SECTION 099713.24 - STEEL WATER STORAGE TANK PAINTING

This Section includes preparing, priming, and painting of steel elevated water storage tanks for potable-water use.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:

Surface preparation.

Painting tank interior and exterior.

* + - 1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

* + - * 1. American Water Works Association:

AWWA D102 - Coating Steel Water Storage Tanks.

* + - * 1. ASTM International:

ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

This Section can be structured to incorporate industry association reference manuals associated with painting and finishing. Consult following association for its available manuals.

* + - * 1. SSPC: The Society for Protective Coatings:

SSPC-PA 1 - Shop, Field, and Maintenance Painting of Steel.

SSPC-SP 6 - Commercial Blast Cleaning.

SSPC-SP 10 - Near-White Metal Blast Cleaning.

SSPC-SP 11 – Power Tool Cleaning to Bare Metal.

* + - 1. PREINSTALLATION MEETINGS
         1. Convene a preinstallation meeting a minimum [**one week**] prior to commencing Work of this Section.
      2. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: Submit manufacturer information on finishing products.

Include following paragraph for submission of physical samples for selection of finish, color, texture, and other properties.

* + - * 1. Samples:

Following subparagraph is intended for selecting colors from manufacturer color chips. Second following subparagraph is intended for reviewing selected colors on larger samples.

Submit [**two**] <**\_\_\_\_\_\_\_\_**> paper chip samples, <**\_\_\_\_\_\_\_\_**> by <**\_\_\_\_\_\_\_\_**> inches in size, illustrating range of colors [**and textures**] available for each scheduled surface finishing product.

Painted Samples:

Submit [**two**] <**\_\_\_\_\_\_\_\_**> painted samples, illustrating selected colors [**and textures**] for each selected color and system [**, with specified coats cascaded**].

Submit on [**aluminum sheet**] [**tempered hardboard**] <**\_\_\_\_\_\_\_\_**>, <**\_\_\_\_\_\_\_\_**> by <**\_\_\_\_\_\_\_\_**> inches in size.

* + - * 1. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate paragraphs for additional certifications.

* + - * 1. Manufacturer Instructions: Submit special surface preparation procedures, substrate conditions requiring special attention[**, and**] <**\_\_\_\_\_\_\_\_**>.
        2. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
        3. Qualifications Statements:

Coordinate following subparagraphs with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer and applicator.

Submit manufacturer's approval of applicator.

If the Facility desires a logo on the tank, include a detailed drawing in the project manual including color and orientation.

* + - * 1. Detailed Facility Logo.

Include paragraph below for Potable Water Tanks

* + - * 1. Coatings for the interior potable water tank submitted for approval in lieu of specified coating shall be accompanied by a certification that the material meets the requirements for potable water established by the New York State Health Department, Bureau of Public Water Supply.
      1. CLOSEOUT SUBMITTALS
         1. Section 017716 - Contract Closeout: Requirements for submittals.
         2. Operation and Maintenance Data: Submit data on cleaning, touchup, and repair of painted surfaces.
      2. QUALITY ASSURANCE
         1. Comply with AWWA D102.
         2. Materials in Contact with Potable Water: Certified to NSF 61.
         3. Obtain paint products from single source for Work specified in this Section.
         4. Perform Work according to <\_\_\_\_\_\_\_\_> standards.

Include following paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting Work of this Section on Site.
        2. Utilize quality assurance procedures and practices to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are approved by the Director’s Representative.
        3. Coating systems shall conform to all current A.W.W.A. Standards and carry appropriate N.S.F. (National Sanitation Foundation) approval in accordance with Standard 61 for Coatings and Linings.

E. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 200 Architectural Surface Coatings.

