



HEALTH AND SAFETY PLAN

for

WEST VALLEY DEMONSTRATION PROJECT ENVIRONMENTAL CHARACTERIZATION SERVICES WEST VALLEY, NEW YORK

**SEC-HASP
Rev. 0**

February 2012

Prepared for:

**U.S. Department of Energy
West Valley Demonstration Project (WVDP)
Environmental Characterization Services (ECS)
West Valley, New York**

Prepared by:

**Safety and Ecology Corporation (SEC)
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Knoxville, TN 37931**

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Health and Safety Plan (HASP)
U.S. Department of Energy
West Valley Demonstration Project
Environmental Characterization Services
West Valley, New York

Contract No.: DE-EM0001242

HASP APPROVALS

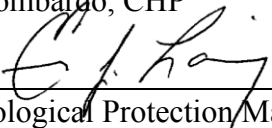
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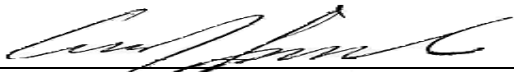
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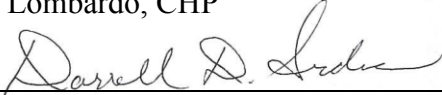
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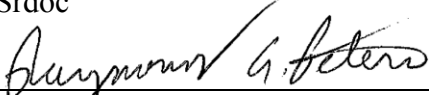
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ABBREVIATIONS, ACRONYMS, AND SYMBOLS

ACGIH	American Conference of Governmental Industrial Hygienists
ACM	Asbestos-Containing Material
ACWP	Actual Cost of Work Performed
AHA	Activity Hazard Analysis
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Scheduled
CFR	Code of Federal Regulations
CHBW	CH2M-Hill-Babcock & Wilcox
CPI	Cost Performance Index
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
dBA	Decibel A-weighted
DCGL	Derived Concentration Guideline Level
DEET	N,N-Diethyl-meta-Toluamide
DOE	U.S. Department of Energy
EAC	Estimate at Completion
ECS	Environmental Characterization Services
EPP	Environmental Protection Program
ES&H	Environmental Safety and Health
ETC	Estimate to Complete
EVMS	Earned Value Management System
EZ	Exclusion Zone
FR	Flame Resistant
FSS	Final Status Survey
GET	General Employee Training
GFCI	Ground Fault Circuit Interrupter
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDW	Investigation-derived Waste
IH	Industrial Hygiene or Industrial Hygienist
ISMS	Integrated Safety Management System
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
NRTL	Nationally Recognized Test Lab
NIOSH	National Institute for Occupational Safety and Health
NQA	National Quality Assurance
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PM	Project Manager
PMB	Performance Measurement Baseline
POD	Plan-of-the-Day
PPE	Personal Protective Equipment

QA	Quality Assurance
QAP	Quality Assurance Plan
RADCON	Radiation Control
RPP	Radiation Protection Program
RWP	Radiological Work Permit
SEC	Safety and Ecology Corporation
SOW	Scope of Work
SPI	Schedule Performance Index
STEL	Short-term Exposure Limit
SV	Schedule Variance
TLV	Threshold Limit Value
TM	Task Manager
TWA	Time-Weighted Average
WBGT	Wet Bulb Globe Thermometer
WBS	Work Breakdown Structure
WSHP	Worker Safety and Health Program
WVDP	West Valley Demonstration Project

1.0 INTRODUCTION

The key elements of the Safety and Ecology (SEC) Industrial Hygiene (IH) and Safety programs are described in SEC-WSHP, *Worker Safety and Health Program* (WSHP), which is applicable to all SEC work and to all tiers of SEC Subcontractors. Effective implementation of the WSHP ensures compliance with the safety and health requirements found in SEC-ISMS, *Integrated Safety Management System* (ISMS), the U.S. Department of Energy's (DOE's) 10 Code of Federal Regulations (CFR) Part 851, *Worker Safety and Health Program*, and Occupational Safety and Health Administration (OSHA) regulations found in 29 CFR 1910 and 29 CFR 1926. Whenever activities meet the definition of work covered by 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response* (HAZWOPER), a site-specific Health and Safety Plan (HASP) is also required.

1.1 HAZWOPER Determination

Work activities on the Project have been determined to be within the scope of OSHA 29 CFR 1910.120 and 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response*. The requirements in 29 CFR 1910.120(b)-(o) and 1926.65(b)-(o) "Hazardous Waste Operations and Emergency Response" are applicable when all three of the following elements are met:

- 1) Activities are conducted on a site recognized by a governmental agency as an uncontrolled hazardous waste site,
- 2) The activities being conducted are part of an initial investigation or clean-up operation, and
- 3) There is a potential for employee exposure to health and safety hazards.

1.2 Applicability

This HASP is applicable to employees, subcontractors, and visitors/vendors. In accordance with the principles discussed in SEC-ISMS, each individual is responsible for bringing to the attention of management any unsafe or unhealthy conditions that he/she observes. Clearly defined roles and responsibilities are a significant element in the successful performance of project activities.

All personnel must have a clear understanding of their roles and responsibilities and must:

- Ensure safety for themselves and others.
- Report unsafe conditions and suspend or stop work until the condition is corrected.
- Perform only the tasks for which they are trained, using approved work practices.
- Immediately report all injuries, no matter how minor, to Safety and Health and line supervision.

For any hazards or controls not specifically addressed in this HASP, the requirements of SEC-WSHP and/or OSHA regulations will apply. This HASP will be available to workers, supervisors, oversight personnel, and visitors. On-site project personnel will be briefed on the contents of this HASP and will be required to follow the procedures and protocols as specified.

2.0 SITE DESCRIPTION AND SCOPE OF WORK

2.1 Project Description of Services

The West Valley Demonstration Project (WVDP) is a unique operation within DOE. The WVDP site is located on approximately 200 acres within the 3,345 acre Western New York Nuclear Services Center.

The WVDP site is complex, involving a large number of radionuclides of concern and a variety of historical processes and events that are known to have or may have released contaminants into the environment. Known affected environmental media include surface soils, subsurface soils, groundwater, surface water, and sediments. Services to be provided under the contract include:

- Environmental Characterization Services (ECS),
- Regulatory Services, and
- Records Management.

2.1.1 Environmental Characterization Services

Services required include comprehensive environmental task-based characterization services, including but not limited to, work plan development and documentation; field characterization data collection and sample analysis; civil survey support; non-intrusive geophysical data collection; buried infrastructure mapping; data management; data validation; data reduction, interpretation, and presentation; statistics; geographical information system products; field summary reports; data summary reports; and technical oversight of field investigation activities. Onsite activities will include subsurface field services (e.g. well drilling, soil borings, cone penetrometer testing, geotechnical data collection, clearing and grubbing services) as well as surface soil, groundwater, surface water, and stream sediment characterization. Non-intrusive and field screening capabilities may be required (i.e., gamma walkover surveys, down-hole gamma surveys, and non-intrusive geophysical surveys). In addition, routine site-wide monitoring activities may be required, including but not limited to air, surface water, groundwater, sediment, soil, direct exposure, and biota monitoring. Investigation-derived waste (IDW) management and disposition will also be included. SEC will be prepared to deploy and support in-field laboratory capabilities (radiological and chemical) as required and appropriate.

SEC will use the Triad approach to environmental characterization, when appropriate, and will be capable of implementing Triad-based data collection efforts. SEC will use Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance, when required, and will perform final status surveys (FSSs) for demonstrating site closure. Consequently, SEC will have the capacity to manage and disseminate data results electronically while in the field to support in-field decision-making, as appropriate.

Environmental data collection activities will be undertaken to support specific WVDP Phase I decommissioning activities at the site as specified in individual task orders. Task orders may be organized by data collection type (e.g., site-wide gamma walk-over survey) or data collection purpose (e.g., FSS data collection). Examples of site-specific activities include (but are not limited to): (1) pre-design WVDP Phase I decommissioning data collection to determine the nature and extent of surface and subsurface soil, sediment, and groundwater contamination

consistent with WVDP Phase I decommissioning plan data needs; (2) data collection to support FSS requirements for areas undergoing remediation to meet site-specific derived concentration guideline levels (DCGLs) as specified in the Phase I decommissioning plan; (3) environmental data collection required to support the removal of contaminated media as required by specific decommissioning activities; and (4) routine site-wide environmental monitoring activities.

