

# **Attachment 10**

## **Facility Contingency Plan**

**RCRA CONTINGENCY PLAN**

**US Ecology - Beatty, Nevada**

**August 6, 2008**

**SECTION 7**  
**RCRA CONTINGENCY PLAN**  
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## **CONTINGENCY PLAN**

### **7.1.0 Facility Description**

US Ecology – Beatty, NV (USEN) operates a hazardous waste management facility in Nye County, Nevada, approximately 11 miles south of Beatty, in the Amargosa Desert. The facility is owned by the State of Nevada and is leased by USEN, who operates it. The entire property leased by USEN covers approximately 80 acres, part of which was previously utilized for the disposal of low-level radioactive waste (LLRW). The closed LLRW portion of the property is separated from the Resource Conservation and Recovery Act (RCRA) disposal area by a buffer zone where no below-grade waste disposal activities take place. The surrounding land is federally owned and administered by the Bureau of Land Management (BLM) as rangeland. BLM leases the sections bordering the facility boundaries to the State of Nevada as a buffer zone (approximately 1,320 feet).

Wastes accepted on-site include the full range of RCRA hazardous wastes, PCBs regulated under the TSCA, and non-hazardous wastes. The RCRA Part A lists the acceptable hazardous wastes and anticipated annual quantities.

USEN's treatment capabilities include storage and treatment tanks, landfills, container management areas, and a Low Temperature Thermal Desorption (LTTD) Treatment System. PCB liquids are also accepted for bulking and/or storage in tanks with subsequent shipment to off-site facilities.

In the event that an emergency condition occurs that has the potential to threaten human health or the environment, the following contingency plan will be implemented and maintained until the condition has been stabilized.

### **7.2.0 Emergency Coordinator**

The Facility Manager will appoint the primary and alternate Emergency Coordinators<sup>1</sup> (EC). An EC will be on site or readily available 24 hours a day, 7 days a week. In the event that implementation of the Contingency Plan is necessary, the EC will have the authority to commit the resources needed to carry out the Contingency Plan. The EC Phone Number List (Appendix A) contains all emergency notification telephone numbers of the ECs.

### **7.3.0 Implementation of the Facility Contingency Plan**

Employees<sup>2</sup> will immediately notify the EC upon identifying any fire, explosion or release of hazardous waste or constituents which could threaten human health or the environment.

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<sup>1</sup> Here-in-after individually or collectively referred to as the "EC."

<sup>2</sup> Including, for the purposes of this plan, any off-hour security employees or contractors.

Upon notification and verification that one of these events has occurred, the EC<sup>3</sup> will implement the Contingency Plan.

### 7.3.1 Fire and/or Explosion Involving Hazardous Materials

A "fire that could threaten human health or the environment" is defined as combustion of waste such that it is not readily controllable by facility personnel using on-site equipment and / or available fire extinguishing material (e.g.; fire extinguishers, water, dirt). Incidental fires in non-waste management areas or in controlled areas, such as the stabilization pan, which can be readily extinguished, may not be considered an incident for purposes of this plan, if such incidents pose no threat to human health or the environment.

In the event of a fire and/or explosion requiring implementation of the Contingency Plan, the following actions will take place:

1. The EC, will notify all facility personnel by activating the emergency alarm. This is the primary emergency notification system.
2. When the emergency alarm is activated:
  - A. All key personnel in possession of FM radios will immediately establish voice communication with the EC.
  - B. The EC will determine which facility operations might likely be impacted by emergency response activities and will instruct those operations to cease or otherwise alter their operations, as appropriate.
  - C. If directed by the EC, all personnel will proceed to their designated emergency muster areas. If feasible, operators in the LTTD area will be assigned to monitoring the current treatment cycle after being accounted for.
  - D. If and as directed by the EC, incoming vehicular traffic will be halted or reduced, with the exception of emergency assistance traffic, if required.
3. Injured personnel will be immediately removed to a safe location, and qualified personnel will administer appropriate first aid. **Note:** Employees requiring medical treatment will be transported to the appropriate medical facility by any means necessary, as determined by the extent of their injuries.
4. All movement to the emergency muster area will be via an up-wind route. An up-wind route may be established by watching any visual emissions or wind socks. If movement via an up-wind route is not possible, the affected personnel will notify the EC of the situation.
5. The EC will account for all personnel, visitors and contractors.

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<sup>3</sup> While references are made to the EC, the EC can delegate any responsibilities to other facility employees, such as the Lab Manager for waste identification, the Environmental Manager for external notifications, the Health & Safety Coordinator for traffic control or selection of appropriate PPE.

6. The EC will begin assessment of the incident through observations for the following criteria:
- The nature and extent of the incident (fire and/or explosion, and magnitude);
  - The location of the incident;
  - The nature and quantities of materials involved (review of waste profiles, manifests, disposal records, computer records, cell coordinates);
  - The potential for escalation through subsequent explosions or the spread of fire to other hazardous materials;
  - The intensity of the fire or explosion;
  - The extent of released material to the air and immediate surrounding area;
  - Wind direction and relative speed;
  - The potential for short and long-term effects, with regards to human health and the environment;
  - The need for additional outside assistance and/or evacuation. (NOTE: No firefighting will be attempted in the event there is significant risk of injury to facility personnel. Normally, only outbreak stage fires, which can be rapidly contained and controlled, will be handled);
  - The proper extinguishing medium for the fire will be established by the EC (e.g., foam, dry chemical, water, soil, etc.);
  - If the EC, determines that 1) the fire and/or explosion threatens human health and the environment outside the facility boundaries; 2) additional outside assistance is necessary to bring the incident under control; or 3) evacuation of local the area is necessary; the EC will immediately establish communication with local emergency response agencies, as appropriate, in accordance with Section 7.0 of this plan. Emergency telephone numbers can be found in the EC Phone Number List (Appendix A).
7. If the EC determines that the potential for an impending explosion is high, the EC will notify local emergency response agencies for assistance.
8. The EC will direct all on-scene USEN response efforts and, as appropriate and necessary, coordinate activities involving outside agencies. The EC will direct the following response efforts, as appropriate and necessary:
- Ensure all personnel not required for response efforts are evacuated to a safe area (i.e., non-essential personnel, visitors, contractors.);
  - Establish necessary lines of communication;
  - Provide all necessary PPE;
  - Continually monitor the affected areas through observation for sign of escalation, release, or impending explosions due to gas or vapor build-up;

- Monitor piping systems and tanks if those areas are involved or threatened;
  - Ensure all feed lines to the PCB storage tanks and LTDD propane tank are closed, if necessary and possible;
  - Limit or restrict the use of motor vehicles in the affected area to avoid ignition or re-ignition of flammable vapors and/or gases;
  - If practical, remove or isolate any waste containers or shipments that could become involved if the situation escalates or if the waste containers or shipments would be detrimental to the present situation;
  - Collect and/or contain, to the extent practical, any released waste; and / or
  - Construct soil dikes and/or barrier walls to serve as firebreaks and as temporary segregation measures, to prevent the spread of fire to other waste containing areas, and to control run-off discharge from the facility. These structures will be constructed utilizing heavy equipment as long as the operation of such equipment will not increase the potential for ignition or re-ignition of any flammable vapors.
9. Upon recovery from the emergency, the EC will ensure that all contaminated emergency equipment will be decontaminated. Decontamination procedures will typically be conducted on the Decon Pad to ensure that cleaning residues are contained and collected for appropriate management.
  10. When the incident has been brought under full control, and no longer presents a threat to human health or the environment, the EC will initiate appropriate remedial clean-up operations.

### **7.3.2 Sudden or Non-Sudden Releases or Spills of Hazardous Materials**

For purposes of this section, a "release or spill" is defined as 55 gallons or more of material (liquid or solid) outside of its container or tank not on sacrificial soils or contained within other containment structures. For materials on sacrificial soils or inside a containment structure, a spill or release will be considered to have occurred if the material poses a threat to other materials within the same containment unit.

In the event that an RQ release or spill occurs at the facility, the EC will take the following actions:

1. Determine internal notification requirements and ensure such notifications are made;
2. Determine which facility operations might be impacted by emergency response activities and instruct those operations to cease or alter their operations, as necessary.
3. Assess the incident through observation, for the following criteria:
  - The nature and extent of the incident;
  - The location of the incident;

- The nature and quantities of the materials involved (review of waste profiles, manifest, computer records, disposal records, truck placards, etc.);
  - Wind direction and relative speed;
  - The potential for short and long-term effects, with regards to human health and the environment;
  - The potential for fire and/or explosion; and
  - The need for additional outside assistance and/or evacuation.
4. If the EC determines that 1) the incident threatens human health and the environment outside the facility boundaries; 2) additional outside assistance is necessary to bring the incident under control; or 3) evacuation of the local area is necessary; the EC will establish communications with local emergency response agencies, as appropriate. The EC will also contact the NvDEP and the NRC, as necessary, in accordance with Section 7.0 of this plan. Emergency telephone numbers can be found in the EC Phone Number List (Appendix A).
  5. The EC will direct all on-scene USEN response efforts and, as appropriate, coordinate activities involving outside agencies. The EC will direct the following response efforts, as appropriate and necessary:
    - If the incident involves the PCB processing area, all feed lines to the storage tanks will be closed;
    - If the incident involves the LTTD Unit, the system is to be monitored and shut down using the emergency shut down procedure;
    - If the surrounding materials could be reactive with the released waste, the EC will ensure they are removed to a safe location; and
    - If the incident involves leaking containers, the EC will ensure that the containers are appropriately managed.
  6. Upon recovery from the emergency, the EC will ensure that all contaminated emergency equipment will be collected for decontamination. Decontamination procedures will typically be conducted on the Decon Pad to ensure that cleaning solutions are contained and collected for disposal.
  7. When the incident has been brought under full control, and no longer presents a threat to human health or the environment, the EC will initiate appropriate remedial clean-up operations.

### **7.3.3 Remedial Clean-Up Operations**

When the emergency has been brought under control and the threat to human life or the environment has been minimized, the EC will immediately initiate the following remedial actions, as appropriate, in order to restore the facility to operational readiness:



1. The entire area involved in the incident will be cordoned off and only those operations directly related to the remedial clean-up will be allowed in that area. No waste disposal, storage or treatment will be conducted in the cordoned-off area until clean-up operations are completed and permission to resume normal facility operations in the area is granted by the EC.
2. The EC will continue to monitor the area during remedial operations. Monitoring will be through observation and direct reading instruments, such as a combustible gas/oxygen meter, if necessary. Monitoring will be conducted for the presence of gas or vapor build-up, which could cause fire and/or explosion, if necessary.
3. The EC will ensure that all remedial operational personnel are properly equipped with necessary PPE.
4. All recovered waste, contaminated soil or other solid material resulting from the incident will be appropriately stored, treated, and / or disposed.
5. The EC will ensure that no waste that may be incompatible with the released or recovered material is treated, stored or disposed of in the affected area, until remedial clean-up procedures are completed.
6. When all spilled, released or fire-fighting liquids have been removed, the EC will have the area soil sampled and analyzed to ensure that the foreign material has been removed and no further contamination exists, as appropriate. The sampling will be as follows:
  - A minimum of two samples will be taken. This number will vary with the size and extent of the spill.
  - A sample will be taken from outside the periphery of the spill (background) and from the center of the spill (confirmation of clean-up).
  - Depth of samples will be determined by the EC based on visual observation.
  - Specific analysis will depend on materials involved.
7. Clean-up of any spill involving regulated PCBs will be conducted following the U.S. Environmental Protection Agency's (EPA's) Spill Clean-Up Policy.
8. All necessary reports will be submitted to the applicable agencies, informing them of the incident and all response measures taken to re-establish normal facility operations.
9. When remedial clean-up measures have been completed, the EC will ensure that the emergency equipment listed in the contingency plan is decontaminated, cleaned and fit for its intended use, before resuming normal operations. Other decontamination operations include:
  - A. Disposable PPE will be appropriately managed.
  - B. Respiratory protection equipment will be inspected and decontaminated, if necessary. Any required maintenance will be performed before reuse.

- C. Heavy equipment (e.g., dozers, front-end loaders, forklifts, etc.) will be transported to the Decon Pad for decontamination, if necessary.
  - D. Incidental equipment, such as fire extinguishers, shovels, pumps, and reusable PPE, will be removed to the Decon Pad and thoroughly decontaminated, if necessary.
- 10. Liquids and other materials resulting from decontamination operations will be appropriately managed in accordance with the WAP.
  - 11. Fire extinguishers will be inspected in accordance with the Facility Inspection Plan before being placed back in service.

#### **7.3.4 Earthquakes**

The USEN facility is located ~10 miles west of the Furnace Creek Fault Zone, and ~100 miles south of the Las Vegas Shear Zone. The following contingency response measures will be conducted in the event of significant seismic activity to the extent required by the EC:

- 1. Communication between key facility personnel and the EC will be immediately established;
- 2. Facility personnel will exit buildings, to an open area, if the building's structural integrity appears to be failing;
- 3. Facility personnel in operational areas will immediately halt or alter operations;
- 4. Heavy equipment operators will shut down equipment and egress to a safe open area;
- 5. Personnel located in the landfill will move away from the trench walls to the center open area and remain until the earthquake and associated initial after-shocks have dissipated;
- 6. Immediately following the earthquake and initial after-shocks, all personnel will proceed directly to the designated muster area;
- 7. The EC will account for all facility personnel;
- 8. Qualified personnel will administer first aid to injured personnel. Injured personnel will be transported for medical treatment, if necessary;
- 9. The EC will designate inspection teams and begin necessary measures to appraise facility damage;
- 10. Inspection of the facility will be conducted in an organized manner and will include the following areas:
  - The active landfill will be inspected for wall failure, cracks, exposed waste, severe depression in the floor and visible gas vapor emission.
  - Inactive cells will be inspected for cap integrity and fugitive visible emissions.
  - All access roads will be inspected for cracks and severe depressions.
  - Facility perimeter fencing will be inspected for integrity.
  - All electrical and utility systems will be inspected for operational effectiveness.

- All facility equipment will be inspected for operational integrity.
  - All monitoring wells and sumps will be inspected for integrity.
  - The PCB processing area will be inspected for structural integrity of the building, flooring, valves, pipes, tanks, and containment controls. Signs of cracks, leaks or malfunction will be reported to the EC.
  - The LTTD Treatment System and propane tank and ancillary equipment will be inspected for leaks, cracks or malfunction.
  - The Container Management Building will be inspected for structural integrity of the building, flooring, valves, pipes, treatment tanks, and containment controls, etc. Signs of cracks, leaks or malfunction will be reported to the EC.
- 11 The EC will ensure that all inspection personnel are properly equipped with PPE.<sup>12</sup>  
In the event that a fire and/or explosion result from the earthquake, subsequent contingency response will be in accordance with Section 3.1 of this plan.
- 13 In the event that a release of hazardous material occurs, subsequent contingency response will be in accordance with Section 3.2 of this plan.
- 14 The EC will then initiate any remedial actions necessary to bring the facility up to operational readiness.
- 15 All necessary reports will be submitted in accordance with Section 7.0 of this plan.

