INTRODUCTION

This customer audit handbook has been prepared to provide an orientation to the company, the facility, and its specific permitted features. This handbook provides useful information in this regard, although customers may have additional questions. Please contact US Ecology, Idaho (USEI) for information on items not covered in this document and waste acceptance capabilities. As new phased operations are regained at USEI, the contents of this document will change accordingly. Please look for the newest version of this document online at http://www.usecology.com. Due to the large number of pages, the facility’s hazardous waste permits and other permits are available as separate pdf files on the web page. Customer contract forms, waste profile forms, and other documents may also be downloaded from the web page.

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US ECOLOGY IDAHO DETAILS

1. Location
The US Ecology Idaho (USEI) hazardous waste treatment, storage, and disposal facility is located approximately 10.5 miles west of Grand View, Idaho. (See Site Map) Grand View has a population of 450. The nearest private residence is 1 mile southeast of the site.

2. General Facility Description
The USEI facility lies far from population centers in an arid climate with low rainfall and a high evaporation rate. The 328-acre site in Owyhee County is located on more than 1,250 contiguous acres of land owned by USEI. These factors, in combination with thick sub-surface layers of highly impermeable silts, clays and sediments, make the site ideally suited for the secure treatment and long-term disposal of hazardous and industrial wastes.

The facility provides a full scope of waste management services including chemical stabilization of organic and inorganic solids, sludges, and liquids, along with landfill disposal, aqueous evaporation treatment, debris treatment, and PCB management and disposal. USEI is fully permitted to manage RCRA, TSCA and CERCLA wastes, along with NORM/NARM, TENORM and NRC-exempted radioactive waste. The facility’s combined state and federal RCRA Part B Operating Permit was renewed July 28, 2016. Please contact the facility for waste acceptance capabilities.

USEI offers rail transportation service to the facility from all points in the continental United States. This expanded transportation service provides economical disposal and treatment services to generators throughout the nation. Nearly 3,000,000 tons of wastes have been received at the Rail Transfer Facility (RTF) in the last five years, demonstrating an ability to compliantly manage fast-paced, high-volume environmental remediation projects.

3. Site History
4. Health and Safety Program

US Ecology Idaho has a robust safety program which encourages effective training, hazard prevention and control, worksite analysis, and a cooperative relationship between management and employees. The site’s Health and Safety Plan is available for review. USEI’s EH&S Manager monitors all safety programs and employee health programs on-site. Additionally, corporate safety personnel perform audits of USEI’s facilities and health and safety program. USEI’s drug testing program conforms to the requirements of the Drug-Free Work Place Act.

All personnel receive the required 24-hour OSHA training (HAZWOPER) and annual 8-hour refresher training. Additionally, personnel receive TSCA training, radiological safety training, and any specific job training needed to perform the duties assigned.

All employees receive a pre-employment physical to determine a baseline for medical monitoring. Employees assigned to areas processing hazardous materials or wastes are evaluated each year. Additional medical testing and monitoring is performed if, during health and safety monitoring of work areas, OSHA mandated levels are exceeded.

The security system deters unauthorized entrance to the site. Twenty-four hour guard service is provided by a contracted security service. The security service detects abnormalities and reports discrepancies to law enforcement and USEI personnel. During operating hours, the security service ensures visitors are signed in and escorted when on-site. In the event of a security breach, the security service contacts a site emergency coordinator.

The site is surrounded by chain link fence topped with three strands of barbed wire. All gates are locked unless attended. Warning signs are posted routinely along the fence.

USEI maintains emergency procedures for all required plans according to both RCRA and TSCA permits. A Contingency Plan is maintained per USEI’s RCRA permit. At a minimum, one unannounced evacuation drill is performed annually. All visitors are required to read provisions of the Contingency Plan in the event an evacuation is called for, and all visitors sign an acknowledgement and waiver when entering the site.

5. Geography and Climate

The USEI facility is located off of Highway 78 approximately 10.5 miles west of the town of Grand View, in Owyhee County, Idaho.

The site is situated on a one-mile wide plateau that slopes from south to north. Maximum surface relief on the facility is 90 feet and the mean surface elevation is 2,600 feet above sea level. The site is located in a desert environment with an average rainfall of 7.26 inches per year and an average evaporation rate in excess of 42 inches per year.