Examples of data collection-type activities include (but are not limited to): (1) gamma walkover surveys to characterize surface soil contamination; (2) non-intrusive geophysical surveys to identify and map buried infrastructure; (3) civil surveys to determine surface topography and to determine the coordinates of specific features of interest; (4) intrusive data collection including soil cores, GeoProbe cores, test pits, etc., resulting in obtaining samples submitted for analysis; (5) installation of permanent and temporary groundwater data collection points; and (6) field screening of environmental samples for radiological, chemical, or physical parameters of interest. SEC shall perform the characterization, certification, permitting, storage, treatment, and rework necessary for transport or disposal, and shipping for disposal of radiological, hazardous, mixed radiological and hazardous waste, or other waste types that may require handling or management prior to disposal, that may be generated as IDWs, by task order activities. Specifications regarding specific waste types, preferred treatment and disposal paths that may be available, and existing permits and other requirements will be described in the individual task orders issued under this contract.

3.0 ORGANIZATIONAL STRUCTURE

The following are key personnel for the Projects. Other technical and support personnel with phone numbers are identified in Appendix A. Appendix B is a depiction of a typical organizational chart for the Projects.

3.1 Project Manager

The SEC Project Manager (PM) has overall responsibility for the planning, execution, compliance, and performance of the project task orders. The PM prepares and approves project deliverables, plans, policies, procedures, technical basis documents, and associated guidance. Responsibilities include providing strategic planning for all levels of the project organization; identifying resources needed, assigning Task Managers (TMs); performing task order cost and schedule review, tracking, and control; managing and reporting the project and task order budget; understanding and analyzing project cost and schedule metrics [Estimate to Complete (ETC), Estimate at Completion (EAC), Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP), Actual Cost of Work Performed (ACWP), etc.]; facilitating inter- and intra-team communication; managing subcontractors; providing leadership and overall direction for project staff; and directing overall contract execution.

The PM ensures coordination of management, safety and health, Radiation Control (RADCON), and quality assurance (QA) functions; allocates resources to the project to ensure successful execution and completion of milestones; demonstrates commitment and implementation of ISMS and Quality Assurance Plan (QAP); coordinates with TMs to ensure work is performed with appropriate level of quality and in accordance with specifications and requirements; and maintains signature authority to commit SEC. The PM is the primary point of contact with DOE. He is also responsible for final approval of all task instructions. The PM is responsible to ensure all work and project activities are executed in accordance with established regulatory requirements and SEC programs, plans, and procedures.

3.2 Task Manager

Each task order is assigned a TM by the PM. The TM will have technical expertise related to the scope of the task order. The TM is empowered to and fully responsible for performing the scope of the task order according to the task order baseline schedule and budget. The TM will ensure all task work is executed in accordance with the contract, Earned Value Management System (EVMS), SEC programs, plans, procedures, and other regulatory requirements. The TM will prioritize daily work activities and assign resources to determine processes and techniques for work execution; ensure compliance with ISMS, *Project Integrated Work Control Plan* (SEC-ISMS-002), and have overall management responsibility for task operations, including training, waste management, and characterization activities. The TM will monitor subcontractor performance based on their outlined scope within the team using the work breakdown structure (WBS) and an integrated milestone-based schedule specific for each subcontract, based on the overall approved task order baseline schedule.

3.3 Technical Services Manager

The Technical Services Manager will serve as the PM in the absence of the PM and provide on-site day to day management for the project. The Technical Services Manager provides senior level technical input and reviews for task order work scope implementation and deliverables.

The Technical Services Manager is responsible for maintaining a technical resource pool of engineers, scientists, and technicians to support current and future task order needs. The individual personnel resources are assigned to TMs and are balanced across all active tasks in an efficient manner. When a person's skills are no longer needed on the task, they are returned to the resource pool for redeployment on another task or are returned to their home office for off-project assignments.

The Technical Services Manager is responsible for developing personnel resource capabilities and assuring their qualifications are maintained. The Technical Services Manager is responsible for maintaining personnel training qualifications and for arranging staff training so that they maintain their qualifications and their competence is commensurate with their responsibilities.

3.4 Environmental Safety and Health Manager

The Environmental Safety and Health (ES&H) Manager recognizes, evaluates, recommends, and implements policies and procedures to assure awareness of and compliance with ES&H requirements of the organization. The ES&H Manager will be at the site anytime task order work is performed at the site. The ES&H Manager is responsible for the implementation and maintenance of the ISMS Description, the Environmental Protection Program (EPP), and the WSHP developed for 10 CFR 851. The ES&H Manager is responsible for monitoring and preventing adverse exposure to chemical, biological, and physical hazards throughout the work sites. The ES&H Manager reviews and incorporates health standards published by regulatory authorities into project documents; directs audits of the environmental, safety, and health programs to identify and correct program deficiencies; and will keep fully informed on all existing and proposed changes in occupational health and safety regulations. The ES&H Manager helps develop and provide basic environmental, safety, and health training to employees and promotes communication programs to enhance and encourage employee awareness of accident prevention, industrial hygiene, and environmental compliance. The ES&H Manager develops and directs the personnel within the ES&H function of the organization. The ES&H Manager is responsible to ensure all work and project activities are executed in accordance with established regulatory requirements and SEC programs, plans, and procedures.

3.5 Radiological Controls Manager

The RADCON Manager is responsible for the development, implementation, execution, and compliance of the Radiation Protection Program (RPP). The Radiological Controls Manager will be at the site as needed based on the demands of ongoing task order work. The Radiological Controls Manager is responsible for providing the resources required to meet the requirements of the Radiological Control Programs and Procedures, establishing as low as reasonably achievable (ALARA) goals for individuals and the project, providing guidance for the safe and efficient approach to completing radiological work, and establishing programs and procedures in accordance with 10 CFR 835, *Occupational Radiation Protection*. The RADCON Manager will

establish programs for assessing Radiological Controls performance and reporting deficiencies to program and procedural requirements. He is responsible to ensure all work and project activities are executed in accordance with established regulatory requirements and SEC programs, plans, and procedures.

3.6 Business Manager

The Business Manager is responsible for contracts, procurement, and project controls. The Business Manager will be located offsite at a SEC corporate office and will travel to the site as needed. The Business Manager will deploy project controls and contracts support to the WVDP site as needed to support task order work. Procurement will be performed at a SEC corporate office.

The Business Manager and supporting staff is responsible for producing the Performance Measurement Baseline (PMB) for individual task orders and managing the cost and performance data for the ECS Project. The Business Manager and the project controls staff is responsible for collecting and reporting cost [Cost Performance Index (CPI)] and schedule performance [Schedule Performance Index (SPI)] for each task order in accordance with the contract, assisting in the development of Change Proposals, assisting in cost and schedule variance (SV) analysis, and reviewing all procurements and expenditure. The Business Manager will develop and submit Monthly Accruals for estimated monthly expenditures and facilitate compliance with contractual requirements for EVMS reporting.

3.7 Quality Assurance Manager

The QA Manager is responsible for the development, implementation, execution and compliance of the QA Program in accordance with American Society of Mechanical Engineers (ASME) National Quality Assurance (NQA) 1-2004, DOE Order 414.1C, Quality Assurance, 10 CFR Part 830.122, Quality Assurance Criteria, and EM-QA-001, Office of EM QA Program. The QA Manager will establish programs and processes for Management and Independent Assessments, Training and Qualification, Control of Purchased Materials, Equipment and Services, Non Conformance Reporting, Suspect/Counterfeit Item Prevention, and other programs necessary to meet contractual requirements for QA. The Quality Manager will establish the Assessment Schedule for the Project, establish and maintain a Document Control Center, and assist in the development and completion of corrective actions for project deficiencies. The QA Manager will deploy to the ECS Project site as needed to support task order needs.

3.8 Workers

All employees are responsible for performing the tasks assigned to them in accordance with the WSHP, activity hazard analyses (AHAs), and applicable occupational safety and health rules and regulations. All employees are responsible for notifying their immediate supervisor or safety representative of any unsafe practice or condition. Employees also have the right and responsibility to stop any work that is unsafe. Workers are responsible to ensure all work and project activities are executed in accordance with established regulatory requirements and SEC programs, plans, and procedures.

4.0 GENERAL SAFETY PROVISIONS

4.1 Site Controls

Support zones, contamination reduction zones (CRZs) and exclusion zones (EZs) and/or radiological areas will be established by the site supervision in conjunction with recommendations from the Safety and Health Representative and/or the Radiological Control (Radcon) representative. Zone changes and area controls will be a topic at the daily plan-of-the-day meeting (POD), as necessary, and will be part of site orientation for visitors. The buddy system is a requirement for work in the EZ, in remote areas, and after normal working hours.