* + - * 1. Certificate of Compliance: List each coating product to be delivered and applied. List shall include written certification stating that each coating product complies with the VOC regulatory requirements in effect at the time of job site delivery and application.
        2. Interior coatings may be modified for low temperature applications down to 35 degrees F to facilitate curing.
        3. Curing: The interior coating shall be completely cured and the solvents shall be adequately released and the tank shall not be filled with water until observed by the Director’s Representative. The exterior coating on the opposite side of water bearing surfaces shall be completely cured and the tank shall not be filled with water until observed by the Director’s Representative. Contractor shall perform solvent rub tests, pencil hardness tests, or other industry recognized testing procedures recommended by the coating manufacturer to determine the coatings have cured prior to filling the tank. A letter from the Contractor certifying their testing results and that the interior coating has cured such that it is ready for immersion service shall be submitted to the Director’s Representative prior to filling the tank. The Contractor shall monitor the tank bowl and riser bottom plate temperature during the interior coating curing to verify that minimum steel temperature requirements are satisfied.
        4. Holiday Testing: All interior coatings, including those above the top capacity level, shall be checked with a holiday detector by the Contractor. Testing shall be done in accordance with Section 5.1.3 of AWWA D102-03 and NACE SP0188 in the presence of the Director’s Representative. Any voids indicated shall be repaired by applying more of the finish coat of paint by brush or roller. The areas shall be retested after the appropriate curing time. The coating system must pass the holiday test regardless of the existing coating thickness.
        5. Warranty Inspection: The State shall retain an independent consultant to perform the eleven-month warranty coating inspection. The Contractor shall be notified and given the opportunity to be present at the time of inspection. The Contractor shall provide the services of a company with at least five years’ experience in repairing tanks to repair all defective work found. Repairs shall made in accordance with all current AWWA and NYS Department of Health standards, this specification and to the satisfaction of the Director’s Representative. The Contractor shall then disinfect the tank according to the latest revision of AWWA C652.
      1. QUALIFICATIONS

Coordinate following paragraphs with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.

In following paragraph list applicators acceptable for Project. Only use this paragraph if Owner wishes to limit potential applicators.

* + - * 1. Applicators:

<**\_\_\_\_\_\_\_\_**>.

<**\_\_\_\_\_\_\_\_**>.

<**\_\_\_\_\_\_\_\_**>.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

* + - * 1. Applicator: Company specializing in performing Work of this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience [**and approved by manufacturer**]
        2. Performance Certification: Submit a performance affidavit certifying to the State that:

1. The Contract documents have been fully examined.

2. Coating systems of the type specified herein have been applied by the firm on at least 5 similar tanks within the recent 10 years.

3. The Workmen and their Supervisor have knowledge of and are familiar with the coating systems specified herein from the standpoints of required environmental, safety and health conditions during application and curing.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Section 016500 – Materials and Equipment: Requirements for transporting, handling, storing, and protecting products.
         2. Container Labeling: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
         3. Inspection:

Accept materials on Site in manufacturer's sealed and labeled containers.

Inspect for damage and to verify acceptability.

Do not use coating and paint materials until the Director’s Representative has inspected the contents and has obtained data from information on the containers or labels.

Reject materials exceeding storage life recommended by the manufacturer.

* + - * 1. Protection:

Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

Protect materials from excessive heat or cold, and in a ventilated area.

Protect materials from freezing.

Store flammable materials in conformance with State and Federal safety codes for flammable coating and paint materials.

Provide additional protection according to manufacturer instructions.

* + - 1. AMBIENT CONDITIONS

Specifiers are cautioned regarding specifying VOC containing or other volatile materials, their acceptability to authorities having jurisdiction, and their environmental impact.

* + - * 1. Apply paint only when temperature of steel or paint is greater than [60] <\_\_\_ > deg. F.
        2. Do not apply paint in rain, snow, fog or mist, or when steel surface temperature is below dew point resulting in condensation.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

* + - * 1. Do not apply materials when surface and ambient temperatures are outside temperature ranges indicated by paint product manufacturer.
        2. Prevent rapid changes in temperature during curing and thermal shock cracks in finish material.
      1. Safety and Health Requirements
         1. Furnish and require use of personnel protective equipment for persons working in or about the project Site, all in accordance with requirements set forth by regulatory agencies applicable to the construction industry, the coating manufacturer’s printed instructions, and appropriate technical bulletins and manuals.

Protective helmets shall be worn by all persons while in the vicinity of the Work.

Workers engaged in or near the Work during sandblasting shall wear eye and face protection devices, and air purifying half mask or mouthpiece respirator with appropriate filter.

Furnish protective clothing, gloves and barrier creams in accordance with the coating manufacturer’s recommendations to prevent injury to workmen from strong chemicals during their application.

