SUPPLEMENTAL SPECIFICATION

WSF 001
Rev 03/2025

MARINE COATING AND COLOR SCHEME SPECIFICATION

VESSEL COATING SYSTEMS

REQUIREMENTS FOR PRESERVATION OF VESSEL STRUCTURES

1. SCOPE

1.1 Intent. This Standard Specification describes requirements applicable to the preservation of Washington State Ferries Vessel structures.

1.2 Appendices.

PROCESS STANDARD	APPENDIX
Vessel Exterior Painting Systems	A
Vessel Interior Painting Systems	B
WSF Authorized Coatings Systems	C
WSF Quality Control Forms (QA-1 thru QA-6)	D
WSF Approved Color Scheme	E

1.3 Acronyms and Term Definitions:

- **"As directed", "as required", "as permitted", "approved", "acceptance"**: Expressions referring to the direction, requirements, permission, approval, or acceptance by the WSF Project Engineer or a properly designated WSF Vessel Inspector.
- **"As shown", "as indicated", "as detailed**": Expressions used to refer to particularly specified reference documents/drawings/sketches.
- **"CAUTION!":** Highlights an essential operating or maintenance procedure, practice, condition, statement, etc, which if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.
- **"Certify"**: Produce a printed certificate.
- **"COC"**: Certificate of compliance.
- **"Debris"**: Includes combustible and noncombustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves, and tree trimmings.
- **"DFT"**: Dry film thickness.
- **"EPA"**: Environmental Protection Agency.
- **"Fastener":** Includes all components for securing. For example, for bolting, the term fastener shall include bolts, nuts, threaded studs, and washers.
- **"FT":** Foot/Linear foot, or feet/linear feet.
- **"Inspect"**: Examine an object/component or a space for defects, abnormalities, or deviations from a prescribed standard.
- **"MDFT":** Minimum dry film thickness.
- **"NOTE**": Highlights an essential operating or maintenance procedure, practice,

condition or statement.

- **"New and Disturbed"**: Any new material installed during the repair activity shall be painted unless otherwise waived by the Technical Spec, WSF 001, or the WSF representative. All coatings disturbed or damaged while executing repairs shall also be restored to an intact coating system to match the surrounding area.
- **"Open"**: To gain access or enter.
- **"Preserve/Preservation"**: When used in context of painting, refers to surface preparation and paint/coating application.
- **"QA":** Quality Assurance
- **"QC":** Quality Control
- **"Repair"**: To correct an identified discrepancy to a given standard of performance.
- **"Residual fluids/Residues"**: Liquid, dirt, and other substance remaining after drainage or removal, such as in a tank after loss of suction by installed equipment.
- **"Restore"**: To bring back to the former, original, or normal condition before alteration or removal.
- **"U/W":** Underwater
- **"Vessel":** Vessel is defined as a Washington State Ferry.
- **"WARNING!"**: Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to, or death of, personnel or long term health hazards.
- **"WFT":** Wet film thickness.
- **"WSF":** Washington State Ferries

2. REFERENCES

WSF Drawings

None.

OTHER REFERENCES

- The Society for Protective Coatings (SSPC) Paint Application Specification No. 1 (SSPC-PA 1), 2016, Shop, Field, and Maintenance Painting of Steel
- The Society for Protective Coatings (SSPC) Paint Application Specification No. 2 (SSPC-PA 2), 2022, Procedure for Determining Conformance to Dry Coating Thickness Requirements
- The Society for Protective Coatings (SSPC) Surface Preparation Specification No. 1 (SSPC-SP 1), 2016, Solvent Cleaning
- The Society for Protective Coatings (SSPC) Surface Preparation Specification No. 2 (SSPC-SP 2), 2018, Hand Tool Cleaning

- The Society for Protective Coatings (SSPC) Surface Preparation Specification No. 3 (SSPC-SP 3), 2018, Power Tool Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 5/NACE No. 1, 2006, White Metal Blast Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 6/NACE No. 3, 2006, Commercial Blast Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 7/NACE No. 4, 2006, Brush-Off Blast Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE), Joint Surface Preparation Standard SSPC-SP 10/NACE No. 2, 2006, Near-White Blast Cleaning
- The Society for Protective Coatings (SSPC) Surface Preparation Specification No. 11 (SSPC-SP 11), 2020, Power Tool Cleaning to Bare Metal
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 14/NACE No. 8, 2006, Industrial Blast Cleaning
- The Society for Protective Coatings (SSPC) Surface Preparation Specification No.15 (SSPC-SP 15), 2013, Commercial Grade Power Tool Cleaning
- The Society for Protective Coatings (SSPC) Surface Preparation Specification No. 16 (SSPC-SP 16), 2020, Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-1/NACE WJ-1, 2021, Waterjet Cleaning of Metals – Clean to Bare Substrate
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-2/NACE WJ-2, 2021, Waterjet Cleaning of Metals – Very Thorough Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-3/NACE WJ-3, 2021, Waterjet Cleaning of Metals – Thorough Cleaning
- The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-4/NACE WJ-4, 2021, Waterjet Cleaning of Metals – Light Cleaning
- The Society for Protective Coatings (SSPC) VIS 1, 2012, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
- The Society for Protective Coatings (SSPC) VIS 3, 2001, Guide and Reference Photographs for Steel Surfaces Prepared by Power and Hand Tool Cleaning
- The Society for Protective Coatings (SSPC))/NACE International (NACE) Joint

Standard VIS 4 NACE VIS 7, 2005, Guide and Reference Photographs for Steel Surfaces Prepared by Water Jetting

- The Society for Protective Coatings (SSPC))/NACE International (NACE) Joint Standard VIS 5 /NACE VIS 9, 2006, Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning (SSPC-SP 6/NACE No. 3) and Near-White Blast Cleaning (SSPC- SP 10/NACE No. 2).
- The Society for Protective Coatings (SSPC) QP 1, 2019, Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Industrial Structures)

3. REQUIREMENTS

3.1 Preservation requirements - general. The Contractor shall abide by the requirements, of the Technical Specification and this document for all work involving surface preparation and coating application. Where the two differ, the Technical Specification shall take precedence.

