

Louisiana Department of Transportation and Development Supplemental Specification

Section 811, "Painting and Protective Coatings" is amended to include the following:

Cleaning, Painting, & Disposal (Near White Finish)

1.1 DESCRIPTION

Clean and paint existing structural steel according to this specification by removing existing coating and contaminants and apply new coating as stated in the contract documents. Collect and contain potentially hazardous materials and all other collected debris to an approved temporary site. Sample and test material as required. Transport and dispose of these materials according to federal, state, and local applicable laws, the contract documents, and as directed.

Cleaning of the surface includes the removal of the existing coatings, corrosion, mill scale, and any other contaminants to the specified level of cleanliness and the establishment of the proper surface profile on all metal surfaces. Existing coating system on the structure may contain lead and/or other potentially hazardous substances. See plans for further information. Existing surface profile across the bridge may vary, so the contractor is encouraged to take additional samples for testing and bid development.

The limits of cleaning and painting shall be as shown on the contract plans and as described in the *Standard Specifications* and these specifications.

1.2 MATERIALS

Submit to the engineer a letter from the coating manufacturer stating that all provided coatings, solvents, penetrating sealer, caulking, and filler materials scheduled to be used are compatible in use.

1.2.1 Coating Systems

1.2.1.1 General

For removal and replacement systems, use the coating system specified on the plans, meeting the requirement of section 811, "Painting and Protective Coatings", as listed on the Department's QPL, and as amended elsewhere herein. Use only one manufacturer's coating system for the entire structure. The fact that a product has been examined, tested, and placed upon a QPL signifies only that, at the time of QPL testing, the manufacturer could make a product that met specification requirements. It in no way relieves the supplier from the obligation to deliver material meeting all requirements.

The engineer must inspect, sample, and have tested and approved by DOTD Materials and Testing Section each batch of coating material before application is permitted.

1.2.1.2 Information to Provide

Provide the manufacturer's data listed below:

1. Name of the company that manufactures the paint;
2. Surface preparation recommendations;

3. Allowable atmospheric conditions during which the coating shall be applied, including ambient temperature, relative humidity, surface temperature, and dew point temperature;
4. Specific mixing instructions;
5. Thinner recommended and maximum thinning ratios to be used with each coating;
6. Allowable application methods and instructions;
7. Minimum and maximum dry film thickness per coat;
8. Primer, intermediate, and finish coat pot life at the anticipated application temperatures;
9. Minimum and maximum curing time between coats referenced to both atmospheric conditions and a confirming physical test, for each coat;
10. Ventilation requirements;
11. Shelf life; and,
12. Material Safety Data Sheets (MSDS).

1.2.1.3 Delivery & Handling

Deliver coating to the job site in original, undamaged, and unopened containers. Clearly indicate the name and address of manufacturer, manufacturer's brand name, trade name or trademark, color batch number, date of manufacture, shelf life, and special directions on each container. If the material dating is in code, provide the engineer the key to interpret the code. Remove all rejected materials from the job site immediately.

All containers of paint shall remain unopened until required for use. Labeled information shall be legible and checked at the time of use. Use oldest paint of each kind first. Discard all coating that has expired shelf life, livered, gelled, or otherwise deteriorated during storage.

1.2.1.4 Color & Samples

Provide coating system that manufacturer has incorporated visibly contrasting color tint for each full coat and stripe coat.

Allow engineer to take one quart sample from every batch of material of each color and type of coating.

Top coat color to be *Federal Standard 595C, Color Code 36463* Louisiana Standard Gray unless otherwise specified in the plans. Provide anti-skid topcoat of "safety yellow" on stair treads and platform landings that are compatible and from the same manufacture as the primer and intermediate coat unless plans note otherwise.

Submit three sets of each color coating samples (minimum coupon size 3 inch x 6 inch (75 mm x 150 mm)) to the engineer for approval before delivery of materials.

After the color coating sample has been approved and before delivery of materials, submit to the engineer one set of color coating samples applied onto a 1/4 inch x 8 1/2 inch x 11 inch (6 mm x 216 mm x 280 mm) sheet of steel. Divide the steel sheet into four equal horizontal strips and paint as follows:

1. Prime three strips starting from the bottom.
2. Paint intermediate coat on the two bottom strips.
3. Paint top coat on the bottom strip.
4. Top strip to remain unpainted with blast profile exposed.

5. Apply a 1-inch (25 mm) wide stripe coat centered over the line formed by the unpainted and the prime coat for half the plate width.

1.2.2 Thinners, Solvents, and Cleaners

Use thinners, solvents and cleaners listed on the coating manufacturer's product data sheet.

1.2.3 Penetrating Sealers

Use low viscosity 100 percent solids un-pigmented epoxy recommended by the manufacturer as a penetrant/sealer.

1.2.4 Caulking

Use caulks that are paintable, compatible with the coating system, and recommended by the coating manufacturer as part of the coating system.

1.2.5 Rust Prevention Compound

Use a Class 3 rust preventative compound meeting the requirements of *Military Specification MIL-C-11796C, Corrosion Preventative Compound, Petrolatum, Hot Applied*.

1.2.6 Soluble Salts Test Kit

Use a soluble salts test kit in accordance with *SSPC-Guide 15* utilizing a Class A retrieval method. Ensure the test sleeve or cell creates a sealed, encapsulated environment during ion extraction and is suitable for testing all structural steel surfaces.

1.2.7 Abrasives

Use properly sized abrasives to achieve the required cleanliness and surface profile. Use abrasives meeting the requirements of *SSPC-AB 1, Mineral and Slag Abrasives*, *SSPC-AB 2, Cleanliness of Recycled Ferrous Metallic Abrasives*, or *SSPC-AB 3, Ferrous Metallic Abrasive* and do not introduce any contamination that interferes with the coating application and performance.

Provide to the engineer the proposed abrasive sizes, along with supporting industry recommendations or previous project performance results, that selection will achieve the required cleanliness and surface profile.

Provide certification to the engineer that the abrasives used meet the requirements of these provisions and do not contain any chlorides and other salts.

For recycled abrasives, verify compliance with the conductivity and cleanliness requirements of *SSPC-AB 2*. Select a sample from each recycling machine in use and conduct the water-soluble contaminant and oil content tests outlined in *SSPC-AB 2* at least one time each week or more frequently if directed by the engineer. If test results do not meet requirements, notify the engineer immediately, remove and replace the abrasive, clean the recycling equipment, and conduct tests each day to confirm the equipment is functioning properly. Return to the weekly testing interval as directed by the engineer.

1.2.8 Storage

Store materials in enclosed, power ventilated structures that provide protection from weather and do not exceed manufacturer's recommended storage temperatures. Use a continuous recording thermometer to measure and document material storage temperature. Store flammable materials in accordance with all federal, state, and local codes. Remove damaged materials and materials exceeding the shelf life or storage temperatures from the site.

1.3 EQUIPMENT

Store equipment in such a manner during non-work hours to prevent access to the structure by unauthorized personnel.

1.3.1 Compressed Air

Use a compressed air system capable of delivering clean, dry, continuous nozzle pressure to achieve the required surface cleanliness and profile or spray pattern. The system must comply with the instructions and recommendations of the manufacturer of the abrasive blasting system and coating application system.

1.3.2 Abrasive Blast System

Design the blasting system to produce the specified cleanliness and profile.

1.3.3 Coating Application System

Use the coating application equipment approved by and in accordance with the coating manufacturer's technical data requirements.

1.3.4 Scaffolding

Equip scaffolding with rubber rollers or other protection to reduce damage to painted surfaces.

