

SECTION 13286 - DISTURBANCE OF ARSENIC-CONTAINING MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies Contractor's responsibilities for controlling arsenic hazards that have been identified in the project areas.

- B. In performing activities associated with the disturbance and disposal of building components containing arsenic, all possible safeguards, precautions and protective measures should be utilized to prevent exposure of any individual to arsenic particulates.

1.02 COORDINATION WITH OTHER SECTIONS

- A. See specification SECTION 13288 - TESTING / AIR MONITORING for related work requirements.

- B. The Contractor shall coordinate all disturbance and disposal of arsenic-containing material with the Contracting Officer's Authorized Representative and the Construction Manager.

1.03 CONTRACTOR RESPONSIBILITIES

- A. The Contractor acknowledges responsibility for the instruction and enforcement of personnel protection requirements and that these specifications provide only a minimum acceptable standard.

- B. The Contractor shall comply with all requirements of 29 CFR 1910.1018 and provide daily personnel air monitoring. The Contractor shall also be responsible for complying with all applicable EPA regulations in regards to arsenic-containing materials:
 - 1. Respirators: Use appropriate respirators and filters which meet all requirements of OSHA 29 CFR 1910.134.

 - 2. Protective Clothing: Use appropriate personal protective clothing (disposable suits, eye protection, gloves, etc.) as required by OSHA 29 CFR 1910.1018.

 - 3. Employee Monitoring: Contractor's Competent Person shall monitor employees' exposure to arsenic in accordance with OSHA requirements.
 - a. Contractor shall collect air samples from employees' breathing zones during each shift, for the duration of the arsenic-disturbing work.

 - b. Contractor shall collect samples from at least 25% of workers conducting arsenic-containing materials disturbing tasks, and not less than two workers.

1.04 SUBMITTALS

- A. Submit in accordance with SECTION 01330 - SUBMITTAL PROCEDURES.

- B. Pre-work Submittals: The following must be submitted a minimum of 10 working days prior to start of work; and accepted by the Construction Manager, prior to the start of work:
1. Arsenic Disturbance Work Plan including but not limited to the following: work area preparation, post cleaning activities, and waste disposal.
 2. List of employees who will be working at the job site and documentation of proper training.
- C. Post-work Submittals: The following must be submitted a maximum of 30 working days after completion of the work:
1. All personnel air monitoring field data, laboratory reports and results shall be submitted weekly during the project and completely at the completion of the project.
 2. All completed and signed waste disposal documents.
 3. List of any change of personnel for project and include additional required training certificates (must be approved by IH prior to new personnel being allowed on site).
 4. Weekly job progress report and completion report.
- D. Training: Within one year prior to assignment to arsenic work, each employee shall be instructed by a qualified training provider, or equivalent safety specialist with regard to the hazards of arsenic, safety and health precautions, the use and requirements for protective clothing, equipment, and respirators, and the additional requirements of 29 CFR 1910.1018, HAZWOPER or equivalent. Submit training certificates signed and dated by the training provider, or equivalent safety specialist.
- E. Respiratory Program: Establish and implement a respirator program as required by ANSI A88.2, 29 CFR 1910.134, and 29 CFR 1910.1018.
- G. Arsenic Disturbance Work Plan: The Contractor shall submit for review for acceptance to the Construction Manager, an Industrial Hygienist reviewed and approved, detailed job-specific work plan of the work procedures to be used in the disturbance and disposal of arsenic-containing material prior to the start of work. The work plan shall also include interface with trades, sequencing of arsenic-related work; disposal; liquid and solid waste storage plan, containerization plan; daily personnel air sampling plan; respirators; protective equipment; worker training certification; emergency plan; a detailed description of the method to be employed in order to control pollution and security provisions. The personal air sampling portion of the plan shall include sampling, training, and strategy; estimated number of air samples per day, and sampling methodology.
- H. Contractor Required Testing: The Contractor shall provide and pay for all required OSHA testing and air monitoring during arsenic-containing material activities. The Contractor shall use a Laboratory certified by the American Industrial Hygiene Association (AIHA), and judged proficient by current inclusion and successful participation in the Proficiency Analytical Testing (PAT) Program for arsenic.

1.05 GENERAL REQUIREMENTS

- A. The work specified herein shall include the disturbance of arsenic-containing components, transportation and disposal procedures as required of arsenic-containing materials, by persons with at least Arsenic OSHA Awareness Training. This work must be performed in compliance with all applicable Federal, State, and local regulations and be performed by workers who are capable of and willing to perform the work of this contract.