Castle Creek, the nearest surface water, is an intermittent creek located one-half mile west of the site that lies topographically 150 feet below the facility. The Snake River, the largest surface water source near the site, lies approximately 2½ miles north and 350 feet in elevation below the facility. EPA site evaluations indicate little possibility of site flooding due to a number of factors, primarily low rainfall, high evaporation, and location of the facility outside the 100-year flood plain.

The facility is located within seismic zone 2 and therefore does not require a seismic standard demonstration under 40 CFR Part 264 Appendix IV. (See Section 6 for discussion of site geology.)
6. Geology

The USEI facility is situated within the western portion of a 20,000-square mile physiographic unit known as the Snake River Plain. The plain extends from the vicinity of Ashton, Idaho to north of Ontario, Oregon. The Snake River Plain is approximately 350 miles in length and varies in width from 25 to 75 miles. USEI Site B lies within the lowland area of the Owyhee subunit of the Snake River Plain at an elevation range of 2,525 to 2,635 feet.

Site geologic and hydrogeologic conditions are well understood based on decades of environmental study and reports by USEI and previous owners of the facility.

Below a thick vadose (dry) zone underneath the facility there are two, independent, water-bearing zones within 300 feet of the surface. These units have been designated the Upper and Lower Aquifers, although neither “aquifer” is capable of producing significant water.

Underlying the Lower Aquifer and extending to a depth of approximately 2,400 feet are progressively indurated (hardened) clays and shale that comprise the confining bed for a deep, geothermal, artesian aquifer present in basalt.

6.1 Geologic History

The general geologic history begins with the placement of the Banbury Basalts in late Miocene time, approximately 5 to 6 million years ago. Overlying the Banbury Basalt is the Glenns Ferry Formation of Pliocene age (approximately 5 to 2 million years ago). The Glenns Ferry Formation consists of a thick section of predominantly clay, silt and fine sand beds deposited in a series of large, regional lakes that formed behind temporary lava dams across the Snake River near the Idaho-Oregon border. The Glenns Ferry Formation beneath Site B consists of both lacustrine (lake deposits) and fluvial (flood plain) sediments. The sedimentary record at Site B reflects a general pattern of coarsening upward, as the large regional lakes filled in, dried up or drained. In general the deeper portions of the Glenns Ferry Formation is almost entirely thick, massive, lacustrine clay and silt but the upper parts, including the Upper and Lower Aquifers and much of the overlying vadose sediments, represent a transition from lacustrine to fluvial sediments.

Above the Glenns Ferry Formation is the Pleistocene Bruneau Formation (less than 1.5 million years ago) that forms a mantle of fine to coarse sands and mixed sand and gravel. The Bruneau Formation was deposited, and subsequently reworked, by the Snake River after the regional lake forming conditions at the end of the Pliocene had ceased.

6.2 Hydrogeology

The vadose zone at the USEI site is 130 to 200 feet thick. The upper part of the vadose zone, below the surficial gravels (where present), consists of thick beds of dry, fine to medium, sand with thin beds of silt and clay. The lower part of the vadose zone consists of medium to thinly bedded fine silty sand, silt and clay. The overall low moisture content and hydraulic contrast between the numerous discrete beds of the vadose zone provide a high degree of protection against vertical movement of water from the surface to the Upper Aquifer.

The Upper Aquifer is an unconfined or water-table aquifer. Water levels in the Upper Aquifer range from 130 to 200 feet below ground level. The top of the aquifer is defined by the current position of the water table. The lower part of the Upper Aquifer consists of fine sand and silt beds in a predominantly silty-clay matrix. Well yields in the Upper Aquifer range from less than 0.5 upward to 3 gallons per minute.
Underlying the Upper Aquifer is a thick, massive clay and silty clay 20 to 35 feet thick with sufficiently low permeability to hydraulically separate the Upper and Lower Aquifers. The permeability of samples of the deep lacustrine clays determined during site characterization range from $1.0 \times 10^{-6}$ cm/sec to $1.0 \times 10^{-7}$ cm/sec.

The Lower Aquifer is a confined aquifer and is saturated beneath the entire site. It is bounded by upper and lower confining clays and consists of a “swarm” of thin lamina, partings, and thin beds of very fine sand with an aggregate thickness of approximately 3 feet that is embedded in approximately 30 feet of silty clay. The Lower Aquifer is an extremely low water yielding formation. None of the Lower Aquifer wells can be pumped continuously and estimates from observations of water level recovery rates indicate that even under extreme drawdown conditions the formation yields less than 0.01 gpm. Beneath the southern edge of the Site the depth to water in the Lower Aquifer is typically 190 to 210 feet.