For this Project there are facilities/areas that are separated into two distinct categories: radiological and non-radiological (industrial).

Care will be taken to ensure that the radiological posting requirements of SEC-RPP, *Radiation Protection Program*, are implemented as appropriate. For the radiological facilities/areas, and for the purpose of this HASP, a radiological area will generally equate to an EZ, a radiological buffer area will generally equate to a CRZ, and a controlled area will generally equate to a support zone. In accordance with SEC-RP-35, *Radiation Protection Glossary*, these areas are defined as follows:

- *Controlled Area* – Any area to which access is managed by or for DOE to protect individuals from exposure to radiation and/or radioactive materials.
- *Radiological Area* – Any area within a controlled area defined as a “radiation area,” “high radiation area,” “very high radiation area,” “contamination area,” “high contamination area,” or “airborne radioactivity area.”
- *Radiological Buffer Area* – Any inter-mediate area established to prevent the spread of radioactive contamination and to protect personnel from radiation exposure.

For the non-radiological areas/facilities, conspicuously identifiable support zones, CRZs, and EZs will be established and maintained.

Additional postings with project personnel contact information and personal protective equipment (PPE) entrance requirements may also be used to communicate information to personnel as necessary.

The above signs/postings will be used to demarcate zones and shall be legible at locations such that employees can read the signs and take the required protective measures before entering. Signs shall be compliant with OSHA or American National Standards Institute (ANSI) requirements and shall be of durable material.

Work site preparations are essential to protecting the workers, the public, and the environment. The following items shall be available to the workers in the work area or in close proximity to the work area:

- First aid and bloodborne pathogen kit,
- Fire extinguisher with a current monthly inspection, and
- Spill kit.

4.2 Employee Training

Training requirements are dictated by applicable sections of OSHA 29 CFR 1910 and 29 CFR 1926, 10 CFR Part 851, as applicable to specific tasks and assignments. The requirements for worker training are determined by the anticipated role of the worker and the tasks that he or she is required to perform. Workers are trained in the use of the materials, PPE, and the emergency procedures associated with the materials they will be expected to use.

All workers must possess the experience, knowledge, and skills necessary to safely and effectively fulfill their duties. All workers must successfully complete the appropriate training in accordance with regulatory, contractual, and internal requirements. All individuals are responsible for performing their work safely in a manner consistent with the training provided. To ensure project personnel have completed all training necessary for their assigned work, training information will be maintained and updated by the designated project Training Coordinator.

All personnel entering the site will read and acknowledge this site-specific HASP at their initial entry. Any revision of this plan requires its re-reading and re-acknowledgement.

All project personnel, except escorted visitors, must have general employee training (GET), and meet any additional entry requirements for the specific site. Additional radiological training requirements are listed in the radiological work permit (RWP) (if applicable).

Project workers, and their supervisor, engaged in hazardous substance removal activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction (40-hour HAZWOPER) and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor. Additionally, supervisors shall receive at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's safety and health program and the associated employee training program, PPE program, spill containment program, and health hazard monitoring procedure and techniques.

Other project personnel such as personnel assisting with surveillance, support, and oversight who are occasionally or regularly on site, work only in areas which have been monitored, fully characterized, and have appropriate controls in place, are unlikely to be exposed over permissible exposure limits (PELs). For these personnel, it is allowed by regulation to receive a minimum of 24 hours of instruction (24-hour HAZWOPER) and the minimum of one day actual field experience under the direct supervision of a trained experienced supervisor.

Visitors shall check in with the PM or designee and receive a briefing that outlines the scope of work (SOW) being performed and the associated hazards. Visitors will be escorted by assigned project personnel to ensure the safety of all visitors who want to observe work being performed.

4.3 Personal Protective Equipment

PPE and clothing will be selected and worn in accordance with procedure SEC-IS-11, *Personal Protective Equipment*, and site-specific policy specifying minimum requirements.

Exposure control is accomplished, in order of preference, using three fundamental methods: engineering controls, administrative controls, and PPE.

Engineering Controls

Engineering controls include the following:

- Substitution of a less toxic material,
- Change in process to minimize contact with hazardous chemicals,
- Isolation or enclosure of a process or operation,
- Use of wet methods to reduce generation of dusts or other particulates,
- General dilution ventilation, and
- Local exhaust, including the use of fume hoods.

The use of engineering controls is the preferred method for reducing worker exposure to hazardous chemicals. However, their use is dependent on both the technical and financial feasibility of the selected control.

Work Practice and Administrative Controls

Good work practices can go far to reduce the risk of exposure to chemicals. Administrative controls include training, signs and postings, rotating job assignments, and adjusting work schedules so workers are not overexposed to a chemical.

Personal Protective Equipment

When engineering and administrative controls are not sufficient to minimize exposure, PPE, including gloves, eye protection, respirators and other protective clothing should be used.

- Project Supervisors, ES&H, and radiological control personnel are responsible for ensuring that the proper PPE is identified and worn in accordance with the appropriate work control documents.
- Workers are responsible for inspecting PPE for defects or damage prior to wearing of PPE, and must report concerns, problems, or malfunctions to supervision.
- The decision to downgrade or upgrade PPE will be made by the Project ES&H Representative in consultation, as necessary, with the designated Industrial Hygienist (Project IH) and the Radiological Control Organization. In radiological areas, Radcon will make the determination in accordance with the technical work document (e.g. RWP), and AHA, etc.

4.4 Eye Protection

In accordance with SEC-IS-11, *Personal Protective Equipment*, safety glasses with side shields shall be worn at all times in construction areas. Safety goggles or over the top safety glasses with side shields may be used to cover prescription glasses that are not ANSI Z87.1 standard safety glasses.

4.5 Foot Protection

Protective footwear, such as safety-toe boots shall be worn in all construction work areas when the potential for foot injuries exists. In office areas, footwear appropriate to the anticipated hazards shall be worn. The description of acceptable protective footwear is found in SEC-IS-11, *Personal Protective Equipment*.

4.6 Head Protection

Approved head protection that meets ANSI Z89.1 shall be worn in all areas where there is a potential for injury to the head from impact from falling or flying objects and in areas designated as construction areas.

4.7 Hand Protection

Gloves shall be selected for adequate hand protection and chemical resistance as appropriate. The proper gloves shall be identified in task-specific work control documents. Gloves shall be maintained in good condition and, if necessary, shall be discarded and replaced.

4.8 Skin Protection

Appropriate chemical-resistant clothing shall be worn as necessary when determined by the Project IH. Such clothing shall be identified in work control documents prior to beginning tasks involving chemicals. Chemicals used to decontaminate equipment are an example where chemical resistant clothing may be required. The ES&H staff will determine the appropriate material and composition of chemical gloves as compared to planned chemical products used in the field.

4.9 Respiratory Protection

Respiratory protection requirements will be in accordance with SEC-IH-04, *Respiratory Protection*, and will be determined by the Project IH based on specific hazards and tasks. Contaminate exposure potential on this project that may require respiratory protection includes radioactive contamination, asbestos, lead, and beryllium.

4.10 Pedestrian Protection

High-visibility safety vests may be required depending on the work activity and nearby hazards of mobile equipment. High visibility green clothing is required as appropriate if specified in work control documents. High visibility orange is used only by spotters during hoisting and rigging activities.

Because of flammability concerns, workers engaged in hot work are permitted to wear other than high-visibility vests unless the vests are also of flame resistant (FR) material.

4.11 Hot Work Protection

In accordance with SEC-SB-22, *Hot Work Controls*, FR clothing is required for all individuals performing hot work activities.

4.12 Dust Control

Dust can enter the body via inhalation and cause acute injury to the lungs, eyes, and mucous membranes. Chronic damage to the lungs can also result when toxic compounds are present in dust. Water spraying or other approved dust control methods shall be used as necessary to suppress dust emissions to the lowest practicable level. Excessive visible emissions of particulates shall not be permitted. Dust emissions will be reduced by minimizing drop heights when handling dusty materials, e.g. emptying bags of concrete or mortar or dropping materials onto dusty surfaces. The work control package shall outline the use of dust suppression methods where dust producing activities are expected and the AHA shall list a specific dust suppression method as a hazard control.

