

# West Valley Demonstration Project

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## SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP)

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## **SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP) AT THE WEST VALLEY DEMONSTRATION PROJECT (WVDP)**

### **1.0 INTRODUCTION**

The WVDP was created by the WVDP Act (Public Law 96-368) which directs the Department of Energy (DOE) to complete the following:

- Solidify, in a form suitable for transportation and disposal, high-level radioactive waste stored on site by vitrification or by other technology determined to be effective for solidification;
- Develop containers suitable for permanent disposal of the high-level radioactive waste solidified;
- Transport the solidified waste to a federal repository for permanent disposal;
- Dispose of low-level radioactive waste and transuranic waste;
- Decontaminate and decommission the tanks and other facilities in which solidified high-level radioactive waste was stored; the facilities used in solidification of the waste; material and hardware used in connection with the project and any waste generated under the project and provided by solidification of high-level radioactive waste.

Wastes are also generated by current facility activities such as laboratory analysis, decontamination, routine maintenance, facility operations, and environmental monitoring.

The provisions of this Site Specific Health and Safety Plan (HASP) are to be observed when working in Hazardous Waste Operations Exclusion Zones at the West Valley Demonstration Project (WVDP). Compliance with this plan is required for all personnel who enter the listed facility areas associated with this project. Applicable sections of the HAZWOPER (Hazardous Waste Operations and Emergency Response) Specific Health and Safety Requirements Matrix (HSHSRM) (Attachment A) will be communicated to site personnel.

The West Valley Demonstration Project (WVDP) is a Resource Conservation and Recovery Act (RCRA) hazardous waste/mixed waste generator and an interim status treatment and storage facility. The WVDP generates waste as the result of activities involved in the cleanup of a commercial nuclear fuel reprocessing facility which operated at this site from 1966 to 1972.

#### **1.1 Regulatory Requirements**

The WVDP currently operates as a TSD (Treatment Storage and Disposal) in compliance with the requirements in 29 CFR 1910.120(p). Certain operations conducted under the Resource Conservation and Recovery Act of 1976 (RCRA) and under the requirements of OSHA's hazardous substance clean-up operation which must comply with all paragraphs of 29 CFR 1910.120.

All personnel entering Hazardous Waste Operations (HAZWOPER) Exclusion Zones are required to receive an orientation on the requirements of this HASP and 40 HAZWOPER training. Activities are controlled through Radiation Work Permits (RWP) and Industrial Work Permits (IWP). The Safety personnel and Radiological Controls Department perform ongoing evaluation of work practices to ensure that DOE and OSHA regulatory requirements are being implemented.

#### **1.2 Temporary Field Operations**

Control and evaluation of activities that are temporary operations (less than 30 days) in the field will be covered under the IWP/RWP process. Activities that are expected to be longer than 30 days will require an update to this HASP or develop a area specific separate HASP.

## 2.0 ORGANIZATION STRUCTURE AND KEY PERSONNEL RESPONSIBILITIES

### 2.1 Director, DOE West Valley Demonstration Project Office

Responsible for overall management and implementation of the requirements of this plan and overall health and safety requirements at the WVDP. Attends weekly briefings with CHBWV (the DOE contractor) on current WVDP status.

### 2.2 Environmental, Safety, Health & Quality Manager

Responsible for the oversight of all WVDP activities in quality, environmental, radiation safety, industrial safety and health compliance.

### 2.3 Safety Manager

Responsible for oversight of all WVDP activities in safety and health compliance.

### 2.4 Health and Safety Officer (HSO)

The Safety Manager acts as the HSO and is the single point of contact for all general environmental, safety, industrial hygiene, and radiological issues/concerns per the HASP.

### 2.5 Radiological Controls Manager

Responsible for oversight of all WVDP activities in radiation safety compliance.

### 2.6 Project Managers

Responsible for oversight of the implementation of the HASP for their projects. Additionally, project managers are responsible for oversight of safety and health compliance within their projects.

### 2.7 Incident Commander

Plant Systems Operations Shift Supervisor (PSOSS) (Extension 4239), acts as the Incident Commander and is the first point of contact responsible for coordination of field activities during an emergency.

### 2.8 Management of Emergency Management staff

Responsible for implementing the emergency response requirements outlined in Section 9.

### 2.9 Security personnel

Responsible for maintaining response capabilities to incidents requiring security.

### 2.10 Decontamination Station Officer

All decontamination will be performed or supervised by Radiological Controls personnel and/or Safety personnel.

### 2.11 Facility Managers

Facility managers are responsible for all work activities including safety and incident reporting for their defined facilities.

### 2.12 Safety Trained Supervisors

The Safety Trained Supervisor (STS) is a certification program sponsored by the Board of Certified Safety Professionals organization for operators, supervisors, managers, safety committee members, and other work group members who play an important role in making work safe. The overall benefits of the STS certification program for the project include increased safety awareness among employees, improved safety culture, and increased confidence when dealing with safety and health matters during the planning phase and in the field.

### 2.13 Medical Support

CHBWV maintains a Contractor Occupational Medicine Program (COMP) through Safety personnel as a basic worker protection requirement that provides comprehensive occupational health services to employees. The COMP is a major contributor to an overall program promoting worker health and safety and embraces and adheres to the following tenets: identify the nature of site activities, job tasks, and workplace hazards; ensure that each employee is aware of the workplace hazards as they relate to employee health; and ensure that each employee is fit for duty and receives appropriate health surveillance/monitoring. WVDP-026, "Occupational Health Manual," contains the methods and procedures used to implement the occupational medical requirements necessary for worker protection and the promotion of a healthful work environment.

## 3.0 HAZARD ASSESSMENT

### 3.1 Hazard Identification

This section addresses the identified health and safety hazards associated with the conduct of routine activities covered by this HASP. Hazards associated with non-routine HAZWOPER activities are addressed in the work documents (e.g. WIP paperwork) and IWP/RWP for that job.

Potential hazards to workers may originate from chemical, physical, radiological, and safety hazards present in the HAZWOPER area.

#### 3.1.1 Radiological Issues

Spent nuclear fuel was processed at the Western New York Nuclear Fuel Service Center (WNYNSC) from 1966 to 1972. Approximately 600,000 gallons of high-level radioactive waste was generated and placed in two underground storage tanks during that time. This waste has been vitrified and placed in canisters that are stored in the Main Plant CPC/HLWISF. The vast majority of the radioactive wastes currently stored at the site were generated during operation of the reprocessing facility, during waste solidification activities and during decontamination of areas being utilized for waste processing and storage for the WVDP. High-level, transuranic, and low-level radioactive waste currently exist in both liquid and solid forms. The potential for encountering contamination should be considered prior to penetrating any surface or soils on the WVDP. Extensive surface contamination exists in the former main reprocessing facility; however, contamination has been rendered fixed in accessible operating aisles and areas by the use of paints or adhesive products.

Radiation exposure hazards at the WVDP requiring attention are the potential absorption, inhalation, ingestion, and injection of uranium, plutonium, americium and thorium and their progeny as well as strontium, cesium, and technetium.

Worker training, engineering and administrative controls, contamination control practices, and personal protective equipment are utilized to control inhalation, ingestion, absorption, and injection of radioactive particles. ALARA principles are used to control worker exposure to radiation fields in Radiation, High Radiation Areas, and Very High Radiation Areas and contamination in Contamination, High Contamination, and Airborne Radioactivity Areas (real or potential). The objectives for controlling personnel exposure to radioactive material are implemented through the issuance of RWPs.

#### 3.1.2 Industrial Hygiene Issues

Specific exposure monitoring requirements are outlined in the HSHSRM (Attachment A). In addition to personal and area sampling, administrative controls are used. Emergency showers and eye wash stations are placed in easily accessible locations in areas where it has been determined that a chemical splash can occur. Emergency showers and eye wash stations are inspected monthly.

- Solvents

Solvents present absorption and inhalation hazards. Solvent exposures typically occur in the parts per millions (ppm) range for most work on site, (e.g. Peak levels of approximately 1000 ppm for xylene have been measured during the application of a xylene based truck bed liner coating with a roller.)

Isoparaffinic hydrocarbons are solvents present in the electrostatic liquid developer which is used for copying. Expired laboratory chemicals and standards are another source of potential solvent exposure. Solvents may also be found in waste paint (xylene, mineral spirits, toluene), Zip Strip (methylene chloride), and in samples taken from the Nuclear Regulatory Commission (NRC) Disposal Area (NDA). Brief periods of high exposure can cause dizziness, irritation of mucous membranes, headache, nausea, eye irritation, and drowsiness. Skin contact can cause drying and chapping.

- Polychlorinated Biphenyls (PCBs)

Capacitors containing PCBs and PCB-contaminated debris are stored in some of the Treatment Storage and Disposal Facilities (TSDF) and are inspected weekly in accordance with SOP 09-24 "Chemical Process Cell Waste Storage Area and Lag Storage Inspection", SOP 300-09 "Interim Waste Storage Facility Operation" or SOP 300-06 "Hazardous Waste Storage Facility Operations" depending on the location. PCBs are also found in paint in some locations on site and in some electrical equipment. Exposure to PCBs can cause chloracne and liver damage. In persons who have suffered systemic intoxication, the usual signs and symptoms are nausea, vomiting, loss of weight, jaundice, edema, and abdominal pain. (See WVDP-080, "PCB and PCB-Contaminated Material Management Plan" for further information.)

- Mercury

Mercury contaminated debris resulting from decommissioning (e.g. mercury switches), maintenance (e.g. fluorescent bulbs) and spills (e.g. broken thermometers) are stored on site. There is mercury in tank 8D-2, this may be as the result of mercurous/mercuric nitrate that was added to the Off-Gas Scrubber 6C-6. It may be present in the HWSLs and off-gases from the 8D-2 tank, vitrification process equipment, Liquid Waste Treatment System (LWTS) process and may be encountered in pipes and drains during D&D Operations. Mercury has been detected in the WTF Shelter (natural gas supply line of the old boilers), the Interceptor Neutralization Pit and the fourth floor drain in the O1-14 Building. No detectable mercury was found in the breathing zone during sampling in the ULO. Peak levels of 1.195 mg/m<sup>3</sup> were found above the D-14 sample pot during evaporator operation. Mercury, an absorption and inhalation hazard, is also an experimental animal carcinogen. Its inhalation affects the human gastrointestinal tract and the nervous system resulting in symptoms such as wakefulness, muscle weakness, anorexia, headaches, tinnitus, hypermotility diarrhea, liver changes, dermatitis, and fever. It is a strong corrosive and reacts violently with a number of organic and inorganic compounds.

- Inorganic Lead

Lead has been used in its metallic form for radiological shielding in many areas of the project and as counterweights for the remote manipulators. The burning, torch cutting, and scraping of steel that has been painted with lead-containing paint are primary concerns. Prior to disturbing painted surfaces, contact IS personnel to perform an assessment using x-ray diffraction (NITON) instrument. Lead is managed and controlled at the WVDP per WVDP-195, "The Lead Management and Control Plan." Lead is a bluish-grey metal when pure and may be bright yellow or orange when present in various oxides. Routes of exposure include inhalation, skin contact, and ingestion. Acute

exposure may cause kidney damage. Early symptoms of chronic exposure may include loss of appetite, insomnia, irritability, and muscle/joint pains, followed by anemia. Chronic exposure can result in severe damage to the blood-forming organs and the nervous, urinary, and reproduction systems.

Lead concentration levels in the air were found to be less than  $1 \mu\text{g}/\text{m}^3$  while surveying lead shielding and working manipulators. Peak levels of  $90 \mu\text{g}/\text{m}^3$  have been measured when sealing lead bricks with a protective coating.

Excess clean lead and radiologically contaminated lead are stored on site in a Lead Bank.

- Acids

Zinc bromide, lead acid batteries, sulfuric acid, and nitric acid are used on site. Acids may also be encountered during decontamination work when tell-taling and removing old process lines and equipment in the Main Plant. Prior to disconnecting or cutting pipe which has contained acid, verify that the pipe has been drained and purged to assure that it is clear of any acid. RCRA storage facilities contain waste zinc bromide from shield windows, spent lead acid batteries, waste sulfuric and nitric acid from spent laboratory chemicals, spill residues, and maintenance work on lines containing acid. Acids may cause severe irritation and chemical burns when skin or eye contact occurs. Inhalation of fumes or mist from acid may cause irritation and burning of the throat, coughing, choking, and lung damage (necrosis of the tracheal and bronchial epithelium). Chronic exposure to acids may lead to erosion and discoloration of teeth, chronic bronchitis, and gastritis. Areas where acid is stored are diked to contain spills.