#### **7.4.0 Evacuation Plan**

All emergencies require prompt and deliberate action. The EC will be responsible for determining if a facility evacuation is required. In the event that this determination is made, the following actions will be taken:

1. The emergency horns will be activated twice. This is the primary signal for immediate facility evacuation. In addition, radio communications will be established and the verbal order for evacuation will be given.
2. All facility personnel will immediately don proper PPE, if required, and proceed to the primary evacuation route (Appendix B).
3. All evacuations will be coordinated by the EC in such a manner as to minimize potential exposure (i.e., up-wind egress).
4. All facility visitors and contractors will exit the facility immediately, under the direction of the EC.
5. In the event that evacuation by the primary designated route is not possible (due to blockage by releases or fire), the EC will authorize the sacrifice of facility fencing by use of heavy equipment or motor vehicles to create alternate routes. All personnel evacuating the facility in this manner will immediately proceed to the evacuation muster area when clear of danger or to an alternate muster area designated by the EC.

6. When the evacuation is complete, the EC will immediately account for all facility personnel, visitors and contractors.
7. No attempt will be made to find personnel unaccounted for, if it involves the endangering of lives of others by re-entry into the facility.
8. Re-entry into the facility will only be made after the EC gives clearance.

#### **7.5.0 Equipment Requirements**

The facility will maintain sufficient safety and emergency equipment for immediate response to most emergency situations. All facility communications and alarm systems, fire extinguishers, spill control equipment and decontamination equipment will be inspected and maintained in accordance with the Facility Inspection Plan.

##### **7.5.1 Emergency Response Equipment**

For a more comprehensive list of emergency equipment, see Appendix D.

##### **7.5.2 Safety Equipment**

The facility will maintain sufficient safety equipment to provide for immediate response to emergency situations.

###### **7.5.2.1 Respiratory Protection**

Air purifying half- or full-face respirators with appropriate cartridges will be available in the facility offices and stocked at the operational areas. A specific list of available equipment and locations include:

- Air purifying respirators (issued to each operational employee);
- Self-contained breathing apparatus (SCBAs) (located in the trench shed, safety van, stabilization building and PCB Building);
- Spare bottles for SCBAs (located in the safety van); and
- Cartridges for air purifying respirators (located in the safety office storage area, PCB Building, stabilization building and safety van).

###### **7.5.2.2 Personal Protective Equipment**

Available PPE, in addition to the PPE issued to operational employees, includes:

- Tyvek™ outer garments (located in the stabilization building, trench shed, PCB Building, maintenance building and safety van);
- Chemical-resistant suits (located in the safety van, PCB Building and stabilization building);
- Chemical-resistant nitrile gloves (located in the trench shed, stabilization building, safety van, PCB Building and site laboratory);

- Face shields (located in the PCB Building); and
- Chemical resistant over-boots for safety shoes (located in the PCB Building, safety van, Truck Wash Pad and Safety office storage area).

#### **7.5.2.3 Fire Extinguishers**

Portable fire extinguishers, rated for class "ABC" fires, are available at multiple locations on-site. Specific lists of units (and respective locations) include:

- ABC units on all heavy equipment;
- ABC units stored in the trench shed on the loading dock and safety van;
- 150-pound BC unit at unloading dock in active cell;
- 150-pound BC unit at LTDD area;
- 250-pound Ansul at the stabilization building;
- 250-pound Ansul near the Pump #1 Pump house

#### **7.5.2.4 Heavy Equipment and Vehicles**

The facility routinely utilizes multiple pieces of heavy equipment and vehicles (such as trucks) to support on-site operations and this equipment is available for emergency response efforts. Typical equipment used on-site includes track-hoes, bulldozers, water trucks, forklifts, etc. Although this equipment is available on-site, it is not for "emergency response" purposes, per se, and is routinely exchanged for other similar equipment when its economic life is complete. Therefore, although this equipment is on-site, it is not listed here.

#### **7.5.2.5 Spill Control and Response Equipment**

A specific list of spill control and response equipment, in addition to on-site heavy equipment, includes:

- Recovery drums (outside the PCB Building);
- Absorbent material for containment and solidification (outside the PCB Building);
- Spill control pads (PCB Building and facility laboratory); and
- Shovels (PCB Building, wash pad).

These items are contained in "Spill Kit" drums located at various waste management locations throughout the facility.

#### **7.5.2.6 Decontamination Equipment**

Decontamination of contaminated equipment will typically take place at the Decon Pad, and all decontamination run-off will be collected in the wash pad holding tank. Additional equipment typically available for decontamination includes:

- High pressure and steam cleaning units (kept at the Decon Pad);
- Decon water soluble cleaning solution (PCB Building);
- Sponges and mops (PCB Building), and
- Portable and fixed emergency deluge showers and eye wash stations (fixed units located at the Container Management Building, Waste Consolidation Storage Areas, PCB Building, stabilization area, Decon Pad and Lab).

#### **7.5.2.7 First Aid Supplies**

Typically available first aid supplies include:

- A complete emergency trauma kit (located in the safety van and the Lab);
- Basic first aid kits (located in WCSA, PCB Building, and Stabilization Office);
- One stretcher (located in the safety van); and
- One burn pack (located in the safety van).

#### **7.5.2.8 Water For Fire Control**

A water storage tank are available on-site and it is located adjacent to the PCB Building. The tank will contain at least 1,500 gallons of fire-fighting water. The pump will be capable of supplying the water at a rate of at least 20 gallons per minute. Other fire fighting capabilities include a mechanical foam spraying unit.

#### **7.5.2.9 Internal Communication Systems**

Internal communications consist of three (3) independent systems. The primary system is an emergency warning siren. The system consists of two (2) high-intensity warning horns, one (1) located at the PCB Building, and one (1) in the office compound area. The second system consists of radio units. This system consists of a minimum of eight (8) hand-held units located throughout the facility. All radios are interfaced for monitoring and communication purposes. The EC will monitor at least one unit at all times during normal facility operations. The third system consists of a telephone intercom system.

#### **7.5.2.10 External Communication Systems**

External communications for summoning outside emergency assistance will be accomplished by telephone. There will be a minimum of six (6) telephones readily available for this purpose. One (1) will be located in the laboratory facility, one (1) in the Facility Manager's office, one (1) in the break area, and three (3) in the Administrative office.

#### **7.6.0 Plan Distribution/Coordination Agreements**

The following facilities and agencies are in possession of copies of the Emergency Coordinator Phone Number List (Appendix A.) These agencies were invited to participate in an orientation intended to familiarize response personnel with the facility layout, properties of the wastes handled at the facility and associated hazards. Each agency was asked to review and comment on the plan and establish specific actions that they will take in response to an emergency.

1. Beatty Volunteer Fire/Rescue;
2. Beatty Ambulance Service;
3. Beatty Medical Clinic;
4. Beatty Substation Nye County Sheriff; and
5. Mercy Air Ambulance Service.

A copy of the coordination agreement letter provided to each agency is included as Appendix C.

### **7.7.0 Reports**

As soon as possible after implementation of the Contingency Plan, the Emergency Coordinator, or designee, will record the time, date, and details of the incident. USEN will orally report to the Nevada Division of Environmental Protection (NvDEP) any incident requiring implementation of the Contingency Plan. The NvDEP and the National Response Center will be notified of any incident involving a release to the environment of hazardous waste, pollutant or contaminant in a quantity equal to, or greater than the reportable quantity specified by 40 CFR Part 302.

The oral reports described above will be provided as soon as possible after becoming aware of the release, but no later than 24 hours following the incident. However, the EC must notify the NvDEP that the facility is in compliance with the following items before operations are resumed in the affected area(s) of the facility:

1. No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
2. All emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use before operations are resumed. In this case, the EC may substitute equivalent emergency equipment in the affected area while repairing, replacing, or recharging used emergency response equipment.

A written report providing details on any incident requiring implementation of the Contingency Plan will be submitted to the NvDEP Administrator within 15 days. The following information will be included in the written notification to the Administrator:

1. Name, address and telephone number of the owner/operator of the facility;
2. Name, address and telephone number of facility;
3. Date, time, and type of incident (e.g.; fire, explosion);
4. Name and quantity of material(s) involved;
5. The extent of injuries, if any;
6. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

### **7.8.0 Plan Modification**

The Emergency Coordinator, or designee, may find it necessary to adapt the Contingency Plan to a specific emergency situation in order to adequately protect human health or the environment. In addition, the Contingency Plan will be reviewed and amended, if necessary, whenever:

1. The facility permit is revised;
2. The plan fails in an emergency;



3. The facility changes – in its design, construction, operation, maintenance, or other circumstances – in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;
4. The list of emergency coordinators changes; or
5. The list of emergency equipment changes.

Copies of the modified plan will be distributed as described in Section 6.0.

**Appendix A**  
**List of Emergency Coordinators**



**Appendix B**  
**Evacuation Routes Map**

## **Appendix C**

### **Example Coordination Agreement Letter**



June 18, 2008

Beatty Volunteer Fire Department  
PO Box 113  
Beatty, Nevada 89003

Dear Sir/Madam,

As you are aware, US Ecology operates a chemical waste disposal facility near the location of your organization. The U.S. Environmental Protection Agency (USEPA) regulations pertaining to hazardous waste disposal require US Ecology to familiarize local emergency response personnel with our site operations and obtain verification from you that your organization will respond to any request for emergency assistance.

To acknowledge that you will provide such services, please have a representative of your agency date and sign the appropriate spaces provided below.

Also, this letter constitutes US Ecology's formal request that your agency participate in an orientation session, held at your convenience, dealing with the facility layout, potential hazards and special situations which could be encountered during an emergency response. Attached is a copy of US Ecology's **Emergency Contingency Plan** for your review. Should you be interested in an orientation or if you require additional information regarding this notice, please contact me at 775-553-2203 x 127.

Sincerely,

Scott W. Winiwiski  
Environmental Compliance/H&S Manager

Enclosure

Cc: Mr. Sreedharan, P.E., CEM, Staff Engineer-NDEP  
Mr. Bob Marchand, General Manager - US Ecology  
Mr. Richard O'Hara, Environmental Health & Safety Director - American Ecology  
Mr. Mark John, Operations Manager

The \_\_\_\_\_ will respond to any US Ecology request for emergency assistance.

Date: \_\_\_\_\_

Signed: \_\_\_\_\_

☐ Decline orientation session

## **Appendix D**

### **List of Emergency Equipment**

List of Emergency Equipment (Typical)		
Revised 2/26/07		
Equipment	Location	Physical Description / Capabilities
SCBAs	Safety Van/Trailer, Stab Tanks, PCB Bldg, Container Management and Stabilization Building (CMSB)*, & Landfill	Face piece covering eyes & air supply of 30 minutes. NIOSH approved. These units are not approved for fire fighting.
Spare Bottles for SCBA	Safety Van	45 scf @ 2,200 psi
Protective Outer Garments	Safety Storage Area, Stabilization Area, PCB Bldg., Landfill, CMSB.	One-piece coveralls
Nitrile Gloves	Safety Van/Trailer, Stabilization Area, PCB Bldg., Landfill	Chemical resistant gloves
Face Shields	PCB Bldg., Safety Storage Area	Hard plastic shield for protecting eyes from splashes
Booties / Rubber Boots	Safety Storage Area, PCB Bldg.	Water or chemical resistant boots or covers
Fire Extinguishers	Heavy Equipment, Stabilization Area, PCB Bldg., Landfill, CMSB.	Various sizes and types for fighting incipient fires
Overpack Drums	PCB Bldg., CMSB.	For containing waste, spill residues
Absorbents / Pozzolons	Stabilization Area, PCB Bldg., CMSB.	These materials are soils or materials for sorption of liquids
Spill Control Pads	PCB Bldg. & Lab, CMSB.	These materials are for absorbing liquids
Emergency Showers & Eye Wash Units	Various locations	Deliver water for drenching contaminated personnel
Spill control kits	Various Locations	Poly drums labeled "Spill Kit" filled with supplies for managing small spills.

\* Container Management and Stabilization Building (CMSB) will be online approx. June 2007.



# **Attachment 11**

## **Waste Analysis Plan**

**WASTE ANALYSIS PLAN**

**US ECOLOGY NEVADA**

**OCTOBER 2009**

**SECTION 8**  
**WASTE ANALYSIS PLAN**  
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#### **ATTACHMENTS**

**ATTACHMENT 1; WPQ Form and Instructions**

**ATTACHMENT 2; LDR Certification Form (MEETS STANDARDS)**

**ATTACHMENT 3; LDR FORM IDENTIFIES TREATMENT NEEDED**

**ATTACHMENT 4; Supplemental Analyses**

**ATTACHMENT 5; Other Analyses**

**US ECOLOGY NEVADA**  
**WASTE ANALYSIS PLAN**

**8.1.0 INTRODUCTION**

This Waste Analysis Plan (WAP) documents how US Ecology Nevada (USEN<sup>1</sup>) obtains detailed chemical and physical analysis of a representative sample before hazardous wastes are stored, treated or disposed. USEN uses a pre-acceptance process to determine if sufficient information exists, and to determine if the waste can be managed at the facility within permit limits. Pre-acceptance also determines how wastes will be treated and how employee safety will be protected. USEN inspects all incoming waste shipments and, if necessary, analyzes each shipment received at the facility to determine if it matches the identity of the waste specified on the accompanying manifest. In addition, post-treatment testing confirms that wastes meet land disposal restrictions prior to disposal.

