis Plan (WAP). Components of the WAP include analytical parameters and the rationale for their selection, test methods, sampling methods, frequency of analysis, and additional requirements for reactive, ignitable, or incompatible wastes, and for wastes generated offsite.

2.0 Analytical Parameters and Rationale [Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-5-1.11]

2.1 The Permittee shall adequately characterize wastes to ensure safe storage and handling and compliance with both Land Disposal Restriction (LDR) criteria in Utah Admin. Code R315-13-1and the waste acceptance criteria of the Treatment, Storage, and Disposal Facility (TSDF) receiving the waste.

2.2 Waste shall be characterized based on either process knowledge or laboratory analysis. The Permittee shall first determine if the waste is a listed waste in Utah Admin. Code R315-2-10. If the waste is not listed, the Permittee shall determine if the waste exhibits a characteristic identified in Utah Admin. Code R315-2-9. The extent of sampling and analysis needed to characterize a waste stream shall be based on the completeness of process knowledge, anticipated end uses of the characterization data, anticipated disposition of the wastes, and regulatory requirements. Table 1-1-5, Sampling Methods and Rationale by Waste Stream, describes analyses required to characterize each of the waste streams listed in Section 4 in this Attachment, as well as the rationale for each analysis selected. The analytical methods applied to specific wastes may be modified by the Permittee, based on process knowledge and improvements in analysis or detection based on approval from the Director of the Division of Waste Management and Radiation Control (Director), in accordance with Utah Admin. Code R315-3-4.3.

2.3 The Permittee may use engineering judgment and knowledge of the production process and waste characteristics to decide whether or not the waste is a hazardous waste in accordance with paragraph 2.2. Existing published data which includes Safety Data Sheet (SDS) or analytical data on the hazardous waste, may be used to satisfy the waste analysis requirements of Utah Admin. Code R315-8-2.4. Process knowledge of each waste stream is summarized in Section 4 of this Attachment.

2.4 Wastes shall be stored and managed by the Permittee in authorized storage areas. Locations of permitted storage areas are shown on Fig. 6-1, Attachment 6 (General Facility Description).

2.5 The Permittee shall use permitted storage igloos to store, Recovered Chemical Weapons Material, waste military munitions and components, and hazardous wastes with and without free liquids. Waste explosives intended for open burning/open detonation (OB/OD) shall be stored in the OB/OD Conex.

3.0 Chemical And Physical Analysis of Wastes [Utah Admin. Code R315-3-2.5]

3.1 Hazardous wastes managed at the Facility shall consist of Recovered Chemical Weapons Materials, waste military munitions and components, as well as agent-related and non-agent-related wastes. The following conditions describe the waste codes applicable to hazardous wastes stored at the Facility. The Permittee shall use waste stream analyses and generator process knowledge for waste code designations.

3.2 The Permittee shall list the waste codes associated with each hazardous waste stream stored at the Facility and summarize the basis for each designation in Table 1-1-1, RCRA Hazardous Waste Designation and Rationale. The rationale for designation is described in detail in the following sections. Waste streams are listed by site in Table 1-1-2, Hazardous Waste Streams and Storage Areas.

4.0 Containerized Waste [Utah Admin. Code R315-8-9.3, Utah Admin. Code R315-8-9.6]

4.1 Recovered Chemical Weapons Materials shall be managed as a hazardous waste.

4.2.1 Residues from demilitarization, treatment and testing of military chemical agents shall be listed as F999 as defined in Utah Admin. Code R315-2-10(e)(1). Chemical agent related residues shall carry the F999 waste code. Waste chemical munitions and their residues may also contain explosive constituents (D003).

4.2.2 Nerve, military, and chemical agents shall be assigned the P999 waste code as defined in Utah Admin. Code R315-2-11(e)(1).

4.3 During hydrolysis or other degradation processes, mustard agents produce hazardous compounds. Some potential products of degradation of mustard are chloroform, 1,2-dichloroethane, hexachloroethane, tetrachloroethylene, trichloroethylene, vinyl chloride, hydrochloric acid, and thiodiglycol. Agent VX will produce several toxic products if hydrolyzed at a basic pH: ethyl methylphosphonic acid, methylphosphinic acid, diisopropyminoethylmercaptan, diethyl methylphosphonate,ethanol, and EA 2192 and EA 4196. Agent GB will hydrolyze to form hydrofluoric acid under acidic conditions, and will form isopropyl alcohol and polymers under basic conditions.