3.1.1 Authorized coating systems. When guidance for surface preparation and coating application tasks is not provided in a Work Item, standard specification, or any other forms of contract document, the Contractor shall select **"Option I"** surface preparation methods and coating systems for exterior and interior shipboard surfaces in accordance with Appendix A (Vessel Exterior Painting Systems) and Appendix B (Vessel Interior Painting Systems), respectively.

3.1.1.1 Brand name and color compliance. Ensure that all contractor-furnished coatings and selected colors are in conformance with Appendix C & E (WSF Authorized Coatings) or otherwise expressly specified in a Work Item. **Only one manufacturer's products shall be used for each system, different manufacturers' products shall not be mixed in a coating system.**

3.1.1.2 Material receipt conformance. Ensure that all procured coating-related materials are delivered to the job site in original and unopened containers, with the following information/documentation:

- Product manufacturer's name.
- Product's name or number.
- Batch number.
- Date of manufacture.
- Shelf life.
- Product data sheets (PDS).
- Safety Data Sheet (SDS)
- Certificate of Compliance (COC).

3.1.1.3 Tests and inspections. All required tests and inspections shall be

completed by and documented using the forms contained in Appendix D by the Contractor's assigned Coatings Representative (AMPP CIP Level 1 or 2, or equivalent) and presented to the WSF Inspector prior to proceeding to the next process or paint application. The paint manufacturer's technical representative shall be present for all coatings inspections except on New & Disturbed areas.

3.1.1.4 Material storage, handling, mixing, and application. Observe all coating manufacturers' recommended procedures, as well as the good painting practice recommendations outlined in SSPC-PA 1, for all aspects involving storage, handling, mixing, and application of paint materials.

3.1.2 Personnel health and safety compliance. Follow all personnel safety protective measures applicable to surface preparation and application of marine coatings, as specified in the coating manufacturer's product data sheets, SDS, and applicable laws and regulations.

3.1.3 Substrate contamination prevention. Take extreme care to prevent contamination of prepared surfaces by materials, personnel, and equipment. The Contractor shall provide any required material and equipment (such as disposable boot covers, disposable coveralls, and disposable gloves) to WSF personnel conducting coating preservation inspections to safeguard the substrate from contamination.

3.1.4 Ambient condition parameters. Ensure that the following ambient condition parameters are strictly adhered to, as applicable, unless otherwise allowed by particular coating system manufacturers:

- Coating materials must be maintained at a temperature range of 65 to 85°F, at all times.
- Work surface and surrounding temperature must be between 50 and 90°F for water-thinned coatings, and 35 and 95°F for other coatings.
- Coatings must not be applied when the temperature is expected to drop below freezing or below the minimum cure temperature of the applied coating before the coatings cure.
- Relative humidity must be less than or equal to 50 percent for confined spaces such as forepeak compartments, tanks, and voids; and not more than 85 percent for all other open areas.
- Coatings shall be applied only when surfaces are completely dry, and surface temperature is at least 5°F above the dew point.
- All ambient conditions shall be recorded at a minimum of 3 times per 8 hour shift.
- All deviations from specification or Data sheets must have letter of approval from manufacturer's representative on the job site.

3.1.5 Tenting and ambient condition control. When the ambient condition parameters necessary for full paint cure or to meet environmental conditions, as required in paragraph 3.1.4 (Ambient condition parameters), cannot be met, provide the following but not limited to, at no additional cost to the WSF:

- Suitable tenting or shroud containment, as applicable, for exterior surface preservation. It is the Contractor's responsibility to maintain the containment throughout any expected or unexpected weather events. Contractor shall also minimize staging footprints in way of non-skid evolutions. Once staging is removed, non-skid installation in way of footprints shall be minimum one square foot.
- Suitable ambient condition control equipment, which may include, but not be limited to the below listed, to create and maintain ambient conditions recommended by the coating system's manufacturer, and to facilitate successful coating application and curing.
  - AC system
  - Heaters
  - Blowers
  - Dehumidifiers

3.1.6 Pre-surface preparation requirements. Prior to beginning all surface preparation procedures, accomplish the following tasks:

3.1.6.1 Carefully mask and protect machinery, ventilation ducts, tank vents, void vents, name plates, identification labels, valve stems, fire hoses, bright work, glass, trim, wiring, light fixtures and other such items and materials which could be damaged by abrasive blasting, dust associated with the process, or other surface preparation techniques, or which could have their function and appearance degraded by blasting or paint over-spray. If removal is required, Note and Map the location of all items removed. Upon completion of painting, all items removed shall be re-installed in their original locations.

3.1.6.2 During all blasting and coating operations install temporary supply ventilation that will maintain a positive atmosphere of 110% over the designed CFM in the Engineer's Operating Station and all of the Engine Rooms and Machinery Spaces. Maintain clean MERV 6 air filters over all of the supply air during all blasting and coating operations. Maintain a positive atmosphere in the machinery spaces during all preparation and coating operations. Install manometers to measure and adjust the positive ventilation as required to maintain a positive atmosphere.

3.1.6.3 All plastic and brass signs in affected work areas shall be masked or removed to prevent damage prior to painting or grit blasting. If removal is required, Note and Map the location of signs. Upon completion of final paint coating, all signs removed shall be re-installed

in their original location, using new 316 Stainless Steel fasteners where applicable.

3.1.6.4 Fire station boxes, fire ax boxes, fire extinguisher boxes, fire hoses, life ring holders, low-clearance and height signs shall be removed in affected work areas before grit blasting. Upon completion of painting, all items removed shall be painted and re-installed in their original locations. All painted stencils and markings affected by grit blasting or painting shall be re-painted upon completion of final paint coating in their proper color and location.