1.4 MAINTENANCE OF TRAFFIC

1.4.1 Vehicular

Prepare a traffic control plan for each phase of construction activities in accordance with the plan traffic control sheets. Provide for and maintain traffic at all times according to subsection 104.03, "Maintenance of Traffic" and conduct operations in such a manner as to cause the least possible interference with traffic. Unless noted otherwise in the plans, maintain single-lane roadway closures by way of moving operation during daylight hours; all traffic lanes shall be open during nighttime hours. Do not begin work until the engineer approves the traffic control plan. All costs associated with traffic control such as signing, re-striping, traffic plans, flag person, police details, lighting, etc., will be paid under the item for "Temporary Signs and Barricades" per lump sum.

1.4.2 Marine

Meet all requirements of 29 CFR 106, Working Over or Near Water. For work over navigable waters, submit a work plan to the United States Coast Guard including any scheduled restrictions or obstructions to navigation channels or marine traffic. Obtain Coast Guard approval at least 30 days in advance of any restrictions, obstructions, and temporary closures of the navigable waters. Comply with subsection 107.09, "Navigable Waters and Wetlands." Maintain all existing navigation lighting and aerial beacons at all times during the contract as well as any additional containment obstruction lighting required by the U.S. Coast Guard.

1.4.3 Railroad

Comply with subsection 107.08, "Railway-Highway Provisions."

1.5 PROGRESS PHASES AND SEGMENTS FOR PAYMENT

From As-Built drawings and site visits, estimate surface area to be cleaned and painted. Propose to the engineer for acceptance what percentage of the bid item to allot various phases (containment, cleaning, priming, intermediate, top coat, repairs, clean-up, etc.) of construction. If project is large enough, propose to the engineer for acceptance logical locations to divide the structure into so as to create segments for inspection and partial acceptance.

1.6 QUALITY CONTROL

1.6.1 Field Preparation and Application

Provide to the engineer a current Corporate Quality Control Plan approved by SSPC under the SSPC-QP 1 and SSPC-QP 2 certifications as appropriate and a site specific Coating Quality Control Plan. Do not begin coatings work until the engineer has approved the site specific Coating Quality Control Plan.

1.6.2 Inspection

Maintain, calibrate, and keep in good working condition all inspection equipment in accordance with the manufacturer's instructions. A quality control coatings inspector who meets the requirements of this section observes and approves all activities. Maintain daily inspection reports and daily log of observations made at the job site and submit for review to the engineer daily. Maintain the information at the project site and make it available to the engineer at any time.

Provide OSHA compliant safe access to all work areas for Quality Assurance inspection personnel during the project.

The competent person shall be on site to monitor compliance with the requirements of the contract and the approved Compliance Plan, and shall have complete authorization and authority to take prompt corrective measures to rectify any observed problems with worker and environmental protection.

The Quality Control Supervisor (QCS) shall be on site to observe and rectify any quality control issues. During quality control inspection, document the location and type of each defect. Repair with approved procedure.

If the engineer agrees to divide the project into sections, schedule inspections with the engineer, Quality Assurance personnel, Chief Construction Engineer, and Engineer of Record as sections near 90 percent completion (all coats applied; initial repairs performed but rigging still in place). Repair deficiencies identified during this inspection with approved procedures to the satisfaction of the engineer prior to any remaining work and partial acceptance.

1.7 QUALIFICATION

1.7.1 Field Contractor

Submit proof of current contractor's license from Louisiana State Licensing Board for Contractors with specialty classifications for: a) Painting and Coating (Industrial and Commercial), and b) Lead Based Paint Abatement and Removal, to the Department's Project Control Section within 30 days after award of contract and prior to Notice to Proceed as well as to the engineer.

Prior to Notice to Proceed, submit to the Department's Project Control Section a current copy of the certification from the Society of Protective Coatings (SSPC): a) SSPC-QP 1, *Standard Procedure for Evaluating Qualifications of Painting Contractors (Field Application to Complex Structures)*, and b) SSPC-QP 2, *Standard Procedures for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint*.

1.7.2 Blasters and Painters

Provide at least the minimum number of Coating Application Specialist (CAS) required under SSPC-QP 1 requirements.

1.7.3 Quality Control Inspectors

Provide documentation to the engineer that 1) all personnel performing Quality Control inspections are certified, at a minimum, as a National Association of Corrosion Engineers (NACE) Coating Inspector Level I or a SSPC Level 1 Bridge Coating Inspector certified with a minimum of one year of experience as a coating inspector on bridge painting projects and 2) that they report directly to a Quality Control Supervisor (QCS) who is certified as a NACE Coating Inspector Level 3 and has completed the SSPC C3 Supervisor/Competent Person Training for De-leading of Industrial Structures and SSPC C5 required yearly refresher courses and certified with a minimum of three years of experience as a QCS on bridge painting projects.

The Quality Control personnel's responsibility and authority shall be outlined in the Quality Control Plan and shall be at a minimum those which are required by the SSPC QP-1 *Standard Procedure for Evaluating Qualifications of Painting Contractors*. The plan shall provide detailed descriptions of all QC inspections and required hold points. Sample of all reports including Daily Coating inspection report, dry film thickness (DFT) reports, Conductivity Logs, and Non-Conformance Reports shall also be included with the plan.

Quality Control personnel may not participate in production operations. At a minimum, one full time Quality Control Inspector (either an employee of the painting contractor or an independent coating inspector) will be at the site when the blasting operations start until completion of the painting of this project.

1.7.4 Certification

Maintain certifications for the duration of the contract. If the certifications expire or become invalid, do not perform any work until certifications are reissued. Notify the engineer of any change in certification status. Provide results of any audits or investigations conducted by SSPC during the contract to the engineer within one day of receiving the results.

1.7.5 Competence

Provide competent personnel in their respective trades. The engineer has the authority to require the contractor to replace those employees that fail to demonstrate this quality.

1.7.6 Credentials

Submit to the engineer for review prior to commencement of work the name, address, and credentials of the EPA recognized AIHA or A2LA accredited lead testing laboratory for the testing of debris generated by the cleaning operation; the duly licensed waste transporter; and the waste, treatment, and disposal (reclaiming) facilities. The reclaiming facility shall have a Resource Conservation and Recovery Act (RCRA) Part B permit.

1.8 SURFACE PREPARATION

1.8.1 General

When designated to remove and replace all or portions of the existing coating in the contract documents, clean, wash, test, and remove soluble salts, and abrasive blast or hand and power tool clean to remove all existing coating and corrosion in the intended locations. Feather back the edges of all existing coating to remain a minimum of 3 inches (75 mm) around the area of existing coating removed to provide a smooth transition. Verify the edges of the existing coating are intact by probing with a dull putty knife in accordance with SSPC SP-2. Roughen the existing coating in the feathered area to ensure proper adhesion of the new coating. Notify the engineer immediately when any structural steel appears to be defective.

When keeping the existing coating, clean, wash, test, and remove soluble salts.

Ensure all surfaces to be coated are clean, dry, and free from oil, grease, dirt, dust, soluble salts, corrosion, peeling coating, caulking, weld spatter, mill scale, and any other surface contaminants. Prepare surface to meet specified cleanliness and surface profile requirements. Sequence the surface preparations and coating operations so that freshly applied coatings will not be contaminated by dust or foreign matter. Protect all equipment and adjacent surfaces not to be coated from surface preparation operations. Protect working mechanisms against intrusion of abrasive. In the event that any rusting or contamination occurs after the completion of the surface preparation, prepare the surfaces again to the initial requirements. Perform surface preparation work only when the temperature of the steel surface is at least 5 °F above the dew point temperature.