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11.0 <u>Agent-Related Wastes</u>

11.1 The waste code F999 shall be assigned to any waste that has come into contact with chemical agent per Utah Admin. Code R315-2-10(e)(1). Wastes shall carry all applicable

non-agent waste codes in addition to all applicable codes for agent and agent-related residues.

11.2 The various energetics contained in waste munitions shall be classified as reactive (D003) because they are composed of or contain explosives. Waste energetic materials that are contaminated with agent shall carry the D003 reactive code as well as TC metals, TC organics, and the F999.

12.0 Reserved

13.0 Non-Agent-Related Wastes

13.1 Non-agent-related wastes are generated in the administrative and warehouse areas of the Facility during environmental remediation activities, and are stored in accordance with Utah Admin. Code R315-5-3.34 pending offsite disposal at an approved TSDF. Non-agent-related wastes have not come into contact with vapor or liquid agent. Non-agent-related waste streams shall include but are not limited to:

13.1.1 Waste paint and thinners;
13.1.2 Waste solvents;
13.1.3 Waste batteries and battery acid;
13.1.4 Contaminated soils from the remediation of Solid Waste Management Units (SWMUs);
13.1.5 Monitoring well waste;
13.1.6 Used oil and engine coolant from motor vehicle maintenance;
13.1.7 Used chemical mask filters not exposed to agent;
13.1.8 Waste starter fluids;
13.1.9 Used PPE; and
13.1.10 Universal wastes such as fluorescent bulbs and batteries.

13.2 Hazardous waste determination shall be based on process knowledge and available SDSs and may be supplemented with analytical data, which identify the hazardous characteristics of the waste. Sampling shall be required to aid in characterization, such as when waste characteristics cannot be determined through generator knowledge, SDSs, or other preexisting information sources.

13.3 All hazardous wastes in containers shall be managed in accordance with Utah Admin. Code R315-8-9 regulations, including compatibility of waste with respective containers and secondary containment for containers storing waste with free liquids and in compliance with Attachment 12(Container Management).

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21.0 Test Methods [Utah Admin. Code R315-8-2.4]

21.1 Analytical test methods used to characterize wastes shall meet the minimum requirements specified in USEPA SW-846 (most recent approved edition or update) "Test Methods for the Evaluation of Solid, Physical/ Chemical Methods" or other methods approved by the Director. Methods for anticipated parameters shall be listed in Table 1-1-5, Sampling Methods and Rationale by Waste Stream.

22.0 Sampling Methods [Utah Admin. Code R315-8-2.4]

22.1 If there is insufficient information to support characterization through generator knowledge, sampling and analysis shall be conducted. The Permittee shall, as described in the WAP, collect samples representative of a particular waste stream. The following sections identify sampling methodology, sample handling, and the documentation required when sampling hazardous waste streams.

22.2 The Permittee shall use proper sample collection procedures as well as quality control and assurance measures in obtaining a representative sample. Sampling shall be conducted using equipment specified in Table 1-1-4, Sampling Equipment. The Utah certified laboratory contracted to perform analyses shall provide sample containers compatible with the waste being sampled. Each sample shall be placed in the appropriate container, preserved, and analyzed within the timeframes specified in Table 1-1-7, Sample Containers, Preservation Methods, and Holding Times.

23.0 Frequency of Analysis [Utah Admin. Code R315-8-2.4

23.1 Table 1-1-3, Container Sampling Frequency, contains the frequency at which samples shall be collected from a waste stream and analyzed.

24.0 Additional Requirements for Wastes Generated Off Site

24.1 In some instances, the may receive hazardous waste generated offsite. In order for the hazardous waste to be accepted by the Facility, it shall meet the following requirements:

24.1.1 The waste shall have been generated by a Department of Defense (DOD) facility or a Formerly Used Defense Site (FUDS);
24.1.2 The waste shall either support the mission of the Facility or be a hazardous waste because it is agent-contaminated;
24.1.3 The waste shall be packaged to meet applicable Department of Transportation (DOT) standards and be accompanied by the appropriate manifest(s); and
24.1.4 The waste shall be approved for acceptance by the Director and follow the requirements of Utah Admin. Code R315-8-2.4.