3.1.6.5 All windows shall be protected from blasting or painting by a protective covering, using plywood or other means determined to be satisfactory by the WSF Inspector. Affected windows shall be hose tested upon completion of paint work. Upon completion of cleaning and painting, all windows affected by the work shall be washed.

3.1.6.6 Ventilation fan motors shall be protected and steps taken to prevent grit from getting into ducting before grit blasting.

3.1.6.7 Surrounding areas in way of preservation shall be protected in order to prevent paint over-spray. All over-spray shall be removed or overcoated upon completion of painting, per approval of the WSF Inspector.

3.1.6.8 Deck drains on all deck levels shall be clear of obstructions and proper operation shall be demonstrated to the WSF Inspector before re-delivery.

3.1.6.9 Vessel wood name signs, wood doors, wood benches and wood trim, shall be removed and properly protected to prevent damage to coatings. When removed, all wooden fixtures listed above shall be sanded smooth, refinished and/or repainted in the proper colors as required.

3.1.6.10 Metal doors shall be repainted to their proper color as required. Care shall be taken when blasting doors to prevent warping or any damage of doors or the surrounding area.

3.1.6.11 Weld splatter removal. Remove all weld splatter associated with any hotwork performed during performance period, using a hammer, spud bar, scraper, or grinder, as applicable. Weld splatter removal shall be verified by WSF Inspector prior to moving on to next step in process.

3.1.6.12 Surface contaminant removal. Perform a low-pressure (maximum 5,000 psi) freshwater wash down of the surfaces, to remove all existing surface contaminants such as sea salts, grease and oil (hydrocarbons), loose rust, mud and marine growth, as applicable, and achieve the cleanliness requirements of SSPC-SP 1. When low-pressure freshwater wash is not possible or practical, remove surface contaminants by one or a combination of solvent cleaning methods in accordance with SSPC-SP 1.

3.1.7 Substrate profile measurements – During surface preparation by abrasive blasting or water jetting, spot check the existing anchor profile per 500-square feet, in order to project the need to manage the anchor inspection for both excessive and insufficient anchor profiles.

3.1.7.1 After completion of surface preparation, measure the profile of the resultant bare surfaces, in accordance with SSPC. This shall be done in the presence of WSF Inspector and the Coatings Manufacturer's Technical Representative (minimum AMPP CIP Level 2).

3.1.7.2 When Appendix A or B allows preparation by water jetting, the Contractor shall have the option of water jetting only if the profile is taken and found to be within the required profile in the applicable Appendix. If mill scale is encountered, water jetting will no longer be an option and grit blasting shall be employed.

3.1.8 Additional post-surface preparation requirements.

3.1.8.1 Surface cleanliness evaluation – visual standards. In the presence of the WSF Inspector and the Coatings Manufacturer's Technical Representative (minimum AMPP CIP Level 2) verify the resultant surface cleanliness level, in accordance with the texts of the specified surface preparation standard in conjunction with associated visual/pictorial guide, as listed in Table 1 - Surface Preparation Visual Guides.

TABLE 1 - SURFACE PREPARATION VISUAL GUIDES

SURFACE PREPARATION	STANDARD	VISUAL GUIDE
Dry-abrasive blast cleaning	• SSPC-SP 5/NACE No. 1 • SSPC-SP 6/NACE No. 3 • SSPC-SP 7/NACE No. 4 • SSPC-SP 10/NACE No. 2 • SSPC-SP 14/NACE No. 8	SSPC-VIS 1
Wet-abrasive blast cleaning	• SSPC-SP 6/NACE No. 3 • SSPC-SP 10/NACE No. 2	SSPC-VIS 5/NACE VIS 9

Hand Tool Cleaning, Power Tool Cleaning	• SSPC-SP 2 • SSPC-SP 3 • SSPC-SP 11 • SSPC-SP 15	SSPC-VIS 3
Water jetting	• SSPC-SP WJ-1/NACE WJ-1 • SSPC-SP WJ-2/NACE WJ-2 • SSPC-SP WJ-3/NACE WJ-3	SSPC-VIS 4/NACE VIS 7

3.1.8.2 Debris removal and disposal. Completely remove all dust and residues from the prepared surfaces by vacuuming. Do not brush or blow down the surfaces to remove dust and residues. Dispose of generated wastes in accordance with all applicable Federal, state, and local regulations.

3.1.8.3 Surface profile measurements. Measure the profile of the resultant bare surfaces, in accordance with SSPC.

3.1.8.4 Soluble salt conductivity measurements. Accomplish surface conductivity or chloride checks using available field or laboratory test equipment on the freshly prepared surface. One reading shall be taken for every 200 square feet for the first 1,000 square feet. One determination shall be conducted for every additional 500 square feet or less. For immersed applications, such as tanks and bilges, chloride measurements shall not exceed 3 µg/cm2 (30 mg/m2); conductivity measurements shall not exceed 30 micro-siemens/cm. For non- immersed applications, chloride measurements shall not exceed 5 µg/cm2 (50 mg/m2); conductivity measurements shall not exceed 70 micro-siemens/cm. Conductivity samples shall be collected using a product that meets the requirements of NACE SP0508-2010, “Methods of Validating Equivalence to ISO 8502-9 on Measurement of the Levels of Soluble Salts.

3.1.8.5 Soluble salt removal. Because conductivity testing measures more than just chlorides, for any conductivity check that fails, a confirmatory chloride check may be conducted to confirm chloride levels.
If the chloride levels do not exceed the requirements, the measurement passes the conductivity/chloride check. If a conductivity, check fails and the confirmatory chloride check is not conducted, or if chloride measurements exceed the respective values, water wash (3,000–5,000 PSI) the affected areas with potable water. Dry the affected areas and remove all standing water. Accomplish surface conductivity or chloride checks on affected area. Repeat step until satisfactory levels are obtained.

- It may be necessary to mitigate affected area with CHLOR-RID or WSF approved equal to achieve the levels required. Follow the product manufacturer’s recommended guidelines for use.

NOTE

De-ionized water shall be used in cases where available fresh water has excessive chloride/chlorine content.

