SECTION 09900
PAINTING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work of this section includes furnishing coatings and coating systems for painting and finishing, preparation of surfaces to receive coatings, and application of coatings on interior and exterior surfaces.

B. Work Included - The work of this section includes but is not limited to painting the following surfaces:

1. Interior and exterior masonry surfaces
2. Concrete
3. Miscellaneous metalwork
4. Interior and exterior piping, valves and appurtenances
5. Mechanical equipment

C. Work Not Included - The following related items shall not be painted under this Section of the Contract:

1. Anodized aluminum, stainless steel or fiberglass.
2. Any surface or equipment that has received finish coat of paint at factory, if such finish is undamaged and matches the color schedule.
3. Manufacturer’s serial number or identification plates on equipment when such plates are pre-finished or polished type. (This does not include cast or embossed names on equipment castings.)
4. Machined or polished surfaces of equipment where such surfaces are susceptible to rolling or sliding friction.

1.02 DEFINITIONS

A. The term “paint” as used herein includes emulsions, enamels, epoxies, paints, stains, varnishes, sealers and other coatings, whether organic or inorganic, indicated as prime, intermediate or finish coats in this specification and other documents made a part thereof.

B. “Submerged” is defined as below the elevation of the top of the wall of a structure containing liquid. In all cases, the decision of the Engineer shall be final in determining classification of surfaces.

1.03 QUALITY ASSURANCE

A. Include on label of each container:

1. Manufacturer's name
2. Type of paint
3. Manufacturer's stock number
4. Color
5. Instructions for reducing, where applicable.

B. Applicable Industry Standards

1. Steel Structures Painting Council (SSPC) - Steel Structures Painting Manual, Volume 2, "Systems & Specifications", 1982 Edition

C. Field Quality Control

1. Request review by Engineer of first finished room, space, or item of each color scheme required for color, texture, and workmanship.
2. Use first acceptable room, space, or item as product standard for each color scheme.
3. For spray application, paint surface not smaller than 100 square feet as project standard.

1.04 SUBMITTALS

A. Submit color chart for the paint system to the Engineer for selection of colors.

B. Submit manufacturer's product data listing materials properties, application recommendations, and environmental conditions required for use.

1.05 PRODUCTS DELIVERY, STORAGE AND HANDLING

A. Deliver paint products in sealed containers with manufacturer's labels legible and intact.

B. Store products in ventilated dry areas, protected from contact with soil and from exposure to the elements. Keep products dry at all times. Restrict storage to paint materials and related equipment. Comply with heath and fire regulations.

1.06 JOB CONDITIONS

A. Environmental Requirements

Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems may be applied.

Do not apply paint in areas where dust is being generated.

B. Protection

Cover or otherwise protect finished work, surfaces not being painted concurrently or not to be painted.

C. Factory Painted Surfaces

1. The surface preparation and painting of materials and equipment will be to manufacturer's standard unless otherwise specified in applicable portions of these specifications.

2. Assure compatibility of coatings applied at the project site with coatings provided by manufacturers and suppliers.

PART 2 - PRODUCTS

2.01 REFERENCE STANDARDS

A. Paint and coatings provided under this Contract list Tnemec as the basis of design.. Products of Carboline, Sigma Coatings or other manufacturers of comparable quality and specified type will be acceptable if said paints are submitted for approval to the Engineer with satisfactory data on past performance in wastewater treatment plants, certification of composition & performance criteria, and detailed directions for application and use including recommended coverages.

B. Coatings shall be comparable to the products of:

1. Tnemec Company, Inc.

2. Sherwin-Williams Company

3. Carboline

4. or Equal

C. Apply coatings to surfaces as listed in the Schedule at the end of this Section.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work as included in paragraph 3.03, Surface Preparation.

B. Do not proceed with surface preparations or coating application until environmental conditions are suitable.

3.02 TEMPORARY CONSTRUCTION

A. Furnish, install, and remove upon completion of painting all scaffolding, ladders or other facilities required to complete painting work.

B. Temporary heating and ventilating facilities will be required in damp areas or confined spaces. These facilities and all other methods or equipment required to facilitate painting work or afford protection of workmen or work shall be furnished, installed and removed at the completion of work as part of this contract.

3.03 SURFACE PREPARATION

A. Remove or protect hardware, hardware accessories, plates, lighting fixtures and similar items placed prior to painting; reposition or remove protection upon completion of each space. Disconnect equipment adjacent to walls; where necessary, move to permit painting of wall surfaces and, following completion of painting, replace and reconnect.