* + - 1. WARRANTY

This Article extends warranty period beyond one year. Extended warranties may increase construction costs and Owner enforcement responsibilities. Specify warranties with caution.

* + - * 1. Section 017716 – Contract Closeout: Requirements for warranties.
        2. Furnish [**five**] <**\_\_\_\_\_\_\_\_**>-year manufacturer's warranty for paints.
      1. PROJECT CONDITIONS

Determine and fill in the following information indicated in the paragraph below.

* + - * 1. Description of Existing Tank:

Capacity and Type:

Diameter:

Height:

Outside Ladder:

Date Built:

Construction:

Year Last Painted:

In the subparagraph below allow for preparation time and coating manufacturer’s recommended curing time before immersion.

Tank may remain empty \_\_\_\_\_\_\_\_ days.

* + - * 1. Contractor shall maintain, by means of temporary dehumidification and temperature control equipment, temperature and humidity requirements in full compliance with the coating manufacturer’s specified printed recommendations. The use of dehumidification equipment is a mandatory requirement for this water tank project. Accordingly, the Contractor shall carry sufficient monies in their bid for the rental, fuel, and other operational costs as necessary to complete the job. The entire interior surfaces of the tank are to be blast cleaned (with dehumidification equipment operating) and then observed by the Director’s Representative prior to the application of the coating system.
        2. Provide a temporary containment structure appropriate for the prevention of work related dust, dirt, paint chips, wash water or debris from contaminating the surrounding area.
        3. In locations where flammable vapors may be present, take positive action to prevent ignition by eliminating and controlling sources of ignition.

Sources of ignition may include open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical and mechanical), spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

* + - * 1. Provide mechanical ventilation adequate to remove flammable vapors to a safe location and to confine and control combustible residues so that life or property is not endangered.

Equipment used to control hazardous exposure shall be explosion-proof.

Keep mechanical ventilation in operation at all times while coating or painting operations are being conducted and for a sufficient time thereafter to allow flammable vapors from drying coatings or paints to be exhausted. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist. The exhaust discharge point of fumes shall be not less than ten feet from any combustible exterior wall or roof nor shall the discharge be in the direction of any combustible construction or unprotected opening in any non-combustible exterior wall within 50 feet.

* + - * 1. Provide adequate illumination while work is in progress, including explosion-proof lights and electrical equipment.

When directed by the Director’s Representative, provide additional illumination and necessary supports to cover all areas to be inspected.

The level of illumination for inspection purposes shall be determined by the Director’s Representative.

* + - * 1. Inside buildings, provide tight fitting temporary partitions as required to protect mechanical and other equipment from sand blasting particles and to contain the spread of paint fumes.
        2. Comply fully with the manufacturer’s recommendations as to environmental conditions under which the coating and coating systems can be applied.

1. PRODUCTS
   * + 1. PERFORMANCE AND DESIGN CRITERIA
          1. Exterior Paint Performance Test Requirements:

Exterior Exposure:

Method: Paint system applied to sandblasted steel panels, cured for minimum **[seven]** < \_\_\_\_> days at [77] <\_\_\_\_> deg. F and exposed at 45 degrees facing south.

Requirements: No blistering, cracking or delamination of film, and not less than 85 percent gloss after 18 months of exposure.

Hardness: Method: Comply with ASTM D3363.

Requirements: Minimum 6H.

Humidity:

Method: Comply with ASTM D2247.

Requirements: No blistering, cracking, softening or delamination of film after 5,000 hours of exposure.

* + - 1. PAINT
         1. Interior of Tank: White unless otherwise specified.

Select exterior and logo colors of tank in the following two paragraphs below.

* + - * 1. Exterior of Tank: [color] <\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_> by [manufacturer] <\_\_\_\_\_\_\_\_\_\_>
        2. Logo: [color] <\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_> by [manufacturer] <\_\_\_\_\_\_\_\_\_\_>
      1. MATERIALS
         1. Existing Coated Exterior Surfaces

Use type C-1 system only for field painting interior and exterior surfaces of tanks inside buildings.

Type C-1 System: Two component, 100 percent solids, polyamine epoxy moisture insensitive coating, flash point 200 degrees F or above.

Acceptable Coatings:

Pota-Pox 100 By Tnemec Company, Inc.