- For surfaces prepared by water jetting. Remove all standing water, dry, and retest the affected areas. Resume water jetting and retest until satisfactory levels are obtained.
- For power tool-cleaned surfaces, circle affected areas and perform spot solvent cleaning followed by retest. Repeat spot solvent cleaning and retest until satisfactory results are obtained.
- For power tool-cleaned surfaces not practical for spot cleaning method, water wash said surfaces with copious amounts of fresh water, using hand scrub brush. Remove all standing water and dry the affected areas. Remove all flash rusting, if any, caused by the water wash by disk sanding affected areas with a #36 disk. Perform an SSPC-SP 1 solvent wipe on all sanded areas and retest. Repeat necessary steps until satisfactory levels are obtained.

3.1.8.6 Hydrocarbon substance removal. Remove all grease and oil surface contaminants by one or a combination of solvent cleaning methods in accordance with SSPC-SP 1.

NOTE

An ultraviolet light source may be used to detect the presence of hydrocarbons; however, for proper detection, artificial lights must be off for interior spaces, and the inspection must be conducted during darkness for surfaces exposed to sunlight. When hydrocarbons are present, the hydrocarbons will fluoresce as bright green, lime green, or blue/violet on the surface.

3.1.8.7 Flash rusting/surface oxidation limitations. Limit surfaces being preserved in size to an area that can be prepared and coated before flash rusting/surface oxidation occurs. If flash rusting or oxidation does occur before primer coat application, ensure the following:

- For surfaces prepared by water jetting, the rust must be tight and adherent, and not exceed the “WJ-2/L” (Very Thorough or Substantial Cleaning, Light Flash Rusting) or “WJ-2/M” (Very Thorough or Substantial Cleaning, Moderate Flash Rusting) requirement as specified in Appendix A or B, in accordance with SSPC VIS 4/NACE No.7.
- For surfaces prepared by methods other than water jetting, the rust or oxidation must be completely removed by abrasive-sweeping or mechanical cleaning.

3.1.9 Use of contrasting colors. Ensure that all coats in multi-coat systems, including stripe coats, are applied in contrasting colors. Where both film thickness and number of coats is specified, both requirements must be fully met.

3.1.10 Coatings inspections. Inspect each coat of applied coatings for runs, holidays, sags, dry-spray and anomalies prior to consecutive coats. If areas are

found in need of repair, repair before the next coat is applied. If over-coat windows are a concern, tape off anomalies and apply next coat. Return to repair after that coat. It is the responsibility of the Contractor to ensure that all required inspections are completed before continuing work.

3.1.11 Stripe coat application. After each primer coat has sufficiently cured for over coating, apply an un-thinned coat of the same primer coating using the brush method over all weld seams, edges, and other surfaces with complex geometric shapes – including, but not limited to the following, as applicable:

- Features in freeboard, superstructure, underwater body, and main deck surfaces:
  - Bulwarks.
  - Ladder rungs.
  - Port lights.
  - Doubler plates.
  - Spray rails.
  - Rub rails.
  - Chocks and cleats.
  - Deck machinery and fittings.
  - Hull markings (i.e., draft marking, emblem locators…).
  - Vents and overboard discharges.
  - Stiffeners, supports, and brackets.
  - Detacouples.
  - Huckbolt Seams

3.1.12 Spot-coating. When performing spot coating, adhere to the following guidelines:

- Each area identified for spot preservation shall include the area itself and all attached framing, stiffeners, brackets, mounting plates/frames, pad eyes, ducting, piping, equipment support, etc., as applicable, up to a minimum of three inches adjacent to the area to be painted.
- The total area designated shall account for the three-inch boundary segment wherein the repair is faired into the surrounding intact coating system.

3.1.12.1 Spot Coat Preservation will use the same manufacturer's product that is on the base coat when applicable.

3.1.12.2 Existing paint coating bordering spot blasted areas shall be feathered to achieve a smooth transition appearance, ensuring that edges are feathered to make a smooth visual appearance to existing coating and that no rough or sharp edges can be seen between existing and newly applied paint.

3.1.12.3 Abrade areas where primer coat is exposed with 100-grit paper, and

feather back to firm edge of existing topcoat finish.

3.1.12.4 Perform solvent cleaning of all surfaces, in accordance with SSPC-SP 1.

3.1.12.5 Hand brush, or in larger areas airless spray apply applicable coatings, to match existing adjacent areas.

3.1.12.6 Substitute epoxy for inorganic zinc primers, when applicable, for steel surfaces.

3.1.13 Coating inspection, test each applied coat at random locations, using one of the test methods specified in Table 2 - Coating Test Methods. Contractor will schedule checkpoint inspections with WSF Project Engineer or Inspectors. Provide twenty-four (24) hour notice to WSF Project Engineer and Inspectors for all inspections that will take place off site and or after normal working hours, weekends, and holidays. Upon a successful checkpoint inspection, the Contractor must commence work within four hours for that assigned area. Failure to comply with this process will require another checkpoint inspection.

3.1.13.1 The WSF Inspector will inspect all prepared surface areas upon completion of preparation, and before any paint is applied on prepared surfaces. Upon completion of each paint coat, the WSF Inspector will inspect painted area for proper paint application before the next coat is applied. **It is the responsibility of the Contractor to ensure that all required inspections are completed before continuing work. Inspections shall be scheduled for daylight hours only.**

TABLE 2 - COATING TEST METHODS

TEST	INSTRUMENT	SPECIAL INSTRUCTIONS
Wet Film Thickness (WFT)	Conventional Notch Type/with "teeth" WFT gage	Refer to ASTM D4414.
Dry Film Thickness (DFT)	Magnetic or Eddy Current Gauge	Refer to SSPC-PA 2 for ferrous and non-ferrous metal base; or ASTM D 7091 for non-ferrous metal base.
*Pinhole/Holiday Detection	Low Voltage Holiday Detector	Refer to ASTM D5162.
**Pull-off Strength of Coatings	Portable Adhesion Testers	Refer to ASTM D4541.