Based upon the log of the 3,100 foot deep artesian supply well drilled on site by the U.S. Air Force, approximately 2,285 feet of clay and shale underlie the Lower Aquifer and separate it from the Banbury Basalt and deeper basalt aquifers. The Banbury Basalt and deeper basalts are local and regional geothermal, artesian aquifer. The artesian well at Site B was plugged and abandoned in 1985 using oil field techniques and contractors.

6.3 Groundwater Recharge

Four potential sources of groundwater recharge have been evaluated by past studies of the USEI site: deep percolation of precipitation, infiltration of ponded precipitation in uncompleted waste cells; streamflow losses from creeks, and upward leakage from the geothermal artesian aquifer or from the abandoned artesian well.

The arid conditions and thick vadose zone at the site preclude measurable recharge to the saturated zone from infiltration of precipitation. The mean annual precipitation at the site is less than 7 inches per year based upon 47 years of record at Grand View Idaho. Annual precipitation in Grand View, Idaho since 1993 has averaged 6.1 inches, while the annual average potential evapotranspiration (PET) has averaged 57.3 inches. All precipitation falling on the site is returned to the atmosphere by ET from the soil zone before it infiltrates deeper.

The liner and leachate collection systems for the waste cells at the USEI site are constructed to contain and remove any liquids that may accumulate as a result of an extreme rainfall event falling on the cells prior to closure. Any water from a liner failure would not reach the water table in the Upper Aquifer because it would be retained by capillarity in the thick vadose zone present at the site.

Nearby perennial streams are the probable recharge sources for the Upper and Lower Aquifers, which probably occurs along the reach of Castle Creek lying south of the site.

7. Site Design Features

7.1 Treatment Systems

Primary treatment operations are conducted in the outdoor stabilization unit. In the outdoor unit, wastes and reagents are delivered from overhead gantries and mixed in containers located on a system of rail tracks. Treated wastes are winched onto haul trucks and carried for disposal in the landfill.
7.2 Landfills
Three RCRA landfills are actively used to dispose of bulk and containerized solids. Of these three landfills, two are TSCA permitted for disposal of PCB contaminated materials (i.e. small capacitors, transformer carcasses, etc.) USEI’s landfill liner system for active cells 14, 15, and 16 consists of a dual composite liner with a leak detection system overlying the primary liner. See Figure 2 for a schematic of the liner. The liner system consists of:

- Subgrade: In-situ compacted silty, sandy soil.
- Secondary Soil Liner: Minimum 36-inches of recompacted clay with a permeability of less than 1 X 10^{-7} cm/sec.
- Secondary Flexible Membrane Liner: 60 or 80 mil high density polyethylene.
- Primary Flexible Membrane Liner: 60 or 80-mil high density polyethylene.
- Primary Leachate Collection Zone: Composite layer consisting of a synthetic drainage net, geotextile fabric, 12-inches of sand, and a second geotextile fabric.
- Protective Layer: 12-inches of compacted soil.

**Hazardous Waste Cell 15 Design**

Figure 2 - Liner design detail
Construction of Cell 15 was initiated on March 1, 2003 and the cell was in operation by October 2003. Cell 15 is designed to contain over 4.8 million cubic yards of materials. Construction took place in four phases with completion of phase four happening in 2009.

Construction of Cell 16 was initiated on April 2, 2012. Following the successful format of Cell 15, construction of Cell 16 will take place in phases. The first phase of construction was completed in October of 2012, and the second phase is scheduled for construction in 2020. Cell 16 is designed to contain approximately 10 million cubic yards of materials.

7.3 Containers and Tanks

USEI has existing container storage areas with a collective capacity of over 12,000 fifty-five gallon drums. Containers received at USEI are off-loaded at a permitted storage area and opened. All containers are visually inspected for confirmation of contents. Samples are taken, when possible, from 10% of the containers on each manifest line item. After approval from the laboratory the containers may be landfilled, sent to stabilization, or segregated by compatibility group for storage.