4.13 Traffic Control

Road closure is not anticipated for the Project, but in the event it is required, actions will be coordinated with the WVDP. A traffic control plan will be developed whenever streets, parking areas, or pedestrian walkways will be closed or have restricted access. The Traffic Control Plan will be submitted to WVDP for review 5 days prior to implementation.

4.14 Safety Meetings

Project personnel will attend pre-job safety briefings and other scheduled safety meetings and attendance will be documented and maintained by the project. A POD meeting will be conducted to review the day's planned activities, associated hazards, and to emphasize other related safety topics.

4.15 Stop Work Authority

In accordance with SEC-WSHP-04, *Pause/Timeout and Suspend/Stop Work*, all workers have the authority and responsibility to suspend or stop any work, activity, or process that jeopardizes personnel safety or health, or has the potential for significant environmental insult until it can be demonstrated that it is safe to proceed with the work.

4.16 Sanitation

Potable water containers and portable toilets (if used) shall comply with OSHA 29 CFR 1910.141. Drinking water will be provided in disposable water bottles and iced down in coolers each morning before field activities begin. Coolers used for icing down disposable drinking water bottles will periodically be cleaned as necessary. Break areas shall be kept clean and trash receptacles shall be stationed in all eating areas and emptied regularly.

4.17 Housekeeping

As standard practice, SEC strictly enforces good housekeeping. All material, scrap, tools, toolboxes, and other equipment will be stored in a neat and orderly fashion. Material shall be carefully stacked and located so that it does not block aisles, doors, fire extinguishers, emergency eyewash/safety showers, fixed ladders, stairways, or electrical breaker panels. Combustible scrap, waste materials, and debris should be removed from the work area on a regular basis (i.e., at least daily, before leaving the work area for the day) and shall not accumulate, especially in walkways, under stairs, at the bases and landings of stairs and ladders, and near flammable substances.

4.18 Illumination

Adequate illumination shall be provided in all active work areas and access ways in accordance with SEC-IH-06, *Illumination* and OSHA 29 CFR 1926.56. Field activities shall be performed within daylight hours or the project will provide adequate supplemental lighting to meet the lighting requirements for field work. Emergency lighting, where required, shall be tested and maintained per National Fire Protection Association (NFPA) 101, Chapter 7.

4.19 Emergency Eyewash Units

Eyewash stations will be maintained in accordance with SEC-IS-13, *Safety Shower and Emergency Eye Washes*, and the manufacturer's instructions. The flushing solution shall contain an antibacterial agent, suitable for ophthalmic use, to help preserve the water and reduce the possibility of pathogens developing in the solution. The flushing solution shall be changed in accordance with the manufacturer's instructions, but at least quarterly. Supervision will routinely remind workers about the location of eyewash stations at tailgate or POD meetings.

4.20 Severe Weather

Because much of the Project work will take place outdoors, project personnel may be potentially exposed to all types of weather conditions. Supervisors and the ES&H Representative will be on the WVDP Paging System and will notify personnel of weather alerts. Supervisors will evaluate ongoing and/or planned work activities to evaluate the impact the weather will have on site personnel. Weather conditions to be evaluated include:

4.20.1 Snow and Ice

During snow and ice weather conditions, crews will be informed to call the WVDP Hotline to learn if normal plant operations are taking place. Work areas will be evaluated by supervision to determine if conditions are safe for working. Ice Melt products shall be spread on steps and paved access ways at the beginning of the shift. Workers must remove ice or snow from aerial lifts and scaffolds if used and apply sand to the wood before conducting work in winter weather. See the "Cold Stress" section of this HASP for further information.

4.20.2 Thunderstorms

Outdoor work including unprotected outdoor labor, drill rigs, cranes, JLG, and scissor lifts or other elevated work activities will cease when visible lightning is in the area, upon direction by supervision, notification from WVDP or a confirmed sighting by project personnel. Activities may resume 30 minutes after the last visible lightning strike or upon notification from WVDP. Other outdoor activities may be allowed to continue such as:

- Traveling between the building and Boundary Control Station,
- Normal vehicle operation (mules, golf carts, vans, trucks, etc.), and
- Building operations for indoor activities.

Note: If severe electrical activity is associated with thunderstorms, a notification to shelter in place may be declared by the WVDP.

4.20.3 Tornados

If a tornado is sighted, WVDP will contact enrollees and make an announcement over the Public Address system to warn of the hazardous condition. Workers will cease activities and will take shelter (see Section 10 of this Plan).

4.20.4 Windy Conditions

Workers should protect their eyes from dust and flying debris during high wind conditions. Areas containing overhead objects, such as dead tree limbs or loose roof shingles, which may become falling or flying objects in high winds, must be avoided. Workers should not approach downed power lines and should remain in vehicles in the event that a power line falls on it. Elevated work on aerial lifts, scaffolds and ladders will be suspended in high winds or during storms.

5.0 OCCUPATIONAL SAFETY

5.1 Slip, Trip, and Fall Hazards

All personnel are responsible for ensuring that walking areas are kept clear of obstructions that may cause tripping hazards or present a barrier to safe ingress or egress. If slipping and/or tripping hazards cannot be completely eliminated, the area shall be barricaded or posted with applicable hazard postings.

5.2 Elevated Work/Fall Prevention

All personnel who perform elevated work shall use fall prevention practices in accordance with OSHA Standard 29 CFR 1926, Subparts L and M (as applicable), and SEC-IS-03, *Elevated Work*. These fall prevention practices may include:

- Safe use of ladders and scaffolds,
- Guard rail systems,
- Warning line systems,
- Covers and other guarding for holes or floor and wall openings,
- Aerial lift use,
- Positioning device systems,
- Personal Fall Arrest Systems, and
- Other approved methods of fall prevention as detailed in the Task Instructions or AHA.

5.3 Welding/Hot Work

Hot work may be required to downsize metal debris and welding may be required to accomplish on-site equipment repairs. In such cases, the Project will follow procedure SEC-SB-22, *Hot Work Controls*. Hot work activities require the use of FR clothing and dedicated fire watchers. All methods of welding/burning, and torch cutting operations require a Hot Work Permit (SEC-SB-22-F01), which shall be posted in the work area. The applicable TM is responsible for notifying the ES&H Representative prior to the initiation of hot work. Whenever hot work is conducted on materials involving heavy metals (e.g. painted surfaces, special alloys, etc.), the ES&H Representative shall consult the Project IH to determine if monitoring for heavy metals is required. All welding and cutting areas shall have a UL-Approved fire extinguisher when work activities are in progress.

5.4 Fire Protection and Prevention

Fire protection requirements are described in SEC-SB-20, *Fire Protection Program*, and SEC-SB-26, *Controlling Combustibles and Ignition Sources*. Portable fire extinguishers will be placed, inspected, and maintained as required by SEC-SB-23, *Fire Extinguisher Inspection and Maintenance*.

5.5 Material Handling, Storage, Use, and Disposal

All work requiring material handling, storage, use, and disposal will be performed in compliance with OSHA 29 CFR 1926, Subpart H. Proper storage of materials is an important part of safe housekeeping. Some material handling considerations include:

- Housekeeping standards,
- Safe stacking of materials,
- Storage of flammable and combustible liquids,
- Management and disposal of combustible materials, and
- Control of electrical practices, internal combustion engines, and other potential sources of ignition.

5.6 Compressed Gas Cylinders

Compressed gas cylinders will be stored and handled in accordance with OSHA and NFPA requirements as identified in SEC-IS-04, *Compressed Gases Cylinders*. Workers handling compressed gas cylinders will receive specific training in the safe handling, use, storage, and transport of compressed gas cylinders. Vendors shall provide services to transport gas cylinders to the site.

5.7 Hand and Power Tools

Safe use of hand and power tools shall be in accordance with applicable SEC procedures and the manufacturer's specifications. All portable corded electric tools shall be listed and labeled by Nationally Recognized Test Lab (NRTL), or double insulated and be used with a ground fault circuit interrupter (GFCI). Tools must be maintained in good condition, properly stored, and used for their intended purpose only. Workers will inspect all tools before use, with special attention given to power cords and the condition of high-speed saw blade teeth. Personnel will not use defective tools, materials, or equipment, and any found are to be taken out of service immediately by tagging, destroying, or removing them from the project site.

5.8 Lockout/Tagout of Hazardous Energy Sources

In order to provide for the safety of personnel during construction or maintenance activities that may involve the potential for exposure to hazardous energy sources (e.g., hydraulics, water, electrical, chemical, steam, stored energy and pneumatic), such equipment or systems shall be isolated, be locked out/tagged out and verified in accordance with SEC-IS-16, *Lockout/Tagout*.