1.8.2 Mechanical Removal of Surface Defects

Break all fins, tears, slivers, burrs, sharp edges and corners, and smooth flame cut surfaces on any steel member by grinding (to a minimum 1/16 inch (1.5 mm) flat chamfer on sharp edges) to achieve the required edge surface for coating. Remove all weld slag and weld spatter. Conduct all of this work in accordance with AASHTO/NSBA, *Steel Bridge Collaboration S 8.1 section 5.1*. Re-blast these mechanically repaired areas to required surface profile. In addition, remove all pack rust prior to solvent cleaning.

1.8.3 Cleaning

Clean all steel surfaces in accordance with the requirements of SSPC-SP 1.

1.8.4 Washing

Wash all steel surfaces to be painted with high pressure water wash (minimum 5000 psi (34.5 MPa)) to meet the requirements of SSPC-SP WJ 4, *No Flash Rust, NV-2*.

1.8.5 Soluble Salts Detection and Removal

If required by the plans, determine the chloride, sulfate, and nitrate concentrations on all steel surfaces using soluble salts test kits meeting the requirements of subsection 1.2.6, “Soluble Salts Test Kit” of this specification. Measure the concentration levels using Method A2 described in *SSPC Guide 15, Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates*. Perform the tests after washing and after each applied coat of the coating system. Test three random locations in the first 1000 square foot (93 sq m) and one random location for each subsequent 1000 square foot (93 sq m). Ensure the non-visible surface contaminant concentrations on blast-cleaned surfaces do not exceed 7 µg/cm² for chloride ions, 10 µg/cm² for ferrous ion, 17 µg/cm² for sulfate ions, and 10 µg/cm² for nitrate ions. When any concentration exceeds these levels, rewash the entire surface area and retest. If additional washing does not reduce the concentration to the acceptable level, a surface treatment or water additive may be used. Use a surface treatment or water additive that is approved by the coating system supplier and the engineer.

1.8.6 Abrasive Blast Cleaning

Prepare all steel surfaces, as indicated in these specifications and in the plans, by abrasive blast cleaning to “near-white” metal condition as defined in SSPC-SP 10. Use SSPC VIS 1 that corresponds to the initial rust condition to judge acceptable steel cleanliness but the written requirements take precedence in acceptance.

Other means and methods under this section, such as mechanical means or specialized equipment, to clean the surface to contract requirements will be allowed if, after review by the engineer, the equipment does not damage the structure (chipping hammers to remove pack rust or

scaling hammers to remove heavy scale could be acceptable but not heavier hammer types that can scar the metal surface).

After abrasive blast cleaning, ensure the surface profile meets the allowable specification limits from 1.5 mils to 3.0 mils (38 μm to 76 μm). Coating manufacturer allowable limits different than these values will not be substituted. Determine the surface profile using "X Coarse Press-O-Film" replica tape in accordance with ASTM D 4417, *Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel, Method C*. If the profile falls between 1.5 mils and 2.0 mils (38 μm and 50 μm), average one test with "Coarse" and one test with "X-Coarse" to obtain a reading.

For Quality Assurance, the specified sufficient number of locations to characterize the surface in ASTM D 4417 section 6.3.5 will be defined as 3 random tape samples in the first 1000 square feet (93 sq m) of surface area and one additional random tape sample for each subsequent 1000 square feet (93 sq m) of surface area in a work area. A work area will be defined as the area cleaned during the same shift using the same blast equipment and abrasive, represented by all the samples taken in that area. Any changes made to personnel, blast equipment, or abrasive will result in establishing a new work area.

On the first day of abrasive blasting operation, blast two metal panels to the specifications. The metal panels shall be ASTM A709 Grade 36 and measure 1/4 inch x 8 1/2 inch x 11 inch (6 mm x 216 mm x 280 mm), which the contractor and engineer shall date and initial. Coat one panel with a clear, non-yellowing finish as a visual example and use the uncoated panel to calibrate the dry film thickness gauges used on the project. Wrap panels in corrosion inhibitive paper and keep in a clean, dry area. Use panels as a comparison standard throughout the project.

On the first day of abrasive blasting operation, blast the structure for no more than 15 minutes, blow down the prepared surface, and perform three surface profile tape tests in the presence of the QA inspector. If the average surface profile does not fall within specifications, adjust means and methods (grit size, pressure, standoff distance, nozzle angle, etc.). Perform further 15-minute maximum blasting, cleaning, and testing until the surface profile is within specifications, at which time the contractor will be allowed to proceed with full production blast cleaning. Rework any area that does not meet specifications until it meets the requirements of the contract.

Schedule cleaning and painting so all surfaces to be coated are completely free of any contaminant prior to coating. Remove all abrasive, dust, and paint residue from steel surfaces and any scaffolding, staging, or support steel above the area with a commercial grade high-efficiency particulate air (HEPA) filtered vacuum cleaner equipped with a brush type cleaning tool, or by double blowing. If using the double blowing method, complete all blow-down operations within the contained area and then vacuum all exposed top surfaces of structural steel (flanges, longitudinal stiffeners, splice plates, hangers, etc.). Test all horizontal prepared surfaces for cleanliness prior to coating by simply wiping the surface with a finger; any accumulation requires re-cleaning. If prime coat is not applied within 8 hours after the surface has been approved for coating application, surface will require another QA inspection.

The Quality Control Inspector is to verify compliance with all applicable specifications and conduct all required testing prior to notifying the engineer or his or her representative that work area surfaces are ready for primer application.

The Quality Assurance Inspector will conduct surface profile readings in accordance with ASTM D 4417 Method C and contract documents. The work area will be divided up and tape

readings will be taken. All cleaned structural members in the work area shall be represented in the random sampling (truss post, chord, and diagonals, beam flanges and webs, diaphragms, cross-frames, etc.). If the averages of all the QA readings fall within contract specification, the area is compliant and can be primed. If the average of all the QA readings falls outside of the contract limits and the cause is from more than one location, the work area is non-compliant and cannot be primed. If the average of all the QA readings falls outside of the contract limits and the cause can be attributed to one location, then the QC Inspector will be notified of the non-compliant work, will be requested to accompany the QA Inspector on a second sampling of the identified area, and will witness the sampling. The secondary sampling will consist of 3 individual tape samples taken at the initial out-of-compliant location within a 1 square foot (0.1 sq m) area. Substitute the average of the three secondary samples for the initial out-of-compliant location sample in calculating a new overall average of the work area. If the new average for the work area falls within the contract requirements, the area is compliant and can be primed; if the new average does not fall within the contract requirements, the work area is non-compliant and cannot be primed. Re-work and re-test all work areas that are non-compliant until they fall within specifications. Primer application is approved at that time.

If any of the single location tape readings exceed the allowable surface profile by ± 0.5 mils, re-sample that location using 3 tape samples, average, and substitute the average for that location reading. No single location reading may exceed the allowable surface profile by ± 0.5 mils.

Primer applied to non-compliant work areas will result in reporting the activity to the Quality Control Supervisor (QCS), notifying the engineer, documenting in the Daily Inspection Report (DIR), and reworking of the area until surface is compliant.

Perform all abrasive blast cleaning within a containment system to ensure confinement of all particulates. Ensure the abrasive blast cleaning does not produce holes, cause distortion, remove metal, or cause thinning of the substrate.