24.2 The Permittee shall inform the generator of the waste in writing that the waste meets the acceptance requirements for the Facility and the Permittee agrees to accept the waste. A copy of the written notice will be kept by the Permittee as part of the Operating Record. A review shall be performed of the characterization of the waste shipment supplied by the

generator. The waste received shall be visually inspected at the time of arrival at the Facility to ensure container integrity and to confirm the identity of the shipped waste matches the identity designated on the accompanying manifest supplied by the generator. In the event that a discrepancy is found, the waste container causing the discrepancy shall be returned to the generator. If no discrepancies are found, the hazardous waste shipment shall be accepted and managed by the Permittee as appropriate based on waste documentation and supporting waste analysis supplied by the generator.

25.0 Additional Requirements for Ignitable, Reactive, or Incompatible Wastes [Utah Admin. Code R315-8-2.4]

25.1 The Permittee shall protect ignitable, reactive, and incompatible wastes from sources of ignition and reaction. Incompatible wastes and materials shall not be placed in the same container and shall not be stored on the same pallet as other containers storing other hazardous waste. The Permittee shall utilize DOT guidelines to ensure appropriate storage of ignitable, reactive, and incompatible wastes. Additionally, all container storage units managing ignitable or reactive hazardous waste shall be located more than 50 feet away from the Facility property line. Smoking and spark-producing devices shall not be allowed in units storing ignitable waste.

26.0 Reserved

27.0 Reserved

28.0 Land Disposal Restrictions [Utah Admin. Code R315-5-1.11, Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-8-5.3, R315-13-1]

28.1 As a generator of wastes prohibited from land disposal the Permittee shall determine whether the applicable LDR treatment standards have been met for the waste and treatment residues prior to ultimate land disposal. The Permittee shall assign applicable waste codes to each waste stream managed onsite, and shall determine all applicable treatment standards or prohibition levels that may apply to each waste stream, and shall identify regulated constituents and concentrations that are present in each waste stream. The Permittee shall compare the concentrations of regulated constituents in hazardous wastes that it manages with the applicable treatment standards, and shall make a determination as to whether or not each type of waste is restricted from land disposal in its current state. The procedures to comply with LDRs and treatment standards are described in the following sections.

28.2 Waste Analysis [Utah Admin. Code R315-2-9, Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-13-1]

28.2.1 The Permittee may use either generator knowledge or analytical data to characterize its waste. Initially generator knowledge may be used, which can be augmented by the methods listed in Table 1-1-6, Waste Characterization Methods.

28.2.2 The United States Army was the manufacturer of chemical agents. Table 1-1-1, RCRA Hazardous Waste Designation and Rationale, lists the wastes generated, waste characteristics, and rationales for listings. The Permittee's WAP shall describe how wastes shall be managed, including analytical methods, waste streams, and sampling methods, and also lists characteristic wastes and wastes with LDRs.

28.2.3 Spent Solvent and Dioxin Wastes [Utah Admin. Code R315-2-10, Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-13-1]

28.2.3.1 The Facility generates spent solvents with waste codes F001, F002, F003, and F005, none of which contain dioxin. Characterizations of these wastesshall be based either on generator knowledge or analytical data and shall be shipped offsite to an approved TSDF for further treatment and disposal.

28.2.4 California List Wastes [Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-13-1]

28.2.4.1 The Facility's inventory of California List wastes shall be limited to polychlorinated biphenyls (PCBs) found in electrical ballasts. The majority of these items contain PCB concentrations below the 50-ppm limit. However, if the waste is found to exceed the 50-ppm limit, they shall be disposed of in accordance with state and federal regulations, including notifying the TSDF of the presence of PCBs and associated concentrations in the waste in accordance with Utah Admin. Code R315-13-1.