*Primer coat only (except for inorganic zinc primer coat), for "all potable, flushing, and sewage tanks".
**Primer and second coats for all tank and void coatings conforming to MIL-PRF-23236.

3.1.14 Ventilation requirements for confined spaces. During preservation of confined spaces (confined spaces such as machinery spaces, voids, tanks), Provide ventilation

equipment prior to the start of surface preparation, to create 4 complete air change every hour. Use "net exhaust" (negative pressure mode) ventilation when the ventilation trunk(s) run through interior compartments intended for normal human occupation such as berthing areas, passageways, and workspaces. In addition, ensure the following:

- Ventilation system remains in place and energized during the application of the coating system, from the initial coating application through the final coating application and cure.
- Ventilation ductwork shall be placed at the bottom most location where vapors will accumulate in pockets and a complete exhaust of solvent vapors is achieved.

NOTE

Failure to maintain proper ventilation in enclosed spaces during preservation may result in solvent entrapment, which then may lead to delay in coating final cure or outright failure of coating to cure.

3.1.15 Critical drying time requirements. Ensure that all coating system cure times (including for touch-up preservation) are in accordance with the manufacturer's recommendation for intended service.

3.1.15.1 Potable water tank systems. For potable water tanks, ensure that the coating manufacturer's technical guidance is followed - to include but not limited to: ventilation requirements, application temperatures, overcoat windows, final cure times, and hold time before placing tank into immersion service. If ventilation requirements are not provided by the coating manufacturer, the ventilation requirements in paragraph 3.1.14 (Ventilation requirements for confined spaces) shall be the minimum requirements. The Contractor shall maintain and record tank temperatures during the application of the coating system from initial coat to the final cure, applying heat as required. Ensure that ventilation is maintained from final cure through the minimum hold time before placing the tank back in service. For touch-up preservation, abide by the coating manufacturer's recommendations.

For potable water tanks, once the final topcoat is fully cured, inspect the surface for cleanliness. Verify that the surface meets the requirements of SP-1 by wiping all tank surfaces with potable water applied to clean, light-colored rags. When wiping, the surface shall, when viewed without magnification, be free of all visible oil, grease, dust, dirt, and other foreign matter. Any surfaces producing visible contamination on a rag shall be re-cleaned until both rag and surface are visually free of contamination. As an option to wiping the tank, the tank shall be completely filled with potable water and drained at least twice to ensure tank cleanliness.

3.1.15.2 Underwater body antifouling systems. For underwater body antifouling systems, ensure that the paint manufacturer's minimum curing time is met before the vessel is re-floated.

NOTE

1. Hard cure times or cure time prior to immersion shall be met as published on the Product Data Sheets available online. No early undocking or relaxation of these published requirements is permitted without prior approval from the Project Engineer. Coating system manufacturer's Sales or Technical Representatives may not relax these requirements. Painting and curing of all tank coating systems (except for tanks that are inboard and not touching the skin of the vessel side and/or bottom) shall occur while the vessel is out of the water.

2. CAPAC systems shall not be energized until full cure of all underwater paint systems has occurred (minimum of 3 weeks).

3.2 Preservation Plan. The Contractor shall submit a "Preservation Plan" (PP) to the Project Engineer at the Pre arrival conference, to allow for review of all Work Items pertaining to the preservation of the vessel. At a minimum, PP shall include the following and be broken down by Work Item:

- Coatings to be applied – listed by manufacturer and product identification numbers.
- Method of preparation
- Target wet and dry film thickness values.
- Authorized reducers/solvents – including maximum percent by volume for reducers/solvents.
- Colors by AMS-STD-595A color number.
- Application method for each coat.
- Application pressure and nozzle size requirements listed on the manufacturer's product data sheet(s).
- Minimum recoat windows for applying subsequent coats, maximum recoat windows to apply subsequent coats adjusted for anticipated temperatures.
- Any special instructions or environmental limits listed by the coating manufacturer.
- Intended final cure times prior to immersion or full duty rating (as applicable).
- Ambient condition control plan for each specified area identified in the technical specification.

All coatings intended for use in the Preservation Plan must be approved coatings in the Appendix C WSF Authorized Coating Systems, or otherwise authorized via written approval from WSF.

3.3 Powder coatings shall accomplish the following:

3.3.1.1 Surface preparation. Abrasive-blast the designated equipment or component(s) to a "White Metal Blast Cleaning" standard, to provide an anchor profile of 1.5-2.5 mils, in accordance with SSPC-SP 5/NACE No.1.

3.3.1.2 Coating application. Coat the prepared surfaces with a suitable powder coating, in accordance with manufacturer's instructions. Select the applicable system, as per the following recommendations:

- MIL-PRF-24712, Type IV (Polyester TGIC) coatings - for exterior applications.
- MIL-PRF-24712, Type I (Epoxy) coatings - for dry interior applications.
- MIL-PRF-23236, Type VIII coatings - for wet or immersion interior applications.

NOTE

Powder coating is authorized for use on exterior topside or interior applications where traditional liquid applied coating systems are difficult to maintain due to a severely corrosive environment, high wear, or abrasion. It should be noted that powder coatings are subject to chipping damage from mechanical impact. It can be difficult to repair this damage with traditional liquid coatings and achieve satisfactory cosmetic results. Powder coatings are usually applied by electrostatic spray or fluidized bed. The final step in the process involves heating in an oven at temperatures that vary, but generally range from 225^{O}F to 350^{O}F. The need for an oven limits the application to items that can be removed from the vessel, withstand the high cure temperatures, and sizes that can be fitted in the available oven.

VESSEL EXTERIOR COATING SYSTEMS
Appendix A

A1. SCOPE

A1.1 Intent: This standard specification describes the required coatings for various exterior areas and components of Washington State Ferries.

A1.2 Note: Where Water Jet Preparation is allowed; Contractor will request permission to Water Jet prep in writing to the Project Engineer within 5 business days of contract award

A1.3 Note: All dry film thickness requirements shall be in accordance with the manufacturer's recommendations.