This Waste Analysis Plan describes how USEN complies with these responsibilities. Specifically and in accordance with 40 CFR §264.13(b), this plan delineates the following:

- The waste analyses hazardous waste generators supply (Section 8.2.0);
- The sampling methods used to obtain a representative sample of the waste to be analyzed (Section 8.2);
- The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters [i.e.; how analysis for these parameters will provide sufficient information on the properties of the waste (Section 8.6.6);
- The test methods used to test for these parameters (Section 8.6.6);
- The frequency with which the initial analysis of the waste will be reviewed or repeated to assure the analysis is accurate and up to date (Section 8.4.0 and Section 8.6.7);
- The procedures used to inspect and, if necessary, analyze hazardous waste received on-site to assure it matches the identity of the waste designated on the accompanying manifest or shipping paper, including:
  - (i) the procedures used to determine the identity of waste managed at the facility (Section 8.6.0); and the sampling method used to obtain a representative sample of the waste to be identified (Section 8.2.0)
  - (ii) the procedures used to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste (Section 8.3.0).
  - (iii) The procedures used to document waste movements within the facility prior to off-site shipment or on-site disposal (Section 8.8.0)
- The methods used to meet the additional waste analysis requirements for specific waste management methods as specified in 40 CFR §§264.17, 264.314, 264.341, and 268.7 (Section 8.8.0).
- Since the facility uses no surface impoundments exempted from land disposal restrictions under 40 CFR §268.4(a), no special procedures or schedules are provided for such surface impoundments.

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<sup>1</sup> For the purpose of this WAP, "USEN" means any US Ecology Nevada and any other US Ecology laboratory, subsidiary/affiliated laboratory, or designated contract laboratory.

### 8.2.0 REPRESENTATIVE SAMPLING METHODS

Sampling and analysis are commonly performed by waste generators or their representatives to characterize wastes. Typically, when a waste shipment arrives on-site for treatment, storage, or disposal, a determination has already been made by the generator that the waste is either:

- a listed hazardous waste, as defined in Subpart D of 40 CFR Part 261;
- a characteristic hazardous waste, as defined in Subpart C of 40 CFR Part 261; or
- a solid waste which is not hazardous waste, as defined by 40 CFR §261.4(b).

USEN's instructions for its Waste Product Questionnaire<sup>2</sup> refer generators to 40 CFR Part 261, Appendix I for sampling procedures. This Appendix, in turn, references both ASTM methods and EPA methods. Samples collected using protocols for these types of wastes are considered by EPA to be representative samples.

The generator's waste characterization normally includes an analysis of a representative sample of the waste, however, in some cases, generator knowledge of the waste is sufficient. Waste generators may also provide data originally used to characterize wastes, or provide existing published or documented data on the hazardous waste or data on hazardous waste generated from similar processes. The generator or an independent laboratory (including USEN) may perform analyses using standard test methods (EPA, ASTM, AWWA, or other approved standards) or alternative methods approved in USEN's RCRA permit.

The generator also evaluates the candidate waste for additional characteristics that may exclude the waste from acceptance at USEN and certifies that the waste does not exhibit any of these characteristics. For example, wastes restricted from on-site management (i.e.; pyrophoric wastes) will not be approved for on-site management.

Each WPQ includes a generator certification statement that reads, "I certify under penalty of law that I am familiar with this waste stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that all known or suspected hazards have been disclosed. Furthermore, I certify that this form was completed in accordance with the instructions provided."

See Attachment 1 for an example of the WPQ form and related instructions.

### 8.3.0 PRE-ACCEPTANCE REVIEW

USEN's pre-acceptance review determines whether adequate information is available to determine the acceptability of the waste for on-site management. Waste may be rejected or accepted based on the conditions or limitations of existing permits, the waste's compatibility with other wastes being managed on-site, or the waste's suitability for management utilizing the process options available on-site.

Pre-acceptance review commonly takes place on-site before waste is scheduled for delivery. Pre-acceptance information may also be collected at another US Ecology facility, or upon receipt of the load prior to waste acceptance.

USEN commonly obtains the following information for each new waste stream that is a candidate for on-site management:

- Pertinent chemical and physical data (i.e., waste characteristics) and, when appropriate, information concerning representative sampling methods and certification on the WPQ.
- A representative sample, unless pre-acceptance review determines that a representative sample is not necessary.
- Land Disposal Restriction (LDR) Notification/Certification and/or data, unless data is submitted with each load.

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<sup>2</sup> Also commonly known as the "waste profile."

- Other supporting documentation as appropriate, including any information such as a description of the process generating the waste, additional analytical results, Material Safety Data sheets, product ingredients, etc.

The pre-acceptance review identifies the Fingerprint Analyses and any Supplemental Analyses necessary on a sample collected upon receipt of the waste. These additional analyses may be required in order to determine appropriate waste management techniques to be used.

Selected waste management techniques are based on:

- Management methods available;
- Conditions or limitations of existing permits and regulations;
- Capability to manage the waste in a safe and environmentally sound manner;
- WPQ description of the process generating the waste;
- WPQ description of the chemical and physical properties of the waste;
- Any additional documentation supplied by the generator, including information that the waste is subject to a Land Disposal Restriction of 40 CFR Part 268, if appropriate;
- Results of Fingerprint Analyses, if necessary;
- Results of Supplemental Analyses, as appropriate; and
- Management's technical experience and judgment.

The pre-acceptance evaluation concludes with a documented decision regarding the acceptability of the waste and the proposed method of management. Included within the documentation is the required notification to the generator that the waste is approved for management in accordance with the facility's permit and 40 CFR §264.12(b).

Copies of these decisions are sent to the NVDEP for review and for their concurrence, modification or rejection.

USEN maintains copies of generator-supplied and USE-developed information. This information may be accessed electronically or via hard copy.

#### **8.4.0 WASTE PROFILE RE-EVALUATION**

A waste profile is re-evaluated if:

- A generator notifies USEN that the process generating the waste has changed;
- The results of inspection or analysis indicate the waste received at the facility does not match the identity of the waste designated on the accompanying manifest (or shipping paper).

When the waste profile is re-evaluated, the generator may be asked to review and update the current waste profile, to supply a new profile, and/or to submit a sample for analysis. USEN may also develop new data by using a representative sample collected from a load of the waste.

#### **8.5.0 WASTE TREATMENT RECIPE DEVELOPMENT**

Typically, USEN requires a representative sample of wastes prior to on-site treatment to develop a treatment recipe. The waste sample is mixed in the lab with various reagents<sup>3</sup> to determine an acceptable mix design (recipe) by which the waste is ultimately treated to meet required standards.

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<sup>3</sup> Typical reagents used on-site include fly ash, portland cement, cement kiln dust, lime, gypsum, water, clays, oxidizers, and carbon, although other treatment reagents may be used, including other wastes with characteristics appropriate for treatment.

In some cases, it may be appropriate to create mix designs after acceptance, but prior to treatment (e.g., when aggregated batches of mixed wastes streams are treated together). Recipes may also be adjusted after treatment if the recipe is unsuccessful or if more efficient treatment techniques are developed.

Treatment effectiveness is verified prior to disposal except when wastes from the same source are routinely received. In that case, samples are collected from the first batch of treated wastes, and at least once a year, thereafter<sup>4</sup>. Sampling frequency may be increased for waste streams that exhibit significant variable characteristics.

Since wastes are treated based on a developed or verified recipe, they are assumed to meet the applicable treatment standards and may be staged in storage or disposal units pending confirmatory analyses. If post-treatment analyses determine a treated batch does not meet applicable standards, the waste will be retrieved for re-treatment or off-site management.

A treatment certification is issued to the generator for each batch successfully treated.

#### **8.6.0 INCOMING WASTE SHIPMENT INSPECTION AND SAMPLING**

Each shipment of waste is inspected, sampled and analyzed before acceptance, except as noted below, to compare the actual waste identity with that determined in the pre-acceptance phase and ensure proper disposition of the waste for treatment, storage, and/or disposal. A USEN-approved subcontractor or a USEN employee operating off-site can provide the analyses required for acceptance. Waste shipments arriving on-site are in process until a final decision regarding waste acceptability is made. At such time, the wastes are accepted or rejected.

Subject to the exceptions below, bulk waste loads are sampled and analyzed, except where large volumes of a single waste stream are received from a single source, (e.g.; a site cleanup, a large volume generator, etc.). In such cases, all shipments are inspected and at least 10% of such loads are sampled and analyzed. Bulk waste may also be sampled in an original bulk container (rail cars, for example) prior to loading into trucks or other containers.

At least 10% of non-bulk containers from each waste stream in the shipment are sampled, except as noted below. Container samples from the same profile may be composited prior to analysis, providing the individual samples have similar physical descriptions. At a minimum, all remaining un-sampled containers are visually inspected for container integrity and labeling. If a significant discrepancy in waste type is discovered, the contents of all of the containers for that waste stream are inspected. In some cases, where the waste stream is consistent but packaged for ease of transportation or disposal (e.g., multiple cubic yard bags containing the same waste), the load may be managed as a bulk load.

##### **8.6.1 Wastes Meeting the Treatment or Technology Standard upon Arrival**

USEN frequently receives waste meeting applicable treatment standards that has been treated by the generator, treated by another treatment facility, or verified to meet the standard as initially generated. These shipments must be accompanied by a proper notification and certification or, if determined to meet the standard by USEN, USEN may complete the correct certification. See Attachment 2 for a copy of the LDR Form. This form must include the applicable analytical data or reference to such data, in accordance with 40 CFR §268.7.

These wastes may be analyzed for conformance with the treatment standards during the pre-acceptance review, during the load acceptance review, or when USEN believes the waste may meet the appropriate standard or method.

##### **8.6.2 Wastes Subject to LDRs**

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<sup>4</sup> A sample of a treated waste stream may be used during one year to provide the annual verification testing for the following year. If this occurs, waste streams treated before or after this are not affected in any way as a result of the analytical results received or resultant recipe changes. The Lab Manager may change the recipe immediately or upon the new annual period.



Initial waste shipments subject to the Land Disposal Restrictions which require treatment must be accompanied by a one-time notification to USEN of the appropriate treatment standard or prohibition, including any applicable data or reference to such data or documentation which must be met in accordance with 40 CFR §268.7, except as otherwise allowed. See Attachment 3 for a copy of this form.

When verifying that waste has been treated to meet LDR treatment standards, compliance with concentration level standards is based on grab sampling. When there is any uncertainty in achievement of treatment standards, the treated waste is resampled.

### **8.6.3 Wastes Which Are Not Sampled**

Sampling and analysis of some waste materials is not required because the chemical and physical characteristics of the waste are known in sufficient and reliable detail, or the waste has been previously characterized and shipped from another generator, broker or TSDF, or visual inspection of these shipments is sufficient for verification of their identity. USEN may waive incoming waste load sampling and analysis where the pre-acceptance documentation supplies sufficient information to assure compliance with permit conditions and operational constraints, or any of the following conditions exist:

- Obtaining a representative sample poses an unnecessary hazard of acute or chronic exposure of USEN employees to carcinogenic, mutagenic, neoplastigenic, teratogenic, or other hazardous or sensitizing materials;
- The material may react violently with air or moisture;
- The material's odor causes a public nuisance when sampled; or
- A sample cannot be reasonably obtained, such as filter cartridges, tank clean-out sludge (prior to the clean-out), large pieces of contaminated material, or contaminated debris.

In these cases, the shipment will still be inspected for conformance with manifest and pre-acceptance documentation as previously described.

The following types of wastes are typically excluded from sampling and analysis upon receipt:

- Waste contained in a lab-Pack (combination packaging). Combination packaging is defined in 49 CFR §171.8 as "...one or more inner packagings secured in a non-bulk outer packaging" and is subject to the Department of Transportation shipping package requirements of 49 CFR Part 173.
- Commercial products or chemicals: off-specification, outdated, unused, contaminated or banned. This also includes products voluntarily removed from the market place by a manufacturer or distributor.
- "Empty" containers of waste materials, commercial products or chemicals. This applies to portable containers which have been emptied, but which may hold residues of the product, chemical, or containers containing other empty containers. Examples of containers are: tanks, drums, barrels, cans, bags, liners, etc. A container shall be determined "empty" according to the criteria specified at 40 CFR §261.7. These empty containers may be crushed, shredded, or landfilled intact.
- Residue and debris from the cleanup of spills or releases of chemical substances, previously approved wastes, commercial products, or a waste which would otherwise qualify as an exception.
- Waste that is visually identifiable through an inspection process. Examples may include cathode ray tubes, batteries, fluorescent light tubes, filters and filter cartridges, wire or tubing, paper products, metal sheeting and parts, crushed glass, piping, and other debris.
- Demolition wastes. This consists of waste produced from the demolition or dismantling of industrial process equipment or facilities contaminated with

chemicals from the process. Knowledge of the process and chemicals used in the process allows characterization of the waste sufficient for safe management.

- Debris as defined at 40 CFR §268.2. These materials will be visually inspected prior to acceptance in order to ensure the waste meets the definition of debris.
- Articles, debris, non-RCRA wastes, equipment and clothing containing or contaminated with polychlorinated biphenyls (PCBs). This includes PCB capacitors, transformers, gloves or aprons from draining operations, empty drums that formerly held PCBs, etc.
- PCB drainings and flushings removed from PCB articles. This includes PCB articles flushed with a substance (e.g. toluene or unused diesel).
- USEN site-generated waste, including hazardous and non-hazardous waste.
- Household hazardous waste, pesticide, waste from small quantity generators, and/or small volume waste streams (<100 tons per year). For these exceptions, the generator will supply USEN with sufficient chemical and physical characteristics information for proper management of the waste.
- Controlled substances regulated by government agencies including drugs and/or materials from clandestine labs.
- Materials designated for storage and trans-shipment off-site. These materials are received for storage and subsequent trans-shipment only and are not otherwise actively managed on-site. If USEN processes a waste previously designated for storage and subsequent trans-shipment, the waste will be subject to the normal pre-approval process prior to on-site processing. For materials received at another regulated company and subsequently shipped to USEN, the other facility may transmit the relevant information to USEN for use in the pre-acceptance or load arrival review programs, as is appropriate.
- Wastes from remedial projects in which the waste characterization is known through a sampling plan that was approved by a federal or state agency (e.g.; CERCLA project) or other well-developed plan.
- Contaminated personnel protective equipment (PPE) (e.g., gloves, tyveks, respirator cartridges).
- Aerosol cans.
- Vitrified, Cemented, and Other Materials Exhibiting High Structural Integrity which are not conducive to sampling. Structural steel, tanks, pipe, cement, glass, empty drums, machinery, equipment, manufactured items, monolithic / cemented materials, and similar materials do not allow for normal sampling protocols. They are inspected and analyzed case-by-case.
- Environmental remediation wastes where a government clean-up agency, generator, or contractor has established a data base and waste characterization information. This information may be used in lieu of pre-acceptance analytical and incoming load analytical information, and the physical appearance screen will be used to confirm material acceptability upon arrival.
- Exempt Radioactive Waste (including NORM, NARM, etc).