28.2.5 Listed Wastes [Utah Admin. Code R315-2-10, Utah Admin. Code R315-13-1]

28.2.5.1 The Permittee manages multiple listed hazardous wastes that are subject to LDRs. Potential waste streams are identified in Table 1-1-2, Hazardous Waste Streams and Storage Areas.

28.2.5.2 Treatment standards for these waste streams include maximum constituent concentration levels that shall be met for each constituent with prohibition on land disposal found in Utah Admin. Code R315-13-1or the treatment of a waste with a specific technology in Utah Admin. Code R315-13-1.

28.2.6 Characteristic Wastes [Utah Admin. Code R315-2-3(d)(1), Utah Admin. Code R315-8-2.4, Utah Admin. Code R315-13-1]

28.2.6.1 The Permittee shall identify and manage all characteristic wastes as required by Utah Admin. Code. Multiple characteristic wastes are managed at the Facility. Potential waste streams are identified in Table 1-1-1.

28.2.6.2 The Permittee shall meet treatment standards for wastes with ignitable, corrosive, reactive, or toxicity characteristics as specified in Utah Admin. Code R315-13-1 prior to land disposal. Additionally, the wastes may also require treatment for any applicable universal treatment standards (UTS) identified in Utah Admin. Code R315-13-1. The majority of toxicity characteristic wastes shall be compared to the Toxicity Characteristic Leaching Procedure (TCLP) standard to determine whether treatment standards apply.

28.2.6.3 Reserved

28.2.6.4 Reserved

28.2.6.5 Reserved

28.2.6.6 Contaminated Debris [Utah Admin. Code R315-3-2.4(n), Utah Admin. Code R315-13-1]

28.2.6.6.1 The Permittee shall characterize contaminated debris generated at the Facility through either process knowledge or analytical methods to determine whether these wastes shall require further treatment prior to land disposal in accordance with Utah Admin. Code R315-13-1. Contaminated debris generated at the Facility that is treated to meet the treatment standards specified in Utah Admin. Code R315-13-1 before being shipped offsite for land disposal shall be accompanied by a certification stating that the waste does not contain listed or characteristic hazardous wastes at or above the treatment standards. Contaminated debris that contains listed or characteristic hazardous wastes shall be shipped to an approved TSDF with a certification stating that the waste needs further treatment prior to disposal.

28.2.6.7 Waste Mixtures and Wastes with Overlapping Requirements [Utah Admin. Code R315-8-2.4, Utah Admin. Code R315 13-1]

28.2.6.8. The Permittee shall characterize all waste streams using either generator or process knowledge. Further characterization shall be achieved by analytical methods, if necessary. Waste mixtures or wastes with overlapping requirements shall be identified during these processes and the receiving TSDF shall be properly notified of these multiple characteristics to ensure proper management.

28.2.6.9. Reserved

28.2.6.10. Notification, Certification, and Recordkeeping Requirements [Utah Admin. Code R315-5-2, Utah Admin. Code R315-5-4, Utah Admin. Code R315-8-5.3, Utah Admin. Code R315-13-1]

28.2.6.10.1 The Permittee shall maintain all required documentation, waste manifests, sample analyses, and any other information used to determine the disposition and characteristics of wastes managed by the Permittee.

28.2.6.11. Retention of Generator Notices and Certifications [Utah Admin. Code R315-13-1]

28.2.6.11.1 The Permittee shall maintain on site in its Operating Record copies of all notices, certifications, waste analysis data, and other documentation produced during hazardous waste generation activities in accordance with Utah Admin. Code R315-13-1. The Permittee shall supply all notices and certifications required for wastes that are sent to offsite TSDFs as required by Utah Admin. Code R315-13-1.

28.2.6.12 Reserved

28.2.6.13 Reserved

28.2.6.14 Wastes Shipped to Subtitle C Facilities [Utah Admin. Code R315-13-1]

28.2.6.14.1 The Permittee may ship certain hazardous wastes to TSDF facilities. Historical process knowledge, SDSs, and other generator knowledge may be used to characterize most of the wastes present at the Facility. Waste generated during solid waste management unit clean-ups may require more thorough analytical evaluation. If further characterization is necessary, the Permittee shall use a detailed sampling program to further characterize its wastes. These analytical methods are presented in Table 1-1-6, Waste Characterization Methods. All wastes to be shipped offsite for disposal shall be characterized through either process knowledge or analytical methods. Wastes with LDRs shall be identified, and the receiving TSDF shall be notified if the waste requires further management. The waste shall be labeled, packaged, and manifested according to Utah Admin. Code and DOT procedures.