5.9 Electrical Safety

Work with, on, or around electrical systems or equipment will be in compliance with SEC-IS-02, *Electrical Safety*. Only qualified electricians will make electrical installations or repairs.

5.10 Hoisting and Rigging

Hoisting and rigging activities shall be accomplished in accordance with SEC-IS-07, *Hoisting and Rigging*. All rigging and rigging accessories are to be inspected daily, prior to use, by a

competent person. Any rigging showing deformities (cuts or gouges), arc strikes, excessive wear, and distortion, missing bolts, unapproved modifications or other defects shall immediately be removed from service and tagged as defective. All critical and pre-engineered production lifts shall have a written lift plan reviewed and be approved by the Hoisting and Rigging Subject Matter Expert before the lift. If any deviation from the crane manufacturer's standard recommendations is anticipated, documented approval for such deviation shall be secured from the manufacturer and included in the plan for evaluation.

5.11 Motor Vehicles and Heavy Equipment

Only qualified and approved personnel shall operate powered industrial trucks, heavy equipment, or project related vehicles. Inspection of construction machinery and equipment shall be as required by SEC-IS-12, *Motor Vehicle and Powered Industrial Trucks*. The project shall confirm that all operators are certified and/or qualified to operate each specific piece of heavy equipment or powered industrial truck. Operators shall conduct and document daily inspections of equipment prior to beginning operation for each shift and document that inspection on SEC-IS-12-F01.

5.12 Excavation/Penetration Activities

All work involving excavation, trenching, or penetration into the ground, concrete, or pavement shall be conducted in accordance with SEC-IS-05, *Excavation and Trenching*. The Project will ensure that any excavation or penetration of the soil to any depth must be granted by a Ground Disturbance Permit. The permit will be coordinated with the WVDP operating contractor and approved by the SEC ES&H Manager or designee prior to initiation of work.

5.13 Buried Sharps

Personnel shall utilize caution when walking near debris or waste piles and beware of potential metal pieces that could puncture through footwear. In all un-remediated areas employees may be required to wear footwear with puncture resistant plates to prevent wire, nails, or other sharp objects from puncturing shoes and feet from the bottom. Employees should proceed with extreme caution when walking in areas suspected to contain buried or hidden sharps.

5.14 Site Preparation (Weed Eaters/Brush Trimmers, Lawn Mowers)

Hazards associated with use of weed eaters and brush trimmers include eyes injury from flying debris, slips and falls while working on steep slopes and uneven ground, hearing damage, back and arm strain from excessive use, contact with poisonous plants and animals, burns from contact with the hot engine, and fire or explosion from improper refueling. Operators should review the manufacturer's operation manual, paying special attention to the safety section and operating rules. As with all tools, the equipment should be inspected prior to use to identify and replace damaged or loose parts, locate fuel leaks, and to ensure that all fasteners are in place and secure.

Operators will wear a hard hat with a safety face shield and safety glasses, hearing protection, long pants, boots, gloves, protective over garments and a high visibility traffic safety vest. Properly adjusting the shoulder sling will reduce back strain. Weed eaters and brush trimmers

should be carried with the engine stopped and the muffler held away from the body. Weed eaters should not be operated near coworkers because of the danger of flying debris.

6.0 INDUSTRIAL HYGIENE

6.1 Respiratory Protection

SEC requires that workers who wear respiratory protection will be medically qualified, fit-tested, and trained in accordance with 29 CFR 1910.134, *OSHA Respiratory Protection Standard*; and SEC-IH-04, *Respiratory Protection*. ECS Project workers typically receive medical certifications, exams, and fit testing services from Healthworks. Personnel required to wear respirators shall inspect their respirators before and after each use. Routine inspection, cleaning, and storage of respirators shall be in accordance with OSHA 1910.134 and SEC-IH-04, *Respiratory Protection*. Respiratory protection will be selected and issued based on potential hazards associated with specific tasks and will be identified in AHAs and RWPs.

If supplied air respiratory protection systems or powered air-purifying respirators are used, operating procedures will be developed and workers will be trained to the procedures. When using supplied air systems, breathing air couplings shall be incompatible with outlets for non-respirable air or other gas systems to prevent inadvertent hook-ups of airline respirators with non-respirable gases or oxygen. Compressed breathing air shall meet the requirements for Type 1-Grade D breathing air as described in ANSI/CGA *Commodity Specification for Air*, G-7.1.

6.2 Hearing Conservation

The project will comply with the requirements of SEC-IH-07, *Hearing Conservation*, which prescribes that hearing protection is to be worn in areas where noise levels are at or suspected to exceed 85 decibels A-weighted (dBA). Posting requirements for noise hazards shall be instituted for those areas, operations, and equipment routinely exhibiting noise levels at or above 85 dBA. Incoming machinery and equipment will be reviewed by the Project IH to determine if a noise level evaluation will be needed.

6.3 Hazard Communication

The project will follow the requirements of SEC-IH-08, *Hazard Communications*, which complies with 29 CFR 1910.1200. Job-specific hazard communication information will be incorporated into job instructions, pre-job briefings, AHAs, and RWPs. Material Safety Data Sheets (MSDSs) shall be acquired for each chemical used on the project and made available to the worker upon request.

6.4 Ergonomics

The project will follow the requirements of SEC-IH-09, *Ergonomics*. Some activities on the Project may present potential musculoskeletal hazards such as the incorrect lifting of heavy loads, improper body positioning, and negotiation of physical obstacles. Workers are responsible for planning each lift, even small ones. Care shall be taken when lifting and handling heavy or bulky items; allow recovery time between lifts. Workers shall not lift objects exceeding 50 lb without assistance, either from co-workers or through the use of mechanical lifting devices. Prior to moving items, workers should inspect the anticipated travel path for the presence of obstacles and slip, trip, and fall hazards. When two or more workers are required to handle the same object, coordination is essential to ensure that the load is lifted uniformly and that the weight is

equally divided between the individuals carrying the load. When carrying the object, each worker shall face the direction in which the object is being carried if possible.

6.5 Temperature Extremes

The project will follow the requirements of SEC-IH-05, *Thermal Stress*, to govern all heat and cold stress issues. Field activities may pose a hazard because of temperature extremes. The physical demands placed upon site personnel may be exacerbated by the use of protective clothing and equipment in combination with moderate to heavy workloads, extreme ambient air temperatures, high relative humidity, and exposure to the sun, wind, and precipitation. The potential hazards imposed by PPE will be addressed during the hazard review process.

6.5.1 Heat Stress

Heat stress is one of the most serious concerns and common illnesses at a work site during hot weather. When workers are required to dress-out in impermeable or semi-permeable clothing and/or respirators, the risk of heat stress is also increased. Under such conditions, in accordance with SEC-IH-05, *Thermal Stress*, regular monitoring and other preventative measures will be implemented. Concurrent applicable permits (RWP, hot work, confined space, etc.) will be evaluated to ensure that additive effects of protective clothing and PPE do not increase heat stress unnecessarily. Monitoring is discussed in Appendix C to this HASP.

During spells of hot weather workers will be reminded to monitor co-workers (the “buddy system”) for adverse effects and will be encouraged to take breaks as needed. Supervisors shall provide cool down areas and ensure ready access to an adequate supply of cool drinking water and/or electrolyte replenishing drink such as Powerade™.

Although heat stress is generally associated with the summer months, workers may also be at increased risk during other times of the year because of a lack of acclimation. On hot humid days when work requires dress-out in impermeable or semi-permeable clothing and/or respirators, workers may be monitored for heat stress. A wet bulb globe thermometer (WBGT) will be used as a screening method to select or verify appropriate work/rest regimens, following the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines. The WBGT should be used whenever dry bulb temperature reaches or exceeds 80°F, or is above 70°F when personnel are wearing semi-permeable or impermeable clothing. Actions will be taken in accordance with SEC-IH-05, *Thermal Stress*.

Physiological monitoring methods, including ear temperature measurements, pulse measurements, and blood pressure readings, are effective for evaluating workers for heat stress and may be instituted by the Project IH. Baseline measurements will be collected prior to beginning work and will be compared to measurements taken when the worker exits the work area. Under extreme heat conditions, these types of measurements may be taken at times during the actual work as an early indicator of heat stress on the workers.