Drums are normally off-loaded for sampling and inspection on Drum Pad 4. Minor processing may occur within the drums (i.e., solidification, repackaging, etc.). Drum Pad 4 is a sealed, curbed (12 inches) pad with sub cells segregated by berms. Storage Pad 5 is used as an additional storage area for containers and is constructed in a similar fashion. Drum pads are also used for wastes that have two or more compatibility characteristics or wastes that are being held for on-site treatment. Only compatible materials (determined through testing or process knowledge) are stored in a single containment sub cell.

Containers are kept closed except when adding or removing waste. Containers vary in size from 5-gallon pails to cubic yard boxes or other Department of Transportation approved shipping containers. Each container is labeled with a unique receipt number during off-loading. Each container is labeled with a compatibility group prior to storage. Each storage bay is marked with a compatibility grouping. Containers are placed so that the compatibility markings are visible for inspection.

Containers accepted for disposal must meet the following standards:

- Each container must display markings and/or labels required under 40 CFR Part 262.31 and 262.32(a)(b), if applicable.
- All containers must be compatible with the contents.
- Containers must be in good condition.
- Containers weighing greater than 800 pounds must be approved by USEI prior to receipt.

USEI has four above ground RCRA-permitted wastewater storage tanks.
The wastewater treatment tanks are equipped with a 16- or 24-inch manhole, conservation vent, liquid level indicator, inlet, outlet, and spare nozzles. The tanks are insulated from freezing by 4 inches of RT3040 Series spray foam, a coating of Diathon (United Coatings), and a sheet of stainless steel for fire protection. Tanks are constructed of welded carbon steel and emptied at least once every three years for inspection and certification. All wastewater tanks have an activated carbon filter system to contain vapors. All equipment is anchored in accordance with manufacturers' recommendations. Tanks meet API 650 or UL 142 standards.

Ancillary equipment, such as pumps and pipes for the RCRA tanks, are aboveground and available for inspection. RCRA tanks have secondary containment meeting the requirements of 40 CFR Part 264.193. Tank containment is provided by above-grade concrete pads and dikes. Cracks, gaps, spills, and system integrity are readily observable in the open containment areas. The concrete pads and dikes have the capacity to contain 100% of the largest tank's contents and rainfall from a 25-year, 24-hour rainfall event.

8. Laboratory

USEI is currently utilizing a temporary laboratory for fingerprint analysis upon waste receipt. USEI provides waste confirmation testing to generators, but does not typically provide characterization testing.

All analyses are performed in accordance with EPA Manual SW-846, ASTM and Standard Methods, or proprietary USEI permit approved methods. USEI follows a stringent quality assurance/quality control (QA/QC) program. All required calibration checks, matrix spiked samples, duplicates and other QA/QC samples are analyzed. All QA/QC data is tracked to ensure that the laboratory is operating at a high level of accuracy and precision.

The Lab’s Chemical Hygiene plan ensures that USEI is operating its laboratory in compliance with all OSHA regulations.

9. Waste Treatment Capabilities

Chemical fixation and stabilization are proven methods for treating inorganic and certain organic contaminated waste, which reduce the solubility of these contaminants as measured by the Toxicity Characteristic Leaching Procedure (TCLP).

USEI typically performs pilot studies on waste requiring chemical fixation and stabilization. These studies may be performed on a pre-acceptance sample, sample of a bulk waste load, or a representative sample of batched waste. The stabilization mix design is developed using a combination of information supplied by the customer on a Waste Profile Form (WPF), on-site testing data, and USEI’s knowledge of chemical fixation of various waste streams. Pilot studies are repeated until the mix design meets characteristic, LDR, de-listing standards, or passes the paint filter test.

Mix design sheets are then issued to the Operations Department. When the waste arrives, reagents are added in precise amounts, and the waste is thoroughly mixed to allow reactions to occur. Field technicians inspect the treated waste, and collect samples as needed for confirmation testing.
9.1 Chemical Stabilization
Chemical Stabilization is a proven treatment technology that irreversibly bonds target elements and molecules into an environmentally inert material that reduces the leachability of the contaminants of concern. Chemical Stabilization uses lime-bearing material such as Portland Cement or other lime sources. Stabilization results from the chemical reaction of the lime, waste, and water. A number of reactions can occur:

- Crystalline structures form which trap target molecules.
- Molecules are adsorbed in the pores of the solid matrix that forms.
- Metal hydroxides form that are insoluble or have greatly reduced solubility in the TCLP solution.