#### **8.6.4 SAMPLING METHODS, MATERIALS AND EQUIPMENT**

Sampling methods used for specific materials are consistent with those referenced in 40 CFR Part 261, Appendix I. The sampling equipment and procedures described in this WAP represent USEN's customary sampling protocol for general types of waste materials and containment. Specific waste materials or shipments may require different sampling techniques. For example, if examination indicates strata in the waste, then each layer may be composited in proportion to its estimated volume or analyzed separately. Deviations from the recommended protocol may occur based on waste inspection and testing, and such deviations are consistent with the purposes and practices of this WAP.

The equipment used for different materials is presented in the following table.

<b>Table 1: Sampling Materials and Equipment</b>	
<b>Material</b>	<b>Equipment</b>
Extremely viscous liquid	Thief or COLIWASA/tube sampler
Crushed or powdered material	Tube sampler, trier, auger, scoop, or shovel
Soil-like material	Tube sampler, trier, auger, scoop, or shovel
Fly ash-like material	Tube sampler, trier, auger, scoop, or shovel
Containerized liquids	COLIWASA/tube sampler, weighted bottle, cup, bomb, or tank sampling port
Steel or Large Solid Objects (e.g.; tanks, process devices)	Drill

#### **8.6.4.1 Container Sampling**

USEN samples various container types, such as drums, tanks, portable transport units (e.g., tote bins, roll-off boxes, lugger boxes), tankers, or dump-type trucks. Sampling devices are selected depending on the size and type of the container and on the specific material involved.

Specific sampling procedures are dependent on both the distribution and the nature of the waste components in the container. Due to these variations, minor modifications may be needed to the recommended sampling procedure in order to obtain a sample. Although preferential sampling devices in Table 1, other devices identified in agency guidance or selected at the Lab Manager's direction may be used.

Methods for sampling small containers (e.g., drums, cartons, & other small units) vary with the nature of the waste. For flowable materials, the sampling device of choice is a Coliwasa or tubing. For non-flowable wastes, a tubing or trier is typically used to obtain a representative sample.

Large containers and tanks of flowable or solid materials may be either stationary or mobile. Liquids may be sampled with Coliwasa, tubing, weighted bottle, or bomb sampler to sample at various depths. Tank sampling may be accomplished through ports or taps located along the side of the tank or sampling through pumps or fittings. These samples may be composited to yield a representative sample. Light, dry powders and granules may be sampled with a scoop, tubing or thief. Heavier solids such as contaminated soils may be sampled by trier, shovel, or by coring with heavy tubing. Tank sediments may be sampled from the bottom-sampling valve when not readily sampled from above.

#### **8.6.5 WASTE MANIFEST REVIEW & DISCREPANCY RESOLUTION**

Upon arrival of a waste shipment at USEN, the accompanying manifest is reviewed for completeness and the shipment is inspected for agreement with the manifest information.

Waste is non-conforming if there is a significant discrepancy between the waste shipment and the manifest (as defined in 40 CFR §264.72), unless the discrepancy can be resolved through contact with the waste generator, transporter or broker. Non-conforming wastes may be rejected immediately, or may be re-evaluated for acceptance despite the inconsistency. Changes to the manifest or WPQ may be made with the customer's concurrence or at the customer's request. Any corrections or other changes

made to the manifest or WPQ are initiated by the person making the change. Other manifest discrepancies may be corrected or noted on the manifest.

For bulk loads manifested by weight, the load is typically weighed on-site. However, if the scale is out of service, other methods may be employed to estimate the weight of the delivery. These include off-site scales, weight estimation techniques, and using tare weights to calculate approximate net weights. If a significant weight discrepancy is noted, the procedures of 40 CFR §264.72 are employed. For bulk loads manifested by volume, this mechanism is not appropriate as visual estimates are too subjective, settling may occur during transport, liquids are subject to phase separation, and specific gravity calculations can be inaccurate. For piece count deliveries (e.g., vans of containers, etc.), the piece count is confirmed.

Non-conformance is typically conducted upon delivery to the facility or during the load acceptance process. Occasionally, a load is delivered and staged prior to being approved or accepted, or small containers are contained within heat shrink material and cannot be counted prior to breaking the load. In these instances and consistent with 40 CFR §264.71(a)(3), the transporter is given a signed copy of the manifest. If a significant weight or piece count discrepancy is later discovered, USEN will attempt to reconcile the discrepancy. If this cannot be done within 15 days of discovery, notification of the discrepancy will be sent to the Nevada Department of Environmental Protection (NvDEP), along with the steps taken to resolve the discrepancy.

Manifest discrepancies are resolved, if possible, by contacting the generator, transporter, or their representative to obtain the needed information. Entire loads or portions of loads may be rejected (e.g., a bulk load may contain un-profiled or unacceptable<sup>5</sup> materials). The requirements of 40 CFR 262 Subpart B "Manifests" are followed when documenting rejection of waste loads and their return to the generator.

#### **8.6.6 FINGERPRINT TESTING UPON WASTE RECEIPT**

USEN inspects waste shipments and conducts fingerprint testing to confirm consistency of received waste with pre-acceptance characterization contained in the Waste Product Questionnaire<sup>6</sup>, waste analysis, or other information. The waste characterization on the WPQ provides information concerning the contaminant type and concentration and the nature of the waste.

All incoming wastes are inspected to assure that readily-observable characteristics (color, form, absence or presence of odors, size, etc.) are consistent with pre-acceptance data. Inspectors can also observe whether free liquids are present and determine whether additional fingerprint testing, such as a paint filter test, may be needed.

Fingerprint testing provides general waste identification and confirmation. Results are compared with pre-acceptance information to confirm that the waste is the same. Results may be used in conjunction with other waste analyses and information to further identify a waste and/or ensure the type of on-site management chosen is suitable for that particular waste.

Specific fingerprint tests are established during pre-acceptance based on the characteristics of the waste and limits of fingerprint parameter variability. Certain types of waste streams that are not conducive to fingerprint sampling such as debris and solid resins, are not readily sampled and fingerprint testing may be limited to field testing and

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<sup>5</sup> The material may be "unacceptable" due to permit constraints or the inability of the facility to manage the waste..

<sup>6</sup> Also commonly referred to as a "waste profile".

inspection. Other wastes may need additional testing due to the results of initial tests or due to direct observations.

The following Fingerprint Analyses may be employed:

- **Physical Description** is observed for every waste to determine its general properties (color, physical appearance, texture, presence or absence of odors, presence of free liquids).
- **pH Screen** measures the corrosive nature of the waste, but commonly is not used for organic wastes, oily waste, or other wastes which are not water soluble.
- **Water Reactivity Screen (Water Compatibility)** determines whether the waste has a potential to vigorously react with water to form gases or other byproducts or significant heat. The reactivity screen is not used for wastes that are already in contact with excess water or if sufficient analytical data indicate no potential reactivity with water.
- **Flammability Potential Screen** can be applied to all waste liquids, semi-solids or solids. It is used to identify obvious inconsistencies, such as a flammable sludge substituted for an inert solid. This test is not commonly performed on solids unless the waste contains free liquids.
- **Cyanides Screen** indicates whether the waste can produce hydrogen cyanide gas upon acidification below pH 2. It is not required if the pH of the waste is < 5.0, or if the waste is not water-soluble.
- **Sulfide Screen** indicates whether the waste has the potential to produce hydrogen sulfide gas upon acidification below pH 2. It is not required if the pH of the waste is < 5.0, or if the waste is not water-soluble.
- **Radioactive Screen** ensures compliance with Waste Acceptance Criteria, and is only used when radioactivity may be present.

#### 8.6.7 SUPPLEMENTAL ANALYSES

USEN decides whether supplemental analyses are required for a particular waste based upon:

- Results of Fingerprint Analyses;
- Knowledge of generator and/or waste-generating process;
- Results of pre-acceptance evaluation;
- Waste codes.

Further testing will be conducted if inspections or fingerprint tests indicate inconsistencies with pre-acceptance analytical results, or if there is suspicion the waste composition has changed. USEN may obtain supplemental analyses to:

- Confirm and/or augment existing information on the waste;
- Further identify a waste;
- Further ensure the appropriate treatment, storage, or disposal processes can be used, or
- To provide operations information used for control of these processes.

Supplemental Analyses may also be performed on any waste sample, when necessary for pre-acceptance purposes, if the generator-supplied information is not sufficient.

The parameters which constitute Supplemental Analyses are described in Attachment 4 and primarily consist of standard analytical techniques (recognized by the EPA, ASTM or other authoritative sources).

USEN may use other standard analytical techniques and unique analyses (developed by USEN) to monitor operating equipment or treatment techniques where this use does not impact regulatory decisions or reporting. These supplemental tests are not specifically covered by this WAP. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the facility unless required by changes in the waste's character. Facility Management may waive specific tests if performing the analysis presents a safety hazard in the laboratory (e.g., organic extraction on an oxidizing waste) or if the characteristic or constituent (e.g.; Underlying Hazardous Constituents) are not reasonably expected to be in the waste. See Attachment 5 for a list of other techniques and analyses.

## **8.7.0 GENERAL SAMPLING AND ANALYSIS ISSUES**

### **8.7.1 Disposition of Samples**

Samples of waste streams are commonly disposed in the same fashion as the waste stream itself. If, for example, a waste is approved for stabilization and landfilling, the sample may be stabilized in the lab, in containers, or mix bins and subsequently disposed. Samples received which are unauthorized for management on-site are typically returned to the generator (or representative) or aggregated (under the provisions of 40 CFR §262.34) and sent off-site to an authorized facility for subsequent management. To facilitate sample management, samples approved for the same management processes may be consolidated (e.g.; in tanks or containers) and managed under the provisions of 40 CFR §262.34. Should samples arrive on-site from an identified generator, but without proper waste identification, USEN will contact the generator to identify the associated waste and appropriate hazardous waste codes, if any. If sample identity cannot be resolved, USEN will return the sample to the generator, or manage the sample as on-site generated waste for the characteristics/contaminants reasonably expected.

### **8.7.2 Sampling Safety Precautions**

Per the USEN Health and Safety Plan, personnel wear personal protective equipment. Load receipt personnel check the manifest or other shipping or pre-acceptance information to be familiar with the material and ensure necessary precautions are taken. Pre-acceptance reviews may result in specific requirements for personal protective equipment.

### **8.7.3 Remote Project Sampling and/or Analysis**

In cases where USEN directs off-site sampling or analysis to assure that a waste meets Waste Acceptance Criteria, USEN will instruct off-site personnel in the requirements of this WAP, or a company representative will be present to assure compliance with the WAP.

### **8.7.4 Interim Processing Loads**

Following treatment, the treated waste is sent to the landfill for final disposal and staged in the landfill while applicable verification testing is performed (See Section 8.6.2). A maximum of 50 batches may be staged at any point in time for up to 10 working days.

USEN may submit an extension request to the Nevada Department of Environmental Protection (NvDEP) if additional time is needed to verify treatment due to sampling and analysis requirements (e.g., samples need to be sent offsite for analysis and results are not expected within 10 working days).

Wastes treated and staged in an interim processing area that do not meet treatment standards may be re-sampled for verification analyses. If the re-sampling indicates the waste meets treatment standards, the waste will be disposed. If re-sampling indicates the material does not meet treatment standards, the waste will be retrieved for further treatment.

#### **8.7.5 Lab Packs**

Lab pack materials which are proposed to be managed on-site are inventoried by the generator, and the inventories are sent to USEN for review for incompatibility of contained materials, land disposal restrictions, and use of appropriate packing materials. Since lab packs contain many small quantities of individual materials, they are not sampled, but are inspected to ensure adequate packing material is present and the drum is at least 90% full (if destined for direct landfilling). If necessary, absorbent material may be added until the lab pack is 90% full.

#### **8.7.6 Management of Residues<sup>7</sup>**

Waste residues and other miscellaneous equipment or debris originating from on-site management areas or activities may be characterized and managed as on-site-generated wastes. If on-site-generated waste is derived from a specific identifiable waste, it will be managed in accordance with the approved management conditions for that waste (e.g.; a spill of F002 material is managed as F002). If precluded by permit, regulation, or operational conditions, the waste may be subject to alternative management, as appropriate. Stabilization residues and other treatment residues will carry the waste code(s) of the last waste stream in the unit and will be managed in the same manner. For example, sludges removed from a stabilization mix bin which last received K061 wastes carry the K061 code and must meet appropriate treatment standards for K061 before being land disposed on-site. Residues from truck washouts and equipment washes conducted in the truck wash bay are managed as on-site-generated waste. Residues of "RCRA Empty" containers are not subject to this WAP since they are not solid or hazardous wastes.

#### **8.7.7 Non-Hazardous Wastes (NHW)**

USEN accepts wastes which are not hazardous as defined under RCRA. Although non-hazardous wastes are not subject to RCRA WAP requirements, USEN commonly uses this WAP to review non-hazardous wastes. Depending on the specific waste, specific sections of this WAP may not be applicable (e.g.; manifesting provisions, LDR verification of treated wastes, etc.).

#### **8.7.8 Protectively-Characterized Wastes**

Generators occasionally "protectively" characterize<sup>8</sup> wastes sent to off-site TSDFs for a variety of reasons (including public relations, legal reasons, financial incentives, lack of characterization experience, or lack of specific analytical information). When USEN collects specific analytical data or possesses process knowledge or regulatory knowledge, USEN may characterize waste during the pre-acceptance or load-arrival process. Prior to disposal, USEN will complete appropriate notifications, and/or prepare an appropriate LDR Certification, as necessary.

#### **8.8.9 Standard Profiles**

"Standard profiles" may be used for waste streams which are similar in physical or chemical characteristics, or which are generated by similar industries or processes. All

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<sup>7</sup> Residues is used to mean solids and liquids contained or generated in sumps, truck & equipment washing units, tank cleaning, equipment maintenance, repair, or replacement, pipes, valves, filters, filter media, miscellaneous samples, and personal protective equipment.

<sup>8</sup> "Over-characterization" means the practice of applying waste codes or UHCs to a waste which do not regulatorily apply and/or to the practice of not applying appropriate LDR Notifications or Certifications.



the wastes within a standard profile are generally managed at USEN using the same treatment process.

USEN reviews generator-provided information to evaluate whether an individual waste stream is sufficiently similar in physical and/or chemical characteristics to an established standard profile. The specific waste stream information must fall within the standard profile representative ranges in order to incorporate that waste stream into the standard profile. Specific candidate waste streams which conform to an existing approved standard profile will be managed under the waste management decision for that standard profile.

#### **8.7.10 Trans-Shipped Wastes**

Waste destined for other facilities may not be subject to this WAP since they will be subject to the waste analysis plan of the facility to which they will be forwarded. For proper segregation, the materials will be segregated into areas appropriate to the DOT Hazardous Class. For materials received at another USE affiliate company and subsequently shipped to the USEN Facility, the shipping facility will transmit the relevant analytical information to USEN for use in the pre-acceptance or load arrival review programs, as appropriate.

