

**WESTERN MUNICIPAL WATER DISTRICT
RIVERSIDE, CALIFORNIA**

U-1 TANK DEMOLITION

SECTION H-2

**TECHNICAL SPECIFICATION FOR
LEAD PAINT COATED MATERIALS-
WORKER/ENVIRONMENTAL PROTECTION
AND WASTE HANDLING**

PART 1.0 GENERAL

1.01 PURPOSE

- A. This Specification sets out the requirements for worker protection, containment system design and use, environmental protection, and waste disposal for protecting the public, Contractor workers, other job site workers, and the environment during the demolition of materials containing lead or other toxic metals.
- B. The scope of work involves the demolition of the U-1 Tank. The tank will be removed from the site with no attempt to remove the lead paint from materials at the site.
- C. Samples of the coatings of the exterior of the U-1 Tank have been analyzed and found to contain detectable concentrations of lead.
 - 1. The existing coating system has not been analyzed for the presence of toxic metals other than lead. The Contractor may perform paint chip sampling and analysis for the presence of cadmium and chromium.
 - 2. Test results are provided for bidding purposes only. At project start up, conduct worker exposure monitoring for all metals that may be present in the paint, and adjust all protection, training, medical surveillance, and recordkeeping provisions according to the results. Note that the results of any worker exposure monitoring that is undertaken by the Contractor have no bearing on the environmental protection and waste handling requirements of this specification.

1.02 REGULATORY COMPLIANCE

- A. Implement and maintain programs and procedures which comply with the requirements of this Specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a State or local regulation is more restrictive than the requirements of this Specification, follow the more restrictive requirements.
- B. Identification of the items in this specification which are of specific interest to the Western Municipal Water District (WMWD) in no way relieves the Contractor of the responsibility to comply with all regulatory requirements, nor should it be construed that the WMWD, the EPA, OSHA, or state and local regulators are only interested in these items.

1.03 REFERENCE STANDARDS

- A. **Latest Edition** - the latest edition of the following acts, regulations, guides, and standards form a part of this Specification.
- B. **Laboratory Accreditation**
 - 1. American Industrial Hygiene Association
 - 2. Environmental Lead Laboratory Accreditation Program (ELLAP)
 - 3. Industrial Hygiene Accredited Laboratory – Metals
 - 4. EPA National Lead Laboratory Accreditation Program (NLLAP)
- C. **Code of Federal Regulations (CFR)**
 - 1. 29 CFR 1910, Occupational Safety and Health Regulations for General Industry
 - 2. 29 CFR 1926, Occupational Safety and Health Regulations for the Construction Industry
 - 3. 29 CFR 1926.20, General Safety and Health Provisions
 - 4. 29 CFR 1926.21, Safety Training and Education
 - 5. 29 CFR 1926.51, Sanitation
 - 6. 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts, and Mists
 - 7. 29 CFR 1926.57, Ventilation

8. 29 CFR 1926.62, Lead
9. 29 CFR 1926.103, Respiratory Protection
10. 29 CFR 1926.104, Safety Belts, Lifelines, and Lanyards
11. 29 CFR 1926.450 - 454, Scaffolding
12. 29 CFR 1926.1127, Cadmium
13. 29 CFR 1926.1118, Arsenic
14. 40 CFR 50, National Primary and Secondary Ambient Air Quality Standards
15. 40 CFR 60, App. A, Method 22, Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Fires
16. 40 CFR 261, Appendix II EPA, Toxicity Characteristic Leaching Procedure
17. 40 CFR 262, Standards Applicable to Generators of Hazardous Waste
18. 40 CFR 263, Standards Applicable to Transporters of Hazardous Waste
19. 40 CFR 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
20. 40 CFR 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
21. 40 CFR 265, Subpart C, Preparedness and Prevention
22. 40 CFR 265, Subpart D, Contingency Plan and Emergency Procedures
23. 40 CFR 265.16, Personnel Training
24. 40 CFR 268, Land Disposal Restrictions
25. 40 CFR 302, Designation, Reportable Quantities and Notification
26. 40 CFR 355, Emergency Planning and Notification

27. 49 CFR 171-179, Hazardous Materials Regulations

D. EPA Methods

1. SW 846, Test Methods for Evaluating Solid Waste - Physical/Chemical Methods
2. Method 1311, Toxicity Characteristic Leaching Procedure (TCLP)
3. Method 3050, Acid Digestion of Sediment, Sludge, and Soils

E. National Institute of Occupational Safety and Health (NIOSH) Methods

1. Method 7048, Cadmium
2. Method 7082, Lead
3. Method 7300, Chromium
4. Method 7900, Arsenic

F. The Society for Protective Coatings (SSPC)

1. Guide 6, Guide for Containing Debris Generated During Paint Removal Operations
2. Guide 7, Guide for the Disposal of Lead-Contaminated Surface Preparation Debris
3. Guide 16, Guide to Specifying and Selecting Dust Collectors
4. Guide TU-7, Conducting Ambient Air, Soil, and Water Sampling During Surface Preparation and Paint Disturbance Activities
5. SSPC 93-02, Industrial Lead Paint Removal Handbook, 2nd Edition, Volume I
6. SSPC 95-06, Project Design, Industrial Lead Paint Removal Handbook, Volume II

G. State and Local Regulations

1. 8 CCR Div. 1, Ch. 4, Subchapter 4, Construction Safety Orders
2. 8 CCR 1509, Injury and Illness Prevention Program

3. 8 CCR 1519, Sanitation
4. 8 CCR 1527, Washing Facilities, Food Handling, and Temporary Sleeping Quarters
5. 8 CCR 1528, Dusts, Fumes Mists, Vapors, and Gases
6. 8 CCR 1531, Respiratory Protection
7. 8 CCR 1532.1, Lead
8. 8 CCR 1516, Eye and Face Protection
9. 8 CCR 1521, Ear Protection
10. 22 CCR Div. 4.5, Environmental Health Standards for the Management of Hazardous Waste
11. Health and Safety Code, Div. 20, Ch. 6.5, Hazardous Waste Control Law

1.04 SUBMITTALS

- A. **Submittal Schedule** - Submit the following plans and programs to the WMWD for review and acceptance a minimum of 14 days prior to project start-up and 7 days prior to the Pre-Job Conference.
- B. **Containment Design**
 1. Submit the general containment design proposed for use during surface preparation and clean up activities as required to perform the work under the Contract and in accordance with the requirements of Part 3 of this Specification. Include:
 - a) all data, calculations, and assumptions used for the design of the ventilation system for work on the tank exterior;
 - b) methods that will be used to verify adequate air flow characteristics and negative pressure within containment, and ventilation during painting operations.