1.8.7 Hand and Power Tool Cleaning

Prepare only difficult to access, as determined by the engineer, areas of steel by hand tool and power tool cleaning as defined in SSPC-SP 2, SSPC- SP 3, SSPC-SP 11, or SSPC-SP 15 as stated in the plans and as approved by the engineer. Use SSPC VIS 3 as an aid in establishing cleanliness.

1.8.8 Surfaces Not to be Coated

1.8.8.1 Galvanized Surfaces

Do not coat galvanized surfaces unless specified in the Contract Documents.

1.8.8.2 Aluminum Surfaces

Do not coat aluminum surfaces unless specified in the Contract Documents.

1.8.8.3 Machined Surfaces

Apply a coating of rust preventative compound to all machine finished or similar surfaces that are not to be coated, or will not be coated immediately.

1.8.8.4 Conduits, Conductors, and Cables

Do not blast non-metallic conduits, fittings, conductors, and cables on or around the bridge. Submit for approval measures to protect these items from damage. Electrical conductors and fixtures may be de-energized for the blasting or painting operation upon request. Disconnection time shall be between the hours of 9:00 a.m. and 3:00 p.m. unless noted otherwise in the plan. All costs associated with de-energizing and protection of electrical conductors will be

included in this item. Replace in their entirety any conduit, fitting, conductor, and cable damaged by cleaning operations at no cost to the Department.

Employ a lock out, tag out protocol at the various electrical disconnect switches.

1.9 APPLICATION

1.9.1 General

Apply a complete coating system to all structural steel surfaces except surfaces indicated in subsection 1.8.8, "Surfaces Not to be Coated" of this specification. Apply coatings in accordance with the manufacturer's recommendations, SSPC-PA 1 *Paint Application Specification No. 1* and these specifications, whichever is most strict.

Prior to the application of any coating, inspect the substrate for contamination and defects, and prepare the surface in accordance with subsection 1.8, "Surface Preparation" of this specification before application of the next coat. Provide to the engineer passing QC documentation, including SSPC-PA 2 documentation, at which time the engineer will inspect and verify proper surface preparation or dry film thickness. Application of any coating without the engineer's approval will be considered non-compliant work.

Apply each coat, including a stripe coat, in a color that contrasts with the substrate or preceding coat.

Provide a finished surface free from foreign contaminants, dry spray, overspray, runs, sags, drips, excessive paint build up, ridges, waves, laps, streaks, brush marks, blisters, bubbles, craters, mud cracking, holidays, and variations in color, texture and finish (glossy or dull). Apply coating so each coat has complete coverage (including corners and crevices), has a film of uniform thickness, and bonds to the underlying surface.

1.9.2 Quality Control

The painting contractor is totally responsible for Quality Control regardless of the fact that the Department, the engineer, or their representatives may be present. The engineer is responsible for all Quality Assurance inspection.

The Quality Control Inspector shall perform the following tests and record the resulting information in accordance with the referenced procedures and frequency:

- Relative humidity readings outside the containment prior to initial blasting and every 2 hours thereafter and readings inside the containment prior to and every 2 hours during painting.
- Temperature readings of air near but outside the containment prior to initial blasting and every 2 hours thereafter and readings of air and steel inside the containment prior to and every 2 hours during painting.
- Surface profile measurements, as per ASTM D 4417, daily before coating.
- Blotter test results, as per ASTM D 4285, daily prior to blasting.
- Dry film thickness measurements, as per SSPC PA 2, daily after each coat of paint has dried.
- Air movement measurements inside containment daily before blasting. Acceptance criteria per ventilation requirements in the plan notes and accepted contractor containment plan.
- Wind speed and direction daily every 2 hours.

Take readings at the same area where the members are being coated.

1.9.3 Weather and Temperature Limitations

Do not spray coating when the measured wind speed in the immediate coating area is above 15 miles per hour (24 km/h). Do not apply coatings when contamination from rainfall is imminent or when the ambient air temperature, relative humidity, dew point temperature, or temperature of the steel is outside limits of the coating manufacturer's product data sheet and these specifications.

Protect the cleaning and painting area of the structure from environmental conditions during and after the coatings application. Rework any coating which has been adversely affected by the environmental conditions.

If utilizing fans, heaters, ventilators, or other equipment to achieve acceptable environmental conditions for coating applications, maintain those conditions until coating reaches a dry-to-touch condition or as recommended by the coatings manufacturer, whichever is more stringent. Provide a time lapse recording instrument for monitoring all controlled conditions during this period.

During application, paint shall be between 40 °F and 100 °F (4 °C and 38 °C) or according to the manufacturer, whichever is more stringent. Do not apply paint unless the surface temperature of the metal is at least 45 °F (7 °C) and rising and does not exceed 120 °F (49 °C) or according to the manufacturer, whichever is more stringent.

Do not apply paint during rain, snow, fog, or misty conditions, or when the steel surface temperature is less than 5 °F (-15 °C) above the dew point, or to wet or damp surfaces.

Do not apply paint when the relative humidity exceeds 85 percent or the manufacturer's recommendation, whichever is more stringent. The temperature of the surfaces to be painted, the painted surfaces, and the atmosphere in contact with these surfaces shall be maintained within the temperature and humidity limits and at least 5 °F (-15 °C) above the dew point from before commencement of painting to the time of dry-to-touch.

1.9.4 Penetrating Sealer

If required by the plans, apply to all locations where irremovable crevice corrosion (as determined by the engineer) remains after all surface preparation best efforts have been made (as determined by the engineer). Use brush to work penetrating sealer into and saturate exposed crevice corrosion.

1.9.5 Sealing Using Caulk

Completely seal the perimeter of all faying surfaces, cracks, crevices, joints, gaps that are open less than 1/2 inch (13 mm) and skip-welded joints using caulk after application of primer, penetrant sealer, stripe coat, and intermediate coat. Apply the caulk to the joint following the caulk manufacturer's recommendations. Ensure the caulk bead has a smooth, uniform finish and is cured according to the caulk manufacturer's recommendation prior to the application of the remaining coating system.

1.9.6 Protection of Adjacent Surfaces

Protect all surfaces and working mechanisms not intended to be coated during the application of coatings. Clean surfaces that have been contaminated with coatings until all traces of the coating have been removed. Do not allow material from cleaning and coating operations to be dispersed outside the work site.

1.9.7 Mixing and Thinning

Mix all coatings in accordance with the manufacturer's product data sheet. Only mix complete kits. Use thinners and solvents in accordance with the requirements of the coating

manufacturer's product data sheet. Perform all mixing operations over an impervious surface with provisions to prevent runoff of any spilled material.

1.9.8 Application Methods

Use coating application equipment and apply coatings per the coating manufacturer's product data sheet. Application with brushes is acceptable for minor touchup of spray applications, stripe coats, or when otherwise approved by the engineer. Adjust spray equipment to produce an even, wet coat with minimum overspray. Apply coatings in even, parallel passes, overlapping 50 percent. Agitate coatings during application as required by the coating manufacturer's product data sheet to provide uniform consistency.

Touch up missed or damaged locations after a coat dries and before applying succeeding coats.

Strictly observe the manufacturer's recommended minimum and maximum recoat period. Apply no paint until the preceding coat has met the manufacturer's recoat criteria, stated in the product data sheet, and has been both tested and approved by the engineer. Where conditions require recoat after the recommended maximum recoat period, employ the manufacturer's recommended remedial procedures. Any coating removed during this process shall be replaced prior to applying additional coats. Protect adjacent surfaces already properly coated.