28.2.6.15 Wastes Shipped to Subtitle D Facilities [Utah Admin. Code R315-13-1]

28.2.6.15.1 The Permittee may ship certain wastes to solid waste facilities. The Permittee shall send the required notifications and certifications to the landfill, and maintain copies in Permittee's Operating Record. If new waste streams are generated and additional notifications are required, the Permittee shall notify the receiving facility.

28.2.6.16 Recyclable Materials [Utah Admin. Code R315-13-1]

28.2.6.16.1 The Permitee may use recycling when possible to minimize waste generation. The Permittee may recycle wastes generated by maintenance activities such as used paint, oil, batteries, and antifreeze. Recycling activities shall be contracted to an appropriate offsite recycling facility.

28.2.6.17 Recordkeeping [Utah Admin. Code R315-8-5.3, Utah Admin. Code R315-13-1]

28.2.6.17.1 The Permittee may use either generator knowledge or analytical methods to determine whether LDRs apply to wastes generated onsite. TSDFs receiving wastes are notified if LDR wastes are present and if further treatment is needed. The Permittee retains all documentation of analytical results or process information used in TSDF notification as well as manifests associated with offsite waste shipments in accordance with Utah Admin. Code R315-13-1. Operating Records for the facility and its hazardous waste activities are maintained at the Facility.

28.2.6.18 Requirements Pertaining to the Storage of Restricted Wastes [Utah Admin. Code R315-13-1]

28.2.6.18.1 Wastes with prohibitions on land disposal identified in Utah Admin. Code R315-13-1may be stored in containers at the Facility in order to accumulate the quantity of hazardous waste that is necessary to facilitate proper recovery, treatment, and/or disposal of the waste. Restricted wastes may be stored at the Facility for up to one calendar year.

28.2.6.19 Restricted Wastes Stored in Containers [Utah Admin. Code R315-8-9, Utah Admin. Code R315-13-1]

28.2.6.19.1 Wastes stored in containers at the Facility that are restricted from land disposal shall be managed in compliance with the requirements of Utah Admin. Code R315-13-1including a clear demarcation of content identity and the accumulation start date.

Table 1-1-1: RCRA Hazardous Waste Designation and Rationale		
Waste Material	**RCRA Hazardous Waste Designation (Number)**	**Basis for Designation**
AGENT-RELATED WASTE		
Chemical Agents		
GA, GB, VX, mustard, or L	Utah State Waste Designation Discarded Chemical Products P999	Agents are designated as hazardous based on Utah Admin. Code.
Chemical agent-specific: GB (NaOH) VX (NaOCl) Mustard (NaOCl)	Corrosive (D002) (in some cases where pH > 12.5) F999	May be corrosive (D002) if the pH is greater than 12.5 as determined by sampling. F codes are applied as required by Utah Admin. Code.
Respirator filters	Toxicity Characteristic: Metals (D004-D011) Non-Specific Source (F999)	Respirator filters may contain small amounts of chromium and silver according to SDS information. Other metals may also be present.
Spill cleanup materials	Non-Specific source (F999) Spent Solvents (F001-F005) Toxicity Characteristic: Metals (D004-D011)	Waste codes will be applied based on generator knowledge of the spilled material.
Paint wastes	Spent solvents (F002-F005) Ignitable (D001) Toxicity Characteristic: Metals (D004-D011) Organics (D018, D035) Non-Specific Source (F999)	Waste codes shall be assigned based on SDS information for the materials used and generator knowledge of whether wastes potentially contacted chemical agents.
Broken glassware	Non-Specific Source, (F999)	Based on generator knowledge and/or air monitoring of agent contamination.