Boric acid, formic acid, phosphoric acid, and nitric acid were used in the Cold Chemical Building and were stored in the Load In Facility. Acids or residues may be present in process equipment and piping in some areas. Prior to disconnecting or cutting pipe which has contained acid, verify that the pipe has been drained and purged to assure that it is clear of any acid.

Boric acid is a clear, colorless liquid and a mild skin irritant.

Formic acid is an eye, skin, and mucous membrane irritant.

Phosphoric acid is a colorless liquid which is an eye, skin, and mucous membrane irritant and a systemic irritant by inhalation.

Nitric acid is a clear, colorless to slightly yellow water soluble liquid. Routes of exposure include inhalation of vapors from the liquid, ingestion, skin contact, and eye contact. Acute inhalation exposure may cause coughing, choking, and upper respiratory system irritation which may clear up only to return more severely in a few hours. Chronic inhalation exposure may cause erosion of teeth. Nitric acid is a poison by ingestion. It is corrosive to the eyes, skin, and mucous membranes.

The exposure of site chemistry personnel to nitric acid was found to be well below the detection limit of 0.2 ppm.

Acids may cause severe irritation and chemical burns when skin or eye contact occurs. Inhalation of fumes or mist from acid may cause irritation and burning of the throat, coughing, choking, and lung damage (necrosis of the tracheal and bronchial epithelium). Chronic exposure to acids may lead to erosion and discoloration of teeth, chronic bronchitis and gastritis. Areas where acid is stored are diked to contain spills.

- Caustics

Caustics are/were used in laboratory analysis, waste water treatment, and blueprint production and are present in powder and liquid form. These include:

- Ammonium hydroxide (blueprint)
- Caustic Waste Stream (testing of CSS)
- Potassium hydroxide (laboratory analysis)
- Sodium hydroxide (wastewater treatment)

Caustics may also be encountered during decontamination work when tell-taling and removing old process lines and equipment in the Main Plant. Prior to disconnecting or cutting pipe which has contained caustic, verify that the pipe has been drained and purged to assure that it is clear of any caustic. Caustics, like acids, are corrosive to body tissue. Caustic eye and skin exposure is often more severe than acid exposure because caustics cause deeper tissue destruction compared to the superficial damage caused by acids.

- Toxic Metals and Compounds:

Additional health hazard information on individual chemicals can be found on the MSDSs which are available from the Safety personnel.



The following table lists common process chemicals used on site:

CHEMICAL HAZARDS

TOXIC or POISONOUS	FLAMMABLE	OXIDIZERS	CORROSIVES	CARCINOGENS	HIGHLY REACTIVE
Arsenic and its compounds	Acetone	Nitrates	Acetic Acid	Arsenic and its compounds	Nitric acid, fuming
Barium and its compounds	Ethanol	Nitrites	Nitric acid, conc. and fuming	Asbestos	
Cadmium and its compounds	Methyl ethyl ketone	Hydrogen 30%peroxide	Hydrochloric acid	Chromium, hexavalent and its compounds	
Chromium and its compounds	Methyl isobutyl ketone	Phosphoric 70%acid	Hydriodic acid	Lead and its compounds	
Hydrofluoric Acid, conc.	Toluene	Sulfuric acid, conc.	Hydrofluoric acid, conc.	Nickel and its compounds	
Lead and its compounds	Xylenes	Sodium peroxide	Sulfuric acid	Silica, crystalline	
Mercury and its compounds	Acetylene	Permanganates	Sodium hydroxide, pellets and solutions	Cadmium and its compounds	
Selenium and its compounds		Nitrous Oxide	Potassium hydroxide, pellets and solutions		
Silver and its compounds		Silver Oxide (Ag <sub>2</sub> O <sub>2</sub> )	Phosphoric acid		
Sodium Fluoride					
Spectroflux 128 and 602					

- Chemical Storage

Chemicals shall be stored by compatibility groups per WV-912, "Hazardous Chemical Storage." These groups should be posted in the chemical handling areas. If in doubt, contact the HSO or IS personnel for assistance.

- Oxides of Nitrogen (NO<sub>x</sub>)

During arc welding and plasma arc cutting, nitrogen oxides are formed in arc by ultraviolet radiation. These oxides contain nitrogen dioxide which is irritating to the eyes, nose, and respiratory tract at low concentrations. Chronic effects include significant changes in lung function. Dangerous concentrations can be inhaled without any immediate discomfort. High concentrations can cause shortness of breath, chest pain, and fluid in the lungs (pulmonary edema).

Peak concentrations of 1.5 ppm have been detected during plasma arc cutting activities.

- Asbestos Containing Material (ACM)

ACM can be found across the WVDP. Based on the conditions found during inspection for ACM and the asbestos content confirmed by laboratory analysis, specific asbestos remediation response actions were selected for each space. Refer to the WVDP-072, "Asbestos Management Plan," for details. The following are typical examples of asbestos usage at the WVDP:

1. pipe and duct insulation
2. tank insulation roof and flashing material
3. floor tile
4. gasket material/joint compound
5. exhaust system gaskets
6. cement-asbestos panels
7. fireproofing material
8. transite panels

There is an ongoing notification and warning program for persons who may come in contact with asbestos-containing materials.

Warning labels (DANGER - CONTAINS ASBESTOS FIBERS - AVOID CREATING DUST - CANCER AND LUNG DISEASE HAZARD - AVOID BREATHING AIRBORNE ASBESTOS FIBERS) are placed on friable ACM, where feasible, to alert and remind building occupants not to disturb ACM. Caution signs are posted on the entrance door to areas/rooms where ACM is present. This caution sign reads: "CAUTION: ITEMS IN THIS AREA CONTAIN ASBESTOS - DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT - AVOID CREATING DUST FROM THESE ITEMS - CANCER AND LUNG DISEASE HAZARD - AVOID BREATHING AIRBORNE ASBESTOS FIBERS."

- Soil Contaminated With Fuel

Soil contaminated with diesel fuel and gasoline may be found at the locations of former underground storage tanks on site. Previously a gasoline underground storage tank located near the southwest corner of the main warehouse underwent remediation. This tank was closed in 1985, and petroleum was discovered in the soil. The site is listed as a New York State Department of Environmental Conservation (NYSDEC) Spill Site (Number 9708617).

Sites where there is a potential for fuel contamination are screened using a photoionization detector (PID) to track volatile organic compounds (VOCs) in the worker's breathing zone. Personal Protective Equipment (PPE) is determined by comparing the PID reading with information on VOCs present in the soil. Samples taken in the breathing zone at the southwest corner of the main warehouse did not detect any VOCs.

- Decon solutions

Cells in the Main Plant may have been decontaminated by flushing with sodium tartrate solution, potassium permanganate solution, citric acid solution, Radiacwash® solution, nitric acid and water rinses.

- Fumes and Gases during Deactivation Activities

Piping, tanks, and equipment may be size reduced by plasma arc cutting or oxy-gasoline cutting. Plasma arc cutting can result in the release of the following metal fumes: cadmium oxide, chromium, iron oxide, lead, manganese, nickel, and zinc. In addition, plasma arc cutting can result in the release of oxides of nitrogen, and ozone. Both plasma arc and oxy-gasoline cutting can result in decomposition of residual material and the generation of carbon monoxide.

The fumes from welding processes may contain compounds of chromium, including hexavalent chromium, and of nickel. The composition of the base metals, the welding materials used, and the welding processes affect the specific compounds and concentrations found in the welding fumes. Immediate effects of overexposure to fumes can cause symptoms such as nausea, headaches, dizziness and respiratory irritation.

Metal fumes generated during plasma arc sampling have been detected when decommissioning tanks using plasma arc cutting. These metals can produce health effects as follows: Chromium fume has been associated with skin irritation and increased risk of lung cancer and occurs when welding or cutting stainless steel peak levels, that have been measured at the WVDP, were 0.058 mg/m<sup>3</sup> during plasma arc cutting. Manganese is present in small quantities in most carbon/stainless steel alloys and the fume can cause metal fume fever for acute exposures, and chronic exposures may cause central nervous system problems. Peak levels at the WVDP during plasma arc cutting were 0.016mg/m<sup>3</sup>. Iron oxides are the major contaminate encountered in welding and cutting fumes. Acute symptoms include irritation of the nose, throat, and lungs. Chronic exposure may cause siderosis. Peak levels measured at the WVDP were 0.02 during plasma arc cutting of stainless steel. Nickel is present in many stainless steel alloys. Acute effects include eye, nose, and throat irritation. In addition some nickel compounds have been associated with increased cancer risk. Peak nickel levels during plasma arc cutting of stainless steel, at the WVDP, were 0.06mg/m<sup>3</sup>.

- Containerized Wastes

Waste Planning and Disposition Cognizant Engineers or Cognizant Shippers (CS), Waste Operations Supervisors request Waste Operations personnel to open containers, which may contain hazardous constituents, for the purposes of inspecting, compositing, consolidating, repackaging, or preparing for sampling or shipment of containers. Safety personnel provide support by determining the PPE necessary to protect personnel from exposure to the hazards of the waste or material and by monitoring for exposure during the operation, as necessary. Opening containers of unknown waste or material is not routine work and shall be performed using an approved work document per EP-5-002, "Administration of Work Instruction Packages," or SOP 300-07, "Waste Generation, Packaging, and On-site Transportation," which includes an assessment of the potential hazards associated with opening the container.

### 3.1.3 Safety Issues

Safety is the Number One value at the WVDP. Accordingly, employee safety shall be placed above work priorities. All employees are advised of their rights and responsibilities under DOE Orders and the Occupational Safety and Health Act. WVDP policy, WV-990, "Employee Concerns Program," provides a method for employees to voice concerns for health, safety, environment, or quality through the Employee Concerns Program.

- A. Physical Hazards - The following physical hazards are found under normal working conditions in the areas covered by this HASP. Hazards which occur during many common work activities are delineated in the HSHSRM

(Attachment A). Physical hazards during specialized work activities are covered in work instructions.

1. Noise:

Hazardous noise levels may be created during operation of heavy equipment and portable power tools. Monitoring for hazardous noise levels is conducted by Safety personnel. Workers found exposed to noise levels greater than 85 decibels (dBA), for any length of time, shall wear hearing protection. Ear plugs will be provided at entrances to posted high noise level areas. Also, workers and all other personnel in proximity to the work crew are required to wear hearing protection during heavy equipment and portable power tool operations. Generally, if you have to raise your voice to be heard over the noise, then you have exceeded the 85 dBA limit. Based on personal noise dosimetry, employees working in an area where their exposure is equal or greater than 85 dBA as an 8-hour time-weighted average (TWA) will be entered into WVDP Hearing Conservation Program.

2. Manual Lifting:

All personnel must know the proper way to lift (e.g., unassisted, two-man team, team or use of mechanical devices). Objects handled manually should be limited by factors such as: weight, the route and distance of travel, the amount of time required, and the orientation of the object (center of gravity).

As a general rule, a worker should not lift more than 50 lbs. without assistance from another person or the use of a mechanical device.

Mechanical lifting devices such as hoists, fork trucks, cranes, and other material handling devices are to be operated only by trained and qualified personnel. Equipment must be maintained in good working condition and have current inspection certifications, where required. Safety devices on mobile lifting equipment such as back-up alarms, horns, and fire extinguishers shall be inspected and operable. Subcontractors are required to provide a program that includes a system for conducting, documenting, and maintaining records of daily or periodic inspections where required. Extreme caution should be exercised when operating equipment in the vicinity of workers or pedestrians to avoid causing injury. Spotters shall be assigned to assist equipment operators where clear vision is obstructed or difficult.

3. Electrical Power

All service on electrical equipment shall be conducted by trained and qualified electricians.

Requirements and guidelines for the use of ground fault circuit interrupters (GFCIs) and flexible cords are addressed in WVDP-011, "WVDP Industrial Safety and Health Manual." All cords should run away from the path of equipment and pedestrian travel, or any potentially damaging activity.