1.9.9 Stripe Coat

Apply stripe coats to achieve complete coverage and proper thickness on welds, corners, edges, crevices, seams, bolts, nuts, rivets, and rough or pitted surfaces. Stripe coating is not required for the inside surface area of steel box girders.

Stripe coat with the appropriately tinted primer before the steel receives its first spray applied full prime coat of paint. Striping shall extend a minimum of 1 inch (25 mm) beyond the edge, seam, rivet etc. Apply stripe coat by brush or roller. Use brush or dauber to spread stripe coat and work into crevices and uncovered areas. Rollers may be used to apply stripe coat to edges. When penetrating sealers are required to be placed on crevices with corrosion, apply the spray prime coat first, being careful not to coat crevice corrosion, then carefully brush the penetrating sealer into the crevice corrosion area, and finally apply the stripe coat with a wider coverage width at crevices treated with penetrating sealer than normal to ensure full primer coverage of area. Follow all appropriate dry times between applications.

1.9.10 Thickness of Coats

Apply coatings to the recommended dry film thickness as identified in the QPL for the paint system selected and at least the number of coats specified. When required, apply penetrant sealer to a dry film thickness recommended by the manufacturer and accepted by the engineer.

After application of each coat, thoroughly inspect the surfaces and measure the dry film thickness (DFT) in accordance with SSPC-PA 2. When the DFT is deficient or excessive, correct by wire brushing, sanding, or blasting, all in accordance with the coating manufacturer's recommendations. Clean, paint, and retest the area.

1.9.11 Coating, Drying, and Curing

Apply coatings within the time specified by the coating manufacturer's product data sheet for drying and recoating. Before handling, test for cure in accordance with the manufacturer's recommended method. Meet the requirements of ASTM D 5402 for organic zinc primers when the manufacturer's technical data sheet does not state a specified cure test.

1.9.12 Coating Finish

Protect the surface from contamination and disfigurement by splatters, splashes, and smirches of paint materials. All painted surfaces so marred are considered damaged areas and require repair.

1.10 TOUCHUP AND REPAIR

Repair all damaged or defective coating prior to application of subsequent coats. Repair with materials and to a condition equal to that of the coating system specified. Repair all dry spray by removing and underlying surface repaired to meet original requirements. Protect adjacent coated surfaces and leave in place until the paint film has properly dried. Do not handle, work on, or disturb items which have been coated until the paint coat completely dries and hardens.

Repair any damaged, unclean, or uncoated surface created by fastening, bracing, or handling of the containment, scaffolding and staging, with a written repair procedure endorsed by the coating manufacturer and accepted by the engineer.

1.11 PROTECTION OF THE ENVIRONMENT, PUBLIC, AND WORKERS

1.11.1 General

Establish plans and programs to protect the environment, public, contract or employees, and other workers from exposure to toxic heavy metals, as well as releases and emissions of hazardous materials and nuisance dusts. Conduct all coating removal and application operations in accordance with all applicable federal, state, and local laws, rules, regulations, and ordinances, including, but not limited to, the United States Code of Federal Regulation (CFR), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and Louisiana Department of Environmental Quality (DEQ).

Provide a contingency plan for the remediation of water and land in the event of contamination by solid or liquid paint and contaminated water.

Establish procedures to prevent and protect the public (persons and property) from paint damage and a plan to address what action to take when it occurs.

The contractor is responsible for all liability resulting from noncompliance with pertinent rules and regulations including permit requirements.

1.11.2 Environmental Protection

Prepare and submit to the engineer plans and programs for the protection of the environment and public based on the applicable EPA requirements, the requirements of this Section, and the Contract Documents. Include plans and programs for the protection of the air, soil/ground, and water. Some of the environmental requirements are:

- 40 CFR 50, “National Primary and Secondary Ambient Air Quality Standards”
- 40 CFR 60, “Standards for Performance for New Stationary Sources,” Appendix A, “Test Methods”
- 40 CFR 261, “Identification and Listing of Hazardous Waste”
- 40 CFR 262, “Standards Applicable to Generators of Hazardous Waste”
- 40 CFR 263, “Standards Applicable to Transportation of Hazardous Waste”
- 40 CFR 264, “Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities”
- 40 CFR 268, “Land Disposal Restrictions”

- EPA SW-846, “Test Methods for Evaluating Solid Waste-Physical/Chemical Methods”
- Louisiana Revised Statutes (La. R.S.) 30:2001, et seq., “Louisiana Environmental Quality Act” and enabling regulations found in Louisiana’s “Environmental Regulatory Code: (most recent edition), particularly:
- Louisiana Administrative Code (LAC) 33:IX.101 et seq., “Water Quality Regulations”
- LAC 33:V.101 et seq., “Hazardous Waste and Hazardous Materials”
- LAC 33:III.101 et seq., “Air Quality Regulations”
- La. R.S. 49:214.21 et seq., “State and Local Coastal Resources Management Act of 1978: and enabling regulations found in the LAC”
- LAC 43:I.701, et seq., “Coastal Management”

1.11.2.1 Pollution Control

The contractor shall be familiar with the following referenced industry guidelines:

- *SSPC Guide 6 “Guide for Containing Debris Generated During Paint Removal Operations”*, as published by The Society of Protective Coatings (SSPC).
- *SSPC Guide 7 “Guide for Disposal of Lead-Contaminated Surface Preparation Debris”*, as published by SSPC.

Submit a written pollution control and monitoring plan at the preconstruction meeting or as directed by the engineer which clearly describes the means for complying with all federal, state, and local regulations including pollution control provisions specified herein. The written plan must be in accordance with SSPC Project Design: *Industrial Lead Paint Removal Handbook, Volume II, Phase 6, Environmental Monitoring*, and specifically include, but not be limited to, providing a scaled map of the work site layout showing the waste storage areas, staging areas, temporary waste storage areas, and ambient air and personnel sampling frequency.

Comply with all applicable federal, state, and local rules and regulations. Immediately cease all operations in the event a violation of any environmental regulation or a failure to properly execute any pollution control provisions occurs. Resume operations after written proposed corrective procedures have been submitted to and approved by the engineer and implemented.

1.11.2.2 Permits

Submit all required permits from all applicable regulatory agencies to the engineer prior to the commencement of any work. Seek permit determination from these regulatory agencies to avoid any potential permit non-compliance issues during work activities.

Conduct cleaning activities in accordance with the existing DEQ bridge maintenance and construction permit (LA 0125563) issued to the DOTD.

1.11.2.3 Ambient Air Quality Compliance and Protection of the Air

1.11.2.3.1 Visible Emissions

Assess the visible emissions using EPA Method 22, *Timing of Emissions* as defined by 40 CFR 60, Appendix A, *Standards of Performance for New Stationary Sources*. During abrasive blasting, do not allow visible emissions from a containment to exceed a random cumulative duration of more than one percent of the workday (*SSPC Guide 6, Level 1 Emissions*). A work day shall be defined for purposes of visible emission assessment as an eight hour day. This amounts to a cumulative emission duration limit of 4.8 minutes per workday. Any emissions occurring in any one hour of any work day that cumulatively exceeds 36 seconds shall be cause

for immediate suspension of cleaning work and modification or adjustment of the containment system to eliminate the source of emissions prior to resuming cleaning operations.

Visible assessment will be conducted by an independent third party environmental testing firm under separate contract with the Department. The visible assessment of emissions will be used to indicate the need for immediate changes in containment or work practice. This visible assessment will be used as a supplement to *EPA Ambient Air Monitoring for TSP-Lead*. In the event of conflict between the visible assessment and the instrument monitoring, the data generated from the instrument monitoring will prevail. The visible assessment procedure shall be based on 40 CFR 50, Appendix A, Method 22.