Table 1-1-1: RCRA Hazardous Waste Designation and Rationale (Continued)		
Waste Material	**RCRA Hazardous Waste Designation (Number)**	**Basis for Designation**
Agent-contaminated miscellaneous wastes	Toxic (F999) Metals (D004-D011) Solvents (F001-F005)	
Chemical agent-contaminated miscellaneous wastes	Toxicity Characteristic: Metals (D004-D011) Organics (D012-D043)	Miscellaneous wastes generated (such as packing, metal pieces, insulation, electrical components, air hoses, pallets, PPE, absorbents, plastic bags, etc.) during storage activities may be contaminated with chemical agent (3X) and shall be characterized and managed accordingly.
Battery acid and batteries	Corrosive (D002) Toxicity Characteristic: Metals (D006-D009, D011) Reactive (D003)	Battery acid is comprised of sulfuric acid (D002) and contains lead. Other batteries may contain other metals. Lithium batteries are water-reactive (D003) and ignitable (D001). Designation is by generator knowledge.
Solvents and adhesives, including solvent-based commercial products (flammable)	Ignitable (D001) Toxicity Characteristic: Solvents (D018-D043) Toxicity Characteristic: Metals (D007, D010) Spent Solvents (F001-F005) U002, U019, U044, U056, U080, U088, U117, U122, U140, U154, U165, U220, U228, U239	Designation based on generator knowledge, SDSs.
Solvents (degreasing)	Spent halogenated degreasing (F001-F005) Toxicity Characteristic: Solvents (D018, D038-D040) Metals (D004-D011) Ignitable (D001)	Based on process knowledge that metal may become mixed into degreasing solvents during use.

Table 1-1-1: RCRA Hazardous Waste Designation and Rationale (Continued)		
Waste Material	**RCRA Hazardous Waste Designation (Number)**	**Basis for Designation**
NON-AGENT-RELATED WASTE (Other waste codes may be applied based on sampling and analysis)		
Detonation residues	Reactive (D003) Toxicity Characteristic: Metals (D004-D011)	D003 based on potential explosive component residues. TC Metals based on destruction of metal components in detonations.
Fluorescent bulbs	Lead (D008) Mercury (D009)	Designation based on generator knowledge, SDSs.
Brake fluid	Ignitable (D001) Nitrobenzene (D036)	Designation based on generator knowledge, SDSs.
Hydraulic and other oils and lubricants	D005-D008 Benzene (D018) Nitrobenzene (D036) Spent solvents (F002-F005)	Designation based on generator knowledge, SDSs. TCLP solvent codes may be applied based on generator knowledge and MSDS information. F codes may be applied based on SDS information about lubricant solvents.
Paint waste (paints, thinners, stains, coatings, varnish, sealers)	Ignitable (D001) Toxicity Characteristic: Metals (D004-D011) Benzene (D018) Methyl Ethyl Ketone (D035) Tetrachloroethylene (D039) Spent solvents (F002-F005)	Paint wastes are ignitable if they contain flammable solvents, are labeled as flammable, or have SDS information showing a flash point < 140°F. TCLP metal and organic codes and F codes will be applied based on SDS information.
Waste decontamination solids (decontamination powder, decontamination kit, sodium hypochlorite, sodium hydroxide)	Ignitable (D001) Corrosive (D002) Reactive (D003)	Expired, out-of-service, unusable chemical agent decontamination powders.
Miscellaneous solvent wastes	Spent solvents (F001-F005)	Solvent waste generated from equipment maintenance, degreasing operations and waste streams generated from products used for their solvent properties. Solvent codes may be applied based on a generator's knowledge of the process.
Acids, including commercial chemical products containing acids	Corrosive (D002) Ignitable (D001) Hydrofluoric Acid (U134)	The D002 code applies to all materials with pH <2. D001 code applies to all oxidizing acids, including nitric and perchloric. Off-specification unused HF will receive a U code.