Energized, electrical parts to which an employee might be exposed shall be put into an electrically safe condition before an employee works on them, or near them, UNLESS deenergization introduces additional or increased hazards or is infeasible due to equipment design or operational

limitations. Parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

**NOTE** *All temporary lighting shall be securely mounted 7 feet or more from the floor.*

All temporary wiring and lighting shall conform to the requirements of the latest edition of the National Electrical Code.

No work shall be permitted within 10 feet of any live exposed electrical device unless a written work plan is approved by the CHBWV HSO. All personnel involved shall be trained and qualified for the assigned work. See WVDP-011, "Industrial Hygiene and Safety Manual," and SOP 00-11, "Troubleshooting and Maintenance of Electrical Equipment," for more information.

4. Heavy Equipment/Fork Lifts

Personnel working around heavy equipment shall be minimized at all times. Fork lifts (powered industrial trucks) shall be equipped with back-up alarms. Operators shall be qualified to operate fork lifts. Fork lifts/trucks will be inspected at the beginning of each shift by the fork lift operator prior to use.

B. Fire Protection

Fire Protection is addressed in WVDP-177, "WVDP Fire Protection Manual."

C. Nuclear Criticality Safety

Nuclear criticality safety is addressed in WVDP-162, "WVDP Nuclear Criticality Safety Program Plan."

3.2 Engineering/Administrative Controls

Engineering controls will be used to control physical, chemical, and radiological hazards. When engineering controls are not practical or feasible, administrative and procedural controls will be used to control hazards.

In situations where unknowns are encountered, the situation will be reviewed by Safety and/or Radiological Controls personnel. A work instruction document (e.g. a WIP or SOP paperwork) shall be issued for activities such as the setup of exclusion, decontamination, and support zones; and the method of decontamination, suit up, and special handling (e.g., non-sparking tools and drum handling equipment).

Engineering controls to be used during work covered by this HASP include, but are not limited to:

- Use of enclosed systems for chemical handling and mixing
- Use of shielding and remote operations to reduce exposure to radiation
- Secondary containment systems for hazardous material storage
- Containment and/or wrapping of radiologically contaminated equipment (including duct work)
- High Efficiency Particulate Air (HEPA) filtration devices to remove airborne particulates from the containment areas

- Glovebags for the removal of contaminated equipment
- HEPA-filtered vacuum cleaners to remove loose contamination from surfaces, work clothing, or for general area cleaning
- HEPA-filtered vacuum cleaners and larger HEPA filtered ventilation units to remove airborne particulates from the point of dust generation
- Removal of contamination from surfaces prior to flame/mechanical cutting of metal
- Use of fixatives/encapsulants
- Maintaining negative pressure ventilation on contaminated systems and areas
- Installation of guardrails on elevated work platforms
- Ventilation of opened waste containers using hoods or trunks.

The administrative controls anticipated to be used to control physical, chemical, and radiological hazards during work covered by this HASP include, but are not limited to:

- WV-544, "Personnel Access Control"
- SHIP-201, "Industrial Work Permits"
- SHIP-108, "Job Safety Analysis Program (JSA)"
- WV-19012, "West Valley Nuclear Services Safety, Health, and Security Rules for On-Site Services"
- WV-988, "Employee "Right-To-Know" Program - Hazard Communication"
- WVDP-072, "Asbestos Management Plan"
- WVDP-195, "The Lead Management and Control Plan"
- RC-ADM-6, "Radiation Work Permits"
- Standard Operating Procedures (SOPs)
- WVDP-011, "WVDP Industrial Hygiene and Safety Manual"
- WVDP-010, "WVDP Radiological Controls Manual"
- WV-915, "Spill/Release Notification and Reporting"
- WVDP-043, "West Valley Demonstration Project Spill Prevention Control and Countermeasure Plan"
- WVDP-123, "Laboratory Quality Assurance Program Manual"
- Work Area Postings
- WV-538, "Employee Indoctrination and Training"

- WV-620, "Purchase Requisitions and Supplements"
- SHIP-200, "Hot Work Permit (for Thermal Work)"
- WV-935, "Management Expectations - Safety, Changing Conditions and Hazards, and Stopping Work"
- SOP 00-11, "Troubleshooting and Maintenance of Electrical Equipment"
- WVDP-080, "PCB and PCB-Contaminated Material Management Plan"
- Work Instructions prepared in accordance with EP-5-002
- WVDP-162, "WVDP Nuclear Criticality Safety Program Manual"
- WVDP-177, "WVDP Fire Protection Manual"
- WV-365, "Preparation of WVDP Safety Documents"
- WV-900, "WVDP Worker Safety Policy"
- WV-905, "Radiological Protection"
- WV-923, "Nuclear Criticality Safety"
- WVDP-022, "WVDP Emergency Plan"
- WVDP-111, "CH2M HILL • B&W West Valley, LLC Quality Assurance Program"
- WVDP-126, "Performance Based Training Program Manual Preface"
- WVDP-274, "Maintenance Implementation Plan"
- WVDP-106, "Conduct of Operation Applicability Matrix"
- WVDP-019, "Low Level Waste Management Program Plan"

In addition, the WVDP has a preventative maintenance program which issues "tickle cards" (WV-108, "Preventative Maintenance Recall Tracking System and Component Information Input") to notify groups when preventive maintenance is required. WVDP-139, Volume II, "WVDP Emergency Management Administrative Procedures," contains inventory and inspection schedules for all emergency equipment. Information on backup power is found in WVDP-218, "Process Safety Requirements."

All controlled documents are reviewed and prepared in accordance with WVDP-257, "Document Control Implementing Procedures," to assure that regulatory changes are incorporated as they occur.

### 3.2.1 Lock Out/Tag Out (LO/TO)

Operations across the WVDP site involve systems which require the use of LO/TO procedures to protect personnel engaged in construction, repair, and D&D operations. These systems include steam, electrical, pneumatic, process, ventilation lines, and other pressurized systems.

Because of the potential for serious personal injury, all operations, maintenance and related engineering personnel are trained in the CHBWV LO/TO procedures per

SOP 00-04. Only personnel trained in these procedures may perform repair operations, where required. All authorized and affected employees are trained that "Lock Outs" cannot be bypassed. CHBWV uses "Tag Out" tags which feature the employee's photo reinforcing the concept of personal protection.

### 3.2.2 Personal Protective Equipment (PPE)/Respiratory Protection

The levels of PPE and respiratory protection in the IWP/RWP have been based upon characterization data and regulatory requirements at the time of writing. Modification to the level of PPE or respiratory protection may be required based upon field monitoring and changing conditions. All results from area and personal exposure monitoring, conducted by Safety personnel, are maintained in an IS database. Safety and Radiological Controls maintain (appropriate) air sample and monitoring result information.

The modification of PPE or respiratory protection level due to changes in safety and chemical hazards (NON-RADIOLOGICAL) may be initiated by the HSO, Safety personnel, or an industrial hygienist. When changes are required, work is stopped, and changes are made to the IWP. When changes are required, the following steps shall be taken:

Contact the HSO and other affected Safety and Health Departments (Safety personnel and Radiological Controls) to determine if the change affects their controls.

- Safety personnel and/or Radiological Controls personnel will document the changes by rewriting and reissuing the affected IWP and/or RWP.
- The duration of time you are permitted to wear PPE, including respiratory protection, will be monitored as required by the IWP when heat stress or chemical breakthrough is a concern. The limitations of the PPE used will be specified.
- Modification of the PPE or respiratory protection level due to changes in radiological hazards requires the following steps be taken:
  1. Consult with Radiological Controls.
  2. Radiological Controls will document the changes by rewriting and reissuing the affected RWPs.
  3. The HSO or Safety designee will change the PPE section of the IWP Supplement Health and Safety Plan, when required.

All personnel working under this HASP are responsible for reviewing and following the posted PPE or respiratory protection requirements. Job supervisors are responsible for prejob briefings and safety meetings which keep workers informed of changes in PPE and the work scope, in accordance with SHIP-201, "Industrial Work Permits."

## 4.0 TRAINING

All personnel conducting work on this project shall be trained to the level required by their job function and responsibility.

### 4.1 Hazardous Waste Operations and Emergency Response

The site operates certain areas of the WVDP as a RCRA Interim Status TSD Facility with hazardous waste operations occurring in thoroughly characterized areas. Workers who enter these areas are unlikely to be exposed over permissible exposure limits and shall receive:

- 24 hours of classroom instruction with
- one day of supervised field experience.



All workers (operators, general laborers, and supervisory personnel) entering Exclusion Zones involved in environmental remediation, corrective action activities, decontamination & decommissioning (D&D) operations and disturbance of uncharacterized areas shall have:

- 40-hour HAZWOPER training
- 24 hours of supervised field experience
- Annual 8-hour refresher training

Supervisory personnel shall have the above and:

- 8-hour HAZWOPER training for supervisors

The HSHSRM (Attachment A) provides task-specific training requirements (e.g., Radiological Worker, Confined Space Training, HAZWOPER, Asbestos Training, Lead Worker Training).

The following table provides an explanation of the type of HAZWOPER training required at the WVDP.

**Figure 1**  
**WVDP HAZWOPER TRAINING REQUIREMENTS**

Level of Training	Work Activity
24-hour HAZWOPER	Any work performed by WVDP employees or subcontractors in a Treatment, Storage and Disposal Facility (TSDF). On-site TSDFs include, but are not limited to: LSA 3,4 (including WPA, CSPF, and Depot) CPC WSA Remote Handled Waste Facility LSA 2 Hardstand North FRS HIC Hardstand STS Valve Aisle
40-hour HAZWOPER training with 24-hour supervised field experience	Any work performed by WVDP employees or subcontractors in an Exclusion Zone when a Support Zone, Contamination Reduction Zone and Exclusion Zone are required involving: Environmental Remediation of a Solid Waste Management Unit RCRA Corrective Action Activities Decontamination & Decommissioning (D&D) Operations Disturbance of uncharacterized areas
8-hour HAZWOPER training for supervisors plus 40-hour HAZWOPER	Any work by WVDP employees or subcontractors involving the supervision of personnel where 40-hour HAZWOPER training is required.
GET Radiation Training per WVDP-010	<b>Observer</b>  An Observer is defined as any WVDP employee coming to the HAZWOPER work site with the sole purpose of observing or viewing the activity in progress (hands-off inspections). Observers may not operate any equipment or perform manual labor. They must meet any job site notification or PPE requirements being enforced by the job site supervisor.
Site Security Video	<b>Visitor</b>  Anyone (other than a WVDP employee) coming to the work site with the sole purpose of observing or viewing the activity in progress (hands-off inspections). Examples include government regulators. Visitors may not operate any equipment or perform manual labor. They must meet any site escort requirements for the area being visited. They must meet any job site notification or PPE requirements being enforced by the job site supervisor.

#### 4.2 Hazard Communication Training

All personnel who handle or are exposed to hazardous chemicals or materials shall receive training which will include the following: a list of chemicals/materials to which the employee may be exposed, the symptoms of exposure, the methods to control exposure, and the proper handling of the materials.

##### 4.2.1 Material Safety Data Sheets (MSDSs)/Right-to-Know

MSDSs for all products or chemicals to be used at the WVDP are reviewed by Safety personnel before use. Workers have a right to know the hazards of materials with which they are working. For more information, see WVDP Policy & Procedure WV-988, "Employee "Right-to-Know" Program - Hazard Communication" or contact the HSO.

MSDSs are available 24-hours a day in the Safety Office and on computers which have access to MSDS Online (found on the CHBWV Internet at <http://MSDS>). In addition, MSDSs are to be available at the location where the chemicals are used.

No chemical containers shall be used without appropriate labeling, as described in WV-988.

##### 4.2.2 Job Briefings/Safety Meetings

All personnel working at the WVDP and who enter a HAZWOPER Exclusion Zone or TSDF shall be trained in their job functions in accordance with this HASP.

Pre-job safety briefings shall be conducted by the job supervisor or CHBWV HSO. Safety briefings shall cover job hazards pertinent to the activities performed. Relevant safety issues should be discussed at routine workplace meetings.

Supervisors are to review work tasks with workers daily prior to work. This review should cover safety concerns with the work.