C. Environmental Compliance Plan

1. Develop an Environmental Compliance Plan that assures the protection of the environment from project activities in compliance with the requirements of Part 3 of this Specification.
2. In the Environmental Compliance Plan, establish programs for the monitoring activities that are the responsibility of the Contractor, and include provisions for complying with the results of any monitoring and analysis that is conducted by WMWD. Include the following elements in the Plan:
 - a) Assessments of Visible Emissions and Releases - Provide written procedures in accordance with Part 3 of this Specification for the observation of visible emissions during project activities, and inspections for releases or spills of dust and debris that become deposited on surrounding equipment and property. Include the frequency of observations and inspections that will be made, areas or work activities that will be observed, and methods of observation and inspection that will be utilized. Include the name(s) and qualifications of the personnel conducting the observations and inspections.
 - b) Establishment of Regulated Areas - Provide written procedures in accordance with the requirements of Part 3 of this Specification for the instrument monitoring of airborne exposures surrounding project activities, and the establishment of visible barriers (regulated areas) to control the access of personnel within the exposure zones.
 - c) Compliance with Monitoring Conducted by the WMWD – the WMWD or its Representative may undertake monitoring and analysis of visible emissions, ambient air, regulated area, and/or soil around the project site. Include statements in the Environmental Compliance Plan that appropriate corrective action will be implemented if the results of any monitoring and analysis that may be undertaken by the WMWD show that violations of acceptance criteria are occurring. Appropriate corrective action includes making changes to the containment and/or work practices to achieve compliance.
3. Final Cleaning/Clearance Evaluations - Provide written procedures identifying the methods that will be used to conduct final project

clean up, and the final cleanliness inspections and evaluations that will be undertaken in compliance with the requirements of Part 3 of this Specification.

4. Remediation of Ground (Soil) - Include provisions in the Plan that in the event post-project sampling and analysis show unacceptable results, the Contractor will undertake the necessary clean up or remediation of the ground (soil) as appropriate as directed by the WMWD. Clean up to pre-project levels is required as stipulated in Part 3 of this Specification.

D. Worker Lead (Toxic Metal) Protection Compliance Program

1. Worker Lead (Toxic Metal) Protection Compliance Program - Provide a project-specific compliance program, prepared under the direction of, and signed by, a Certified Industrial Hygienist (CIH), for the protection of Contractor workers from lead in accordance with 29 CFR 1926.62 and the requirements of this Specification, and for protection of workers from other toxic metals in the paint. When toxic metals are present in the paint for which OSHA has not developed a comprehensive health and safety standard, include statements that the workers will not be exposed above the PEL established for the metal as identified in 29 CFR 1926.55. Include the name of the competent person who will be making routine inspections of project activities to ensure compliance with the program. Verify that any Subcontractors working for the Contractor are included in the program or in a separate program which meets the requirements of this Specification. If Subcontractors are operating under a separate program, include the program with the submittals.
2. Personnel Qualifications - Provide the name, experience, and qualifications of both the CIH who will be overseeing the development of the compliance program, and the competent person who will be assigned to the project.
3. Outside Laundry - Provide the name, address, and qualifications of the launderer, if one will be used, for the cleaning of reusable clothing. Provide a letter from the laundry indicating that it is permitted to handle clothing contaminated with lead and/or the other toxic metals of concern.
4. Personal Protective Equipment for Use by WMWD Representatives - Acknowledge that all protective clothing and equipment, laundering or disposal, fit testing as needed, and hygiene facilities will be provided for up to two WMWD representatives for each work

shift.

E. Waste Handling, Storage, and Disposal Plan

1. Waste Handling and Disposal Plan
 - a) Provide a written program that establishes the procedures that will be followed for the proper handling and disposal of all waste in compliance with applicable EPA regulations and the requirements of Part 3 of this Specification.
 - b) Include the procedures that will be followed in order to comply with Part 3 of this Specification for the collection of representative samples of the waste for testing; the testing and analysis procedures that will be used; the procedures for the site handling, storage, and packaging of the waste; and contingency plans in the event of a spill. Include procedures that will be followed to assure that all reusable items such as equipment, containment materials, and scaffolding are properly cleaned prior to removal from the site.
 - c) If recycled steel abrasives are used, include a statement that even though the waste may pass the TCLP test, it will be handled and transported as if it were hazardous, and that it will be stabilized prior to disposal.
 - d) If it is proposed that abrasive additives be used, provide the name of the material, MSDS, performance history, and procedures for its use.
2. Transporter Information - Provide the name, address, license or permit number, qualifications, and contact person of each proposed hauler of hazardous waste, non-hazardous waste, and waste water.
3. Hazardous Waste Disposal Facility
 - a) Provide the name, address, license or permit number, qualifications, and contact person of each proposed legally permitted hazardous waste disposal facility that will be used.
 - b) If recycled steel grit abrasives will be used, advise the facilities that the waste must be handled and stabilized as if it tested hazardous. Provide the proposed means of stabilization that will be used by the facility to comply with the requirements of this Section.

- c) Provide a letter of intent from each proposed disposal facility stating that the facility can accept paint removal waste, is authorized to accept the waste under the laws of the State of residence, has the required capability to treat and dispose of the materials, and will provide or assure the ultimate disposal method indicated on the Uniform Hazardous Waste Manifest. Provide the WMWD with the original letter signed by a legally authorized representative of the facility.

4. Non-Hazardous and Other Waste Disposal Facilities

- a) Submit the name, address, license or permit number, qualifications, and contact person of each permitted waste landfill that will accept the non-hazardous (construction) waste, and the waste which passes TCLP, but which contains toxic metals. Provide the same information for each proposed disposer of waste water.
- b) Provide a letter of intent from the proposed legally permitted landfill operator agreeing to accept waste which passes TCLP, but which contains toxic metals.
- c) Provide a letter from the proposed disposer of waste water indicating that the facility has the capability to handle and properly dispose of water which contains lead or other toxic metals. Include the concentrations of toxic metals in the water that the facility can accept. If the POTW will allow the water to be discharged into a sanitary sewer, include this provision in the letter, together with any limitations or restrictions.
- d) Provide the WMWD with the original letters signed by a legally authorized representative of each facility.

F. Laboratory/Monitoring Firm Qualifications

- 1. Provide the name, address, accreditations, qualifications, and contact person of the laboratory and/or firm that will be used for the worker and area exposure monitoring.
- 2. Confirm that the laboratory conducting the worker blood analysis is approved by OSHA.
- 3. Provide the name, address, experience, accreditations, qualifications, and contact person of the laboratory and/or firm that will be used for the waste testing and analysis.

G. WMWD Review

1. Do not construe WMWD acceptance of Contractor submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of this Specification, or to adequately protect the health and safety of all workers involved in the project including any members of the public who may be affected by the project.
2. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

PART 2.0 PRODUCTS

2.01 CONTAINMENT MATERIALS

- A. Supply all materials needed to contain project debris in accordance with the requirements of the Contract and this Specification. This may include, but is not limited to, ground covers, rigging, scaffolding, planking, containment materials, dust collection and ventilation equipment, HEPA vacuums, and all other containment materials that may be needed.
- B. Use materials that are free of loose dust and debris when brought onto the project site, and upon removal.

2.02 MONITORING AND TESTING EQUIPMENT

- A. Supply the instrumentation needed for all of the monitoring and analysis responsibilities assigned to the Contractor in Part 3 of this Specification (e.g., worker and area exposures, environmental monitoring, waste sampling, etc.) including all equipment needed for its operation such as generators, batteries, power cords, and fuel.
- B. Use equipment that is free of loose dust and debris when brought onto each project site, and upon removal.