B. Metal Surfaces

Metal to be painted that has not been shop primed shall have all rust, scale, dust, loose or foreign substances removed by wire brushing with power tools, chipping or sandblasting. Cleaned metal shall be field primed immediately after cleaning to prevent new rusting.

Clean galvanized metal surfaces shall be cleaned in accordance with SSPC-SP1 Solvent Cleaning to remove oily residue and ASTM D 6386-99 Brush-Off Blast Cleaning. Dry with a clean cloth.

Touch-up paint structural steel, miscellaneous metal, hollow metal doors and frames, and other materials which have been prime coated, as required, where shop coat has been damaged by welding or handling and erection; paint rivets, bolts and welds which are unpainted after assembly and erection.

Prepare steel substrates in accordance with the Steel Structures Painting Council surface preparation number indicated in the application schedule and as outlined below, unless otherwise required by the coating manufacturer’s most recent printed application instructions:

1. SSPC-SP1 Solvent Cleaning - Thoroughly wipe with aromatic/ketone solvent using clean rags and clean solvent.

2. SSPC-SP6 Commercial Blast Cleaned Steel (for non-immersion, exterior and interior exposure steel)

3. SSPC-SP13, ICRI, CSP 3-9 profile. Brush blast concrete surfaces using the appropriate blasting medium; sand or grit to obtain the proper surface profile.

4. SSPC-SP10 Near-White Metal Blast Cleaned Steel (Immersion and chemical exposures)

To minimize potential for flash rusting, steel surfaces shall be at least 50°F above the dew point before surface preparation and priming begin.

C. Masonry

Fill cracks and irregularities with Portland cement grout to provide uniform surface texture.

Etch with 5% solution (by weight) of muriatic acid. Flush, neutralize, rinse and allow to dry thoroughly.

Fill concrete masonry unit surfaces with block filler.

3.04 APPLICATION

A. General

Apply paint in strict accordance with manufacturer's instructions and in a manner satisfactory to the Engineer.

Apply each coating at rate specified by manufacturer. If material has thickened or must be diluted for application by spray gun, build up coating to the same film thickness achieved with undiluted material. Correct deficiencies in film thickness by application of additional coats of paint.

Drying time shall be construed to mean "under normal conditions". Where conditions are other than normal because of weather or because painting must be done in confined spaces, longer drying times will be required. Do not apply additional coats of paint or place unit in service until paint is thoroughly dry.

Where thinning is necessary, only the products of manufacturer furnishing the paint, and for particular purpose, will be allowed. Thin paint in strict accordance with manufacturer's instructions and only with the full knowledge and approval of the Engineer.

Do not apply final coats until after other trades, whose operations would be detrimental to finish painting, have finished work in the areas to be painted and the areas have been approved by the Engineer for painting.

Slightly vary the color of successive coats. Sand and dust between each coat to remove defects visible from a distance of 5 feet.

Finish coats shall be smooth, free of brush marks, streaks, drips, laps or pile up of paints, and skipped or missed areas.

Finished metal surface shall be free of skips, voids or pinholes in any coat when tested with a low voltage detector.

Mask edges of paint adjoining other materials or color to obtain sharp, clean division without overlapping.

B. Finishing

Do not apply additional coats until completed coat has been examined by the Engineer.

Change colors at corner of stop where colors differ between adjoining spaces or rooms and where door frames match wall color.

Refinish whole wall where portion of finish has been damaged or is not acceptable.

Adjust stained and natural finishes as necessary to obtain uniform appearance.

3.05 CLEANING

A. Touch-up and restore finish where damaged. Remove spilled, splashed, or splattered paint from all surfaces.

B. Leave storage space clean and in condition required for equivalent spaces in project.

3.06 SCHEDULE

A. The finish schedule and color schedule shall be as indicated on the drawings or as directed by the Engineer. Paint any work not specifically named, but required by the intent of the drawings and specifications to be painted, in accordance with similar items.

B. Omit the first coats specified hereinafter, except for touch-up, if surfaces have been primed at the mill, factory or shop. For touch-up, use primer of the same composition as the mill, factory or shop primer.

C. Apply paints to surfaces in accordance with the Schedule.

D. Masonry

E. Paint only those masonry surfaces designated on the drawings for painting.

F. Concrete

G. Coat all concrete surfaces inside the buildings not otherwise designated for painting with a concrete sealer.

H. Piping

Paint piping as indicated on the Schedule for ferrous metals.