- B. Applicable Standards and Guidelines: All work under this contract, and any other trade work conducted with the project, shall be done in strict accordance with all applicable Federal, State and local regulations, standards and codes governing arsenic-containing material disturbance, transportation and disposal of generated waste. The most recent edition of any relevant regulation, standard, document or code shall be in effect.

- C. Compliance with the specific statutory and regulatory requirements shall include but not limited to:
 - 1. Title 29 CFR of Federal Regulations Part 1910 General Industry Standard

 - 2. Title 29 Code of Federal Regulations Part 1910.1018, Inorganic Arsenic

 - 3. Title 29 Code of Federal Regulations Part 1910.134, Respiratory Protection.

 - 4. Title 29 Code of Federal Regulations Part 1926, Construction Standards

 - 5. Title 40 Code of Federal Regulations Part 268, Land Disposal Restrictions

 - 6. Title 49 Code of Federal Regulations Part 178, Shipping Container Specification

1.06 DEFINITIONS

- A. Action Level (AL): Employee exposure averaged over an 8-hour period, without regard to the use of respirators, to a particular airborne concentration. OSHA requirements become effective at this level. AL for Arsenic: 5 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$)

- B. Air Monitoring: The process of measuring the content of a specific, known, volume of air in a stated period of time. For this project, NIOSH 7300 method for arsenic monitoring.

- C. Arsenic, Inorganic: Copper aceto-arsenite and inorganic compounds containing arsenic except arsine, measured as arsenic (As).

- D. Authorized Visitor: The DOE, their representatives, Construction Manager representatives, Industrial Hygienist, or a representative of any regulatory or other agency having jurisdiction over the project.

- E. Contaminated Area: An area where unwanted toxic or harmful substances exists.

- F. Contracting Officer's Authorized Representative: Qualified Industrial Hygienist to perform project monitoring, work review, inspections, and other actions as designated in this Section.
- G. HEPA Filter: A High Efficiency Particulate Air filter capable of trapping and retaining 99.97% of particulates greater than 0.3 micron in length.
- H. Permissible Exposure Limit (PEL): The employer shall ensure that no employee is exposed to concentrations greater than the PEL as determined from an 8-hour time weighted average. PEL for Arsenic: 10 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$)
- I. Personal Monitoring: Contractor's daily sampling of arsenic in air concentrations within the breathing zone of an employee to determine the 8-hour time weighted average. The samples shall be representative of the employee's work tasks. The breathing zone shall be considered an area within 12-inches of the nose or mouth of an employee.
- J. Qualified Testing Laboratory: Laboratory certified by the American Industrial Hygiene Association (AIHA), able to provide analysis and reporting of airborne concentrations of arsenic. The laboratory judged proficient by current inclusion and successful participation in the Proficiency Analytical Testing (PAT) Program for arsenic.

1.07 ABBREVIATIONS

- A. CFR - Code of Federal Regulations
- B. HIOSH - Department of Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii
- C. EPA - U.S. Environmental Protection Agency
- D. NIOSH - National Institute for Occupational Safety and Health
- E. OSHA - Occupational Safety and Health Administration

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Plastic Sheeting: Minimum thickness of 6-mil polyethylene film.
- B. Plastic Bags: Minimum thickness 6-mil polyethylene film labeled as specified hereinafter.
- C. Tapes: Tape shall be capable of sealing joints of adjacent sheets of polyethylene and for attaching polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including the use of amended water. Silver cloth duct tape, minimum two (2)-inch wide, and double-faced foam tapes, by Nashua, 3-M, Arno, or

approved equal shall be used on polyethylene sheeting, red or NATO orange tape, minimum 2-inches wide for exit arrows.

- D. Adhesives: Adhesives shall be capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water. 3-M #76, #77, or approved equal.
- E. Warning Signs and Labels: Provide warning signs at approaches to the arsenic control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Provide and affix labels to impermeable bags, arsenic waste drums, and other containers containing arsenic materials, scrap, waste, or debris. Signs and labels shall comply with the requirements of 29 CFR 1910.1018. Warning signs and labels shall be provided throughout the entire project and as deemed necessary by the Qualified Consultant. Signage shall be approved by the State.
- F. Protective Clothing: Furnish personnel exposed to arsenic dust with disposable protective whole body clothing, eye-protection, head covering, gloves, and foot coverings. Furnish disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after approval from the Qualified Consultant. For this project, respirators shall be worn at all times throughout the disturbance process or as deemed necessary by the Qualified Consultant.
- G. Respirators: Use appropriate respirators and filters which meet all requirements of OSHA 29 CFR 1910.134. At a minimum, half-mask respirators equipped with HEPA filter cartridges shall be used.
- H. Other Materials: Provide all other materials, which may be required to properly prepare and complete this project.