2.03 PERSONAL PROTECTIVE EQUIPMENT AND HYGIENE FACILITIES

- A. Provide all personal protective equipment (PPE) and hygiene facilities needed for the project in accordance with the requirements of this Specification. Provide all necessary protective equipment and clothing for use by up to two WMWD Representatives each day, including proper cleaning and disposal.
- B. Repair or replace PPE as required to assure that it continues to provide its intended purpose.
- C. Use PPE and hygiene facilities that are free of lead or other toxic materials when brought onto each bridge site, and that are clean upon removal. Properly handle and dispose of all hygiene water, cleaning materials, and PPE that cannot be cleaned for reuse. Comply with this Specification for proper disposal.

2.04 WASTE CONTAINERS

- A. **Hazardous Waste** - Provide DOT-approved drums, tanks, or other

containers of the appropriate size and type in accordance with 49 CFR 178 (e.g., 17H containers in the case of 55 gallon drums) that are suitable for the hazardous waste generated on the project. Use containers that are resistant to rust and corrosion (painted, if constructed of steel), that have tight fitting lids or covers, and which are water resistant.

- B. **Construction Waste** - Provide all containers for non-hazardous construction waste. Use containers that are free of loose debris when brought on-site.
- C. **Spent Solvents** - Provide all containers for spent solvents. Do not mix spent solvents with spent abrasives, paint debris, water, or other waste.

PART 3.0 - EXECUTION

3.01 WORKER PROTECTION

A. General

1. Conduct the work in strict accordance with Federal OSHA and California Title 8 regulations governing worker protection. Institute engineering and work practice controls to reduce worker exposures to lead and other toxic metals to as low as feasible.
2. All worker protection requirements apply to Contractor and Subcontractor personnel working for the Contractor.
3. The requirements identified below are based on 29 CFR 1926.62, but the Contractor must protect the employees from exposure to any of the other toxic metals which may be present in the paint and/or abrasive, as applicable, in addition to lead.

B. Compliance Program

1. Develop a written Compliance Program under the direction of a CIH to establish and implement practices and procedures for protecting the health of those employees exposed to lead and other toxic metals contained in the paint. This program is in addition to other OSHA hazard communication and safety and health requirements of the project.
2. Revise and update the program at least every six months during the portion(s) of the project which involve the disturbance of toxic metals. Verify that the CIH signs off on all reviews and revisions.
3. Establish methods for complying with this Specification and any OSHA or CALOSHA standards published for the toxic metals present in the paint (e.g., 29 CFR 1926.62 and 8 CCR 1532.1 for lead). When toxic metals are present in the paint for which OSHA has not developed a comprehensive health and safety standard (e.g., chromium), include statements that the workers will not be exposed above the PEL established for the metal as identified in 29 CFR 1926.55.
4. Identify the methods of compliance that will be used to reduce worker exposures to toxic metals. Rely on respiratory protection only after feasible engineering and work practice controls have been first implemented to reduce airborne exposures.

5. Confirm that daily inspections of the work area will be made by a competent person.
6. Identify the project competent person by name in the compliance program, his or her qualifications, and indicate the frequency of inspections that will be undertaken.

C. Exposure Monitoring/Initial Assessment

1. Collect representative personal air samples at the beginning of the demolition work (at project start-up) to determine employee exposures to lead and other toxic metals that might be present in the coating. Tasks resulting in the potential exposure to toxic metals include, but are not limited to, pressure water washing, vacuum shrouded power tool cleaning, dry or wet abrasive blast cleaning, cleanup, and debris handling operations. Collect full shift (at least 7 hours) air samples for workers in each job classification in each exposure area, including WMWD Representatives. Provide the WMWD with the results of the analysis within the same 5 day notification period required for the employees.
2. When lead is present, protect workers during the initial monitoring to the anticipated exposure levels as dictated by 29 CFR 1926.62 and as specified below. A few activities in addition to those identified by OSHA are included. Use the same level of protection when other toxic metals are found in the coating, unless OSHA has developed a comprehensive health and safety standard for that metal (e.g., cadmium and inorganic arsenic). In those cases, implement the protection requirements of the standard for that metal.
 - a) Assume an exposure of at least $50 \mu\text{g}/\text{m}^3$: Manual demolition of structures containing lead-containing coatings or paint (e.g., dry wall), manual scraping, manual sanding, heat gun applications, power tool cleaning with dust collection systems, and spray painting with lead paint. Although not identified in 29 CFR 1926.62, include water washing and the operation of abrasive grit recovery equipment in this category.
 - b) Assume an exposure of at least $500 \mu\text{g}/\text{m}^3$: Using lead-containing mortar, lead burning, or conducting the following activities where lead-containing coatings or paint are present: rivet busting, power tool cleaning without dust collection systems, cleanup activities where dry expendable

abrasives are used, and the movement and removal of abrasive blasting enclosures. Although not identified in 29 CFR 1926.62, include water jetting and wet abrasive blasting removal of paint in this category.

- c) Assume an exposure of more than $2,500 \mu\text{g}/\text{m}^3$: Activities involving lead containing coatings or paint on structures disturbed by abrasive blasting, welding, cutting, and torch burning.
 - d) During any of the above activities, provide appropriate respiratory protection, personal protective clothing and equipment, change areas and washing facilities, blood lead and zinc protoporphyrin monitoring, and employee training. Maintain the protection as specified above until the test results are received, then modify the protection measures as necessary.
3. Collect and analyze all air samples according to the appropriate NIOSH method, or equivalent, for the metal of concern (e.g., Method 7082 for lead, Method 7048 for cadmium, Method 7300 for chromium, and Method 7900 for inorganic arsenic). Only use laboratories which meet the qualification requirements established under "Submittals," and which have been approved by the WMWD.
 4. Conduct periodic monitoring of Contractor workers and WMWD Representatives, and provide written employee notifications within five days of receipt of results in accordance with the applicable OSHA standard for the metal of concern (e.g., 29 CFR 1926.62 for lead). At a minimum, this requires monitoring at project start up, and after any changes in work practices are made which could have an effect on airborne exposures. If there is no OSHA standard for the detected metal, conduct the monitoring and employee notification based on the requirements of OSHA 29 CFR 1926.62. Provide the WMWD with the results of any subsequent monitoring within the same 5 day notification period required for the employee.

D. Action Level

1. The Action Level for lead is $30 \mu\text{g}/\text{m}^3$ as an eight (8) hour Time Weighted Average (TWA), the Action Level for cadmium is $2.5 \mu\text{g}/\text{m}^3$ as an 8 hour TWA, and the Action Level for inorganic arsenic is $5 \mu\text{g}/\text{m}^3$ as an 8 hour TWA. For other metals that are found in the coating, and for which no Action Level exists, establish the Action Level at 1/2 of the PEL. Additional PEL's (called TLV's) can

be found in Appendix A of 29 CFR 1926.55.

