

BID 12-103 SOUTH HUTCHINSON,KS - WATER TANK COATING SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Work under this section consists of surface preparation, priming and painting necessary to complete work.
 2. Use coating systems specified in this section to finish all water tank components, unless otherwise indicated. Without restricting volume or generality, work to be performed under this section may include, but is not limited to:
 - a. Exterior steel
 - b. Interior steel

1.02 REFERENCES

- A. Publications listed herein are part of this specification to extent referenced.
- B. American Society for Testing and Materials:
1. ASTM D16 Terminology Relating to Paint, Varnish, Lacquer, and Related Products
 2. ASTM D3359 Test Method for Measuring Adhesion by Tape Test
 3. ASTM D4541 Test Method for Pull Off Strength of Coatings Using Portable Adhesion-Testers
 4. ASTM D1005 Test for determining dry film thickness
 5. ASTM D4417 Test for determining surface profile
- D. The Society for Protective Coatings:
1. SSPC-SP1 Specification for Solvent Cleaning
 2. SSPC-SP2 Specification for Hand Tool Cleaning
 3. SSPC-SP3 Specification for Power Tool Cleaning
 4. SSPC-SP6 Specification for Commercial Blast Cleaning
 5. SSPC-SP10 Specification for Near White Metal Blast Cleaning
 6. SSPC-PA1 Painting Application Specification
 7. SSPC-PA2 Measurement of Dry Paint Thickness with Magnetic Gages

1.03 DEFINITIONS

- A. Terms Paint shall in a general sense have reference to, zinc primers, latex, polyurethane and epoxy type coatings and application of these materials.
- B. Dry Film Thickness (DFT): Thickness, measured in mils (1/1000 inch), of a coat of paint in cured state.

1.04 SUBMITTALS

- A. Product Data:
 - 1. Submit manufacturer's literature describing products to be provided, giving manufacturer's name, product name, and product line number for each material.
 - 2. Submit technical data sheets for each coating, giving descriptive data, curing times, mixing, thinning, and application requirements.
 - 3. Submit color charts showing manufacturer's full range of standard colors.

- B. Quality Assurance Submittals:
 - 1. Certificates:
 - a. Provide manufacturer's certification that products to be used comply with specified requirements and are suitable for intended application.
 - b. Submit listing of not less than 5 of applicator's most recent applications representing similar scope and complexity to Project requirements. List shall include information as follows:
 - i) Project name and address
 - ii) Name of owner
 - iii) Name of contractor
 - iv) Name of engineer
 - v. Date of completion
 - vi.
 - 2. Manufacturer's Instructions:
 - a. Submit manufacturer's installation procedures, if not on product data sheets, which shall be basis for accepting or rejecting actual installation procedures.

1.05 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Provide products from a company specializing in manufacture of coatings with a minimum of 10 years experience.
 - 2. Applicator shall be trained in application techniques and procedures of coating materials and shall demonstrate a minimum of 2 years successful experience in such application.
 - a. Maintain, throughout duration of application, a crew of painters who are fully qualified.
 - 3. Single Source Responsibility:
 - a. Materials shall be products of a single manufacturer.
 - b. Provide secondary materials, which are produced or are specifically recommended by coating system manufacturer to ensure compatibility of system.

- B. Pre-Installation Meeting:
 - 1. Schedule a meeting to be held on-site before field application of coating systems begins.
 - 2. Meeting shall be attended by Contractor, Owner's representative, Coating Applicators, and Manufacturer's representative.

3. Topics to be discussed at meeting shall include:
 - a. A review of Contract Documents shall be made and deviations or differences shall be resolved.
 - b. Review items such as environmental conditions, surface conditions, surface preparation, application procedures, and protection following application.
 - c. Establish which areas on-site will be available for use as storage areas and working area.
4. Prepare and submit, to parties in attendance, a written report of pre-installation meeting. Report shall be submitted within 3 days following meeting.