All of these reactions contribute to the reduced leachability of the constituents of concern.

9.2 Chemical Fixation (Oxidation/Reduction)
USEI also uses other chemical reagents which, when used in conjunction with stabilization, reduce the leachability of inorganic and organic constituents. Reducing reactions, oxidation reactions, and competing reactions may all occur during the use of these reagents. These reactions allow the formation of compounds which are insoluble or have greatly reduced solubility in the TCLP solution. Chemical fixation is used as needed to achieve the LDR standards required by EPA.

9.3 Debris Management
Debris may be managed by micro-encapsulation or macro-encapsulation. Micro-encapsulation stabilizes debris using chemical fixation/stabilization reagents to reduce the leachability of hazardous constituents. Ignitable, corrosive, or reactive (ICR) debris is treated for those characteristics prior to encapsulation for toxics.

Requirements for micro-encapsulation of debris:

- The waste must meet the definition of debris in accordance with 40 CFR Part 268.2(h).
- Meets Subpart CC VOC requirements.
- No intact containers capable of containing >75% of original volume.
- No process residuals (i.e. slag).
- No wastes with specific treatment standards (i.e. intact lead acid batteries).
- Waste must not be tightly bound or bagged since this interferes with the treatment of contaminated surfaces.
- Waste must not have internally contaminated surfaces that are not conducive to micro encapsulation (i.e. pipes).
- Waste with highly complex shapes (i.e. pumps, motors) are not suitable for micro encapsulation.
- Porous debris such as wood, brick, cement, pavement, and porous rock is normally less than 1’ x 3’ x 6’ (contact Customer Service for details).

Macro-encapsulation uses a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macro-encapsulation depends on the encapsulant to create a barrier around hazardous debris and thereby reduce exposure to potential leaching media. USEI utilizes a variety of jacketing materials, which are effective for most types of debris contaminants.

Requirements for macro-encapsulation of debris:

- The waste must meet the definition of debris in accordance with 40 CFR Part 268.2(h).
- No free liquids may be present.
- Macro-encapsulation may be suitable for treatment of both inorganic and organic contaminants.
- No intact containers capable of containing >75% of original volume.
- No process residuals (i.e. slag).
- No wastes with specific treatment standards (i.e. intact lead acid batteries).
- Waste must be of a size and weight that is suitable for physical handling and placement in the encapsulating containers (contact Customer Service for details).

9.4 Waste Disposal Operations

USEI’s three operating landfills were constructed with both a leachate collection system and leak detection system.

The leachate collection system drains and traps moisture and liquids percolating through the landfill. The leachate collection system is protected from clogging by a geotextile filter and protected from physical disturbance by 6-inches of soil. Cells are graded so that liquids drain towards the leachate collection system. The sumps are pumped according to a Leachate Management Schedule outlined in USEI’s operating permit.

Leachate levels are checked weekly in the primary leachate systems and daily in the secondary leak detection collection and removal system in Cells 14 and 15. The primary leachate system in Cell 16 is inspected daily. Both sumps are checked in the event the facility receives more than ½ inches of rainfall in a 24-hour period. Leachate is pumped and removed in accordance with action levels established in the Part B Permit. Records are maintained for each pumping event. Pumping records indicate leachate levels before and after pumping, the volume pumped, and the on-site dispensation of the leachate.
The leachate is managed in accordance with 40 CFR Part 268.7, using a carbon absorption system. The treated leachate is stored until the required testing is completed. Upon passing the required parameters, the leachate is disposed in the Evaporation Pond.

The Evaporation Pond liner system is constructed as a RCRA Surface Impoundment:

- **Subgrade:** In-situ compacted silty, sandy soil.
- **Secondary Flexible Membrane Liner:** 40-mil Medium Density Polyethylene.
- **Leak Detection Zone:** Composite layer consisting of a geotextile fabric, 12 inches of sand, and a collection pipe.
- **Primary Soil Liner:** 12 inches of compacted clay with permeability of less than $1 \times 10^{-6}$ cm/sec.
- **Primary Flexible Membrane Liner:** 80-mil High Density Polyethylene.