2. In addition to the initial protection provided, invoke the following protective measures when the airborne exposure to a toxic metal found in the coating exceeds the Action Level:
 - a) Exposure Monitoring
 - b) Housekeeping
 - c) Employee Medical Surveillance and Medical Removal Protection
 - d) Employee Information and Training
 - e) Signs and Regulated Areas
 - f) Recordkeeping

E. Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)

1. The PEL for airborne lead exposure is $50 \mu\text{g}/\text{m}^3$ as an 8 hour TWA. The PEL for cadmium is $5 \mu\text{g}/\text{m}^3$ as an 8 hour TWA, and for inorganic arsenic is $10 \mu\text{g}/\text{m}^3$ as an 8 hour TWA. The PEL's for other metals can be found in 29 CFR 1926.55.
2. In the event that extended work shifts are allowed, use the following formula to adjust the PEL: Adjusted PEL = 8 hr. PEL x (8 ÷ hours worked in a day).
3. In addition to complying with the requirements identified when exceeding the Action Level, invoke the following protective measures when the airborne exposure to a toxic metal found in the coating exceeds the PEL or TLV:
 - a) Compliance Program, including engineering, administrative, and work practice controls
 - b) Respiratory Protection
 - c) Protective Clothing and Equipment
 - d) Hygiene Facilities and Practices

F. Respiratory Protection

1. After feasible engineering controls and work practices have been implemented, use respiratory protection if necessary to maintain employees' exposures to lead and other toxic metals below the PEL. Require the use of respirators for all employees, inspectors, observers, or other personnel who enter areas where airborne exposures exceed or are expected to exceed the PEL, or when entering regulated areas.
2. Provide respiratory protection for two WMWD Representatives at each site, including fit tests. The WMWD is responsible for verifying that the representatives are medically fit to wear respirators.
3. Develop a written Respiratory Protection Program in compliance with 29 CFR 1926.103 and 8 CCR 1531, including commitments to provide the necessary medical examinations. When lead is present, include the provisions of 29 CFR 1926.62 in the program. When cadmium is present, include 29 CFR 1926.1127. When inorganic arsenic is present, include 29 CFR 1926.1118. Address the selection, use, maintenance and inspection of respirators, and qualifications for respirator users.
4. Treat used respirator cartridges as hazardous waste.

G. Protective Clothing and Equipment

1. Provide protective clothing and equipment and ensure they are worn by all employees who enter regulated areas.
2. Do not allow workers to wear street clothing beneath protective clothing when entering any regulated areas.
3. Provide all required protective clothing and equipment for use by two WMWD Representatives at each site.
4. Clean or replace the protective clothing as required by the appropriate OSHA standard for the toxic metal that is present. In the case of lead, clean or replace the clothing weekly if the airborne exposure levels are less than $200 \mu\text{g}/\text{m}^3$ as an 8 hour TWA; clean or replace the clothing daily if the exposure levels are greater than or equal to $200 \mu\text{g}/\text{m}^3$. Do not use disposable clothing for any longer than one day.
5. Do not remove or clean the clothing by any means that reintroduces the toxic metals into the ambient air such as brushing, shaking, or blowing. Use vacuums equipped with HEPA filters for

cleaning.

6. Store the used clothing in labeled, sealed containers.
 - a) If the clothing is to be laundered and it has been exposed to lead, label the containers with the following: “CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS”. If the clothing has been exposed to cadmium, chromium, inorganic arsenic, or other metals, modify the above text accordingly.
 - b) If the clothing is disposable, label the containers as clothing contaminated with lead and other toxic metals, if applicable. Apply hazardous waste labels as appropriate after testing.

H. Housekeeping

1. Clean accumulations of dust or debris containing lead or other toxic metals daily, at a minimum. Clean more frequently if visible accumulations are observed that could be carried outside of the regulated area by wind, workers shoes, rain water, or other means.
2. Conduct all cleaning with HEPA-filtered vacuums. Do not use compressed air for housekeeping purposes unless it is used in conjunction with a ventilation system capable of capturing the resulting airborne particulate.
3. Containerize the debris for proper disposal.

I. Personal Hygiene Facilities and Equipment

1. Provide clean lavatory and hand washing facilities in accordance with OSHA sanitation standard 29 CFR 1926.51. Locate the hand washing facilities in close proximity to the paint removal operation, in an area that is convenient for washing prior to eating or smoking.
2. Provide showers when exposures exceed the PEL. Confirm that all employees whose exposures exceed the PEL shower prior to leaving the project site. Allow WMWD Representatives to use the lavatory and hand washing/shower facilities.
3. Filter and containerize all hygiene water. Provide filtration and testing of the water as described above under Protective Clothing

and Equipment.

4. Prohibit eating, drinking, smoking, chewing of food or tobacco products, or the application of cosmetics in any area where the exposure to toxic metals exceeds the PEL or within regulated areas, and confirm that workers thoroughly wash hands and face prior to undertaking any of these activities.
5. Provide clean lunch and break areas for use by all employees, and maintain airborne concentrations in these areas below the Action Levels.
6. Provide clean change area(s) for employees whose exposures exceed the PEL. Equip the change area(s) with separate storage facilities for street clothing that are adequately segregated to prevent cross-contamination from work clothing. Assure that employees do not leave the project site wearing any clothing that was worn while performing activities where exposures exceeded the PEL.

J. Medical Surveillance and Medical Removal Protection

1. Provide all employees with initial and periodic blood and zinc protoporphyrin (ZPP) sampling and analysis, and medical surveillance as required by the OSHA or CALOSHA health and safety standards for the metal of concern. Verify that blood analysis is conducted by laboratories that are approved by OSHA, and that have been accepted by the WMWD. Provide the specialized medical surveillance and X-rays required by 1926.1118 for employees exposed to inorganic arsenic.
2. In the case of lead, conduct blood sampling and analysis at a minimum of once every two months for the first six months of exposure, and at six month intervals thereafter.
3. Conduct exit blood tests for each worker upon completion of his/her project activities that involve exposure to lead, even if this occurs prior to the completion of the Contractor's work on the project.
4. Do not use workers with initial blood lead tests of 40 µg/dl for any work activities involving exposure to lead above the Action Level.
5. Provide for the temporary removal of employees from exposures above the Action Level for the metal of concern when the blood analysis indicates that unacceptable results are occurring (e.g., 50 µg/dl or above in the case of blood lead). Protect employees'

benefits during any period of medical removal and conduct all tests required by the OSHA standard for the metal of concern during the removal period. In the case of lead, return workers to exposures above the PEL only after two consecutive blood tests are below 40 µg/dl.

6. Provide all physical examinations as required by the appropriate OSHA standards for the metal(s) of concern, and verify that all examinations are performed by or under the direct supervision of a licensed physician.
7. Provide all exam information and test results to the employees in writing within 5 days of receipt.
8. Provide the WMWD with documentation of test results within 10 days of each testing period.

K. Employee Training and Information

1. Provide initial and annual refresher training for all employees who will be exposed to toxic metals above the respective Action Levels on any one day in a 12-month period. Include all of the elements of training that are required by the appropriate OSHA standard. If a standard for the metal does not exist, use the training requirements of 29 CFR 1926.62 as the basis of the training program highlighting the differences as appropriate for the other metals of concern. In addition to the training of Contractor personnel, provide the necessary training for two WMWD Representatives at the site.
2. When other contractors or employers are present at the site, notify them of the nature of the lead exposure work, the need to remain out of exposure areas, the warning signs and labeling system in effect, and the potential need for them to take measures to protect their employees in accordance with the applicable OSHA regulations.