#### **8.7.11 Changes in Rules and Procedures**

References are made throughout this plan to regulations promulgated by the EPA regarding waste analysis requirements for hazardous waste management facilities. These requirements are generally found in 40 CFR Part 260 to 264, which has been adopted by reference in the rules of the Nevada Division of Environmental Protection (NvDEP). Unless otherwise specified herein, cited federal regulations have been adopted by reference by the NvDEP.

If underlying EPA regulations change, USEN will create a written protocol specifying the new testing and frequency requirements prior to processing regulated waste. USEN may also periodically revise the WAP to reflect scientific advances, additional land ban requirements, and/or other pertinent factors. If WAP revisions are necessary because of a new regulatory rule, the revisions will be submitted for NvDEP approval within 90 days of the regulatory change.

#### **8.7.12 Special Procedures for CAMU-eligible Wastes**

For each CAMU remediation waste proposed for acceptance, USEN will submit a CAMU-eligible waste stream information package for review by the Director unless exempted as provided below. The information package will document that:

1. The designation of CAMU-eligible waste has been performed by a duly authorized agency,
2. Principal hazardous constituents have been identified and are required to be treated to meet any of the standards referenced in 40 CFR §264.555 (a) (2),
3. The CAMU-eligible waste designating authority provided a public notice and an opportunity for public comment for both the CAMU designation and the placement of the CAMU in an off-site permitted hazardous waste landfill,
4. The approval is specific to a single remediation,
5. All information provided by the person seeking approval (the waste generator) to the duly authorized agency making the CAMU-eligible waste designation has been included in the information package.

For each CAMU-eligible waste proposed for acceptance, the Director and persons on the USEN mailing list will be notified of USEN's intent to receive CAMU-eligible wastes. This notification shall include the source of the remediation waste, the principal hazardous constituents in the waste, and the treatment requirements. The mailing list notice will be sent within 7 days of the request to the Director and will state that comments or



objections to receipt of the waste may be submitted to the Director within 15 days of the notice. Proof of the mailing list notification will be submitted to the Director within seven (7) days of completion.

USEN must comply with 40 CFR § 268.7(b)(4) except the certification must state the CAMU wastes meet the referenced treatment requirements at 40 CFR § 264.555(a)(2). USEN must dispose of all CAMU-eligible wastes in permitted landfill cells only. Prior to disposal, all CAMU-eligible wastes must meet one of the standards as discussed in 40 CFR § 264.555(a)(2)(i), (ii), or (iii).

The Permittee may not receive any CAMU-eligible waste until written approval is received from the Director. The Director may take a 30-day review period, with an optional 30-day extension, from the date of receipt of the request from USEN.

The Director may object to USEN's acceptance of any specific CAMU-eligible waste stream. If such written objection is issued, USEN may not receive the specific CAMU-eligible waste stream. If at the end of the review period the Director has not notified USEN that he or she has chosen not to object, USEN may not receive the specific CAMU-eligible waste stream until the objection has been resolved, or USEN obtains a permit modification specifically authorizing receipt of the specific CAMU-eligible waste stream.

As part of the permit modification process, the Director may modify, reduce, or eliminate the notification requirements described in this section of the WAP as they apply to specific categories of CAMU-eligible waste, based on minimal risk.

### **8.8.0 PROCESS OPERATIONS**

During movement of a waste within the facility, changes in its characteristics may occur. These changes may make the waste subject to additional inspection, sampling, and analysis to determine appropriate handling and management of the waste. Many of the analyses needed for the treatment, storage, and/or disposal functions are performed during incoming shipment identification and are not repeated unless waste characteristics may have significantly changed during storage or processing or new information is necessary for the safe management of the waste.

Existing and anticipated process operations at the facility, for which current and periodic sampling and analyses are important, include the following:

- ☐ Storage;
- ☐ Treatment; and
- ☐ Disposal

The analytical procedures for each of these processes are described separately below.

#### **8.8.1 STORAGE**

Before waste is placed into storage USEN assesses the compatibility of the waste with wastes already in storage.

##### **8.8.1.1 Liquid Storage / Transfer**

Liquid wastes may be transferred from containers to tanks or to trucks although a waste may be fed directly to the designated treatment unit (e.g.; stabilization tank). Upon arrival, liquid waste will be tested as specified for waste identification and commingled waste compatibility test, as needed to assure safe storage. If a liquid load is exempted from sampling, the waste will be segregated from other wastes based on its compatibility class.

#### **8.8.1.2 Containerized Storage**

Using the predominant hazard classification on incoming containerized waste, a storage area will be designated to insure incompatible waste segregation.

Based on the initial hazard determination made by the generator on the WPQ and/or the final identification of the waste shipment, containerized waste will typically be segregated in the following manner: flammable, corrosive, and oxidizing waste materials will be separated from incompatible materials or stored in separate areas. Wastes are separated/maintained in separate storage areas until they are treated, transferred, or disposed.

#### **8.8.1.3 Special Requirements for Ignitable or Reactive Wastes**

Ignitable or reactive wastes will not be stored within 15 meters (50') of the facility's property line.

#### **8.8.1.4 Special Requirements for Incompatible Wastes**

In accordance with the requirements of 40 CFR §264.177, USEN has developed a program to prevent the accidental commingling or reaction of incompatible wastes, including:

- Proper identification of the hazardous characteristics of incoming waste streams during the waste stream approval process.
- Proper segregation of incompatible materials.
  - Incompatible wastes or materials will not be stored or placed in the same container.
  - Wastes will be segregated according to the designated compatibility group, and placed so as to prevent waste-to-waste contact that could lead to a reaction.
- Proper identification of the potential for incompatible reactions through the waste stream verification program including testing of incoming shipments in accordance with the WAP.

Compatibility between the waste and storage container will be ensured by placing waste into clean containers; or through use of technical knowledge of the waste and containers

### **8.8.2 TREATMENT AND TRANSFER OPERATIONS**

This section discusses analyses for hazardous waste treatment operations and off-site transfer of material for combustion.

The treatment sampling & analysis program may be divided into three (3) segments:

- Pre-treatment analyses confirm the waste falls within the selected process design and allows adjustment of the process operational conditions during treatment;
- In-process analyses to monitor treatment progress; and
- Post-treatment analyses to confirm successful treatment and to determine characteristics of the process effluent. Process residues for LDR wastes will be analyzed and/or evaluated, as needed, against the appropriate treatment

standards or prohibitions. Any residues or waste sent off-site for disposal or further management will have the appropriate notification and/or certification form (in accordance with 40 CFR Part 268).

#### **8.8.2.1 Bulking for Treatment or Off-Site Shipment**

Wastes aggregated for consolidated treatment or disposal are not typically identified during the pre-acceptance process. Instead, these wastes are typically reviewed upon receipt to determine appropriate waste characterization, and to develop treatment recipes. Liquid or solid wastes may be bulked for on-site consolidated treatment or disposal. In-process analyses may be performed to assure the aggregation/bulking of wastes does not create a reactivity or incompatibility issue and to confirm that the resultant waste is within the receiving facility's specifications. Grab samples are placed in a bucket or other container and observed to ensure no negative reaction occurs. Incidental mixing of wastes that occurs when several waste streams are bulked is not considered blending.

Wastes may also be aggregated for off-site delivery, for example to off-site incinerators, lime kilns or similar operations. Pre-acceptance analyses may be used to determine the acceptability of each waste stream as a fuel or heat source. Additional analysis for heat value may be required for materials destined for supplemental fuel. Bulking in this case typically involves pumping containerized liquid / semi-solid wastes into tank trucks or other large containers for delivery off-site. Wastes containing sufficient heating values for combustion are bulked with other suitable waste. Post-treatment analyses may be used to confirm that the bulked material is suitable for use as fuels or for incineration. The resultant bulked materials are used to provide heat content for combustion processes (either as hazardous waste derived fuel (HWDF) or as a hazardous waste, as applicable).

#### **8.8.2.2 Specific Treatment Technologies**

Federal regulations define distinct treatment technologies including Stabilization Chemical Oxidation, Chemical Reduction, Deactivation, Macro/Micro Encapsulation, Neutralization, Adsorption, Bio-remediation, Evaporation, and Precipitation.

**Stabilization** is defined by 40 CFR §268.42 as stabilization with the following reagents (or waste reagents) or combinations of reagents (1) Portland Cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust). This definition does not preclude the addition of reagents (e.g., iron salts, silicates, and clays) designed to enhance the set/cure time and/or compressive strength, or to reduce leachability of hazardous constituents. A mix design is developed prior to the treatment of a waste stream. Stabilization may be performed within Mix Bin Tanks or Containers. Treatment may occur with the Container Building, at the outdoor stabilization unit, or within containers. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP

**Chemical Oxidation** is a treatment process targeted primarily at organic constituents, (e.g., toluene and benzene) but may be used for inorganic constituents as well (e.g., cyanides and heavy metals such as mercury). An organic or inorganic species is oxidized when its respective chemical oxidation number increases (i.e., the compound loses electrons). Consistent with 40 CFR 268.42, the following oxidation reagents (or waste reagents) may be used in part or whole: (1) Hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency. An approved mix design is formulated and tested prior to treatment.

Chemical oxidation may be performed within Mix Bin Tanks or Containers. Treatment is performed to meet EPA LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Chemical reduction or redox** occurs when the targeted component/constituent atoms change as a resultant transfer of electrons from one chemical species to another. The chemical oxidation number for the targeted components decreases (i.e., gains electrons) when the target constituents are reduced. Conversely, the reducing reagents used in this process lose electrons or become oxidized. Derived from 40 CFR 268.42, the following reducing reagents (or waste reagents) may be used in whole or part: (1) Sulfur dioxide; (2) sodium, potassium, (salts), or other alkali salts or sulfites, bisulfites, metabisulfites and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency. An approved mix design is formulated and tested prior to treatment.

Chemical reduction may be performed within Mix Bin Tanks or Containers. Treatment is performed to meet EPA LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Deactivation** treats wastes that exhibit the characteristics of ignitability, corrosivity, and/or reactivity. Appropriate use of this treatment technology is determined during the pre-acceptance process. A mix design is developed prior to the treatment of the waste stream. Deactivation may be performed within Mix Bin Tanks or Containers. Treatment is performed to meet applicable LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Macro-encapsulation** is a confining or immobilization technology used to treat all types of hazardous debris independent of the hazardous constituents involved (with the exception of cyanide-reactive debris). The macro-encapsulation process encases the debris to provide a physical barrier that prevents/minimizes potential leaching of hazardous constituents from the debris. The encapsulating barrier does not need to chemically bond to either the debris or hazardous constituents. Macro-encapsulation is defined in 40 CFR §268.42, Table 1 as the application of surface coating materials such as polymeric organics (e.g., resins, plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Inert non-waste material, or waste meeting appropriate LDRs, may be used for filler material.

Macro-encapsulation does not require specific testing for LDR constituent standards. This waste is treated at the facility to meet all requirements of the LDR treatment technology standard and is certified by USEI to meet these requirements prior to disposal. Macro-encapsulation may be performed at the Container Building or within the landfill.

The performance standard for the macro-encapsulation technology is described under 40 CFR Part §268.45, Table 1, entitled "Alternative Treatment Standards for Hazardous Debris". This standard states that "Encapsulating material must completely encapsulate debris and be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other wastes, microbes)."

**Micro-encapsulation** is confining or immobilization technology that requires the stabilization of the debris with the following types of reagents (or waste reagents)

such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust) (3) Additional reagents (e.g., iron salts, silicates, carbon, polymers or clays) as appropriate.

Micro encapsulation does not require specific testing for LDR constituent standards. Following the treatment process, the micro-encapsulated debris is visually inspected. Micro encapsulation may be conducted in tanks or containers. The performance standard for the micro-encapsulation technology is described under 40 CFR Part §268.45, Table 1 titled "Alternative Treatment Standards for Hazardous Debris". This standard states that "Leachability of contaminants must be reduced".

**Neutralization** renders corrosive matrices non-corrosive. According to 40 CFR 268.42, the following reagents (or waste reagents) in part or whole may be used for neutralization: (1) Acids; (2) Bases; or (3) water (including wastewater's) resulting in a pH greater than 2 but less than 12.5 measured in the aqueous residuals. An approved mix design will be formulated and tested before waste is treated by neutralization.

Neutralization may be performed within Mix Bin Tanks or Containers. Treatment is performed to meet EPA LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Precipitation** is the process by which regulated metals and/or inorganics are precipitated out as insoluble precipitates of oxides, hydroxides, carbonates, sulfates, chlorides, fluorides, or phosphates. This process entails adjusting the pH of the waste matrix between 9 and 11. This pH range is ideal for hydroxide precipitation. An alternative to this common standard practice is sulfide precipitation. Sulfide precipitates are less soluble and non-amphoteric (less pH dependent than hydroxyl precipitates). However, caution must be employed to ensure hydrogen sulfide is not released at harmful levels by maintaining a pH greater than 8 throughout the treatment process. Based on 40 CFR 268.42, the following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulation or similar reagents/processes that pertain to precipitation are not precluded from use. An approved mix design will be tested prior to treatment.

Precipitation may be performed within Mix Bin Tanks or Containers. Treatment is performed to meet EPA LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Adsorption** is the use of an appropriate reagent (e.g. activated carbon or treated clay) to remove chemical components from aqueous or compressed gas waste streams. It is most commonly employed for the removal of organic compounds, although some inorganic constituents are effectively removed as well. This process is achieved through physical, chemical, and electrostatic interactions between the waste material and the adsorbent media. Pursuant to 40 CFR 268.42, Total Organic Carbon can be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues.

Adsorption primarily occurs in tanks, however it may be performed within Mix Bins, Tanks or Containers. Treatment is performed to meet EPA LDR standards. Sampling, analysis verification of the treatment effectiveness and frequency of testing follows the guidelines presented in this WAP.

**Evaporation** uses natural conditions to remove water from wastes. At USEN this takes place at the Evaporation Pad. The Evaporation Pad reduces the volume of waste by solar evaporation of liquids. Pre-acceptance evaluation and waste receipt controls are also used as part of the waste process controls. Wastes designated for placement in the Evaporation Pad are predominantly aqueous waste. No wastes subject to 40 CFR Part 264, Subpart CC management requirements are accepted for management in this unit.

**Bio-remediation** is the use of biological mechanisms to destroy, transform, or immobilize environmental contaminants. Bio-remediation is normally conducted in-situ, however, there may be scenarios where it would be conducted within tanks or containers.