#### 4.3 Records of Training

Documentation for all training activities are maintained by Records.

#### 4.4 Observers

An observer is defined as any WVDP employee coming to the work site with the sole purpose of observing or viewing the activity in progress (hands-off inspections). Observers may not operate any equipment or perform manual labor.

Observers entering Radiological Areas who have been Radiological Worker trained shall be oriented to the hazards of the site and the control measures through:

- Briefing by Radiological Controls on the portions of this HASP which may affect them;
- Adhering to requirements in WVDP-010;
- Reading the RWP, where required; and
- Contacting the Work Area Supervisor for briefings on the current site activities and the associated hazards.

4.4.1 Observers, who are not Radiological Worker trained, may only enter construction/work areas or Radiological Buffer Areas by meeting the following requirements: (This list does not qualify an observer to enter unescorted.)

- Having a briefing by Radiological Controls on the portions of this HASP which may affect them.
- Having the escort contact the Work Area Supervisor for briefing on the current site activities and the associated hazards.
- Being escorted by a person who has all the required training for the area to be toured.
- Observers may not enter Radiation Areas or Radiological Buffer Areas without a Thermoluminescent Dosimeter (TLD) or accompanied by an escort wearing a TLD to measure the group's dose.
- Wearing all required PPE before entering an area.
- Adhering to requirements in WVDP-010.

4.4.2 Observers entering Contamination Areas shall meet the following requirements:

- Meet the requirements of 4.4.1 and WVDP-010, Article 335.11.

4.4.3 Observers entering HAZWOPER Exclusion Zones shall meet the following requirements:

- At minimum, they are required to be qualified by having completed 40 hour Hazardous Waste Operations Training or equivalent and/or have maintained their certification by having completed an 8-hour refresher training course within the last year.
- Are required to comply with all PPE and work procedure.
- Specialized training is required for visitors to enter HAZWOPER Exclusion Zones or airborne radioactivity areas (medical fitness physical for respirator usage, respirator fit-testing, and respiratory protection training).

4.4.4 Observers entering a TSDF shall meet the following requirements:

- A. At a minimum, they are required to be qualified by having completed 24 hour Hazardous Waste Operations Training or equivalent and/or have maintained their certification by having completed an 8-hour refresher training course within the last year.
- B. Are required to comply with all PPE and work procedures.
- C. Specialized training may be required for visitors to enter a TSDF.

#### 4.5 Visitors

A visitor is defined as any non-WVDP employee coming to the work site with the sole purpose of observing or viewing the activity in progress (hands-off inspections). Visitors may not operate any equipment or perform manual labor. All visitors must be accompanied by an appropriately trained escort (this is determined by the areas the

escort is taking the visitors into). The escort is responsible for performing and documenting the briefing on the portions of this HASP which affect the visitors they are accompanying.

Visitors entering Radiological Areas who have been Radiological Worker trained shall be oriented to the hazards of the site and the control measures through:

- Briefing by Radiological Controls on the portions of this HASP which may affect them;
- Adhering to requirements in WVDP-010;
- Reading the RWP, where required; and
- Contacting the Work Area Supervisor for briefings on the current site activities and the associated hazards.

4.5.1 Visitors, who are not Radiological Worker trained, may only enter construction/work areas or Radiological Buffer Areas by meeting the following requirements: (This list does not qualify a visitor to enter unescorted.)

- Having a briefing by Radiological Controls on the portions of this HASP which may affect them.
- Having the escort contact the Work Area Supervisor for briefing on the current site activities and the associated hazards.
- Being escorted by a person who has all the required training for the area to be toured.
- Visitors may not enter Radiation Areas or Radiological Buffer Areas without a Thermoluminescent Dosimeter (TLD) or, if part of a tour group, accompanied by an escort wearing a TLD to measure the group's dose.
- Wearing all required PPE before entering an area.
- Adhering to requirements in WVDP-010.

4.5.2 Visitors entering Contamination Areas shall meet the following requirements:

- Meet the requirements of 4.5.1 and WVDP-010, Article 335.11.

4.5.3 Visitors entering HAZWOPER Exclusion Zones shall meet the following requirements:

**NOTE** *Representatives of regulatory agencies may invoke their jurisdictional authority for entry into HAZWOPER Exclusion Zones to conduct inspections of the regulated areas.*

- At minimum, they are required to be qualified by having completed 40 hour Hazardous Waste Operations Training or equivalent and/or have maintained their certification by having completed an 8-hour refresher training course within the last year.
- Are required to comply with all PPE and work procedure.

- Specialized training is required for visitors to enter HAZWOPER Exclusion Zones or airborne radioactivity areas (medical fitness physical for respirator usage, respirator fit-testing, and respiratory protection training).

4.5.4 Visitors entering a TSDF shall meet the following requirements:

- A. At a minimum, visitors are required to be qualified by having completed 24-hour Hazardous Waste Operations Training or equivalent and/or have maintained their certification by having completed an 8-hour refresher training course within the last year.
- B. Are required to comply with all PPE and work procedure.
- C. Specialized training may be required for visitors to enter a TSDF.

## 5.0 PERSONAL PROTECTIVE EQUIPMENT

### 5.1 General Provisions

- 5.1.1 PPE requirements are prescribed in work documents, work permits (such as IWP, RWP, Electrical Work Permits, etc.), procedures and SOPs. PPE shall be inspected prior to each use by the employee using it. If any part of the protective equipment is in disrepair, it shall be tagged/marked "out-of-service" and replaced by properly functioning equipment.
- 5.1.2 Selection of Personal Protective Equipment (PPE) - employees, supervisors and managers, the safety department and purchasing should all be involved in the selection of PPE. Focus is on quality, durability, style, size range and many other criteria which affect compliance. When discussing respiratory protection or chemical safety, all WVDP workers shall consult with our site Safety personnel for any specialized PPE used in these types of work. Selection of the appropriate PPE is a complex process which should take into consideration a variety of factors. Key factors involved in this process are identification of the hazards, or suspected hazards; their routes of potential hazard to employees (inhalation, skin absorption, ingestion, and eye or skin contact); and the performance of the PPE materials (and seams) in providing a barrier to these hazards. The level of protection provided by PPE is material-hazard specific. That is, protective equipment materials will protect well against some hazardous substances and poorly, or not at all, against others. In many instances, protective equipment materials cannot be found which will provide continuous protection from the particular hazardous substance. In these cases the breakthrough time of the protective material should exceed the work durations.

### 5.2 Levels of PPE

- 5.2.1 Level A - To be selected when the greatest level of skin, respiratory, and eye protection is required.

The following constitute Level A equipment; it may be used as appropriate;

- Positive pressure, full face-piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA.
- Totally-encapsulating chemical-protective suit.
- Coveralls.
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots, chemical-resistant, steel toe and shank.
- Hard hat (under suit), as applicable.
- Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally-encapsulating suit).

- 5.2.2 Level B - The highest level of respiratory protection is necessary but a lesser level of skin protection is needed.

The following constitute Level B equipment; it may be used as appropriate.

- Positive pressure, full-face self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA..
- Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls).
- Coveralls.
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots, outer, chemical-resistant steel toe and shank.
- Boot-covers, outer, chemical-resistant (disposable).
- Hard hat, as applicable.
- Face shield, as applicable.

- 5.2.3 Level C - The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met.

The following constitute Level C equipment; it may be used as appropriate.

- Full-face, half-mask, or PAPR (Powered Air Purifying Respirator) air purifying respirators.
- Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls).
- Coveralls.
- Gloves, outer, chemical-resistant.
- Gloves, inner, chemical-resistant.
- Boots (outer), chemical-resistant steel toe and shank, when applicable.
- Boot-covers, outer, chemical-resistant (disposable), when applicable.
- Hard hat, when applicable.
- Escape mask, when applicable.
- Face shield, when applicable.

- 5.2.4 Level D - A work uniform affording minimal protection: used for nuisance contamination only.

The following constitute Level D equipment; it may be used as appropriate:

- Coveralls.
- Gloves, when applicable.
- Boots/shoes, chemical-resistant steel toe and shank.
- Boots, outer, chemical-resistant (disposable), when applicable.
- Safety glasses or chemical splash goggles, when applicable.
- Hard hat, when applicable.
- Escape mask, when applicable.
- Face shield, when applicable.

### 5.3 Use of PPE

- 5.3.1 An IWP/RWP is required to define personal protective equipment when radiological, biological, chemical, and/or physical hazards are suspected or anticipated.
- 5.3.2 Safety glasses with side shields and substantial shoes/boots above the ankle with adequate support and tread are required to be worn by all individuals who will perform work, surveillances or other activities inside the fenced site and other associated work locations (dams, etc.).

## 6.0 EXTREME TEMPERATURE DISORDERS OR CONDITIONS

- 6.1 Evaluation and control of exposure to excessive heat or exposure to excessive cold protocols are provided in SHIP-209, "Heat and Cold Stress." Training and awareness are the first steps toward prevention. These are provided with specific training, safety talks, and communications.

## 7.0 MEDICAL SURVEILLANCE

### 7.1 Required Medical Surveillance

All CHBWV HAZWOPER personnel shall participate in the CHBWV medical surveillance program. This program includes a baseline assessment evaluation and periodic surveillance assessments as referenced in, WVDP-026, "Occupational Health Manual". Attachment A provides task-specific medical surveillance requirements. A subcontractor is responsible to provide evidence of an OSHA approved HAZWOPER medical surveillance, for their employees, to the site medical personnel, prior to HAZWOPER work.

An employee may choose to declare her pregnancy, in writing, to her supervisor, who will notify other appropriate entities (e.g., medical personnel and CHBWV Dosimetry in the case of radiological workers). Employees who are exposed to known or suspected reproductive toxins, such as lead or mercury, above the medical surveillance action levels (MAL), should consider options for reassignment during pregnancy.

Special health assessments and medical surveillance of employees who work in jobs involving specific physical, chemical, or biological hazards shall be in accordance with applicable Federal and State standards. When employees are exposed to potential hazards not covered by regulations, appropriate special assessments may be required as determined by the Site Occupational Medical Director (SOMD) as defined in WVDP-026, "Occupational Health Manual," and approved by the DOE Medical Director, Office of Occupational Medicine and Medical Surveillance. The employee will sign the "Employee Mandatory Medical Assessment" form (WV-1498) following a physician and employee discussion on any unanticipated medical findings or a negative assessment.

## 8.0 EXPOSURE MONITORING/AIR SAMPLING

Exposure monitoring/air sampling is addressed in SHIP-207, *Industrial Safety Standard Sampling Methods*.

All radiological workers are required to have an annual whole body count.

## 9.0 SITE CONTROL

### 9.1 Work Zones

Entry into TSDFs is controlled by the HSHSRM process described in section 4.0.