L. Signs

1. As described later in this specification, establish zones (regulated areas) around areas or activities that might generate airborne emissions of toxic metals in excess of the Action Levels.
2. Post caution signs around each regulated area. If there is no regulation for the metal of concern, use the legend for the CAUTION sign as found in 29 CFR 1926.62 as the basis, and insert the name(s) of the other toxic metals. Sign requirements for lead

are as follows:

WARNING
LEAD WORK AREA
POISON
NO EATING OR SMOKING

3. Use signs that are a minimum of 8 1/2 inches by 11 inches in size with black block lettering on a white, yellow, or orange background. Do not use caution ribbons as a substitute for signs.

M. Recordkeeping

1. Retain all records related to training, medical examinations, blood analysis, exposure monitoring, respirator fit testing, inspections by a competent person, and other related project documentation on file at the project site. Make available for review by the WMWD.
2. Retain all records for the duration of employment plus 30 years.

3.02 ESTABLISHMENT OF REGULATED AREAS

- A. Establish zones (regulated areas) around project locations or activities that might generate airborne emissions of lead or other toxic metal in excess of the Action Level (e.g., paint removal and clean-up locations, dust collector staging areas, waste storage areas, etc.).
- B. Use ropes, ribbons, tape or other visible means to define the areas. Prohibit entrance into the regulated areas by unprotected or untrained personnel to ensure that they are not exposed to toxic metals from project activities.
- C. Conduct instrument monitoring to verify the adequacy of the regulated area. Use a minimum of two low or high flow pumps at each regulated area location (e.g., one pump upwind and one pump downwind). Unless otherwise directed by the WMWD, until the monitoring results are available to establish the perimeter of the regulated area, initially establish the boundary a minimum of 15 feet away from any equipment or operations that might generate airborne emissions of toxic metals.
- D. Conduct the monitoring according to NIOSH Method 7082, or equivalent method for the other metals of concern, at the pre-established boundaries of the regulated area(s). Collect the samples throughout an entire work shift upon commencement of the paint removal activities (at project-start-up).

- E. If the monitoring confirms that project emissions at the established boundary do not exceed the Action Level as an 8 hour TWA, establish the boundary at that location and discontinue monitoring.
- F. If the monitoring shows that the emissions exceed the Action Level, modify and improve work practices and containment to provide better controls over the emissions, or reestablish the boundary at a different location if allowed by the WMWD. Repeat the monitoring in either case.
- G. Verify that the exposure cassettes are analyzed by laboratories that have been accepted by the WMWD. The laboratory must provide the results to the Contractor within 72 hours of the field sampling. Provide the test results to the WMWD within four days of sampling.
- H. Verify that all workers who enter the regulated area have had the proper training, blood analysis and medical examinations, and are wearing the required protective clothing and equipment. Prohibit eating, drinking, smoking, and chewing of food or tobacco products in any area where the exposures exceed the Action Level.
- I. Additional monitoring to reconfirm the adequacy of the regulated area is not required unless regulated area monitoring conducted by the WMWD indicates concentrations of toxic metals in excess of the associated Action Level, suspect visible emissions occur, or when there are changes to the work practices. When these conditions occur, conduct additional monitoring to confirm the adequacy of the control systems in place, and to verify the suitability of the existing regulated area(s).

3.03 AIR QUALITY - VISIBLE EMISSIONS

A. General Visible Emissions Monitoring Requirements

- 1. Conduct visible emissions assessments as defined in this Specification, and in accordance with 40 CFR 60, Appendix A, Method 22. This assessment is based on total visible emissions regardless of the opacity of the emission. Method PD/Lead A4 of SSPC publication 95-06, Project Design, provides guidance on visible emissions assessments.
- 2. Conduct the visible emissions assessments to account for all locations where emissions of lead dust might be generated, including but not limited to, the containment or work area, dust collection and waste recovery equipment as applicable, and waste containerizing areas.
- 3. In addition to assessing airborne emissions, conduct visual

inspections for releases or spills of dust and debris that have become deposited on surrounding property, structures, equipment or vehicles, and bodies of water.

4. In the event there are unique State or local regulations regarding visible emissions, those requirements are in addition to, but not in lieu of, the requirements of this Specification.
5. Include procedures in the Environmental Compliance Plan for the assessment of visible emissions and releases, the frequency of observations and inspections that will be made, the equipment and work areas (e.g., containment) that will be observed for visible emissions, and the surrounding property and structures that will be examined for deposited debris.

B. Acceptance Criteria for Visible Emissions Assessments

1. Level 1 Emissions - Random airborne emissions of a cumulative duration of no more than 1 percent of the workday are permitted. This amounts to a duration of approximately 5 minutes in an 8 hour workday. Visible emissions in excess of this criterion are cause for immediate project shut down until the cause of the emissions is corrected.
2. Do not resume the emission-producing operations until the cause of the release is corrected.
3. Note that elevated results of any high volume ambient air monitoring that might be conducted on the project are cause for immediate project shut down and the initiation of corrective action, even if the visible emissions results are acceptable.

C. Frequency and Location of Emissions Assessments and Inspections

1. Conduct visible emissions assessments in all locations where emissions of lead dust might be generated.
2. Casual observations and corrections of visible emissions and releases of dust or debris are an ongoing daily requirement, but conduct the specialized assessments and inspections as described in this Specification at least four times (minimum duration of 15 minutes each) during each shift in which paint disturbance operations are underway.

D. Reporting of Visible Emissions and Releases

1. Report the results of the daily assessments in a log book or other report form.
2. Document all cases where work has been halted due to unacceptable visible emissions or releases, the cleanup activities invoked, and the corrective action taken to avoid a reoccurrence. Provide the written report to the WMWD within 48 hours of the occurrence.

3.04 AIR QUALITY - HIGH VOLUME AMBIENT AIR MONITORING

A. High Volume Ambient Air Monitoring

1. The WMWD may undertake high volume ambient air monitoring of TSP-Lead emissions during paint removal and clean-up activities.
2. The National Ambient Air Quality Standards (NAAQS) will be used as the basis for establishing acceptance criteria as summarized below:
 - a) TSP-Lead (Total Suspended Particulate-Lead) - Do not exceed $1.5 \mu\text{g}/\text{m}^3$ averaged over a 90 day period or $13.5 \mu\text{g}/\text{m}^3$ averaged over an 8 hour period.
3. If monitoring indicates that the specified criteria are violated, immediately stop work and make changes to the containment and/or work practices to achieve compliance. Note that exceedances may also result in violations of State or local ordinances.

3.05 RESTRICTIONS ON EMISSIONS TO GROUND (SOIL)

- A. Conduct all activities so that spills or releases to the soil or storm sewers do not occur. Comply with the provisions of RCRA for the protection of soils, and the Clean Water Act for the protection of the water and storm water discharges.
- B. The release of particulate or debris beyond the contained or protected areas is cause for immediate project shut down until the cause of the emission or release is corrected.
- C. Clean up visible paint chips and debris from the unprotected ground, the soil, around storm sewers or drains, or in areas where rain water could carry the debris into storm sewers or drains. Clean up the debris on a daily basis at the end of each shift, or more frequently if directed by the WMWD. Conduct the cleaning by manually removing paint chips or by

HRPA vacuuming. Provide the methods of clean up in the Environmental Compliance Plan.