1.06 DELIVERY AND STORAGE

- A. Packing and Shipping:
 1. Deliver products in manufacturer's original unopened containers. Each container shall have manufacturer's label, intact and legible.
 2. Include on label for each container:
 - a. Manufacturer's name
 - b. Type of paint
 - c. Manufacturer's stock number
 - d. Color name and number
 - e. Instructions for thinning, where applicable
- B. Storage and Protection:
 1. Store materials in a designated protected area, per manufacturer's printed data sheet instructions.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. Apply coating materials per manufacturer's printed data sheet instructions:
 - a. Refer to specific product data sheets for minimum surface temperature requirements. Surface temperatures shall be at least 5 degrees F (15 degrees C) above dew point and in a rising mode.
 - b. Provide for proper ventilation using explosion proof equipment. Allow to run 72 hours after interior coating application.
 - c. Adequate illumination shall be provided using explosion proof lights and equipment.
 - d. Atmosphere shall be free of airborne dust.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. This specification lists specific products manufactured by Tnemec Company, Inc.

of Kansas City, Missouri.

2.02 COATING MATERIALS

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COATING SYSTEMS:

STEEL WATER STORAGE TANK

750k Hydropillar:

Exterior – Epoxy/Urethane/Fluoropolymer Coating System:

Surface Preparation: High pressure water blast entire area with a minimum of 3500 psi at the tip at a rate of 3-5 gallons per minute, utilizing an orbital tip and TSP solution to remove all chalk, mildew, loose paint, and exterior contaminants. Follow with a high-pressure water rinse with a minimum of 3500 psi at the tip at a rate of 3-5 gallons per minute. The intent of this surface preparation is to remove all surface contaminants on the entire tank and all loose finish paint.

All rusted, abraded and exposed steel shall be Power Tool Cleaned in accordance with SSPC-SP3. All loose paint shall be removed with the same power tools, but remaining, intact primers can be left in place. Feather all edges.

Spot Prime: Apply one coat of Tnemec Series 27 Typoxy to all bare steel surfaces. This coating shall be applied at a dry film thickness of 3.0 to 6.0 mils.

Prime: Apply one complete coat of Tnemec Series 73 EnduraShield at dry film thickness of 3.0 to 6.0 mils. Color to be determined by Tnemec color lab based on the finish coat color.

Finish Coat: Apply one complete coat of Tnemec Series 700 HydroFlon at dry film thickness of 2.0 to 3.0 mils. Color shall be selected by the Owner. Certain finish coat colors may require two-coats depending upon the method of application and color of the intermediate coat.

Logo/Lettering: Apply one coat of Tnemec Series 700 HydroFlon to the logo lettering at a dry film thickness of 2.0 to 3.0 mils. Color shall be selected by the Owner. Certain finish coat colors may require two-coats depending upon the method of application and color of the intermediate coat.

Interior Wet – Zinc/Epoxy Coating System:

Surface Preparation: Remove all visible oil, grease, soil, dirt and other soluble contaminants in accordance with SSPC-SP1. The surface shall be abrasive blast cleaned to a Near White Finish in accordance with the recommended methods outlined in The

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Society for Protective Coatings Specification SSPC-SP10 (NACE No. 2). A surface profile of 1.5 to 2.5 mils is required.

Prime Coat: Immediately after abrasive blasting and before any rusting occurs, apply one coat of Tnemec Series 91-H₂O Hydro-Zinc primer at a dry film thickness of 2.5 to 3.5 mils.

Intermediate Coat: Apply one complete coat of Tnemec Series N140-1255 Beige Pota-Pox Plus at a dry film thickness of 4.0 to 6.0 mils.

Finish Coat: Apply one complete coat of Tnemec Series N140-15BL Tank White Pota-Pox Plus at a dry film thickness of 4.0 to 6.0 mils.

**Tnemec Series N140F Pota-Pox Plus (Fast Cure) may be substituted for Series N140 Pota Pox Plus when surface temperatures are below 50 degrees F.*

Interior Dry – Touch Up System:

All rusted, abraded and exposed steel shall be Power Tool Cleaned in accordance with SSPC-SP3. All loose paint shall be removed with the same power tools, but remaining, intact primers can be left in place. Feather all edges. All surfaces shall be clean and dry.

Spot Prime: Apply one coat of Tnemec Series 27 Typoxy to all bare steel surfaces. This coating shall be applied at a dry film thickness of 3.0 to 6.0 mils.