Color selections for piping systems will be made by the Owner. Paint all valves, handwheels and operating handles of all valves, associated meters, pumps and equipment, etc. the same color as the piping system.

For ductile or cast iron piping with a bituminous primer, apply the appropriate number of coats of the manufacturer's recommended sealer to prevent bleed through.

I. Equipment and Control Panels

Paint factory finished equipment and control panels where necessary to match colors.

Paint process equipment the same color as their respective piping systems.

J. Physical Hazards

Comply with OSHA Standard 1910.144 for identification and color code marking of all physical standards.

(SEE ATTACHED PAINT/COATING SCHEDULE)

PAINTING/COATING SCHEDULE
NEW OR PREVIOUSLY UNPAINTED SURFACES

					TNEMEC	
SYSTEM NUMBER	**SURFACE**	**PREPARATION**	**GENERIC**	**COATS**	**NAME**	**DFT**
3	Interior Masonry	Clean & Dry	Water Base Epoxy	Prime	130-6602 Masonry Filler	(60-80 Sq. Ft. (Gal.)
				Intermediate	Series 66HS	2.0-3.0 mils
				Finish	Series 66HS	2.0-3.0 mils
4	Exterior Masonry	Clean & Dry	Modified Epoxy	Prime	Series 180/181	(60-80 Sq. Ft. (Gal.)
				Finish	Series 180/181	8.0-10.0
6	Interior Non-Submerged Ferrous Metal	SSPC-SP-6	Acrylic Urethane	Shop Prime*	Series 1	2.5-3.0 mils
				Field Touchup	Series 1	2.5-3.05 mils
				Intermediate	Series 27	2.0-3.0 mils
				Finish	Series 73	2.0-3.0 mils
7	Exterior Non-Submerged Ferrous Metal	SSPC-SP-10	Epoxy Acrylic Urethane	Shop Prime	Series 1	2.5-3.5 mils

PAINTING/COATING SCHEDULE
NEW OR PREVIOUSLY UNPAINTED SURFACES

					TNEMEC	
SYSTEM NUMBER	**SURFACE**	**PREPARATION**	**GENERIC**	**COATS**	**NAME**	**DFT**
				Field Touchup	Series 1	2.5-3.5 mils
				Intermediate	Series 27	2.0-3.0 mils
				Finish	Series 73	2.0-3.0 mils
8	Submerged Ferrous Metal	SSPC-SP-10	Epoxy-Amine Cure	Prime	Series 104	8.0-10.0 mils
				Finish	Series 104	8.0-10.0 mils
9	Factory Paint Equipment & Machinery	Dull Clean & Dry	Barrier Coat Epoxy Polyamine	Prime	Series 27	2.0-3.0 mils
				Intermediate	Series 27	2.0-3.0 mils
				Finish	Series 73	2.0-3.0 mils
11	Non-Submerged Concrete	Brush Blast	Conformal Stain	Prime	Series 617	150-175 ft^2/gal
				Finish	Series 617	150-175 ft^2/gal
12	Interior & Exterior Galvanized	SSPC-SP-1	Epoxy Polyamide	Prime	Series 27	2.0-3.0 mils
				Finish	Series 73	2.0-3.0 mils
13	Interior & Exterior Mill Finish Aluminum	Clean & Dry/SSPC-SP-1. & Uniform scarification	Epoxy Polyamide	Prime	Series 27	2.0-3.0 mils

PAINTING/COATING SCHEDULE
NEW OR PREVIOUSLY UNPAINTED SURFACES

					TNEMEC	
SYSTEM NUMBER	**SURFACE**	**PREPARATION**	**GENERIC**	**COATS**	**NAME**	**DFT**
				Finish	Series 73	2.0-3.0 mils
15	Interior Concrete Floor	Bush-Off Blast Clean & Dry	Epoxy Polyamide (Non-Skid)	Prime	Series 201	6.0-8.8 mils
				Finish	Series 281	6.0-8.0 mils
17	Interior & Exterior Copper	Clean & Dry	Epoxy	Prime	Series 27	2.0-3.0 mils
				Finish	Series 73	2.0-3.0 mils
18	Secondary Containment concrete floor and walls up to height of secondary containment division walls	ICRI CSP 3 via grind or abrasive blast	Epoxy	Base Coat	Series 239	8.0-12.0 mils
				Intermediate Coat	Series 239	8.0-12.0 mils
				Top Coat	Series 239	6.0-8.0 mils

Note: Limits of painting of a headspace shall include the interior top slab and terminate 2-feet below the operating WSL.

END OF SECTION 09900