**9.5 Processing Containerized Waste**

Waste streams with similar waste codes, characteristics, and compatibility are typically consolidated for batch treatment. For example:

- F006, 7, 8, 9, 11, 12, 19 waste streams are usually combined.
- D004-011 waste streams are usually combined.

Batches are analyzed after treatment to ensure that all treatment standards for all waste codes in the batch have been met. Containers of debris are also consolidated for treatment; however, there are no concentration-based standards for encapsulation. Instead, the requirements of 40 CFR Part 268.45 and USEI’s permit must be met to ensure that debris was treated for each contaminant subject to treatment.

Containers of waste that do not require further treatment are placed directly into the landfill based upon compatibility. The coordinates of the containerized wastes are recorded, if for any reason the container must be retrieved.

**9.6 Processing Bulk Wastes**

Bulk wastes requiring treatment may be off-loaded into 50-cubic yard stabilization bins at the Stabilization Facility. Alternatively, containerized bulk waste may be stored in one of USEI’s RCRA storage areas. Waste off-loaded directly into bins or tanks can be treated immediately. Downsizing, sorting, crushing, and other handling may be required prior to treatment.

Bulk wastes destined for direct landfill are directed to the landfill cell specified on the WPF summary sheet after inspection and approval for receipt. Waste locations in the landfill are based upon compatibility, and disposal locations are recorded.

**10. Waste Acceptance Procedures**

The Waste Analysis Plan (WAP) outlines protocols for waste treatment, storage, and disposal in accordance with USEI’s operating permits. The plan provides a framework for waste management.
beginning with pre-acceptance review and continuing through waste receipt and disposal. Referenced forms are available on the US Ecology Idaho web page under documents and forms.

Table C-8 of the RCRA Part B permit identifies wastes that are not acceptable for treatment or disposal at USEI:

- Highly water reactive wastes
- Explosive, pyrophoric, or shock sensitive wastes
- Etiological Wastes (medical or biological wastes)
- Compressed Gases

10.1 Pre-Acceptance Protocol
The pre-acceptance protocol evaluates waste streams prior to acceptance and on-site receipt. The protocol identifies waste streams that can be properly treated, stored, and disposed at USEI. The pre-acceptance protocol begins with a completed Waste Profile Form (WPF).

The WPF contains a physical and chemical characterization and a description of the process generating the waste. The generator signs the WPF and certifies the following:

- Characterization was performed on a representative waste sample in accordance with RCRA
- All known or suspected constituents have been identified in the WPF
- Waste subject to the Land Disposal Restriction (LDR) Standards either meet treatment standards, require treatment, or are subject to a variance
- All information submitted in the WPF is true and accurate

The WPF is initially reviewed for completeness and may undergo further review by Laboratory, Regulatory, and Safety personnel. Waste streams that are being sent for stabilization (usually bulk shipped wastes) normally require a sample for analysis, mix design development, and physical review.

10.2 Waste Receipt Summary
A summary sheet of the WPF is produced after all reviews are complete. The summary establishes laboratory fingerprint testing parameters for waste acceptance, identifies appropriate personal protective equipment (PPE), additional inspection requirements, and any process testing parameters (treatment wastes). The parameters, in part, are determined by the information given on the WPF.

Process parameters are determined by the treatment design developed by the laboratory. Percent solids, metals concentrations, and other physical characteristics have an effect on stabilization and chemical fixation, and these process parameters are monitored by laboratory testing as needed or required. As of April 25, 2019, USEI is unable to accept hazardous wastes for treatment.
10.3 WPF Terms and Conditions and Contract Addendums and Amendments

After WPF approval, the waste stream is priced and contracted. A list of terms and conditions for the receipt of the waste at USEI is issued. Any special requirements are also listed with these conditions. An addendum and/or amendment is issued for the waste stream along with the terms and conditions. The addenda and amendments reference the Waste Disposal Agreement Contract number. A Waste Disposal Agreement with the customer must be on file at USEI prior to scheduling or approval of any waste stream.

10.4 Approval Letters

When a WPF has been approved, an approval letter is sent to the customer informing them that USEI has all the permits required to receive the waste stream listed on the letter. The customer may then schedule waste shipments.

10.5 Waste Receipt Protocol

Waste Receipt is controlled through scheduling, receiving, sampling, and fingerprint analysis. The waste receipt protocol is used to verify that waste streams received are within acceptance criteria. During scheduling, the generator provides the expected date of arrival, waste stream identification number, shipment mode, number of containers, and transporter. The transportation associate will verify the waste approval and confirm that the waste can be received on the date requested.