During pressurized water cleaning, do not allow visible emissions from a containment to exceed a random cumulative duration of more than 10 percent of the workday (*SSPC Guide 6, Level 3 Emissions*).

1.11.2.3.2 Visual Emissions

Conduct all activities so that paint, solvents, waste, abrasives, dust, and debris are not released or spilled into the pavement, soil, water, sediment, or storm sewers. Activities that result in any discharge, spilling, leaking, pumping, pouring, emitting, or dumping of any abrasive blast media (spent or not), paint chips, dust, dirt debris, or lead contaminated materials generated that results in any visual accumulation on the bridge deck, ground, or any other surface outside the constructed containment, as determined by the engineer, shall result in the immediate suspension of the emission generating activities. Determine the source of the emissions and perform corrective measures to prevent further emissions. Clean up all visual accumulations by vacuuming or other appropriate methods and contain and store emitted materials to the satisfaction of the engineer.

1.11.2.3.3 Total Suspended Particulate (TSP) Matter

Control emissions from the containment area to prevent exceeding the TSP-Lead of $1.5 \mu\text{g}/\text{m}^3$ over a 24-hour period.

1.11.2.3.3.1 Penalty For Exceeding TSP-Lead

a) An independent third party environmental testing firm under separate contract with the Department will conduct TSP-Lead monitoring in accordance with 40 CFR 50, Appendix B, *Reference Method for Determination of TSP Matter in the Atmosphere (high volume sampler required)*, and 40 CFR 50, Appendix G, *Reference Method for Determination of TSP Matter Collected from Ambient Air* and position the TSP-Lead monitoring equipment in general accordance with 40 CFR 58, *Ambient Air Quality Surveillance*.

b) Whether or not a penalty may be assessed under the provisions of paragraph d) below, the Department shall have the authority to suspend and shall suspend all cleaning operations whenever air sampling results indicate that TSP-Lead emissions have exceeded $1.5 \mu\text{g}/\text{m}^3$ in any 24-hour period. The Department shall provide the contractor with written notice of suspension and all cleaning operations shall be suspended until corrections are made to the containment or work procedures are modified to comply with these requirements.

c) Upon receipt, the Department will review the TSP-Lead sample results. The first set of sample results that exceed the limit will set the penalty date. The Department will not assess the penalty, provided by paragraph d) below, for all sample results on and previous to the penalty date. The Department shall assess the penalty, provided by paragraph d) below, for all sample results that exceed the limit after the penalty date.

d) The Department shall deduct from the next payment to the contractor for the “Cleaning, Painting, and Disposal” amount earned, a penalty in the amount of \$1,500.00 for each 24-hour period, subsequent to the penalty date, in which one or more TSP monitors indicates that lead emissions exceeded the limit. The contractor shall be liable for this penalty on the basis of the aforementioned sample results, whether or not the Department has sustained any loss or damage, and whether or not the Department has incurred any cost as a result of lead emissions in excess of the limit. The contractor waives any and all right to contest the sample results and any right to contest an adjustment of the contract price in the amount of the penalty on the grounds that lead emissions in excess of the limit did not cause injury or harm to the Department or to third persons.

Upon the Department receiving the third TSP failing report after the penalty date, the contractor will be required to suspend all cleaning operations, examine the entire operation to determine the cause of the lead emissions in excess of the limits, determine appropriate corrective measures, revise the original submittals to reflect the corrective measures, submit the revised containment plan to the engineer for review and acceptance, then take the appropriate steps before resuming production.

In the event that work is suspended for corrective measures in accordance with the previous paragraphs TSP-Lead monitoring, Contract Time shall not be suspended.

1.11.2.4 Regulated Area

Establish a regulated area around the work site to prohibit unauthorized persons from areas where exposure to hazardous airborne metals may exceed the following action levels:

Airborne Metals	Action Level
Lead	30 µg/m ³
Cadmium	2.5 µg/m ³
Arsenic	5 µg/m ³
Hexavalent Chromium (Cr6+)	2.5 µg/m ³

Conduct monitoring in accordance with the National Institute for Occupational Safety and Health (NIOSH) procedures upon initiation of dust producing operations and submit the test results to the engineer within 72-hours of sampling. Report sample results as eight-hour Time Weighted Averages (TWA). Re-establish the regulated area and perform additional sampling when the results exceed the action levels or when directed by the engineer. Document all pertinent data in a field logbook. Position air-sampling pumps around the project perimeter where the public or personnel can approach the work area. Place sampler inlets at breathing height. Clearly mark the regulated area by the use of warning signs, rope, barrier tape, or temporary construction fencing.

1.11.2.5 Soil/Ground Quality

Inspect the ground beneath and in proximity to the structure in the presence of the engineer for visible paint chips to establish an initial job site cleanliness standard. When heavy metals are in the existing coatings, the Department will collect and test soil samples prior to the beginning of operations and after project completion for heavy metals in accordance with SSPC-TU 7, *Conducting Ambient Air, Soil, and water Sampling During Surface Preparation and Paint Disturbance Activities* and EPA Methods 3050 and 6010. The Department will document the number and specific locations where the initial samples are taken as outlined in the *SSPC Project*

Design- Industrial Lead Paint Removal Handbook, Volume 2 to ensure the post samples are collected from the same locations. If the project activities increase the heavy metal content in soil to more than 20 percent above the pre-job geometric mean or 100 percent at any one location, return the site to the pre-job levels. Submit procedure to the engineer for acceptance prior to any remediation. The Department will conduct additional soil testing as necessary to determine the extent of contamination.

Submit plan location of storage area and stake the area out so “pre- and post- soil sampling” can be performed.

1.11.2.6 Water Quality

Do not release, discharge, or otherwise cause hazardous materials, debris, waste, or paint chips to enter the water. Protect against releases due to rain and methods of surface preparation from reaching rivers, streams, lakes, storm drains, or other bodies of water.

1.11.3 Containment System

1.11.3.1 General

Submit a written containment system design plan in accordance with this section and the contract documents at the pre-construction conference or as directed by the engineer which clearly describes the proposed containment system applicable to the intended removal method and in accordance with the requirements outlined herein and *SSPC Guide 6, Guide for Containing Debris Generated During Paint Removal Activities*. Ensure the plan includes, but is not limited to, removal method, methods for collecting debris, and containment enclosure components. Isolate the immediate area of the structure to ensure compliance with current and permit requirements for air, water, soil, and pollution prevention. Absolutely no paint or debris (solid or liquid) shall be allowed to fall outside containment. Use fire retardant materials.

Design containment so as to minimize the need for any traffic disruptions for erection or movement of containment system. Containment structure may not occupy the space inside the traffic face of the bridge roadway barriers. Do not permit any equipment or containment structure to interfere with existing highway vertical or horizontal clearances.

Provide containment drawings, calculations, and assumptions, including ventilation criteria if applicable, signed and sealed by a professional civil engineer registered in Louisiana. Provide a complete structural impact analysis prepared by a professional civil engineer registered in Louisiana to verify that the existing structure can withstand the dead, live, and wind loads imposed upon the structure due to the containment system without causing overstress of members or compromising the structural integrity of the bridge.

Provide a contingency plan addressing natural weather events such as tropical storms and hurricanes. The removal and reinstallation of the containment system due to the high winds or approaching storms shall be at no direct pay.