6.5.2 Cold Stress

If work is to be conducted outside during winter months, workers will be required to dress appropriately, drink warm, sweet beverages (avoid drinks with caffeine), take frequent breaks in

a heated environment, and keep as dry as possible. Provisions for total body protection will be evaluated if prolonged work is performed in an environment with wind chill temperatures at or below 39°F. Water greatly accelerates loss of body heat (up to 25 times as fast), so wet clothing should be replaced as soon as possible.

Extreme Cold

What constitutes extreme cold varies across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered “extreme cold.” From a practical standpoint, a sudden temperature drop following warm or unseasonably warm weather in the winter months may be considered as extreme cold. Whenever temperatures drop well below normal and as wind speed increases, heat can leave your body more rapidly. During periods of extreme cold, work start times may be adjusted to operate during the warmest part of the day. Workers should avoid exhaustion or fatigue because energy is needed to keep muscles warm. Workers with higher susceptibility to cold injury may require special precautionary protection against cold injury. Workers should wear multiple layers of clothing and protect their head and face, wear insulated gloves, and wear an extra pair of socks. Outer garments should be protected from becoming wet on the job. Break areas will be shielded from drafty or windy conditions. A heated shelter and frequent breaks will be provided for workers during periods of prolonged work in extreme cold. Prolonged work during times with wind chill temperatures of 11°F or below will require special controls, including use of the buddy system, and other controls described in SEC-IH-05, *Thermal Stress*.

6.6 Bloodborne Pathogens

Normal work activities on the Project do not present a reasonable potential for exposure to blood or other bodily fluids; however first-aid and cardiopulmonary resuscitation (CPR) caregivers do have the potential for exposure. Personnel designated as first-aid or CPR providers shall be trained and will be given the opportunity to be vaccinated against Hepatitis B in accordance with the OSHA Bloodborne Pathogens standard, 29 CFR 1910.1030 and SEC-IH-12, *Bloodborne Pathogen Exposure Control Program*.

When rendering first aid to an individual with a cut or someone who is bleeding, the properly trained First Responder should wear latex or vinyl gloves, if at all possible. If, in an emergency situation, gloves cannot be worn, the caregiver should wash the exposed area of skin as soon as possible. If cleanup of body fluids is needed, the WVDP Emergency response personnel will dispose of the biohazard waste in accordance with the WVDP Emergency Response Plan and supporting procedures. Biohazard waste generated if SEC First Responders provide aid in a situation that is not a medical emergency and is not reported in accordance with SEC-EmPP, *Emergency Preparedness Plan*, will be disposed of in accordance with the SEC *Waste Management Plan* (SEC-WMP).

6.7 Flora/Fauna Hazards

Biological hazards associated with outdoor work include poisonous snakes, poisonous plants, spiders, scorpions, ticks, fleas, bees, and insects and are discussed in SEC-IH-13, *Biological Hazards*. Workers may encounter any of these but mosquitoes are of particular concern since the work area is near the river and wetlands. Other sources are the steam/valve pits and any standing

waters in basements or trenches. N,N-Diethyl-meta-Toluamide (DEET) insect repellants are effective against mosquitoes, as well as biting flies, gnats, ticks and fleas. When applying DEET, sleeves should be rolled down, pants tucked into boots, and shirt tucked into pants. Leather gloves offer hand protection against spider bites and scorpion stings. Avoidance is the best defense against poisonous plants, snakes, and bees. In some cases, leather chaps may be needed to protect workers against snake bites.

Risk of exposure to all biological hazards can be minimized by conducting a reconnaissance of each area prior to any work activity. Personnel conducting the walk-around should identify and discuss the found conditions with supervision and co-workers at pre-job briefings, tailgate meetings, or morning pods. Mark ant mounds and other known hazards that are on or near frequently used walking paths. Employee awareness and safe work practices will reduce the risk associated with these hazards.

6.8 Beryllium

Although beryllium is not an anticipated hazard constituent, any work that potentially involves exposure to Beryllium shall follow the requirements of SEC-BP, *Chronic Beryllium Prevention Program (CBDPP)*. Some elements of the CBDPP include:

- Hazard assessment,
- Exposure monitoring,
- Hygiene facilities and requirements,
- PPE requirements,
- Respiratory protection, and
- Medical surveillance.

6.9 Asbestos

Asbestos work is not anticipated on the ECS project. However, in the event asbestos is encountered, all sampling and/or abatement activities shall be outlined in an Asbestos Work Plan and shall comply with 29 CFR.1926.1101.

6.10 Silica

Silica is a component of cementitious materials as well as naturally occurring background and can be a health concern when significant levels of dust are generated. Exposure to crystalline silica has been shown in some instances to produce silicosis, a scarring of the lungs with an associated cough and shortness of breath. Dust suppression, collection, or other engineering controls will be used to control airborne dust. Area and/or personal monitoring will be conducted during activities that have a reasonable potential of exposures approaching the action level. Respiratory protection will be used to supplement other engineering or administrative controls as needed.

6.11 Lead

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing.

Lead abatement activities are not anticipated; however, if the need arises all activities shall be outlined in a Lead Work Plan and shall comply with 29 CFR.1926.62.

7.0 EXPOSURE MONITORING

In accordance with SEC-IH-01, *Industrial Hygiene Monitoring*, the Project will conduct real-time and integrated worker exposure monitoring for chemical substances and physical agents as necessary. Monitoring and sampling will be determined by the Project IH and will be identified in the Work Packages. The monitoring plan is found in Appendix C.

The primary purpose of personal sampling is to assess potential exposure to hazards and to ensure that the proper level of PPE has been selected based on published PELs or threshold limit values (TLVs). As new tasks with a reasonable potential for exposure are identified, personal samples will be collected to document potential exposure levels and evaluate the effectiveness of PPE that has been selected. Samples will be collected in the employee's breathing zone using personal sampling pumps and the appropriate collection media, and/or other sample methodology. As required by SEC-IH-01, a set of exposure action levels has been developed based on potential chemical agents (Appendix C, Table C-1).

8.0 MEDICAL

8.1 Medical Surveillance

Medical surveillance requirements are specific to the employee and the task(s) to be performed. Substance-specific medical monitoring requirements are specified in OSHA 29 CFR 1910, Subpart Z, *Toxic and Hazardous Substances*, and OSHA 29 CFR 1926.

8.2 Respirator Wearers

The Project will comply with the requirements described in SEC-IH-04, *Respiratory Protection*, which requires respirator wearers' participation in a medical surveillance program that meets 29 CFR 1910.134. Only individuals who are trained, medically qualified to wear a respirator, and properly fit tested will be assigned to tasks requiring use of respiratory protection.

8.3 Audiometric Testing

Project personnel who may be exposed to noise levels at or above 85 dBA as an 8-hour time-weighted average (TWA), without regard to hearing protection devices, are required to participate in an audiometric testing program that complies with the requirements in OSHA 29 CFR 1910.95 per the requirements of SEC-IH-07, *Hearing Conservation*.

8.4 HAZWOPER Physicals

In accordance with the requirements of 29 CFR 1926.65, and SEC-IH-03, *Occupational Medicine*, a physical examination must be conducted by a physician who is board-certified in occupational medicine to determine and document the qualification of the worker to perform work and wear required PPE at hazardous waste operations. HAZWOPER physicals are required for workers who meet the criteria listed below. Criteria for inclusion in the HAZWOPER occupational health program are:

- Employees who are, or may be, exposed to PELs of hazardous substances or health hazards for 30 or more days a year;
- Employees who wear a respirator for 30 or more days a year;
- Members of organized HAZMAT teams;
- Employees who are injured as a result of overexposure during a site emergency; and
- Employees who show symptoms of illness that may have resulted from exposure to hazardous substances.

9.0 RADIOLOGICAL PROTECTION

The Project will follow SEC-RPP, *Radiation Protection Program*, which implements the requirements contained in 10 CFR 835, *Occupational Radiation Protection*. The Project Radiation Protection Operations Manager will provide direction on radiological issues and will coordinate with other safety and health disciplines in areas of mutual interest, such as respiratory protection, PPE, and heat stress.

10.0 ENVIRONMENTAL COMPLIANCE

The Project will follow SEC-EPP, *Environmental Protection Program*. The ES&H Manager or his designee will provide direction on environmental issues.