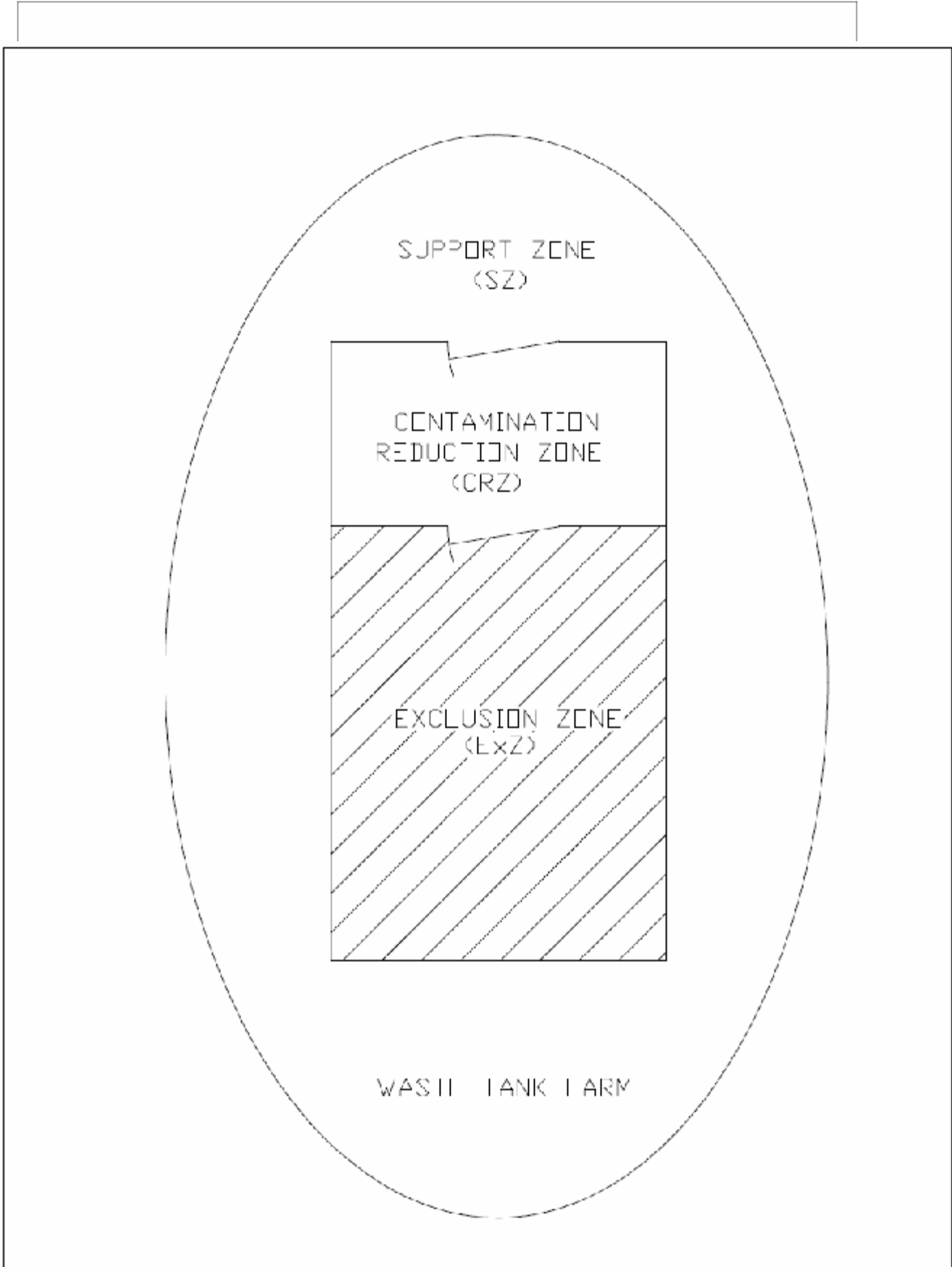
All activities involved in environmental remediation, corrective action activities, D&D operations and disturbance of uncharacterized areas with the potential for radiological or chemical exposure above regulatory limits shall have defined work zones per the HAZWOPER regulations as follows:

**Support Zone (SZ):** The uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions, also called the Clean Zone.



**Contamination Reduction Zone (CRZ):** The transition area between the Exclusion Zone (ExZ) and the Support Zone (SZ) used to reduce and limit the amount of contamination on people and equipment and in the air, water and soil that may be transferred into unhazardous areas. The CRZ contains decontamination facilities, and functions as a buffer zone surrounding the ExZ, also known as the warm zone.

**Exclusion Zone (ExZ):** The area, located on the site, where contamination is either known or expected to occur and where the greatest potential for exposure exists. Also known as the Hot Zone.



- 9.2 Buddy System means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

## 10.0 DECONTAMINATION

### 10.1 Site Decontamination Requirements

Area decontamination of radiological and chemical contaminants should be done with a combination of HEPA-filtered vacuum units, wet wiping techniques, approved detergents or soaps, or the use of fixatives when immediate decontamination is not feasible or practical.

### 10.2 Personal Radiological Decontamination Requirements

Upon leaving the work area, workers will doff protective clothing, place it into appropriate containers, frisk, and report any occurrence of personal or equipment contamination to a Radiological Control Technician (RCT). Skin or personal clothing contamination shall require contacting a RCT immediately. Detection of a count rate above alarm set points with a portable monitoring instrument ("frisker") alerts personnel of possible contamination. Personnel should be alert to any increase in count rates when monitoring with a frisker. Ideal background levels in the monitoring area are less than 100 cpm.

Personnel who are contaminated are to follow the instructions of the RCT.

Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, absorption, or injection shall be immediately reported to Radiological Controls. Medical attention will be sought as required by WVDP-010.

### 10.3 Decontamination of Equipment

Equipment maintained per Radiological Control (RC) procedures.

### 10.4 Chemical Decontamination Requirements

In case of body contact with acids or caustics, non-permeable protective clothing and gloves should be doffed with extreme caution to prevent contamination of the skin. Contaminated inner clothing shall be removed. The affected body area shall be washed thoroughly for 15 minutes or more in a safety shower, or eye wash where there is a chemical splash into eyes. Personnel shall summon aid ("812" All Page), and report immediately to the medical office for injury and exposure evaluation as needed. Notification shall be made to the appropriate supervisor immediately.

Decontamination requirements are given in work documents for individual jobs, where needed. Questions concerning chemical contamination and potential exposure should be directed to the Safety Manager and HSO at Extension 4450.

## 11.0 EMERGENCY/CONTINGENCY PLANS

### Site Notification Numbers/Procedures

When possible, emergencies should be reported via the "812" All Page to ensure rapid response. The "812" All Page can be dialed from any site phone. If a phone is not available, the hierarchy of alternate communication methods are established as follows:

- Two-way radio
- Face-to-face

Any injury or accident, no matter how minor, shall be reported immediately to the medical personnel for medical evaluation and treatment. During off hours, an injury or accident shall be reported to Plant Systems Operations for medical evaluation and treatment. An injured employee shall report any job-related injury to the supervisor in

charge or Safety designee. The Safety Manager shall be notified as soon as possible after the injury/accident has occurred.

When an emergency or abnormal condition is observed, personnel shall dial "812," state the location and nature of the emergency, repeat the message, and hang up.

Employees will be notified of emergency or abnormal conditions by the "812" All Page system. Additionally, the Sheltering Signal will be used should site-wide protective actions be necessary.

Emergency/contingency plans are addressed in WVDP-022, "WVDP Emergency Plan," WVDP-139, "WVDP Emergency Implementing Procedures," and WVDP-171, "WVDP Emergency Readiness Assurance Plan." Job specific training related to emergency response is located in Attachment D of EMAP-202. Personnel Protective Equipment required for emergency response actions involving hazardous materials are identified in job specific emergency response related training.

#### 12.0 CONFINED SPACE ENTRY

Confined space entry is addressed in SHIP-202, "Confined Space Entry and Recordkeeping"

#### 13.0 SPILL CONTAINMENT

Spill containments addressed in WVDP-043, "West Valley Demonstration Project Spill Prevention Control and Countermeasure Plan."

#### 14.0 ATTACHMENT

Attachment A - HAZWOPER SPECIFIC HEALTH AND SAFETY REQUIREMENTS MATRIX WVDP OPERATIONS

## ATTACHMENT A

### HAZWOPER SPECIFIC

### HEALTH AND SAFETY

### REQUIREMENTS MATRIX

#### WVDP Operations

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
REMOTE HANDLED WASTE FACILITY (RHWF)**

Exclusion Zone – Buffer Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book  IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.

<div>HAZWOPER SPECIFIC HEALTH AND SAFETY REQUIREMENTS MATRIX WVDP OPERATIONS REMOTE HANDLED WASTE FACILITY (RHWF) Exclusion Zone – Buffer Cell Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM) Support Zone – Outside of PCM</div>							
		washing.					
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
REMOTE HANDLED WASTE FACILITY (RHWF)**

Exclusion Zone – Crane Maintenance Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book  IWP	
Control Room Operations (i.e., fatigue)			Operator Training		Administrative supervisory attention		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS**

**REMOTE HANDLED WASTE FACILITY (RHWF)**

Exclusion Zone – Crane Maintenance Cell

Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
ACID RECOVERY CELL**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<u>As Needed:</u> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
ACID RECOVERY CELL**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed

HAZWOPER SPECIFIC HEALTH AND SAFETY REQUIREMENTS MATRIX WVDP OPERATIONS ACID RECOVERY CELL Exclusion Zone – Cell Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM) Support Zone – Outside of PCM							
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.
Acids/Caustics/Toxics	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, steel toe shoes, goggles, goggles with face shield when required, non-permeable clothing when required	HAZWOPER	Periodic on the basis of personal exposure as specified by medical	SOP Ventilation Control Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 1 (XC1)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<u>As Needed:</u> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 1 (XC1)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 2 (XC2)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<u><b>As Needed:</b></u> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 2 (XC2)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
PLUTONIUM PRODUCT CELL (PPC)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
PLUTONIUM PRODUCT CELL (PPC)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 3 (XC3)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<u>As Needed:</u> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Elevated Work		Full body harness lanyard/anchorage required above 6 feet	Fall Protection Training		Use aerial lift device; install temporary railings for surfaces above 4 feet; Toeboards/safety nets for falling objects; lanyards attached to tools; tools secured and raised in container		
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EXTRACTION CELL 3 (XC3)**

Exclusion Zone – Cell  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX**

**WVDP OPERATIONS**

**WASTE PACKAGING AREA (WPA)**

Exclusion Zone – Containment Building

Contamination Reduction Zone – Containment Airlock to exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<u><b>As Needed:</b></u> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Elevated Work		Full body harness lanyard/anchorage required above 6 feet	Fall Protection Training		Use aerial lift device; install temporary railings for surfaces above 4 feet; Toeboards/safety nets for falling objects; lanyards attached to tools; tools secured and raised in container		
Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS**

**WASTE PACKAGING AREA (WPA)**

Exclusion Zone – Containment Building

Contamination Reduction Zone – Containment Airlock to exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Mobile Equipment Operations (fork truck, bobcat, etc.)		Hard hat; safety toe shoes; safety glasses (prescription safety glasses when required)	Qualified Equipment Operator		Audible backup alarm; spotter, when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed		
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book  IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**Chemical Exposures:**

Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS**

**WASTE PACKAGING AREA (WPA)**

Exclusion Zone – Containment Building

Contamination Reduction Zone – Containment Airlock to exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Asbestos	Exposure monitoring when required (as determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	In accordance with New York Industrial Code Rule 56 and OSHA	Inclusion in medical surveillance program for asbestos	Use HEPA vacuum at location where asbestos is disturbed  Enclosures/regulated areas Negative air machine	IWP  Possible RWP	Worker must shower when exiting area.  All tools and equipment must be bagged or wiped down prior to removal.
Removal of fibrous non-asbestos insulation	Personal monitoring when determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	HAZWOPER 29 CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	Glove bag ventilation, HEPA vacuum, wet methods	IWP	As specified by Safety.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
FRS**

Exclusion Zone –  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Elevated Work		Full body harness lanyard/anchorage required above 6 feet	Fall Protection Training		Use aerial lift device; install temporary railings for surfaces above 4 feet; Toeboards/safety nets for falling objects; lanyards attached to tools; tools secured and raised in container		
Ladders and Scaffolds			Competent Person Training for Ladders and Scaffold usage (Erections/inspections/dismantling)		All ladders secured when in use; Ladder inspection before use; scaffold inspection documented on IWP		



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
FRS**

Exclusion Zone –  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			
Mobile Equipment Operations (fork truck, bobcat, etc.)		Hard hat; safety toe shoes; safety glasses (prescription safety glasses when required)	Qualified Equipment Operator		Audible backup alarm; spotter, when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed		
Use of aerial lift device; scissors lift, etc.		Harness/lanyard/anchorage	Fall Protection; Equipment Operation		Pre-job inspection 100% tie-off; except scissors lift with standard rails and toeboard	IWP	
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Confined Space Entry (CSE)	Space monitored for O <sub>2</sub> , LEL, CO, and toxics; Personal monitoring when required (as determined by Safety professional judgment)	As required by task; safety harness/lifting tripod	All personnel CSE trained; First Aid/CPR	Medical evaluation for respiratory protection use	Ventilation and rescue equipment/team (as required); Entry supervisor assigned; attendant Entrant assigned; lockout/tagout procedures	IWP with CSE supp	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Size reduction using plasma arc cutting or oxy-gasoline cutting	Continuous monitoring for oxides of nitrogen  Personal monitoring for applicable metal oxides	Nomes, applied air, welding shades	HAZWOPER CFR 1910.120		Fire watch	IWP Hot Work Permit	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
FRS**