STEEL WATER STORAGE TANK

125k Legged Tank:

Exterior – Alkyd/Aluminum Coating System:

Surface Preparation: High pressure water blast entire area with a minimum of 3500 psi at the tip at a rate of 3-5 gallons per minute, utilizing an orbital tip and TSP solution to remove all chalk, mildew, loose paint, and exterior contaminants. Follow with a high-pressure water rinse with a minimum of 3500 psi at the tip at a rate of 3-5 gallons per minute. The intent of this surface preparation is to remove all surface contaminants on the entire tank and all loose finish paint.

All rusted, abraded and exposed steel shall be Power Tool Cleaned in accordance with SSPC-SP3. All loose paint shall be removed with the same power tools, but remaining, intact primers can be left in place. Feather all edges.

Spot prime: All exposed metal to be spot primed with first quality rust-inhibitive

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industrial metal primer.

Finish: One full coat first quality Industrial Aluminum

Logo and/or lettering: If present, to be replaced as is using a compatible coating in color of Owner's choice. Application to assure proper coverage and hide.

Interior Wet – Zinc/Epoxy Coating System:

Surface Preparation: Remove all visible oil, grease, soil, dirt and other soluble contaminants in accordance with SSPC-SP1. The surface shall be abrasive blast cleaned to a Near White Finish in accordance with the recommended methods outlined in The Society for Protective Coatings Specification SSPC-SP10 (NACE No. 2). A surface profile of 1.5 to 2.5 mils is required.

Prime Coat: Immediately after abrasive blasting and before any rusting occurs, apply one coat of Tnemec Series 91-H20 Hydro-Zinc primer at a dry film thickness of 2.5 to 3.5 mils.

Intermediate Coat: Apply one complete coat of Tnemec Series N140-1255 Beige Pota-Pox Plus at a dry film thickness of 4.0 to 6.0 mils.

Finish Coat: Apply one complete coat of Tnemec Series N140-15BL Tank White Pota-Pox Plus at a dry film thickness of 4.0 to 6.0 mils.

**Tnemec Series N140F Pota-Pox Plus (Fast Cure) may be substituted for Series N140 Pota Pox Plus when surface temperatures are below 50 degrees F.*

2.03 ACCESSORIES

- A. Coating Application Accessories:
1. Provide application accessories as indicated in coating manufacturer's application instructions, including but not limited to cleaning agents, etching agents, cleaning cloths, sanding materials, and clean-up materials.
 2. Material not specifically identified, but needed for proper application shall be of a quality not less than specified products.

2.04 MIXING Instructions: Specific product mixing and thinning instructions are to be found in the manufacturer's printed data sheets.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions:
1. Examine areas and conditions under which application of coating systems

shall be performed for conditions that will adversely affect execution, permanence, or quality of coating system application.

2. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
3. Correct conditions detrimental to timely and proper execution of Work.
4. Do not proceed until unsatisfactory conditions have been corrected.
5. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

3.02 PREPARATION

A. Protection:

1. Take precautionary measures to prevent fire hazards and spontaneous combustion. Remove empty containers from site at completion of each day's work.
2. Provide drop cloths, shields, and other protective equipment.
3. Protect elements surrounding work from damage or disfiguration.
4. As Work proceeds, promptly remove spilled, splashed, or splattered materials from surfaces. Leave storage area neat and clean at all times.

B. Surface Preparation:

1. General Requirements:
 - a. Prior to application of primer, surfaces shall be prepared to receive specified paintings system in compliance with manufacturer's recommendations and specifications of The Society of Protective Coatings as indicated in Schedule below.
 - b. Surfaces to be coated shall be clean, dry and free from dust and any foreign matter which might adversely affect adhesion or appearance.
2. Ferrous Metal Surfaces:
 - a. Feather edges to make touch-up areas inconspicuous. Field welds and touch-ups shall be prepared to conform to original surface preparation standards.
 - c. Surfaces shall be cleaned in compliance with specifications of The Society for Protective Coatings as indicated in Schedule of Coating Systems of this specification.