A2. REQUIREMENTS

Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
VEHICLE DECK AND ABOVE					
1	Superstructure, Steel All topside surfaces exposed to the weather from the vehicle deck to the top of the masts NOT including decks	I	SSPC-SP 6 (1.5-2.5)	1) Zinc Rich Primer 2) Anticorrosive Epoxy Primer/First Coat 3) Anticorrosive Epoxy Primer/Second Coat 4) Polyurethane	1,2,4,5,12, 15,16,19 20,21,22
		II	SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer/First Coat 2) Anticorrosive Epoxy Primer/Second Coat 3) Polyurethane	1,2,3,11,12,15, 16,19, 20,21,22
2	Above the Water Line, Steel, Spot Prep & Coat	I	SSPC-SP 6 (1.5-2.5) or SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Zinc Rich Primer 2) Anticorrosive Epoxy Primer/First Coat 3) Anticorrosive Epoxy Primer/Second Coat 4) Polyurethane	1,2,3,4,5,12, 16,19,20, 21,22

VESSEL EXTERIOR COATING SYSTEMS
Appendix A

Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
VEHICLE DECK AND ABOVE (CONTINUED)					
3A	Superstructure, Aluminum All topside surfaces exposed to the weather from the vehicle deck to the top of the masts NOT including decks	I	Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material (1.5-2.5) or SSPC-SP WJ-2/NACE WJ-2	1) Multipurpose Primer 2) Anticorrosive Epoxy Primer 3) Polyurethane	1,2,4,11,12, 13,14,15,16, 19,20,21,22
3B	Galvanized Surfaces	I II	Abrade the galvanized surfaces to achieve surface profile Apply etch coating	1) Multipurpose Primer 2) Polyurethane 1) Etch Coat Primer 2) Polyurethane	1
4	Vehicle Decks Vehicle Deck Non-Skid Areas Vehicle Deck Vertical Curb Surfaces Vehicle Deck Horizontal Curb Surfaces	I I I I	SSPC-SP 10 (1.5-2.5) SSPC-SP 10 (1.5-2.5) SSPC-SP 10 (1.5-2.5) SSPC-SP 10 (1.5-2.5)	1) Zinc Rich Primer 2) Zinc Rich Primer 3) Anticorrosive Epoxy Primer 4) Premixed Epoxy Non-Skid Same as Superstructure, Steel 1) Zinc Rich Primer 2) Anticorrosive Epoxy Primer	1,2,5,12 1,2,5,12,14,16, 17,18,19,20, 21,22,24 1,2,5,12,14,16, 17,18,19,20, 21,22,24

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Appendix A

Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
VEHICLE DECK AND ABOVE (CONTINUED)					
5	Steel Exterior Decks Other Than Vehicle Decks (With Non-Skid)	I	SSPC-SP 6 (1.5-2.5)	1) Zinc Rich Primer 2) Anticorrosive Epoxy Primer 3) Premixed Epoxy Non-Skid	1,2,5,12,14,16, 17,18,19,20, 21,22,24
6	Aluminum Exterior Decks Other Than Vehicle Decks (With Non-Skid)	I	Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material (1.5-2.5) – or – SSPC-SP WJ-2/NACE WJ-2	1) Multipurpose Primer 2) Anticorrosive Epoxy Primer 3) Premixed Epoxy Non-Skid	1,2,12,13,14,16, 17,18,19,20, 21,22,24
7	Steel Exterior Decks Other Than Vehicle Decks (Without Non-Skid)	I	SSPC-SP 6 (1.5-2.5)	1) Zinc Rich Primer 2) Anticorrosive Epoxy Primer/First Coat 3) Anticorrosive Epoxy Primer/Second Coat 4) Polyurethane	1,2,5,12, 14,16,17,18, 19,20,21,22
		II	SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer/First Coat 2) Anticorrosive Epoxy Primer/Second Coat 3) Polyurethane	1,2,3,12,14,1 6,17,18,19, 20,21,22
8	Aluminum Exterior Decks Other Than Vehicle Decks (Without Non-Skid)	I	Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material (1.5-2.5) – or – SSPC-SP WJ-2/NACE WJ-2	1) Multipurpose Primer 2) Anticorrosive Epoxy Primer/Mid-Coat 3) Polyurethane	1,2,12,13,14, 16,18,19,20, 21,22

VESSEL EXTERIOR COATING SYSTEMS
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Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
9	Exhaust Piping	I	SSPC-SP 6 (1.0-2.0)	1) Fed Spec TT-P-28 Heat Resisting Paint	1,2
10	Wood, Exterior (i.e., Accommodation Ladder, Window trim, Benches, Name Boards)	I II	Sand with 80 grit sandpaper Same as Option I	1) Synthetic Wood Finish – follow manufacturer's instructions 1-5) Spar Varnish (5 coats)	1 1
11	Exterior Bench Seating	I I	<u>Steel</u> SSPC-SP 11 (1.0) <u>Aluminum</u> Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material.	1) Zinc Phosphate pre-treatment- following manufacturer's instructions 2) Exterior Powder Coat – following manufacturer's instructions 1) Chromate conversion coat- following manufacturer's instructions 2) Exterior Powder Coat – following manufacturer's instructions	1,13,15,16 1,13,14,15,16
HULL					
1	Below The Water Line 100 % Prep & Coat	I	SSPC-SP 6 (1.5-2.5) - or - SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer 2) Anticorrosive Epoxy Primer 3) Anti-Fouling 4) Anti-fouling	1,2,6,7,8,9, 10,11,16,23
2	Below The Water Line Spot Prep & Coat	I	SSPC-SP 6 (1.5-2.5) - or - SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer (Spot Coat) 2) Anticorrosive Epoxy Primer (Spot Coat) 3) Anti-Fouling (Spot Coat) 4) Anti-fouling (Full Coat)	1,2,6,7,8,9, 10,11,16,19,23