#### **8.8.2.3 Treating Wastes Containing Free Liquids**

When wastes contain free liquids, the wastes are treated to solidify free liquids. Free liquids may be detected with a paint filter test or by direct observation. If free liquids are observed, USEN can conclude the waste has free liquids without testing. Direct observation may also be used to determine that free liquids are not present and that a paint filter test is not needed.

If free standing liquids are present, they are:

- Removed by vacuum, decanting, or bailing,
- stabilized by placing a stabilization agent in the container,
- stabilized by placing the contents into a stabilization tank and crushing or shredding the container, or
- stabilized by shredding the container and its contents and stabilizing the shredded material.

If free liquids are removed, any remaining material containing free liquids will be stabilized using appropriate reagents prior to landfilling.

Bulk loads, which otherwise do not contain significant quantities of free standing liquids may be "spot stabilized" in order to meet the requirements of 40 CFR §264.314(a)(2) as is sometimes necessary for otherwise dry wastes which have received visible precipitation during transportation. Stabilized wastes will be tested using the Paint Filter Liquids test if the presence of free liquids is still suspected. If free-standing liquids are not observed, then the waste may be landfilled directly. If wastes have been inspected and/or tested and incidental water is detected during the off-loading process, free liquids will be stabilized *in situ*.

#### **8.8.2.2.6 Treating Wastes to an Approved Delisting Requirement**

Wastes treated to an approved delisting requirement shall be sampled and analyzed in accordance with the specific delisting requirements. Such sampling and analysis may be documented by the regulated delisting facility / activity.

#### **8.8.2.2.4 Universal Waste**

USEN is a Destination Facility<sup>9</sup> for Universal Waste. Universal Waste managed at a destination facility is subject to all applicable requirements of 40 CFR Parts 264, 265, 266, 268, 270, and 124.

#### **8.8.2.2.5 Hazardous Debris Treatment**

USEN manages RCRA Hazardous debris according to the treatment standards specified in 40 CFR Part 268.45. As stated in 40 CFR Part 268.2:

"Debris means solid material exceeding a 60 mm particle size that is intended for disposal and that is: A manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: Any material for which a specific treatment standard is provided in Subpart D, Part 268, namely lead acid batteries, cadmium batteries, and radioactive lead solids; Process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and Intact containers of hazardous waste that are not ruptured and that retain at least 75% of their original volume. A mixture of debris that has not been treated to the standards provided by Sec. 268.45 and other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection."

RCRA Hazardous Debris is debris that contains a hazardous waste specified in 40 CFR Part 261. The land disposal restrictions (LDR) of Part 268 require that certain wastes meet treatment standards before land disposal. Treatment standards are either concentration-based or technology-based. A waste with a concentration-based standard may be treated to meet LDR using any effective treatment method (except impermissible dilution). A technology-based standard requires treatment by the specified technology. Appropriate technologies for treatment of hazardous waste are identified as "Alternative Treatment Standards."

40 CFR Part 268.45 outlines alternative treatment standards for hazardous debris. If a waste stream meets the debris definition, it may be treated using a technology based treatment standard, and land disposed in a Subtitle C landfill. Technology based treatment standards authorized for debris treatment include, extraction, destruction, and immobilization technologies. USEN currently performs the following immobilization treatment for hazardous debris:

**Microencapsulation** – As defined in 40 CFR Part 268.45, Table 1, microencapsulation is "Stabilization of the debris with the following reagents (or waste reagents) such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) lime/ pozzolans (e.g., fly ash and cement kiln dust). Reagents (e.g., iron salts, silicates, and clays) may be added to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents."

Microencapsulation treatment is performed in the indoor or outdoor stabilization unit.

**Macroencapsulation** – As defined in 40 CFR Part 268.45, Table 1 macroencapsulation is "Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media."

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<sup>9</sup> As defined at 40 CFR §273.9.



In some cases, it is advantageous to macroencapsulate debris subject to this standard in the landfill. The debris is placed in a suitable final location within the landfill, and macro-encapsulation is performed in-place with the selected reagent(s) or materials (e.g.; HDPE, LDPE, Portland cement, etc).

Hazardous debris that has been treated by immobilization technologies remains hazardous, but meets the alternative treatment standards. Immobilized hazardous debris is disposed in the landfill.

#### **8.8.2.2.6 LOW TEMPERATURE THERMAL DESORPTION (LTTD)**

Waste containing organic constituents (typically > 500 ppm) are treated in the LTTD units to desorb and recover the organic materials. The resultant treated solid waste is tested to ensure it meets appropriate LDR treatment standards and, if further stabilization is required, the material is transferred to the waste stabilization process described above. If the waste meets appropriate LDR standards after treatment, the material can be disposed on-site. Incidental mixing of wastes that occurs when several waste streams are bulked or when trans-loading waste is not considered blending or treatment.

Pre-treatment analyses consist of tests or analytical reviews to insure the wastes can be treated to meet the applicable treatment requirement. A temperature is specified which assures that organic constituents are desorbed. In-process analyses are generally not required. Post-treatment analyses are performed to ensure restricted wastes meet applicable treatment standards. As with other wastes undergoing treatment, treatment efficiency for wastes from the same source is verified initially and then again at intervals of less than a year.

#### **8.8.3 LANDFILL DISPOSAL**

USEN's sampling & analyses program is an integral part of this phase of operation as the results serve to evaluate compliance with permit constraints and land disposal restrictions, and determine safety constraints. Wastes destined for direct landfill disposal generally require only pre-disposal analyses. Wastes to be landfilled are typically subject to the Fingerprint Analyses for pre-acceptance samples and incoming waste shipments.

#### **8.9.0 QUALITY ASSURANCE/QUALITY CONTROL**

The following quality assurance/quality control (QA/QC) information for this facility is being provided as required by 40 CFR §270.30(e) and in accordance with the following EPA guidance documents:

- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846*, Third Edition, Final Update I, U.S. EPA, Office of Solid Waste, Washington, DC, July 1992, Chapter One, as updated
- *Handbook for Analytical Quality Control in Water and Wastewater Laboratories*, EPA 600/4-79-019, March 1979, US Environmental Protection Agency (USEPA), Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, OH.

Quality protocols are applicable to both sampling and analytical techniques. This section does not provide specific QA/QC performance standards for individual sampling and analysis techniques. Such specifics are defined in the USEN Laboratory QA/QC Plan. The specific performance standards are dynamic and are revised as warranted to reflect technological advances in sampling and analytical techniques. These performance standards are described in policies maintained and used at USEN. USEN has developed a program of analytical quality practices and procedures to ensure that precision and accuracy are maintained. These programs include use of control standards, duplicates, spikes, and blanks. Third party laboratories employed by USEN demonstrate quality control practices that are comparable to USEN's practices. Good laboratory practices which encompass sampling, sample handling, housekeeping and safety are required by specific USEN procedures.



Sampling and analytical quality practices help ensure the data obtained are precise and accurate for the waste stream being sampled. The analytical results are used by facility management to decide whether or not to accept a particular waste and, upon acceptance, to determine the appropriate method of treatment, storage, and disposal. Results are also important to ensure that wastes are managed properly by the facility and that incompatible wastes are not inadvertently combined. The quality of these results are as important as the results themselves. Thus, the quality of the analytical data, the thoroughness and care with which the sampling and analyses are performed and reported, provides an important basis for day-to-day operational decisions.

**ATTACHMENT 1**  
**WPQ Form and Instructions**



### Disclaimer

This information was prepared by American Ecology Corporation. It is not legal advice, and may not be current. AEC is not a law firm, nor does it provide legal advice on specific State and Federal regulatory interpretations. Therefore, this information does not create, expressly or impliedly, an attorney-client relationship. This information is not a substitute for legal advice from an attorney licensed in the reader's state or country. AEC is not responsible for actions taken or not taken as a result of this information, nor for any errors or omissions it may contain.

Hazardous waste regulations are lengthy and complex, and this guidance is not intended to define all hazardous waste generator and disposal scenarios. For further guidance, please use the following link to access the Code of Federal Regulations:

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=%2Findex.tpl>

### Introduction

This guidance document helps customers prepare the US Ecology (USE) Waste Product Questionnaire (WPQ) that is used for waste stream review. A current copy of the WPQ is available from US Ecology's Customer Service Representatives or in electronic form from American Ecology's website at ([www.americanecology.com](http://www.americanecology.com)). For specific waste acceptance questions, please contact US Ecology's Customer Service team at one of the locations below:

US Ecology - Nevada	US Ecology- Idaho	US Ecology- Texas
PO Box 578	PO Box 400	PO Box 307
Hwy 95, 11 mi. South	20400 Lemley Road	3.5 mi. S. on Petronila Rd.
Beatty, NV. 89003	Grand View, ID. 83624	Robstown, TX. 78380
T- (800) 239-3943	T- (800) 274-1516	T- (800) 242-3209
T- (775) 553-2203	T- (208) 834-2275	T- (361) 387-3518
F- (775) 553-2742	F- (208) 834-2919	F- (361) 387-0794

### Section A- Customer Information:

Provide the Generator's name, facility address, and the mailing address (if different from facility address). Provide a technical contact name and telephone number for technical inquiries and resolution of off-spec (non-conforming waste) loads. Identify generator status as Industrial or Non-industrial if shipping waste to Texas. If the waste is state regulated (for example, Cal-Haz), provide the state EPA ID number.

Use 40 CFR § 261.5 and § 262.44 to determine EPA generator status. If the material is a RCRA hazardous waste, provide the Generator's EPA status (e.g. CESQG, SQG, LQG) and EPA ID number. Include the State EPA ID number if applicable. Texas Class 1 industrial non-hazardous wastes must have both EPA and Texas State ID numbers. An EPA ID number is not required for Conditionally Exempt Small Quantity Generators (CESQG) or for non-RCRA and/or non-hazardous wastes. Please use "N/A" for EPA ID numbers for Non Regulated/Non RCRA material and "CESQG" for Conditionally Exempt Small Quantity Generators.

Include the customer's National Industry Classification Code (NAICS). The following link provides the most current code list: <http://www.census.gov/epcd/www/naics.html>

If the billing company is different from the customer, provide the billing/broker information. If you wish electronic invoices, please provide the appropriate email address.

## Section B- Shipping Description

If the waste is not a "hazardous material" per Department of Transportation rules, enter "Non-DOT Regulated Waste Material"

If the waste is a hazardous material per DOT and RCRA regulations<sup>10</sup>, please:

1. Provide the Proper Shipping Name that will appear on the manifest<sup>11</sup>.
2. Provide the Hazard Class per DOT regulations.
3. Provide the UN or NA number per DOT regulations.
4. Provide the packing group per DOT regulations
5. Provide the reportable quantity (RQ), per DOT regulations, if applicable.

For all wastes:

6. Provide the container type(s) that will be used for shipments. Provide an estimated annual quantity and size of container in tons, yards, gallons, etc. If estimates are not known, please write "unknown".
7. Provide estimated frequency <sup>12</sup> of waste shipments.

## Section C- General Material & Regulatory Information:

1. Provide the common name for this waste (e.g. lead contaminated soil, bag house dust, etc.).
2. Describe the process that generated the waste, include additional sheets as necessary. Please provide as much information as possible to enable US Ecology to identify safety hazards and determine if this process is specifically "listed" under RCRA, or if the waste may contain characteristic wastes<sup>13</sup>.
3. Describe the physical appearance of the waste (e.g., soil with scrap metal) to enable US Ecology to perform a visual confirmation.<sup>14</sup>
4. Describe any odor that the waste may have.
5. Enter the source of knowledge used to determine the waste's regulatory status<sup>15</sup>. Check all boxes that apply. Please attach the appropriate information, such as lab results and/or Material Safety Data Sheets (MSDS).

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<sup>10</sup> Refer to the Department of Transportation regulations found in 49 CFR §105 through §180, and RCRA 40 CFR § 262, Subpart B- Manifesting

<sup>11</sup> Refer to 49 CFR §172.101- Hazardous Materials Table, and 49 CFR §172.101 Appendix A for reportable quantities (RQ's).

<sup>12</sup> This information enables USE to determine if the profile will need to be renewed on its anniversary date, which USE may be required to do by the facility permit.

<sup>13</sup> Refer to 40 CFR §261- Identification and Listing of Hazardous Waste, and §262 for Standards Applicable to Generators of Hazardous Waste

<sup>14</sup> Any material that does not reasonably match the physical description will be placed on hold and off-loading delayed while US Ecology contacts the broker/generator to resolve the discrepancy.

<sup>15</sup> Refer to 40 CFR §262.11- Hazardous Waste Determinations.

### **Notes on Other Information in Section C**

- 40 CFR §264.1080 and §265.1080- Subpart CC regulate waste material greater than 500 ppmw VOC's managed in tanks, containers and surface impoundments.
- 40 CFR §61.340 subpart FF clean air rules contain the Benzene NESHAP regulations. Waste generated from chemical manufacturing, coke-by-product recovery plants, petroleum refineries or treaters of such waste are subject to subpart FF requirements.
- US EPA waste codes are found in 40 CFR Part 261-Identification And Listing Of Hazardous Waste
- 40 CFR §268 covers Land Disposal Restrictions. If wastes are subject to LDRs, please provide a completed LDR form, which is available from your customer service representative or on-line at ([www.americanecology.com](http://www.americanecology.com))
- 40 CFR §268.2 defines US EPA's "Treatment sub-categories" for wastes requiring LDR treatment.
- 40 CFR §268.2 and §268.40- Treatment Standards for Hazardous Wastes define "Underlying Hazardous Constituents" (UHCs).
- US EPA defines "treatment" of hazardous waste in 40 CFR §260.10 – Definitions.
- Subpart XX standards apply to ethylene production facilities
- 40 CFR §268.2(k) provides EPA's definition of soils subject to the LDRs under 40 CFR §268.49- Alternate LDR Treatment Standards for Contaminated Soils<sup>16</sup>.
- For form codes, source codes and management codes, see EPA's Hazardous Waste Report Instructions and Forms at:  
<http://www.epa.gov/epaoswer/hazwaste/data/br05/forms.htm>

### **Section D- Material Composition (Physical/Chemical)**

Describe the physical nature of the material and identify important chemical constituents. For example, if a waste is primarily soil and debris and is contaminated with gasoline, then describe the percentage and range of soil and debris and quantify the concentrations of gasoline compounds measured in the mixture.

The description should be as informative as possible, for example "brown, clay soil" and "debris such as PPE, rocks, wood, metal, and pipes." The sum of the percentages must equal or exceed 100%.