Exclusion Zone –  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
FRS**

Exclusion Zone –  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Asbestos generated if disturbing pipe insulation	Exposure monitoring when required (as determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	In accordance with New York Industrial Code Rule 56 and OSHA	Inclusion in medical surveillance program for asbestos	Use HEPA vacuum at location where asbestos is disturbed  Enclosures/regulated areas Negative air machine	IWP  Possible RWP	Worker must shower when exiting area.  All tools and equipment must be bagged or wiped down prior to removal.
Removal of fibrous non-asbestos insulation	Personal monitoring when determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	HAZWOPER 29 CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	Glove bag ventilation, HEPA vacuum, wet methods	IWP	As specified by Safety.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING AND PACKING FACILITY (CSPF)**

Exclusion Zone – CSPF  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING AND PACKING FACILITY (CSPF)**

Exclusion Zone – CSPF  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING AND PACKING FACILITY (CSPF)**

Exclusion Zone – CSPF  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Asbestos	Exposure monitoring when required (as determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	In accordance with New York Industrial Code Rule 56 and OSHA	Inclusion in medical surveillance program for asbestos	Use HEPA vacuum at location where asbestos is disturbed  Enclosures/regulated areas Negative air machine	IWP  Possible RWP	Worker must shower when exiting area.  All tools and equipment must be bagged or wiped down prior to removal.
Removal of fibrous non-asbestos insulation	Personal monitoring when determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	HAZWOPER 29 CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	Glove bag ventilation, HEPA vacuum, wet methods	IWP	As specified by Safety.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
ANALYTICAL DECONTAMINATION AISLE (ADA)**

Exclusion Zone – ADA  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
ANALYTICAL DECONTAMINATION AISLE (ADA)**

Exclusion Zone – ADA  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
ANALYTICAL DECONTAMINATION AISLE (ADA)**

Exclusion Zone – ADA  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
VITRIFICATION FACILITY**

Exclusion Zone – Vit Cell Crane Room  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Elevated Work		Full body harness lanyard/anchorage required above 6 feet	Fall Protection Training		Use aerial lift device; install temporary railings for surfaces above 4 feet; Toeboards/safety nets for falling objects; lanyards attached to tools; tools secured and raised in container		
Ladders and Scaffolds			Competent Person Training for Ladders and Scaffold usage (Erections/inspections/dismantling)		All ladders secured when in use; Ladder inspection before use; scaffold inspection documented on IWP		

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
VITRIFICATION FACILITY**

Exclusion Zone – Vit Cell Crane Room  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			
Hot Work (welding, cutting, brazing, soldering, grinding)	Safety tests vessels for flammable/combustible gases, toxic gases/fumes/dust/particulate NOx	Flame retardant clothing (welder's coveralls); insulated gloves; welding helmet with filtered lenses; leathers; safety glasses with side shields; respiratory protection as required.	Fire Extinguisher  Fire Watch	Inclusion in medical surveillance program for welding; Hearing Conservation Program	Fire extinguisher co-located with all "hot work; Hot Work Permit; Fire Watch assigned; Welding Curtains; Portable fume hood; hearing protection where required' <b>IN CASE OF FIRE, USE "812" ALL PAGE.</b>		
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Confined Space Entry (CSE)	Space monitored for O <sub>2</sub> , LEL, CO, and toxics; Personal monitoring when required (as determined by Safety professional judgment)	As required by task; safety harness/lifting tripod	All personnel CSE trained; First Aid/CPR	Medical evaluation for respiratory protection use	Ventilation and rescue equipment/team (as required); Entry supervisor assigned; attendant Entrant assigned; lockout/tagout procedures	IWP with CSE supp	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book  IWP	
Hazardous Energy – Steam		Double isolation, thermal scan	Lock Out/Tag Out		Lock & Tag procedure, work document	LOTO Log Book  IWP	
Hazardous Energy - Pneumatic		As required by task	Lock Out/Tag Out		Lock & Tag procedure, work document	LOTO Log Book  IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
VITRIFICATION FACILITY**

Exclusion Zone – Vit Cell Crane Room  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Size reduction using plasma arc cutting or oxy-gasoline cutting	Continuous monitoring for oxides of nitrogen  Personal monitoring for applicable metal oxides	Nomex, supplied air, welding shades  Fire protection system (e.g., sprinklers)	HAZWOPER CFR 1910.120		Fire Watch	IWP  Hot Work Permit	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
VITRIFICATION FACILITY**  
Exclusion Zone – Vit Cell Crane Room  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL. Spill control kits positioned as needed
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Removal of fibrous non-asbestos insulation	Personal monitoring when determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	HAZWOPER 29 CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	Glove bag ventilation, HEPA vacuum, wet methods	IWP	As specified by Safety.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING REDUCTION FACILITY (CSRF)**

Exclusion Zone – CSRF  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Hazard Identification	Frequency and Type of Exposure and Personal Monitoring Required	PPE	Training Requirements	Medical Surveillance Requirements	Administrative and Engineering Control Measures	Permit	Decontamination and Disposal Procedures
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Mobile Equipment Operations (fork truck, bobcat, etc.)		Hard hat; safety toe shoes; safety glasses (prescription safety glasses when required)	Qualified Equipment Operator		Audible backup alarm; spotter, when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed		
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING REDUCTION FACILITY (CSRf)**

Exclusion Zone – CSRf  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Size reduction using plasma arc cutting or oxy-gasoline cutting	Continuous monitoring for oxides of nitrogen  Personal monitoring for applicable metal oxides	Nomex, supplied air, welding shades  Fire protection system (e.g., sprinklers)	HAZWOPER CFR 1910.120		Fire Watch	IWP  Hot Work Permit	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
CONTAINER SORTING REDUCTION FACILITY (CSRF)**

Exclusion Zone – CSRF  
Contamination Reduction Zone – Air Lock to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL. Spill control kits positioned as needed
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Asbestos	Exposure monitoring when required (as determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	In accordance with New York Industrial Code Rule 56 and OSHA	Inclusion in medical surveillance program for asbestos	Use HEPA vacuum at location where asbestos is disturbed  Enclosures/regulated areas Negative air machine	IWP  Possible RWP	Worker must shower when exiting area.  All tools and equipment must be bagged or wiped down prior to removal.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EQUIPMENT DECONTAMINATION ROOM (EDR)**

Exclusion Zone – EDR  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
EQUIPMENT DECONTAMINATION ROOM (EDR)**

Exclusion Zone – EDR  
Contamination Reduction Zone – per IWP/RWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
WASTE TANK FARM(WTF)**

Exclusion Zone – Tank Farm

Contamination Reduction Zone – per RWP and exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Cold Stress	Physiological Monitoring  Ambient temperature and wind chill surveys	Insulated/layered clothing  Gloves  Hat	Operator Briefings		Cease outdoor work when wind chill is below -70°F	IWP	
Elevated Work		Full body harness lanyard/anchorage required above 6 feet	Fall Protection Training		Use aerial lift device; install temporary railings for surfaces above 4 feet; Toeboards/safety nets for falling objects; lanyards attached to tools; tools secured and raised in container		

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
WASTE TANK FARM(WTF)**

Exclusion Zone – Tank Farm

Contamination Reduction Zone – per RWP and exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Ladders and Scaffolds			Competent Person Training for Ladders and Scaffold usage (Erections/inspections/dismantling)		All ladders secured when in use; Ladder inspection before use; scaffold inspection documented on IWP		
Noise	Hearing protection (at 85 dBA or greater), as posted; Ear plugs; Ear muffs	Personnel exposed to 8 hours TWA>85dBA are entered into Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in HCP	Areas where noise >85dBA posted "Hearing Protection Required", Noise dampening Enclosures; Isolation			
Hot Work (welding, cutting, brazing, soldering, grinding)	Safety tests vessels for flammable/combustible gases, toxic gases/fumes/dust/particulate NOx	Flame retardant clothing (welder's coveralls); insulated gloves; welding helmet with filtered lenses; leathers; safety glasses with side shields; respiratory protection as required.	Fire Extinguisher  Fire Watch	Inclusion in medical surveillance program for welding; Hearing Conservation Program	Fire extinguisher co-located with all "hot work; Hot Work Permit; Fire Watch assigned; Welding Curtains; Portable fume hood; hearing protection where required' <b>IN CASE OF FIRE, USE "812" ALL PAGE.</b>		
Hoisting/Rigging		Hard hat; Steel toe shoes; Orange vest (in swing area) for ground guide	Competent Person for Hoisting and Rigging Inspection; Trained Operators		Comply with DOE Hoisting and Rigging Manual requirements; Crane inspection current; Lift Plan; Lift Plan for critical lifts	IWP	
Unguarded Openings (i.e., roof hatch)		Harness/lanyard/anchorage	Fall protection		Temporary railings; fall protection required at unprotected edge	IWP	
Confined Space Entry (CSE)	Space monitored for O <sub>2</sub> , LEL, CO, and toxics; Personal monitoring when required (as determined by Safety professional judgment)	As required by task; safety harness/lifting tripod	All personnel CSE trained; First Aid/CPR	Medical evaluation for respiratory protection use	Ventilation and rescue equipment/team (as required); Entry supervisor assigned; attendant Entrant assigned; lockout/tagout procedures	IWP with CSE supp	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Hazardous Energy - Electrical		As required by task; Double insulated tools, insulated gloves, floor mats, electrical test meters	Electrical Safety; Electricians (trained and qualified) Lock Out/Tag Out; First Aid/CPR		Work in accordance with lock out tag out program; Task Procedure Buddy system; Insulated tools	LOTO Log Book  IWP	
Hazardous Energy – Steam		Double isolation, thermal scan	Lock Out/Tag Out		Lock & Tag procedure, work document	LOTO Log Book  IWP	
Thermal Burns		Insulated gloves; long sleeves	Operator Briefing		Insulation	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
WASTE TANK FARM(WTF)**

Exclusion Zone – Tank Farm

Contamination Reduction Zone – per RWP and exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Head Injury		Hard hats (as posted)	Operator Briefing		Insultaion	IWP	
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Size reduction using plasma arc cutting or oxy-gasoline cutting	Continuous monitoring for oxides of nitrogen  Personal monitoring for applicable metal oxides	Nomex, supplied air, welding shades  Fire protection system (e.g., sprinklers)	HAZWOPER CFR 1910.120		Fire Watch	IWP  Hot Work Permit	
Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
WASTE TANK FARM(WTF)**

Exclusion Zone – Tank Farm

Contamination Reduction Zone – per RWP and exit through Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Asbestos generated if disturbing pipe insulation	Exposure monitoring when required (as determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	In accordance with New York Industrial Code Rule 56 and OSHA	Inclusion in medical surveillance program for asbestos	Use HEPA vacuum at location where asbestos is disturbed  Enclosures/regulated areas Negative air machine	IWP  Possible RWP	Worker must shower when exiting area.  All tools and equipment must be bagged or wiped down prior to removal.
Removal of fibrous non-asbestos insulation	Personal monitoring when determined by Safety professional judgment)	Full face respirator with P100 (magenta) cartridges, gloves, Tyvek	HAZWOPER 29 CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	Glove bag ventilation, HEPA vacuum, wet methods	IWP	As specified by Safety.
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.
Acids  Caustics  Toxics	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, steel toe shoes, goggles; goggles with face shield when required; non-permeable clothing when required	HAZWOPER	Periodic on the basis of personal exposure as specified by medical	SOP ventilation control; Emergency Shower/Eyewash;	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
WASTE DISPENSING VESSEL (01-14)**

Exclusion Zone – Air lock to PCM  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS**

**WASTE DISPENSING VESSEL (01-14)**

Exclusion Zone – Air lock to PCM

Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS**

**WASTE DISPENSING VESSEL (01-14)**

Exclusion Zone – Air lock to PCM

Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)