3.03 APPLICATION

A. General Requirements:

1. Apply coating systems in compliance with manufacturer's instructions and using application method best suited for obtaining full, uniform coverage and hide of surfaces to be coated.
 - a. Work shall be implemented in compliance with applicable sections of AWWA D102 and the latest revisions thereto.
2. Apply primer, intermediate, and finish coats to comply with wet and dry film thicknesses and spreading rates for each type of material as recommended by manufacturer and in accordance with SSPC-PA2.

3. Number of coats specified shall be minimum number acceptable. Apply additional coats as needed to provide a smooth, even application.
 - a. Closely adhere to re-coat times recommended by manufacturer. Allow each coat to dry thoroughly before applying next coat. Provide adequate ventilation for tank interior to carry off solvents during drying phase.
 4. Employ only application equipment that is clean, properly adjusted, and in good working order, and of type recommended by coating manufacturer.
 5. After surface preparation, spot primer on interior weld seams shall be brush applied.
- B. Thinning:** Thinning requirements for specified products are to be found in the paint manufacturer's printed data sheets and are to be strictly adhered to.
- C. Disinfection and Filling of Tank:**
1. Provide adequate ventilation for proper drying of paint on interior surfaces and which will remove solvent vapors.
 2. Following final application, tank shall not be disinfected or filled until coating system is fully cured.
 3. Refer to applicable product data sheet(s) for dry time/temperature requirements. Disinfection (if specified) shall be in compliance with AWWA C652, or as instructed by Owner.
- D. Interface with Other Work:**
1. Allow a minimum of seven days curing time after application of final coat to tank interior before flushing, disinfecting or filling with water.

3.04 REPAIR/RESTORATION

- A. At completion of Work, touch-up and restore finishes where damaged.
- B. Defects in Finished Surfaces:
 1. When stain, dirt, or undercoats show through final coat, correct defects and cover with additional coats until coating is of uniform finish, color, appearance and coverage.
- C. Touch-up of minor damage shall be acceptable where result is not visibly different from surrounding surfaces. Where result is visibly different, either in color, sheen, or texture, recoat entire surface.

3.05 FIELD QUALITY CONTROL

- A. Inspector's Services:
 1. Documents:
 - a. Review Contract Documents and applicable sections of referenced standards.
 2. Field Painting Inspection:
 - a. Verify cleaning operations to surfaces are to condition specified.
 - b. Verify conformance of paint to specification.

- c. Check for thickness of each coating, final thickness and holidays.
 - d. Check touch-up for final finish.
 - e. Contractor will have both wet and dry film gauges onsite for inspector's use.
3. Reports:
- a. Submit written progress reports describing inspections made and showing action taken to correct non-conforming work. Report uncorrected deviations from Contract Documents.
- B. Manufacturer's Service:
- 1. A representative of the paint manufacturer shall be available to provide on-site technical assistance, and guidance for application of the paint system as needed.

3.06 PROTECTION

- A. Protect painted areas against damage until paint system is fully cured

3.07 WASTE MANAGEMENT

- A. General Requirements:
- 1. Place materials defined as hazardous or toxic waste in designated containers.
 - 2. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
 - 3. Do not dispose of paints or solvents by pouring on ground. Place in designated containers for proper disposal.
- B. Containment/Disposal Requirements:
- 1. Surface Preparation Debris Containment:
 - a. When required by federal, state or local regulation, entire tank and structure shall be enclosed and surface preparation debris contained.
 - b. Refer to SSPC 61 Guide for Containing Debris Generated during Paint Removal Operations.
 - 2. Disposal of Surface Preparation Debris:
 - a. Refer to SSPC 71 Guide for the Disposal of Lead-Contaminated Surface Preparation Debris.
 - b. Surface preparation debris shall be disposed of in compliance with applicable federal, state and local regulations.
 - 3. Containment/Disposal Costs:
 - a. Painter shall be responsible for costs associated with containment and waste disposal that may result from execution of this Project.

3.08 ONE YEAR ANNIVERSARY INSPECTION

- A. Owner shall set a date for a one year inspection.

- B. Inspection will be attended by a owner's representative and painting contractor.
- C. Any deficiencies in the coatings system will be repaired at the contractor's expense.

END OF SECTION