11.0 EMERGENCY RESPONSE

The Project will follow SEC-EmPP, *Emergency Preparedness Plan*, which sets forth the emergency response requirements applicable to the West Valley site. The EmPP outlines the roles and responsibilities of key personnel and the actions to be taken in the event of an emergency. It refers to and defers to the CH2M-Hill-Babcock & Wilcox (CHBW) Emergency Plan. It specifies training obligations for SEC personnel. It refers to the CHBW procedure EMIP-101, *Emergency Management Implementing Procedure*, which will be followed by SEC personnel in the event of an emergency at the WVDP site. The current revision of this procedure will be maintained by the SEC Environmental Safety and Health (ES&H) Manager and SEC personnel will be made aware if/when revisions occur and the content of any such revisions.

11.1 Worker Responsibilities

The information that project employees need to know during an emergency are:

- the locations and routes to emergency exits,
- the locations of assembly stations or other designated assembly points,
- the location of the nearest fire alarm pull box and fire extinguisher,
- the locations of other emergency equipment such as eyewash stations,
- the location of the nearest telephone or other means of communication, and
- the location of the emergency contact list.

11.2 Reporting an Emergency

Any persons discovering an emergency condition should immediately alert the WVDP “812” ALL PAGE or contact the dispatch center at extension 4239 by using any site phone. If a site phone is unavailable, a cell phone may be used to contact the dispatch center at 716-942-4239. If a cell phone is unavailable, the hierarchy of alternate communication methods is established as follows:

- Two-way radio and
- Face-to-face.

When the 812 ALL PAGE has been initiated, an alarm will sound over the site public address system, followed by possible verbal instructions or information. It is important to note that calling 911 by cellular phone will not reach the dispatch centers at WVDP. **Calling 911 should only be used in dire situations or if all other attempts to report an emergency through the dispatch center or 812 ALL PAGE fail.** The WVDP dispatch centers are normally continuously staffed 24 hours a day, 7 days a week to monitor alarms.

In cases where access to site phones and radios are limited such as when working in remote areas, plans for making emergency notifications will be pre-arranged between SEC personnel and WVDP Emergency Response personnel. These arrangements should include notifying Emergency Personnel:

- in writing of intent to work in remote areas at least 24 hours in advance including names and cell phone numbers/radio channels of workers,

- by cell phone or radio on a daily basis prior to commencing work activities, and
- by cell phone or radio at the completion of each day's activities in remote areas.

In the event of fire, services will be provided by reporting the fire as stated above. When reporting a fire, specify the location of the fire within the facility. Responsibilities of project personnel in the event of a fire are as follows:

- Summon plant emergency personnel;
- De-energize or place equipment in a safe condition; and
- If personnel choose to do so and are trained, they may suppress the fire utilizing fire extinguishers so long as conditions are not immediately dangerous to life or health.

11.4 Assembly Locations and Evacuation Routes

The designated assembly point for ECS Project personnel will be various Assembly Points specified in the SEC-EmPP. The location of assembly points will be addressed in pre-job/pre-task briefings and periodically in tailgate briefings throughout the course of the project. When an evacuation alarm is sounded, personnel should quickly but calmly proceed to the assembly point to await further instructions. If possible and practical, equipment should be shut down before exiting the area. If undue risk of injury is present, personnel will not attempt to shut down equipment.

The location of evacuation routes and the recommended progression to the assembly point(s) shall be discussed in pre-job briefings. In the event of an evacuation, personnel should be familiar with the safest and shortest evacuation route from each job site and area in which they perform work.

Personnel shall follow the instructions given over the WVDP public address system or by the emergency response team incident commander upon their arrival at the assembly point and remain there until otherwise instructed.

11.5 Emergency Shelters

Because the ECS Project work is largely outdoors, severe weather is a potential and reasonable hazard. The ES&H Representative and supervisors will be on the WVDP severe weather alert paging system and will notify site personnel of actions to take when alerts are issued. The facilities designated as safe shelters in the event of a tornado or severe weather-related event will be communicated in pre-job/pre-task briefings. If personnel cannot make it to the safe shelter point in time they are advised to lie flat in a low area, ditch or ravine. The TM or the ES&H Representative will identify the preferred safe shelter location and discuss with workers at the pre-job briefings. Personnel should avoid taking shelter in trailers and other temporary structures. Taking cover under bridges or in large buried drainage culverts are options, but personnel should be aware of the potential for flooding in such low-lying areas. Areas with utility poles, trees, and towers should be avoided.

11.6 First Aid/Injury

Emergency response for serious injuries will be coordinated by the WVDP Emergency Response office by calling 812 from a plant landline phone. All work-related injuries or illnesses that occur in the course and scope of employment, no matter how minor, shall be promptly reported to the immediate supervisor. Personnel may render first aid/CPR to their level of skill and comfort. The supervisor (or designee) shall immediately notify the ES&H Representative, who if necessary, will contact the SEC occupational medical health care provider.

12.0 RECORDKEEPING AND REPORTING

Recordkeeping and reporting will be in accordance with requirements are described in SEC-Q-17, *Records Management* and SEC-Q-06, *Document Control*.. Safety and health documents and records include, but are not limited to, accident/incident reports, pre-job safety briefings/tailgate safety meeting forms, AHAs, equipment inspection forms, MSDSs, chemical inventory, training certifications, industrial hygiene sampling forms, instrument calibration records, and critical lift plans.

12.1 Accident/Incident Reporting and Recordkeeping

All employees will be instructed to immediately report all work related injuries and illnesses to their immediate supervisor and SEC ES&H Representative. The ES&H Representative, in collaboration with the Project Supervision, will investigate and report each accident or incident involving worker injury or illness.

The Project will follow SEC-ISMS-004, *Incident Investigation and Reporting*, which provides guidance for occurrence reporting. The SEC PM will make the notifications required in this procedure.

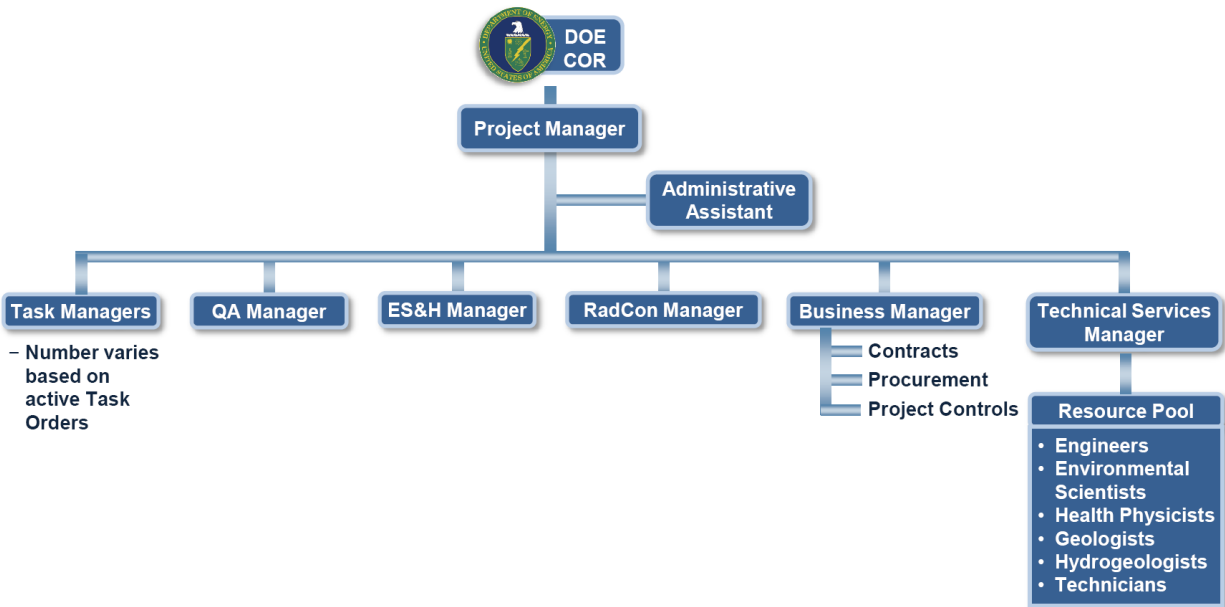
APPENDIX A
PROJECT PERSONNEL/CONTACT INFORMATION

PROJECT PERSONNEL/CONTACT INFORMATION FOR WVDP

To be Determined.

APPENDIX B
PROJECT ORGANIZATION CHART

PROJECT ORGANIZATION CHART



APPENDIX C
EXPOSURE MONITORING AND CONTROL PLAN

EXPOSURE MONITORING AND CONTROL PLAN

The SEC WSHP, *Worker Safety and Health Program* and SEC-IH-01, *Industrial Hygiene Monitoring*, requires an evaluation of potential worker exposure to chemical contaminants and physical agents. Other program elements include a calibration and maintenance program for industrial hygiene instrumentation, use of real-time and integrated employee exposure monitoring, development of exposure action levels, use of accredited analytical laboratories, and proper reporting and recordkeeping. The determination to conduct personal sampling or area monitoring for tasks identified in the Work Package will be made by the Project IH.