- D. After any release, take the appropriate corrective action to change work practices or to modify the containment to prevent emissions from occurring in the future.
- E. The WMWD may conduct laboratory testing and analysis of soil as appropriate. The ground (soil) will be considered to have been impacted by project activities under the following conditions:
 - 1. Visible Debris - Visible paint chips or debris on the ground, water, or sediment are not allowed and must be removed regardless of the laboratory test results.
 - 2. Ground (Soil)
 - a) The ground (soil) is considered to have been impacted by project activities based on increases over the geometric mean pre-job lead concentration.
 - b) If the geometric mean pre-job total lead concentration is less than 200 ppm, an impact is considered to have occurred if the post-job geometric mean lead concentration is an increase of 100 ppm or more.
 - c) If the pre-job concentration is greater than 200 ppm, an impact is considered to have occurred if the post-job geometric mean lead concentration exceeds the pre-job geometric mean plus 2 standard deviations, or an increase of 100 ppm occurs, whichever is greater.
 - 3. Remediation - If the laboratory analysis shows the soil to have been impacted by project activities, as directed by the WMWD, and at no cost to the WMWD, conduct the cleanup or remediation necessary to return the media to pre-project levels.

3.06 WORK PRACTICES / CONTAINMENT

A. General

- 1. Use a containment system that maintains the work area free of emissions of dust and debris in accordance with all provisions of this Specification.

2. Remove debris from the containment materials and equipment prior to relocation to another point along the tank. Clean to the extent that debris or dust is not dislodged by winds or physical contact during handling and transportation.
3. Install and use an SSPC Class 3P containment system for the vacuum-shrouded power tool cleaning on the exterior, and an SSPC Class 2W-3W containment system for the pressure water washing and wet abrasive blast cleaning. Use an SSPC Class 1A containment system for dry abrasive blast cleaning.
4. Provide the containment systems in compliance with SSPC Guide 6 guidelines and the requirements of this Specification, including the attached Table 1.

B. Containment Flooring System

1. If the floor or ground beneath the structure being prepared serves as the base of the containment, cover it with air and dust impenetrable materials such as solid panels of plywood or flexible materials such as tarpaulins. Maintain the materials throughout the project to avoid losing debris through rips, tears, or breaks in the coverings.
2. When directed by the WMWD, provide ground covers around and beneath the containment area to capture inadvertent spills or leaks of debris. Extend the covers a minimum of 10 feet beyond the area covered by the containment. Remove debris from the covers at least once per shift, or as directed by the WMWD.

C. Containment Components - The basic components that make up containment systems are defined below. The components are combined in Table 1 to establish the minimum containment system requirements for the method(s) of paint removal as identified above.

1. **Rigidity of Containment Materials:** Rigid containment materials consist of solid panels of plywood, aluminum, rigid metal, plastic, fiberglass, composites, or similar materials. Flexible materials consist of screens, tarps, drapes, plastic sheeting, or similar materials.
2. **Permeability of Containment Materials:** The containment materials are identified as air impenetrable if they are impervious to dust or wind such as provided by rigid panels, coated solid tarps, or plastic sheeting. Air penetrable materials are those that are formed or woven to allow air flow. Water impermeable materials are those

that are capable of containing and controlling water when wet methods of preparation are used. Chemical resistant materials are those resistant to chemical and solvent stripping solutions.

3. **Support Structure:** Rigid support structures consist of scaffolding and framing to which the containment materials are affixed to minimize movement of the containment cocoon. Flexible support structures are comprised of cables, chains, or similar systems to which the containment materials are affixed. Minimal support structures involve the cables or connections necessary to attach the material to the structure being prepared and/or to the ground.
4. **Containment Joints:** Fully sealed joints require that mating surfaces between the containment materials and to the structure being prepared are completely sealed. Sealing measures include tape, caulk, Velcro, clamps, or other similar material capable of forming a continuous, impenetrable or impermeable seal. The use of overlapping containment materials (1 foot minimum overlap) to achieve fully sealed joints is acceptable only if emissions of dust and debris are controlled. If emissions escape at the joints, a more positive means of sealing is required. Partially sealed joints involve the mating of the materials to one another and to the structure being prepared with concern for the structural soundness of the joint, but without consideration for creating a continuous, impenetrable or impermeable seal.
5. **Entryway:** An airlock entryway involves a minimum of one stage that is fully sealed to the containment and which is maintained under negative pressure using the ventilation system of the containment. Resealable door entryways involve the use of flexible or rigid doors capable of being repeatedly opened and resealed. Sealing methods include the use of zippers, Velcro, clamps, or similar fasteners. Overlapping door tarpaulin entryways consist of two or three overlapping door tarpaulins. Open seam entryways involve entrance into the containment through any open seam.
6. **Mechanical Ventilation:** The requirement for mechanical ventilation is to ensure that adequate air movement is achieved to reduce worker exposure to toxic metals to as low as feasible, and to enhance visibility. Design the system with proper exhaust ports or plenums, adequately sized ductwork, adequately sized discharge fans and air cleaning devices (dust collectors) and properly sized and distributed make-up air points. Natural ventilation does not require the use of mechanical equipment for moving dust and debris through the work area. It relies on natural air flow patterns, if any, through the containment.

7. **Negative Pressure:** If negative pressure is specified, verify its performance through instrument monitoring to achieve a minimum of 0.03 in. (7.5 mm) water column (W.C.) relative to ambient conditions, or through visual assessments for the concave appearance of the containment enclosure.
8. **Exhaust Ventilation:** When mechanical ventilation systems are used, provide filtration of the exhaust air, otherwise airborne particulate from the containment will be exhausted directly into the surrounding air. Utilize a filter that is at least 99.9% efficient in removing mono dispersed particles of 0.5 micrometers in diameter.

D. Maintenance of Existing Lighting Systems and Containment Lighting Requirements

1. Maintain as fully operational throughout the project, all existing lighting systems that are attached to the structure.
2. If existing lighting will be concealed, install temporary lighting. Provide the lighting plan to the WMWD for approval in advance.
3. Provide adequate lighting inside containment for all surface preparation, paint application, and inspection work. Maintain a minimum of 10 foot-candles for surface preparation and painting, and a minimum of 30 foot-candles for inspection. Increase the lighting if workers or inspectors have difficulty in seeing. Use explosion-proof lighting.

E. Protection of Drainage Systems

1. Protect storm sewers and drains from the entrance of debris from project activities. Keep all protective systems clean and operational throughout the entire project. At the end of each work day, at a minimum, remove all visible debris from the protective devices or from areas where rain water could carry the debris into drains or storm sewers. Conduct more frequent cleaning as directed by the WMWD.

3.07 WASTE CLASSIFICATION, HANDLING, AND DISPOSAL

A. General

1. The WMWD is the generator of the hazardous waste. The WMWD will provide the EPA identification number and signatures on the manifest, but the Contractor is responsible for the aspects of waste

management as defined in this section.