Table 1-1-1: RCRA Hazardous Waste Designation and Rationale (Continued)		
Waste Material	**RCRA Hazardous Waste Designation (Number)**	**Basis for Designation**
Diesel fuel and gasoline mixed with solvents	Ignitable (D001) Benzene (D018) Spent solvents (F001-F005) Cadmium (D006) Chromium (D007) Lead (D008)	Fuels are known to be ignitable and to contain >5 ppm benzene. Lead will be present in leaded fuels. Spent solvent codes may be applied based on a generator's knowledge of process.
Peroxides	Ignitable (D001)	Oxidizing peroxides are ignitable.
Wood preservative with pentachlorophenol	Ignitable (D001) Pentachlorophenol (D037) Discarded unused formulations containing pentachlorophenol (F027)	All waste codes are based on SDS information.
Alkaline liquids and solid hydroxide salts	Corrosive (D002)	Liquids with pH >12.5 are corrosive. Solids are not designated D002.
Zinc and other metals (powdered and whole)	Ignitable (D001) Reactive (D003) Cadmium (D006)	Most metal powders are ignitable. Some metals such as lithium, sodium, and magnesium may also be reactive when mixed with water (D003).
Ink with solvents, metals	Ignitable (D001) Barium (D005) Chromium (D007)	Inks with flammable solvents or flash points <140°F.
Hypochlorite salts and solutions/pool cleaning chemicals	Corrosive (D002) Ignitable (D001)	Some hypochlorite solutions may be pH <2 and may be oxidizers.
Creosote/asphalt mixture	Creosote (U051) Spent cresol solvent (F004)	Designation based on generator knowledge, SDSs.
Hypochlorite salts and solutions/pool cleaning chemicals	Corrosive (D002) Ignitable (D001)	Some hypochlorite solutions may be pH <2 and may be oxidizers.

Table 1-1-1: RCRA Hazardous Waste Designation and Rationale (Continued)		
Waste Material	**RCRA Hazardous Waste Designation (Number)**	**Basis for Designation**
Pyrethrin and other pesticides	Ignitable (D001) 2,4-D and salts (U240) Spent solvents (F002-F005) Organics (D012-D017, D020, D037, D041-D042)	Waste codes based on chemical inventories and SDS information. Pesticides with flammable solvents will be designated D001.
Adhesives/ Cements	Ignitable (D001) Spent solvents (F002-F005)	Adhesives with flammable solvents will be designated D001. Spent solvent codes are based on SDS information.
Fuel/gas cylinders	Ignitable (D001)	D001 applies to flammable gases such as propane and butane.
Oxygen	Ignitable (D001)	Oxygen is an oxidizer.
Welding rods	Chromium (D007)	SDS information for some welding rods indicates >5-ppm chromium.
Soldering flux and paste	Corrosive (D002) Ignitable (D001)	Waste codes are based on generator knowledge that most fluxes are acidic (or simple pH tests) and SDS information on flash points of solvents.
Conversion pads	Silver (D011)	V to G conversion pads are composed of silver fluoride.
Ballasts	Lead (D008)	SDS information shows that some ballasts contain >5-ppm lead and polychlorinated biphenyls.

Table 1-1-2: Hazardous Waste Streams and Storage Areas		
Facility	**Function**	**Waste Streams**
Chemical Storage Igloos	Hazardous Waste Storage	Hazardous waste with and without free liquids
OB/OD Conex	Waste explosives and propellant storage	Waste explosives and other energetic components from OB/OD activities

Table 1-1-3: Container Sampling Frequency	
Number of Containers	**Number of Containers to be Sampled**
1 to 8	1
9 to 25	2
26 to 50	3
51 to 90	5
91 to 150	8

Table 1-1-4: Sampling Equipment		
Waste Stream	**Equipment**	**Method**
Large Containers of Liquids	Composite Liquid Waste Sampler (COLIWASA)	USEPA SW846 Methods 3.2
Solids and Semi-solids	Stainless Steel Scoop	USEPA SW846 Methods 3.2
Small Containers of Liquids	Pipette	USEPA SW846 Methods 3.2

Table 1-1-5:
Sampling Methods and Rationale by Waste Stream

Waste	Analysis	Frequency	Sampling Method(1)	Rationale
Explosives/ Propellants in Munitions	Generator Knowledge	Prior to treatment	None	Samples are difficult or dangerous to obtain from this waste stream. Generator knowledge will be used for treatment, which is incineration at an on-site disposal facility.
Non-agent related Hazardous Wastes	TC Metals (D004-D011) Method 1311/6010B TC Organics (D012-D043) Method 1311/8260B/8270C) Ignitability (1010, 1020A) Corrosivity (9040B) Reactivity Other analyses requested by the DRMO	Each new waste type, and change in process or composition of waste generated a minimum of yearly is required. Prior to transfer to DRMO for offsite shipment	Thief, COLIWASA, grab, or process knowledge.	Non-agent contaminated hazardous wastes will be characterized for offsite treatment, storage, or disposal based on the material/process generating the waste and analytical data. Each of the parameters will be identified and analyzed for on a case-by-case basis.