All instruments will be calibrated on a schedule based on the manufacturer's recommendations and/or as required by OSHA/National Institute for Occupational Safety and Health (NIOSH) methodologies. Additionally, SEC is responsible for chain-of-custody, laboratory analysis, and data management associated with industrial hygiene samples. Laboratory results will be sent to the Project ES&H Manager or Industrial Hygiene designee for review.

ACTION LEVELS

Unless specific Action Levels have been established by an OSHA regulation or standard or by a DOE Order, the Project will use an Action Level value that is one-half of the most stringent OSHA PEL or ACGIH TLV (see Table C-1). Action Levels are used to indicate the level of a harmful or toxic substance that requires medical surveillance, increased industrial hygiene monitoring, or biological monitoring.

MONITORING REQUIREMENTS

Although engineering and administrative controls are in place to prevent/minimize employee exposure to chemical and physical agents, both environmental and personal sampling will be performed during operations that present a reasonable potential for exposure. Various monitoring and sampling activities not currently identified may be added to this plan as tasks evolve, new conditions are found, or existing conditions change. Table C-2 at the end of this appendix summarizes expected and potential opportunities for industrial hygiene monitoring.

Environmental (area) sampling may be conducted to verify the effectiveness of controls for some tasks or conditions. It is often used as a screening method to complement or initiate personal sampling. Personal (breathing zone) sampling will be conducted during operations that offer a reasonable potential for exposure. Worker exposures are compared to published PELs and TLVs. The PEL and TLV is a TWA airborne concentration of a chemical agent for an 8-hour workday and a 40-hour work week, to which it is believed that nearly all workers may be repeatedly exposed, day after day, for a working lifetime without adverse effect.

CHEMICAL HAZARDS/CONTAMINANTS

Heavy Metals

Characterization indicates that lead, chromium, and nickel, along with other metals such as zinc and copper, are present in elevated levels in the soil. During dust-generating operations, breathing zone samples will be collected and analyzed for metals.

Welding Fumes

Non-routine welding operations may be conducted to repair equipment; some size reduction of scrap by torch cutting may be necessary. If this occurs, the need for personal sampling will be evaluated on a case-by-case basis. Sampling determination will be made considering task-specific factors, such as type of materials involved, welding/cutting methods, and expected time of exposure. Welding fume hazards vary based on the composition of the metal itself, the coatings, and the welding method. Potential hazardous components include lead, chromium (especially the hexavalent form), arsenic, cadmium and nickel, as well as several other elements. Samples will be collected by IH personnel using approved NIOSH or OSHA collection and analytical methodology. For hexavalent chromium, the analytical method will be OSHA ID-215. Because of sample stability concerns sampling for hexavalent chromium will not be conducted on Fridays, except when special arrangements have been made by the Project IH.

Silica

Silica is a component of cementitious materials and can be a health concern when significant levels of dust are generated. Exposure to crystalline silica has been shown in some instances to produce silicosis, a scarring of the lungs with an associated cough and shortness of breath. Dust suppression will be used to control airborne dust. Area and/or personal monitoring will be conducted during activities that have a reasonable potential of exposures approaching the action level.

Asbestos

Most of the buildings on the Project have asbestos-containing materials (ACMs) in various forms within them. ACM is present in the form of floor tile, transite siding, wall and ceiling tile, mastic and thermal system insulation. An asbestos removal contractor shall perform the Asbestos abatement. Asbestos abatement activities shall be outlined in an Asbestos Work Plan and shall comply with 29 CFR.1926.1101.

Lead

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing.

Exposure to lead can happen from breathing workplace air or dust, eating contaminated foods, or drinking contaminated water. Lead can affect almost every organ and system in your body. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the reproductive system. The effects are the same whether it is breathed or swallowed. At high levels, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect the memory. Lead may cause anemia, a disorder of the blood. It can also damage the male reproductive system. The connection between these effects and exposure to low levels of lead is uncertain.

A blood test is available to measure the amount of lead in the blood and to estimate the amount of exposure to lead. Lead in teeth and bones can be measured with X-rays, but this test is not as readily available.

Beryllium

Any work that potentially involves exposure to Beryllium shall follow the requirements of SEC-BP, *Chronic Beryllium Prevention Program*. As with any harmful agent, removal of potential beryllium-containing dust from protective clothing and equipment by blowing, shaking, or other means that may disperse beryllium into the air is prohibited.

Table C-1. Exposure Values for Contaminants Potentially Present

CONTAMINANT	TLV-TWA ^A	PEL-TWA ^B	STEL/ Ceiling (Note 1)	Action Level (Note 2) (Note 3)	Units	NIOSH IDLH
Asbestos	0.1	0.1	1	-	f/cc	-
Beryllium	0.002	-	0.005 ^B	0.001	mg/m ³	4*
Dust (Particulates)	10	-	-	-	mg/m ³	-
Silica	0.025	0.025	-	0.012	mg/m ³	-
Dust (Metals)						
Barium	0.5	0.5	-	0.25	mg/m ³	-
Chromium	0.01	0.005	-	0.0025 ^B	mg/m ³	250
Copper	0.1	0.1	-	0.05 ^{A, B}	mg/m ³	100
Lead	0.05	0.05	-	0.03 ^B	mg/m ³	100
Nickel	0.2	1	-	0.1 ^A	mg/m ³	10*
Zinc	2	5	10	1 ^A	mg/m ³	500
Welding Fumes						
Arsenic	0.01	0.01	-	0.005 ^B	mg/m ³	5
Cadmium	0.01	0.005	0.3 ^B	0.0025 ^B	mg/m ³	9
Chromium, as Cr(VI)	0.01	0.005	-	0.0025 ^B	mg/m ³	15*
Copper	0.1	0.1	-	0.05 ^{A, B}	mg/m ³	100
Iron	5.0	10.0	-	2.5	mg/m ³	-
Lead	0.05	0.05	-	0.03 ^B	mg/m ³	100
Manganese	0.2	-	5 ^B	0.1 ^A	mg/m ³	500
Nickel	0.2	1	-	0.1 ^A	mg/m ³	10*
Tin	2	2	-	1 ^{A, B}	mg/m ³	25
Zinc	2	5	10	1 ^A	mg/m ³	500

^A ACGIH Value based on an 8 hour day/40 hour week

^B OSHA Value based on an 8 hour day/40 hour week

* IDLH based on carcinogenic status

Note 1: The STEL (Short-Term Exposure Limit) is a 15-minute TWA exposure that should not be exceeded at any time during the workday.

Note 2: The Action Level is typically one-half the TWA value, except where otherwise established by Federal regulation.

Note 3: On a case-by case basis, the Industrial Hygienist may determine that an Action Level based on the Ceiling or STEL value is appropriate for some contaminants when monitoring certain short-term activities.

Table C-2. Industrial Hygiene Monitoring

Source	Contaminant/Agent	Monitoring	Methodology	Frequency/Occurrence
Airborne dust	Metals (Ba, Cr, Pb, Cu, Ni, Zn)	Breathing zone samples	NIOSH 7300	Task-driven, as determined by the Project Industrial Hygienist
Airborne dust	Beryllium	Breathing zone samples	NIOSH 7300/NIOSH 7102	Task-driven, as determined by the Project Industrial Hygienist
Equipment and power tools	Noise	Sound level meters and/or	Real-time instrumentation	Task-driven, as determined by the Project Industrial Hygienist
		Noise dosimetry	Data-logging	
Welding/cutting on painted or dusty surfaces	Metals (As, Cd, Cr, Cu, Mn, Ni, Pb, Sn, Zn)	Breathing zone samples for Pb, Cr(VI) and other metals	Cr(IV) - OSHA 215 Other metals NIOSH 7300	Project IH shall evaluate exposure potential during work planning and when reviewing the WP.
Hot weather or Dress-out in impermeable or semi-permeable clothing	Heat stress	Environmental temperature or	Real-time instrumentation (WBGT)	Weather or task-driven, as determined by the Project Industrial Hygienist
		Pulse rates or	Trained personnel	
		Blood pressure or	Trained personnel	
		Heat stress index	Reference material	