Pennsbury 52 Series Hippo-Poxy by Sherwin Williams Company

Sikagard 62 Gray by Sika Chemical Corporation.

Ameron Amercoat 133 by Ameron Coatings, Inc.

Approved equivalent.

Type C-2 System: Two component, not less than 80 percent solids by volume, self-priming, polyamine epoxy, two coat system certified by NSF, International in accordance with ANSI/NSF Std. 61 for use on the interior of potable water storage tanks.

Acceptable Coating Systems:

Series 80 (Pota-Pox, Fast Cure - 1255 Beige Prime Coat, Pota-Pox-WH03 White Finish Coat) by Tnemec Company, Inc.

Wasser Approved Equal (must be equal to Tnemec Series 80)

Amercoat Approved Equal (must be equal to Tnemec Series 80)

Approved equivalent.

Type C-3 System: Two component, low temperature cure coating, not less than 68 percent solids by volume, polyamidoamine epoxy, three coat coating system conforming to A.W.W.A. Inside Paint System #1 and certified by NSF, International in accordance with ANSI/NSF Std. 61 for use on the interior of potable water storage tanks.

Acceptable Coating Systems:

Series N140F-1522 Beige Prime Coat, Series N140F-11WH White, N140F-39BL Blue by Tnemec Company, Inc.

Wasser Approved Equal (must be equal to Tnemec Series N140F)

Amercoat Approved Equal (must be equal to Tnemec Series N140F

Approved equivalent.

Type C-4 system for painting interior surfaces of tanks is somewhat more expensive. Zinc-rich primer provides longer-term corrosion resistance.

Type C-4 System: Organic Zinc-rich Primer certified in accordance with NSF Standard 61 for interior potable water tank applications and meeting the requirements of AWWA D 102-97 Standard for Inside System No. 3, Epoxy Intermediate Coat, Epoxy Finish Coat as follows:

Prime Coat: Two component, 63 percent solids by volume, aromatic urethane zinc-rich primer.

Intermediate and Finish Coats: Two component, 80 percent solids by volume, polyamine epoxy.

Acceptable Coating System:

Series 91 H20 Zinc Prime Coat Series 80-1255 Beige, Series 80-WH03 White Finish.

Note: Series N140F may be substituted for low temperature applications.

Approved equivalent.

* + - * 1. Exterior Abrasive Blasted Steel Surfaces

Type C-5 System: Organic Zinc-rich Primer, Epoxy Intermediate Coat, Polyurethane Finish Coat as follows:

Prime Coat: Two component, not less than 63 percent solids by volume, aromatic urethane zinc-rich primer.

Intermediate Coat: Two component, not less than 69 percent solids by volume, polyamide epoxy tie-coat.

Finish Coat: Polyurethane topcoat (catalyzed), not less than 71 percent solids by volume.

Acceptable Coating Systems:

Series 90-97 Tneme-Zinc Primer, Series N69 Epoxoline Tie-coat, Series 1075 Endura-Shield Topcoat by Tnemec Company, Inc.

Note: N69F may substituted for N69 for low temperature applications.

Wasser Approved Equals (products offered must be equal to the Tnemec materials listed above)

Approved equivalent.

Alternate Type C-5 System: Organic Zinc-rich Primer, Epoxy Intermediate Coat, Polyurethane Finish Coat as follows:

Prime Coat: Two component, 70 percent solids by volume, organic zinc-rich epoxy primer.

Intermediate Coat: Two component, 69 percent solids by volume, polyamide epoxy tie-coat.

Finish Coat: Two component, 71percent solids by volume, polyurethane topcoat.

Acceptable Coating System:

Amercoat Primer, Amercoat Intermediate Coat, Amercoat HS Finish Coat by Ameron Coatings, Inc.

Note: All coatings must not be more than 340 grams per/liter, per NY Rule 205.

Approved equivalent.

Type C-6 System: Organic Zinc-rich Primer and Two Siloxane Coats as follows:

Prime Coat: Two component, 70 percent solids by volume, organic zinc-rich primer.

Intermediate and Finish Coats: Two component, 90 percent solids by volume, Siloxane.

Acceptable Coating System:

Amercoat 68 HS Primer, PSX 700 Intermediate and Finish Coats by Ameron Coatings, Inc.