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Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
HULL (CONTINUED)					
3	Above the Water Line to the Guard	I	SSPC-SP 6 (1.5-2.5) - or - SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer 2) Anticorrosive Epoxy Primer 3) Polyurethane	1,2,4,16,19,20
4	Guard	I	SSPC-SP 6 (1.5-2.5) - or - SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer 2) Anticorrosive Epoxy Primer 3) Polyurethane	1,2,4,16,19,20
5	U/W Body Dielectric Shield for ICCP Systems	I	SSPC-SP 10 (2.5-3.5)	Dielectric Shield Fairing Compound	7,9,10
6	Rudders Leading Edge & Continuing back 2 feet on both sides	I	SSPC-SP 10 (4-5)	1) Arcor S-20 2) Anticorrosive Epoxy Primer 3) Anti-Fouling 4) Anti-fouling	1,6,7,8,10,11, 16,23
7	Anchor, Anchor Chain, & Anchor Handling Equipment, & Anchor Pocket	I	SSPC-SP 6 (1.5-2.5) - or - SSPC-SP WJ-2(M)/NACE WJ-2(M)	1) Anticorrosive Epoxy Primer 2) Anticorrosive Epoxy Primer 3) Polyurethane	1,2,4, 16,19,20
8	Draft & Hull Markings	I	After Topcoat	1) Above Water Line – Polyurethane 2) Below Water Line – Anti-fouling	1 1
9	Rope Guards Composite Rope Guards	I I	SSPC -SP6 or SSPC-SP WJ-2(M) SSPC-SP1	1) Full Underwater Hull Coating System (2 AC Coats & 2 Anti Fouling Coats) Anticorrosive Epoxy Primer & Anti Fouling	1,6,7,8,9,10 16,23 1,6,7,8,9,10 16,23

VESSEL EXTERIOR COATING SYSTEMS
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Item	Exterior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
POLYUREA					
1	Various Areas without non-skid	I	SSPC-SP 10 (3-5.5)	1) Envirolastic AR 425 SS Polyurea 2) Envirolastic AR 425 HD Polyurea	2,18,22
2	Various Areas with non-skid	I	SSPC-SP 10 (3-5.5)	1) Envirolastic AR 425 SS Polyurea 2) Envirolastic AR 425 SS Polyurea with 40-60 Aluminum Oxide Non-skid 3) Envirolastic AR 425 HD Polyurea	2,17,18,22,24

VESSEL EXTERIOR COATING SYSTEMS
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NOTES:

1. An additional coat of the topcoat may be required, particularly when brushing or rolling, to achieve proper dry film thickness or to get complete color coverage of the primer underneath.
2. Power tool cleaning to bare metal (SSPC-SP 11) must be authorized by WSF representative in advance for areas that cannot be accessed by abrasive blasting or water jetting.
3. Do not apply inorganic zinc primer to water-jetted surfaces.
4. A mist coat is 1.0-2.0 mils (wet film thickness) of paint applied to promote adhesion or compatibility between unlike materials for spray applications only.
5. Water-based zinc rich primer may only be applied when ambient air and substrate temperature are above 50 degrees F, in order for the water to evaporate completely and form a continuous coating. Water based coatings will not dry at relative humidity above 80 percent.
6. For coating purposes, the bilge keel, sea chest, gratings, rudders, and skegs are treated as part of the underwater body. Keel coolers and keel cooler pockets will be mist coated by spray application on an as-needed basis. Mist coat shall not be greater than 2 mils.
7. When applying a foul release coating system, contact the manufacturer for application instructions and require the manufacturer's technical representative to be present while the coating is applied.
8. Do not paint aluminum (or other sacrificial anodes). Paint areas beneath all sacrificial anodes the same as the underwater body.
9. Refer to the specific class installation drawings/tech pub for installation of the dielectric shield. Older drawings/tech pubs may refer to coal tar epoxy for the outer area of the shield which is no longer authorized. Use the Dielectric Shield Fairing Compound instead of coal tar epoxy. If specific class installation drawings/tech pubs do not exist or are no longer applicable, then perform the following:
    i. Surface Preparation – Clean the area where the dielectric shield is currently installed (6 feet around the anode casing to SSPC-SP 10/NACE No.2 “Near White Metal Blast Cleaning”. Ensure that the anode casing is properly prepared and cleaned well so that the Dielectric Shield Fairing Compound will adhere to the casing sides and edges.
    ii. Fairing Application (Trowel able) – Apply the Dielectric Shield Fairing Compound at a minimum thickness of 120 mils in the area up to two feet around the anode casing. At a distance of about 10 inches from the anode casing, fair the Dielectric Shield Fairing Compound up to the outer edge of the anode casing, bonding to the anode case. Apply the Dielectric Shield Fairing Compound at a minimum thickness of 22 mils in the area from 2 feet to the outer perimeter of 6 feet from the anode casing.
    iii. Fairing Application (Spray able) – Apply the first coat of Dielectric Shield Fairing Compound at 10 mils minimum thickness of 10 mils from the anode to a distance of 7 feet. Apply the second coat of Dielectric Shield Fairing Compound at a minimum thickness of 30 mils from the anode to a distance of 6.5 feet. Apply the third coat of Dielectric Shield Fairing Compound at a minimum thickness of 30 mils from the

anode to a distance of 6 feet. The outer edges of each applied coat should be tapered so that there is not a sharp edge. Once the anode is in place, fair the trowel able Dielectric Shield Fairing Compound, from a distance of 10 inches out from the anode, up to the outer edge of the anode casing, bonding to the anode case.