Chemical concentrations must include appropriate units of measure and differentiate TCLP results from Total results. List the typical value or range of concentrations. For example: Benzene "typical value"- 50 mg/l Total and range 30-100. If additional space is needed, please attach a list. Please list all TRI reportable components.

### **Sections E- Does the waste exhibit or contain the following:**

- The EPA classifies oxidizers with an EPA waste code of D001. The correct DOT reference for oxidizers is 49 CFR §173.127. In general if the material has a DOT hazard class of 5.1, it is an EPA waste code of D001.
- Is the waste explosive?\* See 40 CFR §261.23

<sup>16</sup> Wastes may be directly disposed if all the constituents are within 10 times the value found in the Universal Treatment Standard. In addition PCBs alone or in combination with other Halogenated Organic Compounds (Appendix III in 40 CFR §268) may be disposed without treatment if less than 1,000 ppm. See §268.32 - Soils Containing Metals And Containing PCB's - for guidance.

- Does the waste contain organic peroxide?\*
- Is the waste shock sensitive?\* See 40 CFR §261.23
- Does the waste contain tires? \*
- Is the waste pyrophoric?\* See 40 CFR §261.21 and 23
- Is the waste Radioactive? \*\*
- Is the waste Exempt radioactive material? \*\*
- Does the waste contain Halogenated Organic Compounds? See §268 Appendix III.
- Does the waste contain reactive sulfides? If "Yes" provide the concentration in ppm- See 261.23
- Does the waste contain reactive cyanides? If "Yes" provide the concentration in ppm-. See 261.23. If the material contains reactive cyanides that cause the material to be classified as waste code D003, then the amenable portion of the cyanides will need to be determined. Amenable cyanides are amenable to treatment by chlorination. Prior to land disposal, both the total and the amenable cyanides must meet the LDR treatment standards (i.e. 590 ppm and 30 ppm, respectively).
- Is the waste reactive to air or water?\* See 40 CFR 261.23
- Is the waste thermally unstable?\* See 40 CFR 261.21 and 23
- Is the waste TSCA PCB regulated? \*\*\*
- Is the waste medical/infectious? \*
- Are there compressed gasses? \*\*\*\*

\* If the answer to this question is "Yes," please contact your customer service representative for guidance.

\*\* If the answer to this question is "Yes" and you are shipping to US Ecology's Idaho facility, please complete the Waste Acceptance Criteria (WAC) addendum and submit to your customer service representative for approval.

\*\*\* Consult your US Ecology customer service representative for guidance on handling RCRA/TSCA wastes.

\*\*\*\* Generally cylinders containing compressed gasses are not acceptable at US Ecology facilities. However empty cylinders that no longer have an intact valve may be acceptable. Different states regulate "aerosol cans" differently. Please contact your customer service representative for guidance.

## Section F- Physical Properties:

1. Is the waste flashpoint <140° F? See 40 CFR §261.2 If "Yes", provide the flash point.
2. Provide the typical pH range. See 40 CFR §261.22
3. If the material is a solid, determine whether or not the material has the potential for the presence of incidental liquids due to transport (rain, etc.) or other reasons.
4. Does the waste pass the paint filter test when shipped?

## Section G- Certification:

If the material is:

- non-RCRA and may be disposed of without further treatment (assume non-RCRA liquids are solidified prior to landfill) mark the box "Yes" In Texas a non-RCRA liquid industrial waste requires "treatment" prior to land disposal; or
- a restricted waste meeting LDR, mark the box "Yes"; and submit the appropriate LDR signed certification with the first shipment.
- A restricted waste needing treatment prior to landfill, mark the box "No" and submit the appropriate LDR.

**ATTACHMENT 2**

**Land Disposal Restriction (LDR) CERTIFICATION FORM**

**ATTACHMENT 3**  
**LDR FORM**  
**IDENTIFIES TREATMENT NEEDED**



**ATTACHMENT 4**  
**SUPPLEMENTAL ANALYSES**

Supplemental Analyses identify wastes, provide safety information, and/or provide process control information. The results of these analyses provide additional confidence concerning the proper management methods. Most of the parameters, which constitute the Supplemental Analyses use the most recent standard analytical techniques recognized by EPA, ASTM and other authoritative sources or have been developed by US Ecology (USE) through its operating experience for general waste identification and/or proper waste management. Standard supplemental analytical parameters are identified in the following table; the referenced method or equivalent standard method will be used for analyses of these parameters.

<b>Sample Work Up Techniques:</b>	
<b>Method</b>	<b>Reference</b>
<b>General Extractions</b>	
EP Toxicity	1-1310A
TCLP	1-1311
<b>Metals Acid Digestion</b>	
Flame atomic absorption spectroscopy (AAS) or inductively coupled plasma spectroscopy (ICP)	1-3005, 3010
Microwave assisted	1-3015, 2-3030, 3-D4309, D5258
Graphite furnace atomic absorption spectroscopy (GFDA)	1-3020
Oils, greases, or waxes	1-3031
Dissolution procedure for oils, greases, waxes	1-3040
Sludges, soils, and oils	1-3050
Microwave assisted	1-3051
Alkaline digestion	1-3060
Parr acid bomb digestion	3-E886, E926
<b>Organic Extractions and Cleanups</b>	
Extraction Procedure for Oily Wastes	1-1330
Organic Extraction and Sample Preparation	1-3500
Waste Dilution	1-3580, 3585
Separatory funnel liquid-liquid extraction	1-3510
Continuous liquid-liquid extraction	1-3520
Soxhlet extraction	1-3540, 3541
Sonication extraction	1-3550
Purge and Trap	1-5030
Solid phase extraction (SPE)	1-3535
Hexadecane Extraction and Screening of purgeable organics	1-3820
Alumina cleanup	1-3610, 3611
Florisil cleanup	1-3620
Silica gel cleanup	1-3630
Gel-permeation cleanup	1-3640
Acid-base partition cleanup	1-3650
Sulfur cleanup	1-3660
Sulfuric acid / permanganate cleanup	1-3665
<b>Inorganic analytical methods:</b>	
Inductively coupled plasma atomic emission spectroscopy	1-6010, 6020
Antimony	
Atomic absorption, direct aspiration method	1-7040, 4-204.1
Atomic absorption, furnace method	1-7041, 4-204.2
Arsenic	
Atomic absorption, furnace method	1-7060, 4-206.2

Sample Work Up Techniques:		Reference
Method		
Atomic absorption, gaseous hydride method		1-70614-206.3
Barium		
Atomic absorption, direct aspiration method		1-7080, 4-208.1
Atomic absorption, furnace method		1-7081, 4-208.2
Beryllium		
Atomic absorption, direct aspiration method		1-70904-210.1
Atomic absorption, furnace method		1-7091, 4-210.2
Cadmium		
Atomic absorption, direct aspiration method		1-7130, 4-213.1
Atomic absorption, furnace method		1-7131, 4-213.2
Calcium		
Atomic absorption, direct aspiration method		1-7130, 4-213.1
Atomic absorption, furnace method		1-7131, 4-213.2
Chromium		
Atomic absorption, direct aspiration method		1-7190, 4-218.1
Atomic absorption, furnace method		1-7191, 4-218.2
Hexavalent chromium: Co-precipitation		1-7195
Hexavalent chromium: Colorimetric		1-7196, 2-3500CrD
Hexavalent chromium: Chelation-extraction		1-7197, 4-218.4
Hexavalent chromium: Diff. phase polarography		1-7198
Copper		
Atomic absorption, direct aspiration method		1-7210, 4-220.1
Atomic absorption, furnace method		1-7211, 4-220.2
Iron		
Atomic absorption, direct aspiration method		1-7380, 4-236.1
Atomic absorption, furnace method		1-7381, 4-236.2
Phenanthroline method (ferrous)		2-3500FeD
Lead		
Atomic absorption, direct aspiration method		1-7420, 4-239.1
Atomic absorption, furnace method		1-7421, 4-239.2
Magnesium		
Atomic absorption, direct aspiration method		1-7450, 4-242.1
Manganese		
Atomic absorption, direct aspiration method		1-7460, 4-243.1
Atomic absorption, furnace method		1-7461, 4-243.2
Mercury (manual cold-vapor technique)		
In liquid waste		1-7470
In solid or semisolid waste		1-7471
Nickel		
Atomic absorption, direct aspiration method		1-7520, 4-249.1
Atomic absorption, furnace method		1-7521, 4-249.2
Osmium		
Atomic absorption, direct aspiration method		1-7550
Atomic absorption, furnace method		1-7551
Selenium		
Atomic absorption, furnace method		1-7740, 4-270.2
Atomic absorption, gaseous hydride method		1-7741, 4-270.3
Atomic absorption, gaseous hydride method		1-7742, 4-206.3
Silver		
Atomic absorption, direct aspiration method		1-7760, 4-272.1
Atomic absorption, furnace method		1-7761, 4-272.2
Thallium		
Atomic absorption, direct aspiration method		1-7840, 4-279.1

Sample Work Up Techniques:		
Method		Reference
Atomic absorption, furnace method		1-7841, 4-279.2
Vanadium		
Atomic absorption, direct aspiration method		1-7910
Atomic absorption, furnace method		1-7911
Zinc		
Atomic absorption, direct aspiration method		1-7950, 4-289.1
Atomic absorption, furnace method		1-7951, 4-289.2
Organic Analytical Methods:		
Gas Chromatographic Methods		
Halogenated volatile organics		1-8010, 8021
Non-halogenated Volatile Organics		1-8015
Aromatic Volatile Organics		1-8020, 8021
Acrolein, Acrylonitrile, Acetonitrile		1-8031
Phenols		1-8040, 8041
Phthalate Esters		1-8060, 8061
Nitrosamines		1-8070
Organochlorine pesticides, halowaxes, and PCB's		1-8080, 8081
PCBs		1-8080, 8082
Nitroaromatics and cyclic ketones		1-8090, 8091
Polynuclear Aromatic Hydrocarbons		1-8100
Haloethers		1-8110, 8111
Chlorinated Hydrocarbons		1-8120, 8121
Organophosphate Pesticides		1-8140, 8141
Chlorinated Herbicides		1-8150, 8151
Gas Chromatographic/Mass Spectroscopy Methods		
Volatile Organics		1-8240, 8260, 7-624
Semi-volatile Organics:		1-8250, 8270, 7-625
Other Organic Methods		
Qualitative infrared (IR) spectroscopy method		1-8410, 8430, 8440, 3-D2621, D4053
GC/FTIR method		1-8410
Heating value, bomb combustion method		1-5050, 3-D240, D2015
Halogen and Sulfur Content		
Chlorine content		3-D808, D2361, D4327
Halogen content		3-D808, D2361, D4327
Sulfur content		3-D129, D3177, D4327
Oil and Grease		1-4030, 9070, 9071, 2-5520, 4-413.1, 413.2
Petroleum hydrocarbons, total recoverable		2-5520, 4-418.1
Solvent distillation		4-D86, D1078
Total organic carbon		1-9020, 9060, 2-5310, 3-D2579
Total Organic Halides (TOX)		2-506
Screening Methods		
Physical Description		3-D4979
Flammability Screen		3-D4982
Water Compatibility		3-D5058
Oxidizer Screen		3-D4981
pH Screen		3-D4980
Sulfide Screen		3-D4978
	Gas Detection Tubes (e.g.; Dragger, Sensidyne, MSA)	
		3-D5049
Cyanide Screen	Gas Detection Tubes (e.g.; Dragger, Sensidyne, MSA)	

Sample Work Up Techniques:		Reference
Method		
Commingle Liquid Waste Compatibility Test		3-D5058
Polymerization Potential		3-D5058
Paint Filter Test		1-9095
Bulk Density and Apparent Specific Gravity Screen		3-D5057
Polychlorinated Biphenyls (PCBs) screen		1-4020, 9097
Liner Compatibility Screen		1-9090
Miscellaneous Analytical Methods:		
Acidity		2-2310
Alkalinity		2-2320
Ammonia		2-4500NH <sub>3</sub> , 4-350.3
Anions		
By ion chromatography		1-9056, 3-D4327, 4-300.0
Chlorides		1-9250, 9251, 9252, 9253, 2-4500Cl <sup>-</sup> , 4-300.0, 325.3
Sulfates		1-9035, 9036, 9038, 2-4500SO <sub>4</sub> <sup>2-</sup> , 4-300.0, 375.3
Nitrates		1-9200, 9210, 2-4500NO <sub>3</sub> <sup>-</sup> , 4-300.0, 352.1, 353.2
Fluoride		1-9214, 2-4500F <sup>-</sup> , 4-300.0, 340.2, 340.3
Bromides		1-9211, 2-4500Br <sup>-</sup> , 4-300.0, 320.1
Phosphates		2-4500P, 4-300.0, 365.1
% Ash		2-2540, 3-D482, D3174
Conductivity / conductance		1-9050, 2-2510, 3-D1125, 4-120.1
Cyanides		
Total and amenable cyanides		1-9010, 9012, 9013, 2-4500CN <sup>-</sup> , 4-335.1
Dissociable cyanides		1-9213, 2-4500CN <sup>-</sup>
Test Method to Determine Hydrogen Cyanide Released from Wastes (Reactive Cyanides)		1-7.3.3.2
Flash point / Ignitability		
Pensky-Martens closed-cup method		1-1010, 3-D93
Setaflash closed-cup method		1-1020, 3-D3278
Cleveland open-cup method		3-D1498
Oxidation / reduction (redox) potential (ORP)		3-D1498
pH measurement		1-9040, 9041, 9045, 2-4500H <sup>+</sup> , 3-E70, 4-150.1
Solids		
Total (TS) at 103/105°C		2-2540, 4-160.3
Dissolved (TDS) at 180°C		2-2540, 4-160.1
Total suspended (TSS) at 103/105°C		2-2540, 4-150.2
Fixed and volatile at 500°C		2-2540, 4-160.4
Total Solids (moisture content)		Various (e.g.; Ohaus, Microwave Oven)
Specific Gravity		1-9030, 2-2710F, 3-D70, D891, D1217, D1429
Sulfides		
Extractable sulfides		1-9031
Soluble sulfides		1-9215, 2-4500S <sup>2-</sup>
Test Method to Determine Hydrogen Sulfide Released from Wastes (Reactive Sulfides)		1-7.3.4.2
Total sulfides		1-9030A, 2-4500S <sup>2-</sup>
Viscosity		3-D88, D446, D2983

Sample Work Up Techniques:	
Method	Reference
Water Content	3-D95, D3173, D4006, E203

The above referenced procedures are described in the following publications (although the latest update to any of the below referenced documents are acceptable). The first digit of the reference numbers above are keyed to the numbers shown below:

1.	<b>Test Methods for Evaluating Solid Waste</b> , SW-846, U.S. Environmental Protection Agency, Office of Water and Waste Management, Washington, D.C. 20406
2.	<b>Standard Methods for the Examination of Water and Waste Water</b> , American Public Health Association (APHA), American Water Works Associations, Water Environment Federation
3.	<b>Annual Book of ASTM Standards</b> , American Society for Testing Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428
4.	<b>Methods for Chemical Analysis of Water and Wastes</b> , EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, Ohio 45268
5.	"Infrared Analysis Method," IERL-RTP Procedures Manual: level I Environmental Assessment, EPA-600/7-78-201
6.	"Acid Digestion Bombs," Bulletin 4745, Parr Instrument Company, Moline, IL 61265
7.	"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater," Title 40, Part 136, Appendix A, CFR, USEPA, EMSL
8.	Bellar, T.A., and Lichtenberg, J.J., "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils," EPA-600/4-81-045, USEPA, EMSL

**ATTACHMENT 5  
ADDITIONAL ANALYSES**

Standard analytical procedures not listed here, which may be needed, will be taken from the sources referenced in Attachment 4 or other recognized sources (e.g.; Official Methods of Analysis of the Association of Official Analytical Chemist (AOAC), 15th Edition, AOAC, Arlington Virginia, 1990) or more recent supplements or editions.