Approved equivalent.

* + - * 1. Existing Coated Exterior Surfaces

Use type C-7 system for tanks located outdoors and requiring only spot priming and topcoat.

Type C-7 System: Alkyd Spot Prime Coat, Full Intermediate Prime Coat and Two Alkyd Finish Coat as follows:

1st Spot Prime Coat: Modified alkyd red primer, not less than 60 percent solids by volume.

2nd Intermediate Coat: Modified alkyd gray primer, not less than 60 percent solids by volume.

Finish Coats: Semi-gloss alkyd enamel, not less than 60 percent solids volume.

Acceptable Coating Systems:

Tnemec Series 88HS-555 Red Spot Prime Coat, Tnemec Series 88HS-559 Intermediate Coat, Tnemec Series 23 Finish Coats.

Wasser Approved Equal (must be equal to Tnemec and meet NY Rule 205 Criteria)

Amercoat Approved Equal (must be equal to Tnemec and meet NY Rule 205 Criteria)

Approved equivalent.

Type C-7 System Alternate: Polyurethane Spot Prime Coat, Spot Finish Coat and Full Finish Coat for Overcoating Tanks. This system is intended to be used when the adhesion of the existing coating system is greater than 3A, as determined per ASTM 3359 Method A, and the overall condition of the existing coating system is in very good condition, with a minimal amount rust. The third coat finish color must be selected to match the existing color on the tank.

1st Spot Prime Coat: Aromatic Polyurethane Primer, not less than 60 percent solids by volume.

2nd Spot Finish Coat: Alkyd Spot Finish Coat, not less than 60 percent solids by volume.

3rd Finish Coat: Alkyd finish coat, not less than 60 percent solids by volume.

Acceptable Coating Systems:

Tnemec

Primer: Tnemec Series 1

Intermediate Coat: Tnemec Series 23, Enduratone semi-gloss spot

Finish Coat: Tnemec Series 23, Enduratone

Wasser Approved Equal (must be equal to Tnemec)

Ameron Approved Equal (must be equal to Tnemec)

Approved equivalent.

Include article below if the tank is constructed of lapped riveted plates.

* + - * 1. Seam and Rivet Head Sealer

Modified Amine Epoxy Filler and Surfacer:

Non-shrinking, trowel-grade filler and surfacer designed for application on steel surfaces following preparation by SSPC-SP10 Near-White Blast Cleaning.

Certified by N.S.F. (National Sanitation Foundation) in accordance with ANSI/NSF Standard 61 when overcoated with a Standard 61 certified protective coating.

Acceptable Sealers:

Tnemec 63-1500 Filler and Surfacer by Tnemec Company, Inc.

Neo Patch by Wasser High-Tech Coatings, Inc.

Nu-Klad 114A by Ameron Coatings, Inc.

Approved equivalent.

* + - * 1. Equipment

Elcometer 345 Ferrous Integral Paint Thickness Gauge (4 key) by Elcometer Inc., 1893 Rochester Industrial Dr., Rochester Hills, MI 48309.

Gauge Range: Zero to 60 dry mils paint thickness.

Furnish paint gauge to the Director’s Representative.

Gauge in its original packaging shall become the property of the State.

* + - * 1. Miscellaneous

Cement Grout: ASTM C 476 Fine Grout.

Shrinkage Resistant Grout: Premixed, factory packaged, ferrous aggregate mortar grouting compound; Embecco by Master Builders, Ferrolith G by Sonneborn, or ICO-Grout by International Coatings, Inc.

Flashing Compound: Fibrated cold plastic tar-pitch.

If existing appurtenances such as water level sensors, alarms, floats, etc. are to be replaced with new, specify them under this article.

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that [**surfaces**] [**substrate conditions**] are ready to receive Work as indicated by product manufacturer.
          2. Examine surfaces scheduled to be finished prior to commencement of Work, and report conditions capable of affecting proper application.
       2. PREPARATION – GENERAL
          1. Protection:

Cover miscellaneous tank openings, except as required for ventilation, to avoid accumulation of cleaning residue and paint material in overflows, inlet and outlet piping [**, and**] <**\_\_\_\_\_\_\_\_**>.

Exterior Tank:

Cover tank vents without sealing tight to prevent contamination of tank interior.