2. The use of additives (e.g., Blastox) to the abrasive to generate a non-hazardous waste is permitted. If the use of additives is proposed by the Contractor, include in the submittals the brand name of the additive, the MSDS, and procedures for its use.
3. Recover all waste products generated during cleaning and painting work, including but not limited to rags, tape, disposable coveralls, filters, sediment, paint debris, and paint cans.

B. Items Provided by the Contractor

1. Waste sampling, testing, and classification.
2. Waste packaging, handling, and storage.
3. Labeling of containers.
4. Procuring all necessary waste permits and licenses.
5. Transportation and disposal of hazardous waste and completion of the manifest for signature of the WMWD.
6. Transportation and disposal of waste which passes TCLP, but which contains lead or other toxic metals.
7. Transportation and disposal of non-hazardous waste.

C. Waste Sampling, Testing, and Classification (Solid Waste and Waste Water)

1. Sampling
 - a) Solid Waste (with the exception of waste water)
 - (1) Collect and have analyzed, representative samples of each waste stream generated by the Work.
 - (2) Collect the samples under the observation of the WMWD Representative.
 - (3) Collect the samples in accordance with SW-846, "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Use a random sampling technique.

- (4) All waste streams generated through the use of steel grit abrasives are declared hazardous, but collect a minimum of one representative sample of the waste stream(s) to identify the specific composition.
- (5) Collect a minimum of four representative samples of all other waste streams (i.e., all waste streams which were not generated by blast cleaning with steel abrasives). These waste streams include, but are not limited to, paint chips and dust, and paint chips mixed with disposable abrasives.
- (6) Complete the initial sampling of each waste stream immediately upon filling the first container, but do not allow waste to accumulate for longer than 30 days before sampling. After the representative samples are collected, send them immediately to the laboratory for analysis.
- (7) Unless otherwise directed by the WMWD, or required by state regulations or the waste recycling or disposal facility, once each waste stream is sampled, tested, and classified, additional sampling and analysis are not required for subsequent shipments unless the waste stream changes.

b) Waste Water

- (1) Collect representative samples of waste water generated by the Work. Collect the samples under the observation of the _____ WMWD Representative.
- (2) Complete the initial sampling of each waste water stream immediately upon filling the first container, but do not allow waste to accumulate for longer than 30 days before sampling. After the representative samples are collected, send them immediately to the laboratory for analysis.

c) Sampling Frequency

- (1) If the nature of the waste stream initially tested remains constant (e.g., the paint system remains the same, the same type and supplier of abrasive is used, etc.), additional sampling and analysis are not

required for subsequent shipments unless otherwise directed by the WMWD or required by state regulations or the disposal facility.

- (2) If the nature of a waste stream changes after the initial testing, collect and have analyzed a new series of samples of the waste stream.

2. Testing

a) Solid Waste (with the exception of waste water)

- (1) Direct the laboratory to test the solid waste in accordance with 40 CFR 261, Appendix II, Method 1311 Toxicity Characteristic Leaching Procedure (TCLP), to determine if it is hazardous.
- (2) Analyze the first two samples from each waste stream by TCLP for all eight (8) metals, and other hazardous characteristics (e.g., corrosivity, reactivity, and ignitability) as required by the regulations. Conduct any additional tests required by the disposal facility. Analyze subsequent samples of the waste stream(s) for any metal or hazardous material that is detected in the initial TCLP testing. When chemical strippers are used, test all liquids and sludge. Include pH to determine corrosivity.

b) Waste Water - Test the waste water for lead and any other analytical parameters required for disposal characterization or by the disposal facility.

3. Classification of Solid Waste

a) Hazardous Waste Classification

- (1) Waste streams are classified as hazardous waste if the leachate contains any of the 8 metals or other hazardous substances in concentrations at or above limits established in 40 CFR 261:

Arsenic -	5.0 mg/L
Barium -	100.0 mg/L
Cadmium -	1.0 mg/L
Chromium -	5.0 mg/L
Lead -	5.0 mg/L

Mercury -	0.2 mg/L
Selenium -	1.0 mg/L
Silver -	5.0 mg/L

(2) The above list includes only those elements typically associated with paints. Take into account other substances that may be present which can cause debris to be classified as hazardous waste as defined in 40 CFR 261 (e.g., pH \leq 2.0 or \geq 12.5 resulting in corrosivity, or the characteristic of ignitability).

b) Non-hazardous Waste Classification

(1) Waste streams are classified as non-hazardous if the leachate contains toxic metals or hazardous substances below or outside of the thresholds identified above which would classify it as hazardous.

(2) When the TCLP test results of spent abrasive or paint debris indicate that lead or other toxic metal concentrations are less than the above thresholds (e.g., 5 mg/L in the case of lead), notify the disposal facility that the waste contains toxic metals and provide the TCLP test results.

4. Laboratory Report

a) Include the following minimum information in each report: Identity of the waste stream(s) analyzed, the number of samples collected and tested, dates of sampling and testing, laboratory test procedures utilized, the names and signatures of the individuals collecting the samples and conducting the laboratory tests, and an interpretation of the test results.

b) Provide the WMWD with an original signed copy of the report no later than 10 days after the samples have been collected. Include copies of the chain-of-custody forms in the documentation.

D. Waste Handling, Packaging, and Storage

1. Comply with 40 CFR 262 and state regulations for the on-site handling, packaging, and storage of all waste generated by the project.

2. Store waste in locations designated by the WMWD. Do not place hazardous waste on the unprotected ground (e.g., cover the ground with impermeable tarping). Locate in a secure area with signs around the perimeter, and shield adequately to prevent dispersion of the waste by wind or water.
3. At a minimum, collect and store the waste at the end of each working day in storage drums or containers such that no waste is left exposed overnight. Use DOT-approved containers for waste storage. Once a container at the work area is full, move it to the secure storage area within 3 days.
4. Maintain all containers in good operating condition with all lids and closing mechanisms intact and operational to prevent the escape of debris by wind, spilling of the contents, or access by unauthorized personnel.
5. Cover all containers immediately upon filling and confirm that all lids are attached except when filling. Verify that all labels remain intact.
6. Inspect the drums or containers for corrosion and leaks at least one time each week, or as directed by state regulations. Record the results of the inspections in a log book.
7. Store non-hazardous waste separately from hazardous waste. Do not co-mix hazardous waste with non-hazardous waste. Do not mix different types of hazardous waste together unless specifically approved by the WMWD and the disposal facility.
8. Verify that all waste is transported to the appropriate recycling or disposal facility within 90 days after waste is first placed into the container.
9. Improper waste storage is cause for immediate suspension of the Work by the WMWD until appropriate corrective action is completed.
10. Train all personnel in the proper handling of the hazardous waste at the construction site in accordance with 40 CFR 265.16 or state regulations.
11. Do not fill any container or roll-off in excess of the capacity marked on the container.
12. If soil remediation is required as a result of Contractor activities, place the soil into separate containers, and assume all costs for its

disposal.