Support Zone – Outside of PCM

Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NUCLEAR DISPOSAL AREA (NDA)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure  -solvents  -silica	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Confined Space Entry (CSE)	Space monitored for O <sub>2</sub> , LEL, CO, and toxics; Personal monitoring when required (as determined by Safety professional judgment)	As required by task; safety harness/lifting tripod	All personnel CSE trained; First Aid/CPR	Medical evaluation for respiratory protection use	Ventilation and rescue equipment/team (as required); Entry supervisor assigned; attendant Entrant assigned; lockout/tagout procedures	IWP with CSE supp	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NUCLEAR DISPOSAL AREA (NDA)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	
Slurry Wall Entrapment					Life preserver, barricades	IWP	
Heavy Equipment Operation		Hard hat; safety toe shoes; safety glasses (prescription safety glasses when required)	Qualified Equipment Operator		Audible backup alarm; spotter when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed; orange/green vest around operating equipment	IWP	
Hazardous Energy – Electrical  Electrical Generator			Electrical safety; First Aid/CPR		Task procedure  Buddy system; insulated tools  Well ventilated area	IWP	
Earth – slurry mixing	Silica monitoring at hopper	Respirator	Respiratory qualification		Enclosed bentonite addition; water for dust suppression	IWP	
Hot air seam welding		Insulated gloves; long sleeves	Operator Briefing			IWP	
Excavation and Trenching		Hard hat; safety toe shoes; safety glasses	Qualified Equipment Operator		Audible backup alarm; spotter when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed; orange/green vest around operating equipment	IWP	
Hot Work  Abrasive cutting	Noise monitoring per Safety	Leather gloves; hearing protection	Fire Extinguisher  Fire Watch	Hearing Conservation Program	Fire extinguisher co-located with all “hot work”; Hot Work Permit; Fire watch assigned; Welding Curtains; Portable fume hood; hearing protection where required. <b>In case of fire use “812” all page.</b>	IWP	
Mobile Equipment Operations (fork truck, bobcat, etc)		Hard hat; safety toe shoes; safety glasses	Qualified Equipment Operator		Audible backup alarm; spotter, when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed	IWP	

<div>HAZWOPER SPECIFIC HEALTH AND SAFETY REQUIREMENTS MATRIX WVDP OPERATIONS NUCLEAR DISPOSAL AREA (NDA) Exclusion Zone – Excavations Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM) Support Zone – Outside of PCM</div>							
Isolated area (radio, cell phone)			GET		Radio communication and cell phone	IWP	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NORTH PLATEAU TREATMENT WALL (NPTW)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure  -solvents  -silica  - zeolite	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Confined Space Entry (CSE)	Space monitored for O <sub>2</sub> , LEL, CO, and toxics; Personal monitoring when required (as determined by Safety professional judgment)	As required by task; safety harness/lifting tripod	All personnel CSE trained; First Aid/CPR	Medical evaluation for respiratory protection use	Ventilation and rescue equipment/team (as required); Entry supervisor assigned; attendant Entrant assigned; lockout/tagout procedures	IWP with CSE supp	
Treatment Wall Entrapment					Barricades	IWP	
Heavy		Hard hat; safety toe shoes;	Qualified Equipment		Audible backup alarm;	IWP	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NORTH PLATEAU TREATMENT WALL (NPTW)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Equipment Operation		safety glasses (prescription safety glasses when required)	Operator		spotter when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed; orange/green vest around operating equipment		
Hazardous Energy – Electrical  Electrical Generator			Electrical safety; First Aid/CPR		Task procedure  Buddy system; insulated tools  Well ventilated area	IWP	
Earth – zeolite	Zeolite monitoring at hopper	Respirator (as required)	Respiratory qualification		Enclosed zeolite addition; water for dust suppression	IWP	
Excavation and Trenching		Hard hat; safety toe shoes; safety glasses	Qualified Equipment Operator		Audible backup alarm; spotter when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed; orange/green vest around operating equipment	IWP	
Hot Work  Abrasive cutting	Noise monitoring per Safety	Leather gloves; hearing protection	Fire Extinguisher  Fire Watch	Hearing Conservation Program	Fire extinguisher co-located with all “hot work”; Hot Work Permit; Fire watch assigned; Welding Curtains; Portable fume hood; hearing protection where required. <b>In case of fire use “812” all page.</b>	IWP	
Mobile Equipment Operations (fork truck, bobcat, etc)		Hard hat; safety toe shoes; safety glasses	Qualified Equipment Operator		Audible backup alarm; spotter, when required; fire extinguisher; roll over protection; equipment inspection daily/periodic; seat belts when installed	IWP	
Isolated area (radio, cell phone)			GET		Radio communication and cell phone	IWP	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NORTH PLATEAU TREATMENT WALL (NPTW)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NORTH PLATEAU TREATMENT WALL (NPTW)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.
Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.



**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
NORTH PLATEAU TREATMENT WALL (NPTW)**

Exclusion Zone – Excavations  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.
Acids Caustics Toxics	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, steel toe shoes, goggles; goggles with face shield when required; non-permeable clothing when required	HAZWOPER	Periodic on the basis of personal exposure as specified by medical	SOP ventilation control; Emergency Shower/Eyewash;	IWP	Spill control kits positioned as needed

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
OFF-GAS AISLE/OFF-GAS CELL/OFF-GAS BLOWER ROOM)**

Exclusion Zone – Aisle/Cell/Blower Room  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

<b>Hazard Identification</b>	<b>Frequency and Type of Exposure and Personal Monitoring Required</b>	<b>PPE</b>	<b>Training Requirements</b>	<b>Medical Surveillance Requirements</b>	<b>Administrative and Engineering Control Measures</b>	<b>Permit</b>	<b>Decontamination and Disposal Procedures</b>
Radiological Exposure (Contamination)	Dosimeter (TLD)  Electronic Dosimeter (as required)  RCT coverage/monitoring (as required)	As Needed (per RWP): Thin disposable gloves Anti-Cs Rubber shoe covers Respiratory protection	Rad Worker II	Approved physical; In-vivo – baseline annual. Incident (as necessary), and termination; Urinalysis – baseline, incident (as necessary), required annually for field workers and Respiratory Protection qualified personnel and upon termination	Visitor escort; Pre-job safety meeting; Monitoring upon exiting controlled areas; Approved Procedure; Negative pressure containment	RWP	Tools, equipment, etc., shall be surveyed by RCT prior to leaving Controlled Area
Hazardous Chemical Exposure	Personal monitoring when required (as determined by safety professional judgment)	<b>As Needed:</b> Hard hats, safety toe shoes, safety glasses w/side shields, work clothing, chemical resistant gloves (chemical specific) when required, Chem splash goggles, face shield with goggles, emergency eyewash/shower	General Employee Training (GET)  Site specific orientation	General medical surveillance exams: Baseline, periodic and upon termination	Access controlled to facilities and operations  Approved procedure  General or local exhaust ventilation	IWP	
Heat Stress	Physiological Monitoring  WBGT temperature surveys	Ice vests, phase changes, or vortex cooling vests, as needed	Operator Briefings	CHBWV medical approval for working in hot environments	Work/rest regimen used; Contact safety when temperature > 69.8°F and worker is in Level B suit up to review/add control measures; Rest Area; Adequate drinking water supply/cups.	IWP	
Walking/Working Surfaces (i.e., slips and falls)		Safety shoes; Boots when required	Operator Briefing		Snow and ice removal; Use of hand rails/guard rail systems; Use of non-slip grating		
Lacerations		Cut resistant gloves when handling sharp materials or cutting tools (leather, Kevlar)	Operator Briefing		Mechanical cutting	IWP (as needed)	

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
OFF-GAS AISLE/OFF-GAS CELL/OFF-GAS BLOWER ROOM)**

Exclusion Zone – Aisle/Cell/Blower Room  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Lead (if disturbing lead painted surfaces)	Identify lead based paint before disturbing using the XL spectrum analyzer. Personal monitoring when required (as determined by safety professional judgment)	Double disposable anti-C's or Tyvek (as required). Full face respirator or PAPR with P-100 when manually or mechanically cutting lead painted metal. Full face positive pressure supplied air respirator when torch cutting lead painted metal until exposure assessment allows downgrade of respiratory protection. Hygiene facilities required for face and hand washing.	Lead Worker Training (Lead worker training required to supervise lead work when airborne levels exceed OSHA PEL)	Inclusion in medical surveillance program for lead.	Remove lead paint with chemical stripper before cutting (when possible). Tape lead paint surface before cutting. Use mechanical vs. flame means of cutting when possible. Use local ventilation with adequate transport velocity, hood, and positioning arm to control fumes or particles.	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Chemical Exposures:							
Solvents	Personal monitoring when required (as determined by Safety professional judgment)	Chemical specific/chemical resistant gloves, chemical suit, boots, goggles, respiratory protection (as required) (safety glasses used with face shield/chemical goggles with face shield)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP, Emergency Shower/Eyewash, Emergency Medical Team available	IWP	Spill control kits positioned as needed
PCBs	Personal monitoring when required (as determined by Safety professional judgment)	Butyl rubber gloves, boots, goggles, face shield	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Mercury	Personal monitoring when required (as determined by Safety professional judgment)	Safety glasses used with face shield and respiratory protection (as required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Personnel showers at end of shift, Mercury vacuums, Spill control kits positioned as needed.

**HAZWOPER SPECIFIC HEALTH AND SAFETY  
REQUIREMENTS MATRIX  
WVDP OPERATIONS  
OFF-GAS AISLE/OFF-GAS CELL/OFF-GAS BLOWER ROOM)**

Exclusion Zone – Aisle/Cell/Blower Room  
Contamination Reduction Zone – per RWP/IWP to Personal Contamination Monitor (PCM)  
Support Zone – Outside of PCM

Inorganic Lead	Personal monitoring when required (as determined by Safety professional judgment)	Anti-C gloves, chemical suit, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120  Lead worker per CFR 1910.1025, CFR 1926.62	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash  Regulated areas	IWP	Lead workers shall wash hands prior to breaks and lunch. Lead workers shall shower at the end of the work shift when exposure exceeds OSHA PEL.
Ammonia	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, boots, goggles, face shield, respiratory protection (as required)	HAZWOPER per CFR 1910.120	Annual	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Acid	Personal monitoring when required (as determined by Safety professional judgment)	Chemical resistant/chemical specific gloves, chemical goggles, face shield and goggles, respiratory protection (as required), non-permeable splash suits, hard hat (where required)	HAZWOPER per CFR 1910.120	Periodic on the basis of personal exposure as specified by medical	SOP Emergency Shower/Eyewash	IWP	Spill control kits positioned as needed
Airborne Radioactivity generated by task	RS monitoring	Full face respirator with P100 cartridges, supplied air or PAPR (as assigned on RWP)	Rad Worker II	Annual whole body count and bioassay	Dust suppressant	RWP	As specified by RC.
Acids Caustics Toxics	Personal monitoring when required (as determined by Safety professional judgment)	Gloves, steel toe shoes, goggles; goggles with face shield when required; non-permeable clothing when required	HAZWOPER	Periodic on the basis of personal exposure as specified by medical	SOP ventilation control; Emergency Shower/Eyewash;	IWP	Spill control kits positioned as needed

WVDP RECORD OF REVISION

Rev. No.	Description of Changes	Revision On Page(s)	Dated
0	Original Issue	All	06/04/96
1	General Revision	All	04/29/98
2	General Revision	All	10/29/99
FC1	Change reference to SOP 00-35, "Confined Space Entry" to WV-925 "Confined Space Entry"	21	04/07/00
3	1.3.6 - Added Fuel Receiving and Storage Facility (FRS) because of reactivation of the facility 5.0 - The words "Medical Monitoring" throughout this section was replaced with "Medical Surveillance" to make the verbiage consistent with the Code of Federal Regulations (CFR) 5.1 - Removal of declared pregnant employees from potentially hazardous ops 6.2.3 - This section was revised to identify a number of new areas where mercury vapors may be present. 6.2.4 - Deleted reference to lead exposure during target practice since it is no longer done. 10.0 - Requirements revised to identify that a formal review per WVNS procedures and prior OH/WVDP approval is required to change and/or amend the HASP, in accordance with WV-365.	4, 8, 10, 11, 14, 15, 16, 30, 35-42	11/08/00
4	1.3.6 Added PCBs in paint 1.3.7 Added description of Head Eng Cells Work 3.3 Changed name to Waste Characterization services 4.1.1 Changed ZylImage to MSDS Simpleview 4.2 Changed name to Records and Information 6.2.2 Updated SOPs, added PCBs in paint 6.2.3 Added names of areas where mercury has been found Updated section 6.0 throughout to include hazards from decommissioning activities 7.1 Added ventilation of waste containers using hoods or trunks	8 9 11 13 13 18 19 17 27	08/21/01
FC1	1.2 Rewrote definition of Hazardous Waste Exclusion Zone to clarify 2.0 Updated Manager Titles 9.0 Deleted references to on-site HazMat Team, changed wording in Emergency Response section. Sections renumbered due to changes Technical Services is affected by these changes	6 9, 10 31-35	06/18/02

WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
FC2	Title Page - Updated	1	11/26/02
	Section 1.2 - clarified statement	6	
	Section 1.3 - Corrected title	7	
	Section 2.3 - removed an "s"	9	
	Section 2.5 - corrected title	9	
	Section 3.3 - deleted reference to SOP 15-55 and corrected NYSDOH to NYSDOL	11-12	
	Section 4.2 - corrected department title	13	
	Section 4.3 - added documenting briefings	13	
	Section 4.3.2 D - clarified TLD requirements for visitors	14	
	Section 6.2.11 - specified location	23	
	Section 8.2 - corrected typo	30	
	Section 9.5 - one section number was duplicated and section was corrected and renumbered afterwards	34-35	
	Section 9.5.7 - formerly 9.5.6, corrected title	35	
	Section 11.3 - Corrected Records Title	36	
	Attachment A - closed parenthesis	38	
	Attachment A - separated various forms of hazardous energy	39	
	Attachment D - clarified respiratory for asbestos	49	
	Attachment F - updated Employee Concern Program Poster	56	
	Changes to this procedure affect Main Plant Operations and Technical Services		
FC3	Title page - updated	1	08/18/03
	Section 1.0 - removed references to WVDP-251	5	
	Sections 1.1 & 1.2 - added titles	6	
	Section 1.2.7 & 1.2.8 - added	7	
	Section 1.3 - removed reference to vitrification	7	
	Section 1.3.3 - clarified section	8	
	Sections 1.3.8 - 1.3.13 - added sections from WVDP-251	9-11	
	Section 2.3 - Deleted	11	
	Section 2.4 - changed "Lead" to "Manager" and updated department title	11-12	
	Section 2.5 - updated	12	
	Section 2.7 - updated department title	12	
	Section 2.9 - deleted line	12	
	Section 3.2 - added 40 Hour HAZWOPER	13	
	Section 4.3.1 B - added "where required"	16	
	Section 5.1 - added as defined in WVDP-026	17	
	Section 6.1 - added line about HLW Waste.	19	
	Section 6.1 - added americium to exposure	19-20	

WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
FC3 (Cont.)	Section 6.2.5 - added vit chemicals	22	
	Section 6.2.7 - added	23-25	
	Sections 6.2.8 - 6.2.10 - renumbered	26-27	
	Sections 6.2.11 - added	27	
	Sections 6.2.12 - 6.2.15 - renumbered	27-29	
	Section 6.2.15 - wrote gasoline out, corrected typo	29	
	Section 6.3.3 - Corrected WV-925 title	31	
	Section 6.3.4 - updated title to PSO	32	
	Section 7.1 [A] - removed reference to WVDP-251	33	
	Section 7.1 - corrected various procedure titles	33-34	
	Section 8.3 - corrected phone number	37	
	Section 9.1 - changed "Lead" to "Manager"	37	
	Sections 9.4, 9.5.3 D, 9.5.4, 9.5.8 - corrected title to PSO	38-41	
	Corrected Records Section	42	
	Attachment A - added respiratory protection requirement for mercury PPE, added training requirements for lead work, added D&D disposal procedures for asbestos work, removed 01-Cell section, renumbered following sections, changed high consequence to critical and added training requirements for Deactivation activities	44-49	
	Attachment D - for mercury added "with P100 mersorb filter"	55	
	Attachment F - removed graphic	62	
	Attachment G - updated title to PSO, changed WVNS to WVNSCO and corrected typo	65-66	
	Entire document - updated IHS&HS department name / abbreviation	All	
	Changes to this procedure affect Plant System Operations, D&D, and Technical Services		
	DOE Approval letter DW:2003:0365		
5	1.0 - Rewrote paragraph 2	5	01/27/04
	1.3 - Added a paragraph regarding deactivation activities	7	
	1.3.8 - Added a line regarding deactivation	10	
	1.3.10 - Added a line regarding deactivation	11	
	1.3.10 - Added residues	11	
	1.3.12 - changed supports to supported	11	
	1.3.14 - added section on RHWF	12	
	2.1, 2.2 & 2.7 - updated based on organization changes	12-13	
	2.8 - added reference to SOP 15-14, WIP	13	
	4.0 - changes 3 day to 24 hour and added D&D	15	
	5.1 - reworded eliminating RPQ	18	
	6.1 - removed reference to the 2 casks	20	
	6.2.11 - added more info on NOx	28	

WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
5 (cont)	6.2.15 - added more site specific info on chromium, nickel, etc.	30	
	6.3.2 A - updated section on IWSF	33	
	7.3 - removed s from industrial hygienists	37	
	7.3.6 & 7.3.7 - changed to be 7.3.5 subsections	37	
	Attachment A - removed shipping cask decontamination process, rail car loading & unloading of cask and shipping cask/impact limiter helium testing	49-50	
	Attachment A - reworded RPQ	45-50	
	Attachment B - Form WV-3042 - Changed department name from "Industrial Hygiene and Safety" to "Industrial Safety and Medical".	51	
	Attachment C & E - input a newer map	54,61	
	Att G - added RHWF	66	
	Att H - added header page	67	
	Updating of department and group names Changes to this procedure affect IS&M, PSO, RHWF		
6	General Revision	All	04/04/05
	Updated organizational titles, procedure titles, general editorial corrections, and changed work orders to work instruction packages.	All	
	Added shipping campaign and infrastructure reduction	All	
	1.2 - added information about sorting areas and when to be posted as HAZWOPER Exclusion Zones	7	
	1.3.7 - removed Head End Cells	9	
	1.3.9 - added note about mercury	10	
	1.3.10 - removed info on the ventilation system	10	
	1.3.13 - added facility decommission	11	
	5.1.1 B - Dropped "at the present time"	18	
	6.2.1 - updated peak levels	20	
	6.2.3 - updated peak levels	21	
	6.3.1 C - added GFCL requirement	31	
	7.1 Q - Added document	35	
	9.4.1 - reworded	38	
	9.5.7 - updated responsibilities, form for accident investigations, and reference to SHIP-203. Changes to this procedure affect IS&HS, NS&EM	41	
7	General Revision	All	04/08/05
	Editorial corrections	All	
	1.2 - addition of one zone and clarification	7	
	1.3.10 - added work instruction package	10	
	1.3.14 - added WMSA	11	
	6.3.1 [C] - enhanced GFCL requirements	31	
	7.1 - Added document requirements	35	
	10.3 - corrected document title	41	
	Changes to this procedure affect IS&HS, NS&EM		



WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
8	Revised based on updated work scope. This revision affects all personnel.	All	07/14/06
9	Updated Author 1.1 - Change IS&HS "department" to "personnel." 1.2 - Added "days" after "30." 2.2, 2.3 - Change title from IS&HS Manager to Rad Safety Manager. Combined responsibilities from old section 2.7, "Rad Protection Manger" under new 2.2 heading. Deleted old 2.7. 2.7 - Updated Decontamination Station Officer information. 2.9 - Updated sentence on STS certified WVNSCO employees. 2.10 - Added "personnel" after "IS&HS." 3.1.1, paragraph 1 - Deleted "of the WVDP" in 4 <sup>th</sup> sentence so it reads "...during waste solidification activities and during decontamination...". Deleted "property" at end of 6 <sup>th</sup> sentence. Changed "respective daughters" to "progeny" in last sentence. Paragraph 2 - Changed "or" to "and" to read "Radiation, High Radiation, and Very High Radiation." 3.1.2 - Added "personnel" after "IS&HS." 3.1.2 A - Added "e.g." and parenthesis around last sentence. 3.1.2 B - Changed 1 <sup>st</sup> sentence to read "Capacitors containing PCBs..." 3.1.2 D - paragraph 1 - Added "personnel" after "IS&HS." 3.1.2 E - Changed "chemists" to chemistry personnel." 3.1.2 G - Changed IS&HS "Department" to "personnel." Table - Deleted row pertaining to Beryllium from Chemical Hazards Table. 3.1.2 H - Changed IS&HS "Department" to "personnel." 3.1.2 K - Added "Personnel Protective Equipment." 3.1.2 M - Changed "fume" to "Fumes" in 2 places. 3.1.2 N - Deleted "Personnel Protective Equipment." 3.1.3 A 1 - Added "personnel" after IS&HS. 3.1.3 A 2 - Changed "operators" to "personnel." 3.1.3 A 4 - Changed "will" to "shall." 3.2 - Changed Radiation & Safety "Protection" to "personnel." Deleted "building" from 7 <sup>th</sup> bullet under Engineering controls. Deleted "RC-ADM-16" reference under Administrative controls and replaced it with "RC-ADM-6." 3.2.2 - Changed IS&HS "Department" to "personnel." Changed "logbooks" to "information." 3.2.2 A - Added "personnel" after IS&HS. 4.0 - Added "(D&D)" in 3 <sup>rd</sup> paragraph. Deleted "an" in 2 places in 4 <sup>th</sup> paragraph. 4.1.1 - Changed IS&HS "Department" to "personnel." Changed IS&HS "Department" to "personnel." 4.2 - Changed "the Records Organization" to "Records." 4.3.2 A - Added "and WVDP-010, Article 335.11. Deleted steps B & C.	Cover 4 5 5  5 6 6  7 7 7  8 9 12  13 14 14 15 15 16 17 18 18 19  21  21 22 22 23 24	09/07/06

WVDP RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
9 cont.	<p>5.2 - Changed "Industrial Hygiene" to "IS&amp;HS." Changed "amount" to "level."</p> <p>6.1 - Changed "towards" to "toward."</p> <p>10.2 - Deleted "inner" before "personal clothing."</p> <p>Changed "should alert" to "alerts." Changed "should be alerted to" to "should be alert to." Changed personnel who "have been" to "who are." Changed "Radiation Control Operations" to "R&amp;S."</p> <p>10.3 - Changed entire sentence</p> <p>11.0 - Changed "IS&amp;HS" to "Radiation &amp; Safety" Manager.</p> <p>Attachment A - Changed "Vinyl gloves" to "Thin Disposable Gloves" throughout matrix. Changed "Radiological Control" to "R&amp;S" throughout matrix.</p> <p>This revision affects the Radiation &amp; Safety Organization.</p>	<p>25</p> <p>27</p> <p>29</p> <p>29</p> <p>30</p> <p>32 - 85</p>	
10	<p>Revision</p> <p>Added reference to 10 CFR 851</p> <p>Changes to this procedure are administrative.</p>	4	01/24/07
11	<p>Revision</p> <p>Removal of the DEPOT containment from Attachment A.</p> <p>Changes to this procedure affect WVNSCO personnel</p>	35	06/13/07
12	<p>Revision</p> <p>Organizational title, management title, editorial corrections</p> <p>Removal of references to Vit Cold Chem bldg.</p> <p>Clarification on PPE requirements for emergency response.</p> <p>Changes to this procedure affect WVES personnel.</p>	All	06/19/08
13	<p>General Revision</p> <p>This change is made to clarify training requirements for Haz Waste areas. This change affects IS.</p> <p>This change is made to clarify training requirements for Haz Waste areas. This change affects IS.</p>	All	10/05/09
14	<p>Revision</p> <p>This change added the North Plateau Treatment wall to Attachment A.</p> <p>Changes to this procedure affect WVES personnel.</p>	All	08/18/10
15	<p>This change is made ot add XC-1 and OGA to Attachment A</p> <p>Changes to this procedure affect WVES personnel.</p>	42,43,93,94	02/15/11
16	<p>This change is made in response to DOE Surveillance S10-047E. This change removes a reference to the Hazard Abatement Log and the Industrial Hygiene Interface Log. Also converted document to Word format.</p> <p>The Safety Department is affected by this change.</p>	10,16,17	04/03/12