All drawings and calculations must be submitted and accepted before any work begins (including erection of scaffolding or containment). The professional engineer must verify in the field that the scaffolding and containment has been erected as designed. Repair any damage created by fastening, bracing, or handling of the scaffolding, staging, and containment.

1.11.3.2 Classification

Design and utilize a *SSPC Guide 6 Class IA* containment system. Filter all air exhausted from the containment enclosure by means of filtering system or dust collectors. All filters for dust collectors or grit recycling machines or vacuum equipment shall be new and unused immediately before bringing to the project site. No dust discharge shall be allowed from the

exhausted air off the filters, dust collectors, or any vacuum truck used for pickup of spent materials. Conduct all blasting operations under containment. Prevent the release of airborne lead containing dust and debris to below the levels required by all federal, state, and local regulations and control the workers' environment within containment as required by OSHA regulations 29 CFR 1926.62. Control environmental emissions according to the assessment criteria.

1.11.3.3 Drawings

Conform to section 801.03, "Shop Drawings, Working Drawings and Other Submittals" of the *Standard Specifications*.

Show plan and elevation views of containment system.

Detail the containment enclosure, all components, materials, seals, supports, anchorage, scaffolding, air ventilation and filtration systems, the method of attachment to the structure, and vertical and horizontal clearances.

Include a clear description of the ventilation system components and information including the fan curve and design point on the proposed dust collector.

Indicate the anticipated loads on the structure, the maximum permissible debris and wind loads permitted on the containment system, and describe its installation and removal parameters and procedures. Detail those components of the containment system that would cause an overstress condition on any bridge member or the span as a whole to be removed and the parameters for removal.

Permanent attachments or fasteners to the bridge will not be allowed. Welded connections to bridge members are prohibited. No additional holes shall be drilled. Attachments made to any bridge member for securing the containment or equipment shall not damage the member and must be approved by the engineer.

When working over railroads or navigable waterways, the Department will notify the respective agencies of planned work. The contractor is responsible for follow up contact; provide evidence that the railroad, Coast Guard, Corps of Engineers, and other applicable agencies are satisfied with the clearance provided and other proposed safety measures (flagman, plans for assuring that navigation lighting is not obscured, or if obscured, that temporary lighting is acceptable and will be utilized, etc.).

Isolate the immediate area of the structure to ensure compliance with current and permit requirements for air, water, soil, and pollution prevention. Protect the containment system from vehicular and pedestrian traffic.

Submit three sets of the drawings and calculations to the engineer for review and comment. Submit six sets for final acceptance after all comments are addressed.

Contractor shall maintain on site copies of the approved shop drawings.

1.11.3.4 Calculations

No overstress conditions to the bridge members nor compromise in the structural integrity of the bridge is allowed.

Ensure the lighting inside the containment is in accordance with *SSPC Guide 12, Guide for Illumination of Industrial Painting Projects*. Provide lighting to a minimum intensity of 20 ft-cd for general, 50 ft-cd for work, and 200 ft-cd for inspection.

Design to provide ventilation of at least 100 feet per minute for cross draft and 60 feet per minute for downdraft. These flow rates are not intended to serve as a bench mark that ensures compliance with OSHA standards nor a safe working condition but are minimum design criteria

to limit the size of the containment system. Design mechanical ventilation system to reduce the airborne concentration of particulate matter inside of the containment to As Low as Reasonably Achievable (ALARA) using best industry practices and using Best Available Demonstrated Control Technology (BADCT) to achieve compliance with OSHA and EPA regulations.

If constructing a suspended platform, use rigid or flexible materials as needed to create an air and dust impenetrable enclosure. Verify that the platform and its components are designed and constructed to support at least four times its maximum intended load without failure, with wire cables capable of supporting at least six times their maximum intended load without failure.

Strictly comply with all applicable OSHA regulations regarding rigging, staging, and scaffolding. At a minimum, meet OSHA 3150, *A Guide to Scaffolding Use in the Construction Industry* and Federal Specification RR-C-27-102, *Chains and Attachments-Welded and Weldless*.

Examination of working or shop drawings by the engineer does not relieve the contractor of responsibility for obtaining the degree of containment and collection stated herein. Said examination is for general review only and confirmation that the loads placed on any member result in stresses within allowable levels, to evaluate the general loads on the structure, and to establish the containment removal parameters. It specifically is not an approval for the structural integrity of the scaffolding system. The structural integrity of the scaffolding is solely the responsibility of the contractor and the manufacturer of the scaffolding materials. The contractor shall be fully responsible for safety measures and the scaffolding work. The contractor shall properly maintain the containment system during work and shall not deviate from the working or shop drawings without prior submittal and examination of the changes by the engineer.

1.11.4 Protection of Adjacent Areas

Protect all areas adjacent to abrasive blast cleaning, including machinery and deck grating. Before the commencement of any cleaning and coating operations, provide a control plan for the protection of adjacent surfaces from damage by nearby blasting and coating to the engineer for review. Repair any damage to adjacent areas. Submit repair procedure to the engineer for acceptance prior to any remediation.

1.11.5 Worker Protection

1.11.5.1 General

Implement appropriate safety procedures for all hazards on the job site whether specifically identified herein or not.

Comply with the requirements of:

- OSHA 29 CFR 1910 “Occupational Safety and Health Standards”
- OSHA 29 CFR 1926 “Safety and Health Regulations for Construction”
29 CFR 1926.62 (lead),
29 CFR 1926.1118 (inorganic arsenic),
29 CFR 1926.1126 (hexavalent chromium), and
29 CFR 1926.1127 (cadmium) when these hazardous agents are present.
Implement appropriate safety procedures for all hazards on the job site whether specifically identified herein or not.
- 40 CFR 117, “Determination of Reportable Quantities for Hazardous Substances”
NIOSH Method 7082 “Lead”
- OSHA Instruction CPL 2-02.58, “1926.62, Lead Exposure in Construction;
Interim Final Rule – Inspection and Compliance Procedures

Submit to the engineer a written site specific compliance plan for review describing how the following standards will be met:

- Exposure monitoring [29 CFR 1926.62 (d)]
- Methods of compliance [29 CFR 1926.62 (e)]
- Respiratory Protection [29 CFR 1926.62 (f) and 1910.134 (b), (d), (e), (f)]
- Protective work clothing and equipment [29 CFR 1926.62 (g)]
- Housekeeping [29 CFR 1926.62 (h)]
- Hygiene Facilities and Practices [29 CFR 1926.62 (I)]
- Medical Surveillance [29 CFR 1926.62 (j)]
- Medical Removal Protection [29 CFR 1926.62 (k)]
- Employee information and training [29 CFR 1926.62 (l) and 1926.59 and 1926.21]
- Signs [29 CFR 1926.62 (m)]
- Record keeping [29 CFR 1926.62 (n)]
- Applicable sections of 29 CFR 1926.62 Appendices A-D
- Working Over or Near Water [29 CFR 106]

Examine all personnel that work at the project site in accordance with 29 CFR 1926.62(j) (3) (ii) (A)-(F) prior to their working on the project. Provide to the engineer a letter from the examining physician stating the name of the employee examined and tested, if they are above or below OSHA established medical surveillance levels, and if that person is fit for work.