Maintain ventilation of tank interior.

Protect equipment from abrasion and paint damage.

Cleaning and painting tank exterior after tank is filled is not permitted.

* + - * 1. Tank Interior Work:

Ventilate tank interior to remove dust, fumes, and volatile gases as required by authorities having jurisdiction.

Provide minimum lighting level of [**80**] <**\_\_\_\_**> fc measured at substrate surface.

Keep manholes and other vent openings open during cleaning, surface preparation, painting and curing operations.

Provide Director’s Representative and laboratory personnel required to enter tank during cleaning or painting operations with safety equipment required by authorities having jurisdiction.

* + - * 1. Protect surfaces from rapid curing caused by wind or sun exposure.
        2. Prevent rapid changes in temperature during curing and thermal shock cracks in finish material.
        3. Prepare tank interior metal surfaces according to SSPC-SP 10 Near White Metal Blast Cleaning.
        4. Prepare tank exterior metal surfaces according to SSPC-SP 6 Commercial Blast Cleaning
        5. Prepare blasted surfaces according to SSPC-Vis1-89 Visual Standard for Abrasive Blast Cleaned Steel.
        6. Remove residue from surface preparation before paint application is begun.
        7. The tank must be empty before Work is started on any interior surface. Notify the Facility authorities, through the Director’s Representative, 2 days before the time any work will be started on the interior of the tank. Facility personnel will draw the water from the tank to the level of the supply pipe.
        8. Remove the remaining water and any silt from the tank by pumping through the access manhole. Dispose of this material as directed.

Edit paragraph below if such equipment is to be replaced with new under this contract.

* + - * 1. Disconnect, remove, and temporarily store water level sensing equipment, alarm devices and corrosion protection devices prior to commencing surface preparations.
        2. Tighten bolts and rods on the tank and leave cotter pins well spread.
        3. Grouting and Sealing:

Thoroughly rake out loose and deteriorated grout around and under column base plates and tank and riser bottoms.

Regrout under column base plates with shrinkage-resistant grout. Dampen existing masonry adjacent to grouted areas with water. Thoroughly compact grout into the spaces so they are completely full.

Grout and seal spaces along the periphery of the tank and riser bottom as follows:

Force cement grout under the bottom so as to completely fill the space to within approximately one inch inside the outer edge of the bottom.

Fill the space in the outer one-inch periphery with flashing compound.

Seal the entire outer edge of the bottom, to the foundation, with flashing compound.

If the exterior of the tank is in good condition with minor rust spots needing touch-up and recoating, and tests verify the presence of lead base paint, include paragraph below.

* + - * 1. Exterior Rust Spots: SSPC-SP6 or SSPC-SP11.

The existing paint film has been tested and confirmed as being lead base paint.

Use power tools or spot blasting equipment equipped with vacuum attachments and HEPA filters; residues generated shall be contained by the special filter attachments.

Dispose of spent residues and waste generated as per State and Federal guidelines with full documentation.

* + - * 1. In blast cleaning operations, use particle size of abrasive that will produce a 1-1/2 - 2 mil surface profile or as recommended of the manufacturer of the coating or paint system to be applied.

Abrasive shall be new, washed, graded and free of contaminants that would interfere with adhesion of the coating or paint. Do not reuse unless specifically approved by the Director’s Representative.

* + - * 1. Prevent blasting materials, grit, scale, accumulated silt, and other foreign substances from entering the supply pipe and other openings in the tank. Remove these materials from State property.
        2. Prevent blasting materials from accumulating to the extent of constituting a nuisance or a hazard to the prosecution of the Work

Include paragraph below for the painting of new tanks.

* + - * 1. Remove slag, welded metal accumulation and spatters (not removed by the erector) by chipping or grinding. Peen, grind or otherwise blunt sharp edges to the satisfaction of the Director’s Representative.
        2. Neutralize welds with a suitable chemical compatible with the specified coating materials as recommended by the coating manufacturer.
        3. Seal interior seams and interior rivet areas. Follow sealer manufacturer’s printed instructions and recommendations.
      1. APPLICATION
         1. Mix and apply coatings is strict accordance with the manufacturer printed instructions for each type and SSPC-PA 1.
         2. Paint prepared surfaces by brush with one coat of primer during same day surface is prepared.
         3. Thinning:

Do not thin paint except if approved by Director’s Representative.