When the shipment arrives, USEI’s Receiving Department verifies accuracy of the manifest, shipping papers, and LDR certification. A computerized work order (WO) is generated at this time. This form is used to track waste acceptance, processing, and disposal. The WO contains information specific to the generator, broker, waste stream, and unique load number. The WO tracks the waste through laboratory analysis, treatment, and finally disposal.

The Receiving Department enters all waste management information into the Company’s Standard Operating Platform (AESOP) system (i.e. weights, reagents, disposal locations, etc.). Upon final waste placement, three-dimensional disposal coordinates are recorded on a Work Order Supplement and in the associated electronic database (AESOP).

Field Technicians deliver load samples to the laboratory. The internal control form (or work order) is used as the sample chain of custody. Laboratory staff conducts fingerprint testing parameters and records the results in the associated electronic database. Samples may include tests for water reactivity, pH (50:50 slurry with water for solid samples), cyanide and sulfides screening test (if applicable), flammability for liquids, and any process parameter testing. Samples must pass receipt parameters for waste acceptance.

Each bulk load and 100% of all containers are uncovered/opened and inspected. As of April 5, 2019, USEI is unable to receive containers of waste for treatment, disposal, or storage. Samples are collected from a minimum of 10% of containers and 10% of each waste stream for bulk loads. Large direct bulk disposal waste streams shipped over a short period of time are 10% sampled. TSCA wastes are sampled in only a few circumstances.

Samples are analyzed for the fingerprint parameters established during the WPF review. If the inspection and fingerprint results match the waste profile data, the waste is approved for receipt and the next waste management step.
All discrepancies noted during waste receipt are resolved prior to waste management. If the discrepancies cannot be resolved through re-analysis and consultation with the generator, the shipment is rejected. In most cases, the transporter is not released until all discrepancies are resolved.

10.6 Waste Process Controls
When receipt, sampling, inspection, and testing have been completed and approved the Operations Department directs the waste to the next waste management step. Waste may be directly land-filled, sent to the stabilization unit, processed for TSCA management (direct-landfill only), or placed in temporary storage. Waste is tracked through the system on the WO generated during receipt.

10.7 Post Treatment Testing Requirements
All wastes that are stabilized have specific post treatment sampling and testing requirements. Wastes that only require solidification have to meet the paint filter test. Debris waste which has been microencapsulated must be visually inspected for coating and must pass paint filter test. Wastes that have been stabilized have several different sampling and testing regimens based on whether it’s a characteristic waste, a process waste subject to LDR requirements, or a specialized waste subject to de-listing.

Larger individual waste streams that are treated require post treatment testing on receipt of the first load and once a year thereafter. In addition, each new stabilization process design has to be tested after treatment in the same manner. Mixtures of different waste streams (i.e. consolidated waste shipments) are tested each time after treatment.

10.8 Final Document Package
All documents for each waste shipment are packaged and filed together. These documents are stored on-site (3 years from receipt date) and in an off-site storage facility. The following is a list of documents that can be included in the final package:

- Finalized WO
- Tracking WO
- Weight Ticket
- Bill of Lading
- Copy of the Original Signed Manifest
- TSDF copy of the Manifest
- Copy of the Certificate of Disposal (CD)
- Other items that may be included if required or applicable:
  - Manifest Notification (LDR Form)
  - Stabilization Field Sheet
  - Discrepancy Reports
10.9 Procedures for PCB Wastes

As of June 14, 2019, USEI can only accept PCB waste for direct-landfill. Before a PCB waste stream may be accepted by US Ecology Idaho, all generators shall submit a completed PCB Waste Profile Form (WPF).

Customers who generate, transport, store or dispose of PCB wastes must notify EPA of their activities and obtain an EPA identification number (40 CFR 761.205). The regulations allow the generic identification number “40 CFR Part 761” for a RCRA identification number if a timely notification has been submitted, but an identification number has not yet been issued by EPA.