1.11.5.2 Engineer and his/her Representatives

Provide exposure assessments, exposure monitoring, protective clothing, discarded clothing disposal facilities, on-site changing areas, showers, eating facilities, hand washing facilities, safety training, and personal protection equipment, as required by *OSHA Interim Final Rule on Lead Exposure in Construction*, to the engineer and his/her representatives on projects where removal of lead based paint will occur. For the purpose of this contract, all references in the *Interim Final Rule* to “the Employer,” with regard to providing exposure assessments, exposure monitoring, protective clothing, hygiene facilities, training, and equipment shall mean “the Contractor” and all references to “the employee(s)” shall mean the Department’s Engineer and his/her representatives.

Provide to the employee(s) interim respiratory protection, which shall include a respirator, respirator training, and fit testing, and a respirator program until an employee exposure assessment is performed and actual employee exposure is determined. The interim respirator protection provided to the employee(s) shall be based on anticipated exposure levels greater than the Permissible Exposure Limit (PEL) ($50\mu\text{g}/\text{m}^3$), but less than 10 times the PEL ($500\mu\text{g}/\text{m}^3$). At a minimum, provide the employee(s) with a half mask air purifying respirator with high efficiency particulate air (HEPA) filters, which provides a respiratory protection factor of 10. Provide the appropriate respirator if, through employee exposure assessment, employee exposure level is greater than $500\mu\text{g}/\text{m}^3$.

The engineer shall be responsible for requiring their employee(s) to wear equipment and use facilities provided by the contractor in accordance with the *Interim Final Rule*.

1.11.5.3 Training

Train all employees working on the project as required by *OSHA Interim Final Rule on Lead Exposure in Construction*. Conduct training within the DOTD District where the project is located between the hours of 7:00 a.m. and 5:00 p.m. on Tuesday, Wednesday, or Thursday, as approved by the engineer. Provide the following information at the preconstruction meeting:

- Name and qualifications of the trainer,
- Location and time of the training, and
- An outline of the training to be provided.

Each employee shall be provided with a certificate of training by the contractor.

1.11.5.4 Assessment

Conduct an employee exposure assessment in accordance with the *Interim Final Rule* on at least one employee designated by the engineer. Fully document and report results of initial and any additional exposure assessments in time frames consistent with the *Interim Final Rule* and forward directly to the engineer.

1.12 WASTE HANDLING AND MANAGEMENT

Remove debris generated from cleaning operation, including abrasive blast residue, spent blast medium, rust, mill scale, paint particles, and dust from the contaminant area at least once per day. This debris, along with waste generated during the painting operation, shall be designated as "Listed Hazardous Waste" based on "process knowledge." Collect this debris in leak proof containers clearly marked as hazardous, along with tare weight of the container, origin of material, and date of material collection, all with weather resistant labels. Transfer of this material from the contaminant area to the containers, the movement of containers within the work site, and movement of containers at the temporary storage site shall be such that no pollution of the environment will occur and workers are fully protected. The filled containers may be moved to a temporary storage site at the work site (same or geographical contiguous property) by the generator. Transportation of the containers directly to an off-site storage site, temporary or permanent, must be done in accordance with 40 CFR Part 263: "LAC 33:V." The contractor will be responsible for obtaining temporary off-site storage at their expense if utilized. The temporary storage site shall be secure, providing protection from migration of the debris into the environment, vandalism, and public access. Display warning signs prominently around the perimeter of the site. The debris may remain at the temporary storage site no longer than 90 calendar days.

Handle all debris generated during the bridge cleaning and painting process in accordance with one of the following methods:

a) **Recyclable abrasives:** Collect and recycle by taking spent blast medium, rust, mill scale, paint particles, and dust from the contaminant area, dust collector debris, and support equipment filters to a beneficial reuse facility such as a lead smelter. At the completion of all structural cleaning, clean and purge all support equipment, collect all used blast media and support equipment filters, and take to the beneficial reuse facility. The facility shall provide the Department with certification that the lead was reclaimed and that the waste has been recycled and no longer exists. No testing will be performed on any debris handled under this method.

b) **Decontamination water:** Collect, test, classify, filter on site to remove particulate, and discharge as per DEQ permit or the engineer.

c) **Structural wash water:** Contain, collect, filter, and dispose of as per DEQ permit.

- d) All other waste streams: Store in separate containers.

Debris that can easily be classified by visual inspection as “Listed Hazardous Waste,” such as mixed solid/liquid paint and paint related waste or other waste generated during the bridge painting operation, will be labeled as such and not be tested.

Other waste streams are to be sampled and tested to determine their classification and shall be properly disposed of based on that classification or as directed by the engineer. Sample and test wastes in accordance with 40 CFR Part 261: “LAC 33:V” using the “Toxicity Characteristics Leaching Procedure” (TCLP). The sampling and testing laboratory designated by the contractor and approved by the engineer shall prepare a sampling plan in accordance with the *Environmental Protection Agency’s Manual SW 846*. The engineer or his/her representative must be present during the sampling of waste. The engineer will document that the samples are representative of wastes contained at the temporary storage site. Analyze samples in accordance with the best procedures and quality assurance requirements of 40 CFR Part 268: “LAC 33:V.”

A manifest is required for the transportation of both hazardous and non-hazardous waste classified by either of the methods below. Return the manifest to the engineer within 30 days of receipt from the treatment or disposal facility.

a) Wastes determined to be hazardous, either through process knowledge, testing, or otherwise, are subject to the provisions of RCRA and shall be completely manifested in accordance with 40 CFR Part 262: “LAC 33:V” when transported for treatment or disposal.

b) Wastes found to be non-hazardous by testing may be disposed of in a Subtitle D (non-hazardous) landfill. See LAC 33.VII *Solid Waste Regulations*.

1.13 SUBMITTALS

Submit to the engineer for review and acceptance 60 days prior to beginning work:

1. Qualifications and experience of all personnel to include Project Manager, Superintendent, QC Supervisor, QC Inspectors, and Competent Person.
2. Proposed sequence of cleaning and painting operations.
3. Corporate and site specific Environmental, Health, and Safety Plan.
 - (a) Containment Plan
 - (i) Details
 - (ii) Calculations
 - (b) Waste Management Plan
 - (i) Proposed Storage Location
 - (ii) Proposed containers storing the waste/debris
 - (iii) Frequency of auditing the waste storage area
 - (iv) Waste storage inspection form
 - (v) Sampling method
 - (vi) Name, address, and phone number of the proposed
 1. waste transportation company
 2. treatment/disposal facility
 - (vii) All relevant licenses and permits

4. Corporate and site specific Quality Control Plan.
5. All materials to be used on the project.

1.14 STENCILING

After production painting is completed, stencil the date painting was completed, coating manufacturer, and type of paint system applied (in the format MM/YYYY---SHERWIN WILLIAMS---ORGANIC ZINC-EPOXY-URETHANE) on a painted steel superstructure surface on the right downstation and left upstation side within 10 feet (3.0 m) from the bridge end and visible in profile view at specific locations determined by the engineer on each structure in the project in 2 1/2 inch (64 mm) high block letters. Use paint that forms a contrast with the background and is compatible with the paint system used.

1.15 DAMAGE

Any damage to the structure or surrounding area resulting from the contractor performing any of the above prescribed work shall be repaired, as directed by the engineer, by the contractor, at no additional cost to the Department.

The contractor shall hold complete and absolute responsibility and liability for damage to persons, property, vehicles, and the environment resulting from the execution of the work required by this contract.

1.16 MEASUREMENT

The quantity to be paid will be the lump sum quantity coated, completed and accepted.

1.17 PAYMENT

Price and payment will be full compensation for all work specified in this section.

Payment will be made under:

Item No.	Pay Item	Pay Unit
NS-800-00020	Cleaning, Painting, and Disposal (Near White Finish)	Lump Sum