2.02 TOOLS

- A. HEPA Vacuum: High Efficiency Particulate Air (HEPA) vacuum.
- B. Water Sprayer: Airless or a pressure sprayer for amended water application as applicable.
- C. Other tools and equipment as necessary.

PART 3 - EXECUTION

3.01 WORK AREA PREPARATION

- A. Area Requirements: Establish an arsenic control area with warning signs and appropriate barriers. Only authorized personnel shall be allowed within the control area.

- B. Barriers
 - 1. Standard barriers such as construction warning tape, fencing, etc. shall be used to prevent the general public access on to the work site.
 - 2. Warning signs shall be posted at all sides of the work area.
 - 3. Cover doorways beneath the work area with construction barrier tape.
- C. Floor Covering: Cover the floor beneath the work area with 6-mil polyethylene sheeting.

3.02 WORK PROCEDURE

- A. Perform arsenic-related work as specified herein.
 - 1. Personnel shall wear and use protective clothing and equipment as specified herein.
 - 2. Eating, smoking, or drinking shall not be permitted in the arsenic control area.
 - 3. No one will be permitted in the arsenic control area unless the person is provided with appropriate training and protective equipment. The Contractor shall be responsible for providing their personnel with the appropriate training and the necessary protective equipment while they are performing arsenic-related work.
 - 4. Avoid creating dust at all times. Absolutely no dust creating method shall be utilized during disturbance of arsenic-containing material.
 - 5. The disturbance area shall be clean of all visible arsenic-containing debris prior to final visual inspection by the Contractor and Qualified Consultant.
 - 6. The Contractor is solely responsible for complying with any and all regulations concerning employee safety and health and the requirements specified herein.
- B. Arsenic Control Area Requirements: Establish an arsenic control area by covering doorways and entrances beneath the work area. No one will be permitted in the arsenic control area unless the person is provided with appropriate training and protective equipment. During the arsenic-containing material disturbance operation, when the employees need to exit the controlled area, they will be required to remove all visible dust from themselves using a HEPA vacuum and wet wiping; remove their disposable coveralls; place them in an approved impermeable container; as a minimum wash face and hands with soap and water; and then exit the area.
- C. Ensure that all personnel working on site during the demolition work is properly trained and protected as required by law.
- D. At the completion of the disturbance work, ensure that all arsenic-containing debris is removed from the site. Waste must be disposed of at an approved waste disposal site within 90 days of the disturbance work. The Contractor shall comply with all applicable transport and disposal regulations including 40 CFR

261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 268, 49 CFR 172 and 49 CFR 178.

3.03 CONFORMANCE

- A. All work shall be executed in accordance with the following:
 - 1. Occupational Safety and Health Administration (OSHA); Hawaii Occupational Safety and Health (HIOSH) standards and rules.
 - a. All cost associated with the execution of work in accordance with these OSHA and HIOSH standards and rules shall be the Contractor's responsibility.
 - b. The Contractor shall implement good housekeeping methods to confine the spread of airborne dust when performing work that pulverizes existing arsenic-containing material in all rooms and spaces in this project.
 - c. Identify the arsenic-containing material that will be impacted by the work. All arsenic-containing material that will be removed from the buildings will be collected, properly packaged, and disposed at an approved waste disposal site.

3.04 TRANSPORTATION AND DISPOSAL

- A. Disposal of Generated Waste: Remove arsenic waste including, debris, scraps, waste materials, rubbish, and trash from the site and dispose of at a landfill approved for such purposes. The Contractor shall submit to the Construction Manager, documentation that the arsenic-containing waste material removed from the work area has been accepted.
 - 1. The Contractor shall submit disposal documents showing acceptance of all waste material by the approved waste disposal site to the Construction Manager. The shipping papers shall include names and addresses of the Facility Owner, the Contractor, and the Landfill Operator and information on the type and number of waste containers.

3.05 TESTING AND MONITORING

- A. The Contractor is solely responsible for personal air monitoring and providing personal protective equipment, including respiratory protection, to employees in compliance with all OSHA and HIOSH requirements.
- B. The Contracting Officer's Authorized Representative shall inspect the site upon the conclusion of the cleaning activities to determine if all designated arsenic-containing materials have been completely removed and the site is essentially clean of visible arsenic-containing debris. The Contracting Officer's Authorized Representative will determine if the work area is acceptable and the work is complete.

END OF SECTION