E. Labeling of Containers

1. Immediately label all containers of waste and debris to identify the contents. For example, in the case of blast cleaning, label containers of spent abrasive as "Paint Waste, Contains Lead."
2. After the TCLP test results are received, or if recycled steel grit is used, immediately apply hazardous waste labels, if the waste tests hazardous. Label each container or rolloff of hazardous waste in accordance with 40 CFR 262, and 49 CFR 171-179. Include the following minimum information:
 - a) Hazardous Waste. Federal law prohibits improper disposal. If found, contact the nearest police, or public safety authority, or the U.S. Environmental Protection Agency.
 - b) Proper DOT Shipping Name
 - c) Manifest Document Number
 - d) Generator Name, Address, and EPA ID Number
 - e) Date of Accumulation
 - f) EPA Waste Number
3. Enter the above information using permanent marking material, printed in English, and displayed on a background of contrasting color unobscured by other labels or attachments. Locate labeling away from other markings that could substantially reduce its effectiveness.
4. Complete the labeling, marking, and placarding activities under the observation of the WMWD Representative prior to storing or transporting any container or rolloff.

F. Waste Transportation and Disposal (With the Exception of Waste Water and Waste Which Contains Steel Grit)

1. Hazardous Waste
 - a) Procure all necessary waste permits or licenses that are required by state or local regulations.

- b) Prepare the hazardous waste manifest for each shipment and provide to the WMWD for review and signature.
- c) Arrange for the transportation of all hazardous waste by a licensed transporter in accordance with 40 CFR 263, 49 CFR 171-179, and state and city regulations. Verify that all waste is completely covered during transport.
- d) Unless specifically approved by the WMWD in writing, the hazardous waste transporter is not permitted to stop en route either before or after the pick up of hazardous materials from the construction site.
- e) Arrange for the recycling or disposal of all hazardous waste in accordance with 40 CFR 264, 40 CFR 268, and state regulations. Verify that only licensed recycling or TSD facilities are used.
- f) Provide a certification for each manifested shipment that the waste was accepted by the recycling or disposal facility, and properly treated and disposed. Comply with all of the manifesting, certification, and reporting requirements for hazardous waste in accordance with 40 CFR 262, 40 CFR 268 and state regulations, including certificates of final disposal for each shipment.

2. Non-Hazardous Municipal/Construction Waste

- a) Procure all necessary waste permits or licenses that are required by state or local regulations.
- b) Properly transport, and dispose of all non-hazardous municipal construction waste.
- c) Verify that waste is completely covered during transport.
- d) If toxic metals or hazardous substances were detected during the laboratory testing, notify the disposal facility that such metals or materials are present in the waste.
- e) Comply with additional City regulations as applicable.

G. Special Waste Requirements for Recycled Steel Grit

- 1. When recycled steel abrasives are used, collect, handle, store, and transport the waste in the same manner as if it tested hazardous.

2. If the waste is shipped to a TSD facility, notify the facility that further stabilization is required prior to disposal. Use stabilization methods that would have been used in the event the waste tested hazardous. Stabilize to less than 0.75 mg/L lead.

H. Waste Water Handling and Disposal

1. Provide containers for the collection and retention of all waste water, including but not limited to the water used for hygiene purposes, laundering of clothing if done on site, and cleanup activities.
2. Filter visible paint chips and particulate from the water prior to placing it into the containers. Prior to disposal, test the water for total toxic metals and provide ample filtration (e.g., through a multi-stage filtration system ending in 5 microns or better if needed) until the water is not classified as hazardous. Conduct the necessary laboratory testing as described above.
3. Make disposal arrangements with the local publicly owned treatment works (POTW), sanitation company, or other appropriate permitted facility. Provide the WMWD with documentation signed by an official of the facility stating that the facility will accept the waste, or allow it to be discharged into the sanitary sewer system, and that the levels of any lead remaining in the water are acceptable.

3.08 CLEANING AND CLEARANCE OF MATERIALS, EQUIPMENT, AND SURROUNDING SURFACES

A. General

1. Clean all materials and equipment to the extent that dust or debris is not dislodged during the dismantling and removal of the materials and equipment. These items include, but are not limited to, paint removal equipment, containment materials, duct work, ground covers, and scaffolding.
2. When cleaning paint chips and dust, use vacuuming equipment equipped with HEPA filters, wet washing, or other means that will effectively remove the dust and debris without re-dispersing it into the air. The use of compressed air for cleanup activities is prohibited unless used in conjunction with a ventilation system designed to capture the airborne particulate.

3. Conduct a detailed visual inspection to verify that the materials, equipment, and surrounding surfaces have been adequately cleaned prior to moving the containment. Run a finger across the surfaces. If a path is visible, conduct additional cleaning.
 4. If adequate cleaning is not possible, treat materials as waste and dispose of in accordance with the requirements of this Specification.
 5. Collect water used for cleaning and dispose of in accordance with the requirements of this Specification.
 6. Upon completion of project activities, and after all Contractor equipment and materials have been removed, HEPA vacuum and/or wet wipe and wash the regulated area and surrounding surfaces within the likely dispersion zone of project dust and debris to remove dust and debris associated with the Contractor's activities.
 7. After all clean up activities are completed, conduct a final inspection with the WMWD. Conduct a detailed visual inspection to verify that the equipment and surrounding surfaces have been adequately cleaned. Run a finger across the surfaces. If a path is visible, conduct additional cleaning.
 8. Conduct any additional cleaning identified by the WMWD.
- B. Include procedures in the Environmental Compliance Plan for project clean up, including the type of testing and analysis that will be employed to verify that the cleanliness complies with the acceptance criteria identified in this Specification.
- C. Remediation of Surrounding Property - If directed by the WMWD, conduct the necessary remediation of soil if impacted by project activities as described earlier in this Specification.
- D. Report on Clearance Inspections - Prepare a letter report presenting the results of the inspections and tests conducted to verify the final cleanliness of the project site, surrounding property, waterways, equipment, buildings, and structures.

**Table 1
Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals¹**

<u>Containment Removal Method</u>	<u>Containment SSPC Class²</u>	<u>Containment Material Flexibility</u>	<u>Containment Material Permeability³</u>	<u>Support Structure</u>	<u>Material Joints</u>	<u>Containment Entryway</u>	<u>Ventilation System Required</u>	<u>Negative Pressure Required</u>	<u>Exhaust Filtration Required</u>
Power Tool Required Cleaning w/ Vacuum ⁴	3P	Rigid or Flexible	Impermeable	Minimal	Partially Sealed	Open Seam	Natural	Not Required	Not
Wet Required Methods	2W-3W	Rigid or Flexible	Permeable	Rigid or Flexible	Fully Sealed	Overlapping or Open Seam	Natural	Not Required	Not
Abrasive Blast Cleaning	1A	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed	Airlock or Resealable	Mechanical	Required	Required

¹This table provides general design criteria only. It does not guarantee that specific controls over emissions will occur because unique site conditions must be considered in the design. Other combinations of materials may provide controls over emissions equivalent to or greater than those combinations shown above.

²The SSPC Classification is based on SSPC Guide 6. Debris must be removed daily at a minimum.

³Permeability addresses both air and water as appropriate. In the case of water or chemical removal methods, the containment materials must be resistant to both chemicals and water. Ground covers should always be sufficient strength to withstand the impact and weight of the debris and the equipment used for collection and clean-up.

⁴Ground covers and/or free hanging tarpaulins may provide suitable controls over emissions without the need to completely enclose the work area.