Thin paint according to manufacturer’s written instructions.

* + - * 1. Coats:

Apply paint at manufacturer's recommended application rate.

Build up paint film for each coat to specified thickness.

Apply additional coats as necessary to achieve specified thickness.

Ensure that each coat of paint is cured according to manufacturer instructions before application of succeeding coat.

Allow minimum 24 hours between coats.

* + - * 1. Modify tint or color between coats to aid in obtaining complete coverage.
        2. Apply each coat evenly, free of brush marks, sags, runs and with no evidence of poor workmanship. Finished surfaces shall be free of defects or blemishes.
        3. Apply a preliminary stripe coat of primer to all welded seams, welded joints, rivets, corners, bolts, crevices., etc. by roller or brush only. Dry Film Thickness (DFT) shall be:

Interior Coating with SSPC-10 surface preparation: 2.0 – 3.0 mils

Exterior coating with SSPC–6 surface preparation or better: 1.5 – 2.5 mils

* + - * 1. Minimum dry film thicknesses (DFT) of coating systems, exclusive of stripe coating:

Type C-1 System: Two coats at a minimum thickness of 8.0-12.0 mils DFT per coat.

Type C-2 System: Prime Coat 4.0 -12.0 mils DFT; Finish Coat 4.0- 12.0 mils DFT.

Type C-3 System: Prime Coat 3.0-5.0 DFT; Intermediate Coat 4.0-6.0 mils DFT, Finish Coat 4.0-6.0 mils DFT.

Type C-4 System: Prime Coat 2.5-3.5 mils DFT; Intermediate and Finish Coats 4.0-6.0 mils DFT per coat.

Type C-5 Systems: Prime Coat 2.5-3.5 mils DFT; Intermediate Coat 3.0-6.0 mils DFT; Finish Coat 1.5-3.4 mils DFT.

Type C-6 System: Prime Coat - 4 mils DFT; Intermediate and Finish Coats - 3 mils DFT per coat.

Type C-7 System: Spot Prime Coat 2.0-3.0 mils DFT; Intermediate Coat 2.0-3.0 mils DFT; Finish Coat 2.0-3.0 mils DFT.

* + - 1. FIELD QUALITY CONTROL
         1. Section 017716 - Contract Closeout: Requirements for contract closeout inspections.
         2. Notify Director’s Representative minimum [three] <\_\_\_\_\_\_\_\_> days in advance, to permit observation of cleaned surfaces prior to application of each coat of paint prior to subsequent paint applications.
         3. Perform wet film thickness test.
         4. Following curing of the interior tank coating, test the tank for water tightness.

Fill the tank in the presence of the Director’s Representative and allow it to remain full for 24 hours. If no leak appears during this period, the tank will be considered watertight.

If leakage appears, drain the tank, repair the leaking area, recoat the repaired area, and repeat the test.

* + - * 1. Disinfect the tank in accordance with Section 330110.58 – Disinfection of Water Utility Piping System.
      1. CLEANING
         1. Section 017716 - Contract Closeout: Requirements for cleaning.
         2. Collect waste material capable of constituting fire hazard, place in closed metal containers, and remove daily from site.
         3. Remove staging, scaffolding, ladders, containers, or other facilities upon completion of Work. Remove debris as a result of the Work from the Site in a manner approved by the Director’s Representative.
         4. Remove temporary heating and ventilating facilities.
         5. Remove coating spots, oil and stains from adjacent surfaces.
         6. Clean, repair or refinish damage to surfaces resulting from the Work of this Section to the satisfaction of the Director’s Representative.
         7. Following completion of the coating Work, reinstall water level sensing equipment, alarm devices and corrosion protection devices that were temporarily removed. Replace items damaged or broken during removal with new units that match the existing. Verify proper operation with Facility’s authorities through the Director’s Representative.

ATTACHMENTS

When relying on separate schedules, tables, illustrations, or forms to specify product requirements, include list of each attachment. Include identical list of attachments in Project Manual table of contents

Consider including schedule if necessary to specify paint systems and film thicknesses for various substrates. Include color schedule as required.

Insert attachments following END OF SECTION.

END OF SECTION 099713.24