(1) Sample containers and preservation techniques, if any, will be in accordance with individual method of analysis (see Table 1-1-4).

COLIWASA = Composite Liquid Waste Sampler BDAT = Best Demonstrated Available Technology
HEPA = High Efficiency Particulate Air LDR = Land Disposal Restriction
TC = Toxicity Characteristic TCLP = Toxicity Characteristic Leaching Procedure
HRA Health Risk Assessment
(2) Batch is defined as 10 drums or less

Table 1-1-6: Waste Characterization Methods		
Parameter	**Method**	**Rationale**
pH	USEPA SW846 Method 9040, 9045	Determine corrosivity
Flash Point	SW846 Method 1010 SW846 Method 1020A 1030	Determine ignitability
Free Liquids	Visual or SW846 Method 9095A	Determine if free liquids are present in solid waste
Total Metals Content	SW846 Methods 7131, 7191, 7421, 7470A, and 7471A, 6010B, 3010A, 3050B	Determine metals toxicity
TCLP	SW846 Method 1311	Obtain leachability sample
Specific Gravity	ASTM D 5057	Determine specific gravity
Water Content	USEPA 600/4-79/020	Determine water content
Fuel Value	ASTM D 5468	Determine recyclability of wastes
Volatile Organic Compounds (VOCs)	SW846 Method 8260B	Determine toxicity

Table 1-1-6: Waste Characterization Methods (Continued)		
Parameter	**Method**	**Rationale**
Halogenated VOCs	SW846 Method 8260B	Determine organic toxicity
Pesticides	SW846 Method 8082	Determine organic toxicity
Cyanide	SW846 Method 9010B, 9012A, or 9014	Determine reactivity
Explosives	SW846 Method 8330	Determine explosive concentrations. Determine total secondary explosive concentration for reactivity.
Semi-volatile Organics	SW846 Method 8270C	Determine organic toxicity

Table 1-1-7: Sample Containers, Preservation Methods, and Holding Times				
Parameter	**Container**	**Preservation**	**Extraction**	**Analysis**
SOLIDS				
Total Solids	1 x 4 oz glass	Cool 4°C	NA	28 Days
Metals	1 x 4 oz glass	Cool 4°C	NA	180 days (mercury 28 days)
VOCs	2 x 4 oz Glass, Teflon Septa, no headspace	Cool 4°C	NA	14 days
Mustard Agent	Polyethylene bag 1 x 16 oz glass	Cool 4°C	7 days	24 hrs
Nerve Agent	1 x16 oz. Glass.	N/A		30 days
TCLP Pesticides, Semi-Volatile Organic Compound (SVOCs)	1 x 16 oz glass	Cool 4°C	14 days	40 days
Cyanide	1 x 4 oz glass	Cool 4°C	NA	14 days
Explosives	Polyethylene bag	Cool 4°C	14 days	40 days
LIQUIDS				
Metals	1-L polypropylene plastic	Cool 4°C HNO_3 to pH<2 except GA and GB, no preservation	NA	180 days (mercury 28 days) GB and GA metals 14 days w/o preservatives
VOCs	3 x 40 mL glass, Septa vial, no headspace	Cool 4°C HCl or NaHSO4 to pH<2 except GA and GB, no preservations except cool 4°C.	NA	14 days with preservatives GB and GA samples 7 days w/o preservatives
Pesticides, SVOCs	1-L amber glass	Cool 4°C	7 days	40 days
Cyanide	1-L plastic	10 M. NaOH, pH>12, Cool 4°C		14 days
Chemical Agents	40 mL glass	Cool 4°C	72 hours	72 hours
Explosives	Amber Glass	Cool 4°C	7 days	40 days