- Beilstein Screen indicates the presence of halogenated organics in aqueous and organic wastes.
- Bench-Scale Treatment Evaluation to determine the appropriate ratios of wastes to reagents or waste-to-waste to be used in the treatment process to produce the desired reaction / result.
- Chlorides determines if the major acid component is hydrochloric acid or its salt.
- Cyanides Peroxide Amenability determines the effectiveness of H<sub>2</sub>O<sub>2</sub> for cyanide treatment.
- Cyanides Chlorination Amenability (Sodium Hypochlorite or direct Chlorination) determines the effectiveness of hypochlorite for cyanide treatment.
- Cyanides Conversion Amenability determines the effectiveness of other types of reagents treatment for cyanides.
- Filter Time determines filterability of waste.
- Filterable Residue quantifies the suspended solids present to determine filtration requirements in process operations.
- Flash Point/Ignitability further identifies ignitable wastes to establish proper storage mode and conformance with permit conditions.
- Gas Chromatographic Scan identifies specific organic compounds.
- Qualitative IR Spectroscopy provides a fingerprint spectrum of organic wastes.
- Liquid Waste Compatibility determines whether liquid wastes which are to be combined together are compatible. This is a required supplemental analysis when combining different wastes.
- Load Bearing Capacity Test determines structural integrity of stabilized material to be landfilled.
- Metals Content may be determined to quantify metals concentrations for process operating parameters or potential salt precipitation for monitoring certain processes.
- Nitrates determine if the major acid component is nitric acid or its salt.
- Non-Filterable Residue quantifies the dissolved solids present to determine acceptability for certain processes.
- Oil and Grease quantifies the amount of oil and grease so as not to impact certain processes.
- Organic Content (OC) provides a conservative measure of organic carbon in a waste. This determination may use the procedure for Total Organic Carbon (for suitable waste forms), or may be calculated based on the results of a water content test using Karl Fisher or Dean Stark methods. Organic content is conservatively determined as the difference of water and ash from the total sample.
- Oxidizer Screen indicates the oxidation characteristics of a waste stream.
- Paint Filter Test indicates if free liquids are present in a solid or semi-solid material.
- PCB Screening indicates whether or not PCBs are present in a waste.
- PCBs in Aqueous Liquids determines whether PCBs are present in liquid waste.
- Percent Acidity determines the acidity in the waste. It may be performed if the waste is aqueous and below a pH of 4.
- Percent Alkalinity determines the amount of alkalinity in the waste. It may be performed if the waste is aqueous and above a pH of 7.
- Percent Ash determines the ash content in waste feeds to the indirect thermal desorber.
- Percent Solids by Centrifuge determines the percentage of suspended solids by centrifugation.
- pH provides a more precise measurement of pH and an indication of corrosivity when determining process parameters.
- Phosphates determines if the major acid component is phosphoric acid or its salt.



- Soluble Sulfides are analyzed to provide quantitative backup to the reactive sulfides screen.
- Solvent Screen identifies the presence of LDR solvent constituents.
- Specific Gravity / Bulk Density indicates density of the waste. This information convert weight of materials to volumes (and visa versa).
- Stabilization Treatment Studies determines if a waste is amenable to stabilization and to determine the appropriate reagent-to-waste ratio.
- Sulfates determine if the major acid component is sulfuric acid or its salt.
- Sulfide Peroxide Amenability determines the effectiveness of H<sub>2</sub>O<sub>2</sub> for sulfide treatment.
- Sulfide Conversion Amenability determines the effectiveness of other types of reagents treatment for sulfides.
- Sulfur Content determines the sulfur content of waste to be incinerated and thus its capability to generate SO<sub>2</sub> (SOX) gases.
- Total and Amenable Cyanides quantifies the concentration of all free and most complexed cyanides (total cyanides) and/or cyanide species amenable to alkaline chlorination (amenable cyanides). Results may be used for treatability determinations, to monitor treatment processes, and/or to meet disposal restrictions including Land Disposal Restrictions.
- TOC determines the organic concentration in waste and may be used as a surrogate for UHCs and other organic analyses.
- TOX determines the organic-chloride concentration in waste and may be used as a surrogate for chlorinated organic analyses.
- Total Solids quantifies suspended and dissolved solids and moisture content for selected processes.
- Total Sulfides quantifies the concentration of total sulfides to back up the sulfides screen.
- Viscosity determines the waste pumpability.
- Visual Oil and Grease provides a qualitative assessment of filterability and organic contents.
- Waste Compatibility is tested to determine whether wastes stored or processed together are compatible.
- Waste Compatibility determines whether the waste has a potential to react vigorously with water, to form gases, other products, or to generate extreme heat and to determine if it is soluble in water. This test does not apply to wastes already in contact with excess water nor to wastes known to be water reactive.
- Water Content determines the percent of water present in a waste.

Other standard analytical techniques parameters not listed here may be added used as required by changes in regulations, company policy, etc. These techniques will be taken from recognized sources (e.g.; SW-846, ASTM, AWWA, etc.).

# **Attachment 12**

## **Training Plan**

PERSONNEL TRAINING PROGRAM

US ECOLOGY NEVADA

OCTOBER 2009

**SECTION 6**  
**PERSONNEL TRAINING PROGRAM**  
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## **PERSONNEL TRAINING PROGRAM**

### **6.1.0 Overview of RCRA Training Program**

The RCRA training program provides facility personnel with the knowledge necessary to understand the processes and materials with which they are working. Training improves safety, reduces health hazards, prevents emergencies and prepares employee to respond to any situation. In addition, the program provides the knowledge for using, inspecting, repairing, and replacing facility emergency equipment.

Initial training of employees is completed within six (6) months of their start-work date. Each employee participates in an annual review of his or her initial training. Continuous instruction in safety is provided through safety meetings and drills. The goal is to have personnel trained to perform their specific job functions in a compliant manner and to maintain the facility in a state of preparedness.

#### **6.1.1 RCRA Personnel Training Requirements**

Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the Permit and regulations. Facility personnel must successfully complete the program within six (6) months of the date of their employment or reassignment, whichever is later. The program is designed to ensure that facility personnel are able to respond effectively to emergencies. Employees must successfully complete a program of classroom instruction or on-the-job training, and must be trained to perform their duties in a way that ensures the facility's compliance with this requirement.

#### **6.1.2 "Facility Personnel" Defined**

The regulations regarding facility personnel training require that employees responsible for managing hazardous waste be trained to the degree necessary that they can manage hazardous waste in compliance with the facility's permit and referenced regulations. For the purpose of this training program, the term "facility personnel" applies to those employees who work on-site for the purpose of managing (e.g., waste sampling, storing, treating, disposing) hazardous waste. There are also personnel on-site whose job functions do not involve the "management of hazardous waste" but may affect facility compliance. These persons/job descriptions include secretaries, load controllers, data entry clerks, receptionists, accountants, customer relation specialists, equipment mechanics, etc. At a minimum, these personnel will receive training in those areas of their jobs which may affect compliance. Not covered by this training program are persons from other divisions of US Ecology, consulting engineers, etc., who do not manage hazardous waste as described above (e.g., geologists, environmental samplers, construction personnel, auditors). Personnel from off-site who are involved in the management of hazardous waste will either be trained in accordance with this plan or the contractor or the employee must certify to the facility that all employees have been properly trained. This certification will be kept on-site in lieu of training records.

### **6.1.3 Training Records**

Training records are maintained for each facility employee meeting the definition of facility personnel. Each record includes the job title of the employee, a description detailing the requisite skill, education, other qualifications, and duties related to that job title, and the amount of both introductory and continuing training that will be given to that employee. Also included in the file are records that document the training has been completed or job experience is satisfactory.

When personnel miss a refresher course (e.g., due to illness, vacation), they may review that topic with their supervisor, the training coordinator, or other qualified individuals or review the film of the training session. Such reviews are documented in the individual personnel training files.

Training records on current personnel will be kept until closure of the facility. Training records on former employees will be kept for at least three (3) years from the date the employee last worked at the facility except that, personnel training records may accompany personnel transferred within the company.

### **6.1.4 Off-Site Training**

Training is available apart from the facility which can serve to fulfill the training required herein. In some areas, technical training, field experience, college credits or degrees can serve to exempt a person from further training in certain areas. For example, the General Manager and Lab Manager will normally have degrees or experience in engineering, chemistry, or other science-related fields. These personnel would not be well served by having to attend a course in "Chemical Terminology, Toxicology, and Handling." In fact, these personnel may serve as the on-site technical expert in that area. In those cases where a person has expertise in an area, formal education or job experience may be documented and serve as total fulfillment of that particular training need.

In some years, a person may attend an off-site seminar or training course which contains equivalent information contained in one or more of the on-site training sessions. This training may be documented by the trainee (self-certification) and serve as total fulfillment of that particular training need.

Management training often takes place in non-discrete sessions such as corporate staff meetings, compliance meetings, permit application work groups, permit negotiations, or other informal sessions and even self-directed learning sessions. These sessions often are of better quality for managers and can be documented by the trainee (self-certification) and serve as total fulfillment of that particular training need.

In summary, non-US Ecology sponsored training may be completed and documented to fulfill the training requirements contained in this plan. The training, if it is to be used as fulfillment of the requirements contained herein, must be documented appropriately.

## **6.2.0 US Ecology Sponsored Training**

The RCRA training program is centered around the adequate training of facility personnel. USEN's employees are to be trained with safety and environmental protection as the primary concern. Training can be obtained from many sources, and frequent off-site training is encouraged to allow the free exchange of new ideas. However, to ensure that a basic core-training program is available to our employees, USEN sponsors and administers a comprehensive RCRA Training Program. The following descriptions are typical of the basic concepts administered through the USEN RCRA Training Program. These concepts may be taught as an entire training module, as part of a single module, or as part of several modules.

### **6.2.1 Company Orientation**

All personnel, upon initial employment, are introduced to the company philosophy and method of operation as well as specific rules and regulations.

### **6.2.2 Chemical Terminology, Toxicology, and Handling**

This training provides a basic understanding of relevant terminology and inherent properties of the waste groups managed on-site. Precautions to be taken in handling hazardous wastes and the reasoning for such measures are emphasized. Specific consideration is given to the procedures and practices governing the mixing of materials and prohibiting mixing of incompatible materials which may result in undesired events. As an example, container management personnel will receive training emphasizing storage of ignitable, reactive, and incompatible materials.

Instructions are typically provided by the Laboratory Manager, Environmental Manager, Health and Safety Supervisor, Training Coordinator, or other technical representatives. Discussions of toxicology and inherent hazards are tailored to meet the types of materials treated, stored, or disposed of on-site.

### **6.2.3 Operating Practices Summary**

All operators (e.g., landfill operators, stabilization operators, container management operators) will be required to be familiar with the operating practices for their respective units. Each operator will be instructed in the permit modules applicable to their unit, and discussions will be held to answer questions. Procedures and actions will be discussed, and actual drills may be performed in the field. Other personnel will be trained, as needed, through orientation or review of other relevant plans.

#### **6.2.4 Contingency Plan**

All personnel are required to understand the Contingency Plan to the degree that it affects them and be prepared to put it into action at all times. The Contingency Plan covers response to spills, fires, releases, and other emergency situations. The plan also discusses notification, evacuation, and clean-up procedures. This area of training includes instruction in the procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment; the key parameters for automatic waste feed cut-off systems; emergency communications and alarm systems and signals; response to ground-water contamination incidents; and procedures to be followed in the event of a shutdown of operations, as applicable.

Procedures and actions are discussed and actual drills may be performed in the field. These periodic drills are held to simulate fires, explosions, or releases of hazardous wastes. Reviews are conducted at least annually and when changes in facility operation or personnel affect the coordinated effort needed for an emergency response.

#### **6.2.5 Respiratory Equipment**

For protection in atmospheres known or suspected to contain hazardous substances, designated personnel are instructed in the care and use of respiratory protection equipment. The training instructor is either a factory representative or an individual qualified due to their job skill (e.g., Health and Safety Supervisor, Training Coordinator, Fire Fighter, Paramedic). Training stresses proper use and fit and procedures for inspection and maintenance. The types of respiratory protection necessary are unique to each activity, depending on the inherent hazards of the materials handled, and the environment/area in which the material is located. For this reason, respiratory protection procedures are reviewed periodically and assessed for additional risk of respiratory insult because of changes in an operation.

Literature available for the respiratory protection equipment is read by and/or reviewed with employees. All repairs and inspections of equipment are performed by trained personnel when and where required. Reviews are held at least annually.

#### **6.2.6 Unit and Equipment Operations**

All personnel involved in the operation of hazardous waste management units or process equipment are required to be cognizant of proper operating procedures, emergency procedures, and maintenance particular to the unit or machinery he or she operates. Initial training covers operation of new or unfamiliar units, processes, or pieces of equipment. However, experienced personnel are also required to review the training topics (e.g., Safety Meetings).

#### **6.3.0 Implementation of Training Program**



Upon employment, assignment to the facility, or assignment to a new job at the facility, a training file is created or reviewed for the employee. The training record includes a job description, a summary of all training, and a summary of required training. Training may begin before the employee works in a hazardous waste management unit but must be completed within six (6) months of their start-work date. Employees do not work in an unsupervised position until the required training is completed. Each employee will participate in a review of his or her initial training at least annually (once per calendar year). Also included in the training file are records that document that the required training has been completed.