- All generators of PCB’s with concentrations greater than or equal to 50 ppm must manifest their waste. There is no small quantity generator exemption.
- The RCRA Uniform Hazardous Waste Manifest must be used to track all shipments of PCBs from the generator to the disposal facility.
- Generators are required to indicate on the first page of the manifest the total number of pages in that manifest.
- The manifest or an attached inventory must include the date of removal from service for disposal, unique identification number, and the PCB waste code number. This may require additional pages to the manifest.
- The generator must sign the manifest certification, which includes a certification of waste minimization efforts.
- The unit of measure must be in kilograms.
- A One-Year Exception Report must be filed by US Ecology with EPA if a customer fails to send a PCB waste for disposal within nine (9) months from the date of removal from service for disposal.
- The customer will receive a signed return copy of the manifest within thirty (30) days from the time the shipment arrives at the facility.
- The customer will receive a Certificate of Disposal from US Ecology when their waste has been disposed of.

In addition to existing requirements for the packaging of PCB waste, the following are also required:

- The “Date of removal from Service for Disposal” must be indicated clearly and indelibly on the top and side of each container.
- PCB articles, PCB containers, and PCB article containers must be marked clearly and indelibly with the EPA identification number, and the unique identification number.

11. Groundwater Monitoring

Currently, USEI has fourteen (14) piezometers and forty (41) monitoring wells screened within two saturated zones designated as aquifers below the site.
Specific Conductivity, pH, and a custom list of 28 VOCs are sampled semi-annually in accordance with USEI Part B RCRA and TSCA Permits. Sampling for PCB analysis is performed each year. Groundwater sampling is performed in accordance with the requirements of USEI’s current operating permit. Analysis is completed by a certified contract laboratory.

The results of the semi-annual groundwater sampling and analysis activities are submitted to the IDEQ semi-annually, in accordance with the requirements of USEI’s RCRA Part B Permit, and to U.S. EPA Region 10 each year, in accordance with the requirements of USEI’s TSCA Permit.

As a result of the acceptance, treatment (if applicable), and disposal of low activity radiological materials environmental media (i.e. soil, air, and groundwater) are sampled, and analysis is performed for an appropriate list of isotopes. Radon and passive gamma are also monitored at the facility fence line to demonstrate compliance with appropriate regulations.

12. Surface Water Controls

Run-off due to rain is managed through an engineered drainage collection and containment system. The system directs runoff from the interior of the site into one of two on-site RCRA Surface Impoundments. A run-on diversion system prevents run-on from entering the facility.

Site drainage and run-off controls are designed to contain and control run-off from a 25-year, 24-hour storm (1.75 inches of precipitation). Active waste disposal, storage, and treatment operations are segregated from uncontaminated areas by a series of diversion berms and channels. The control system consists of drainage swales, engineered grades, drainage conduits, flumes, riprap, and surface impoundments.

A system of interceptor channels collects and conveys run-off from the active waste handling areas to the rain water Surface Impoundments/Collection Ponds. Runoff from clean areas to the active area is prevented by a series of dikes and channels around active units. Run-off may be transferred from Collection Ponds 1 and 3 and routed to the Evaporation Pond for solar evaporation.

Run-off from the active areas of Cells 14, 15, and 16 are collected within the unit and transferred to storage tanks and treated as multi-source leachate. Once the leachate has been treated to below LDR’s, leachate is routed to the primary Evaporation Pond (also a RCRA Surface Impoundment) for solar evaporation.

USEI has two RCRA-permitted Surface Impoundments for the collection of storm water runoff (Rainwater Collection Ponds 1 and 3). A third RCRA-permitted impoundment is primarily used for solar evaporation (Evaporation Pond).

USEI’s Surface Impoundments are constructed with dual synthetic liner systems and associated leak detection capabilities. The storm-water pond liner systems are constructed as indicated from bottom to top:

- Subgrade: In-situ compacted silty, sandy soil.
- Secondary Flexible Membrane Liner: 40-mil Medium Density Polyethylene.
- Leak Detection Zone: Composite layer consisting of a geotextile fabric, 12 inches of sand, and a collection pipe.
• Primary Flexible Membrane Liner: 60-mil High Density Polyethylene.

• Protective layer: 12 inches of sand, geotextile fabric and 6 inches of stone.

13.1 Closure/Post-Closure

Closure and Post-Closure plans are maintained in accordance with USEI’s RCRA and TSCA permits. Plans are available for inspection on site. Costs for closure and post-closure are covered by insurance policies approved the state of Idaho. Closure costs are reviewed and adjusted annually per the facility permit.