10. Applicable to all underwater body coating systems and associated appendages: Total dry film thickness encountered during removal may exceed specified thickness.
11. All steel repairs below the waterline line shall be grit blasted on the exterior prior to coating to achieve proper surface profile. This is to include the new weldment and plate.
12. For vehicle decks and above stripe coat is required on all edges, welds, corners, crevices, etc. after the initial epoxy primer coat.
13. For aluminum surfaces, remove all oil, grease, dirt, metal oxides (corrosion products) and other foreign material by cleaning per SSPC-SP 1 prior to blast cleaning and following blast cleaning immediately prior to coating. The end result of abrasive blasting will be a surface cleanliness similar to that of SSPC- SP 10 for steel with all coating removed.
14. Isolation between aluminum and steel shall be accomplished by coating faying surfaces with one (1) coat of the appropriate epoxy or urethane coating system, applied in accordance with the coating system technical representative for the specific area; and one (1) layer of 3M Tape # 50, or equal.
15. Faying surfaces of aluminum furniture and dissimilar metals shall be protected by application of one (l) coat of the appropriate epoxy or urethane coating system, applied in accordance with the coating system technical representative for the specific area to both surfaces as a minimum prior to setting the furniture. Fasteners shall be new 316 S. Stl fasteners, flat washers, and Nylok nuts.
16. Where both film thickness and number of coats is specified, both requirements must be fully met.
17. Water Way – All exterior deck surfaces that receive nonskid will have a 4-inch waterway bordering any vertical surface it meets. In addition, no nonskid area will extend continuously for more than 20 feet in any direction, without a 2-inch waterway break, these waterway breaks shall be at weld seams or butts. Waterway break layout will be approved by WSF prior to application of nonskid. All Waterways on steel surfaces will receive the coating system called out in section “Superstructure, Steel”, “Option 1” of “Vessel Exterior Coating Systems Appendix A”.
18. Deck Drain Pockets / Recess. When abrasive blasting surfaces in areas where deck drain screens are installed, the deck drain screens will be removed, a foreign material exclusion device shall be installed in drain hole, and the drain cup shall be abrasive blasted to a minimum of SSPC SP-6.
19. All exterior areas that receive spot preservation will receive a squared (box) uniform appearance during topcoat application.
20. For areas of spot work to be coated, a detailed sketch shall be completed by the contractor for each pertinent area or zone, to indicate the specific areas and square footage of work completed.
21. All horizontal deck surfaces shall be grit blasted to the vertical surface and up 3 to 6 inches depending on area. For weather decks and vehicle decks, grit blasting of the horizontal area shall include the entire surface area. Where track blasting equipment

will not access deck surfaces, the Contractor may use portable blast equipment to achieve a SSPC SP10 or SSPC SP6 blast.

22. Contractor is responsible for removal and reinstallation of all interferences in the area(s) to be grit blasted.
23. Mid-coat shall be applied and overcoated while thumbprint tacky, unless using a tie coat.
24. Minimize staging footprints in way of non-skid evolutions to the greatest extent possible. Non-skid installation in way of footprints shall be minimum one square foot.

VESSEL INTERIOR COATING SYSTEMS
Appendix B

B1. **SCOPE**

B1.1 Intent. This standard specification describes the required coatings for various interior areas and components of Washington State Ferries.

B1.2 Note: Where Water Jet Preparation is allowed; Contractor will request permission to Water Jet prep in writing to the Project Engineer within 5 business days of contract award

B1.3 Note: All dry film thickness requirements shall be in accordance with the manufacturer's recommendations.

B2. **REQUIREMENTS**

Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
BILGES					
1	Bilges	I	SSPC-SP 11	1) Bilge Epoxy Coating System Primer 2) Bilge Epoxy Coating System Primer	1,5,7,8, 9,10
		II	SSPC-SP 10/NACE No. 2	1) Bilge Epoxy Coating System Primer 2) Bilge Epoxy Coating System Primer	1,5,7,8, 9,10
BULKHEADS AND OVERHEADS					
1	Bulkheads and Overheads, Uninsulated Aluminum	I	Power tool clean using non- metallic abrasive padding, to remove all coatings and contamination	1) Multipurpose Primer 2) High Build Epoxy 3) Polyurethane	1,2,6,7,9, 10,11,12
		II	Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material.	1) Multipurpose Primer 2) High Build Epoxy 3) Polyurethane	1,2,6,7,9, 10,11,12

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Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
2	Bulkheads and Overheads, Uninsulated Steel	I	SSPC-SP 6 using grit (1.5-3.5)	1) Zinc Rich Primer 2) High Build Epoxy 3) Polyurethane	1,2,5,7, 8,9
		II	SSPC-SP11 (1.0)	1) High Build Epoxy 2) Polyurethane	2,5,7, 8,9,10
3	Bulkheads and Overheads, Uninsulated Metal (Wet areas such as washrooms, water closets, shower space, food prep areas and exits to weather)	I	<u>Steel:</u> SSPC-SP11 (1.0)	1) High Build Epoxy 2) High Build Epoxy 3) Polyurethane	2,5,7,8, 9,10
		I	<u>Aluminum</u>: Power tool clean using non-metallic abrasive padding, to remove all coatings and contamination	1) Multipurpose Primer 2) High Build Epoxy 3) Polyurethane	2,6,7,9, 10,11,12
4	Bulkheads and Overheads, Uninsulated Steel (Appearance not a factor, i.e., voids) and Insulated Steel	I	SSPC-SP 10 (1.5-2.5)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy	1,2,5,7, 8,9
		II	SSPC-SP 11 (1.5-3.5)	1) High Build Epoxy 2) High Build Epoxy	2,5,7,8, 9,10

VESSEL INTERIOR COATING SYSTEMS
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Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
DECKS, METAL INTERIOR					
1	Metal Decks – No application of deck coverings	I	Steel: SSPC-SP 10 (1.5-2.5)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy 4) Polyurethane	1,5,7,8,9, 11,12
			Aluminum: Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material.	1) Multipurpose Primer 2) High Build Epoxy 3) Polyurethane	6,7,9,11,12
		I	Steel: SSPC-SP 11 (1.0)	1) High Build Epoxy 2) High Build Epoxy 3) Polyurethane	1,5,7,8,9, 10 11,12
			Aluminum: Power tool clean using non-metallic abrasive padding, to remove all coatings and contamination	1) Multipurpose Primer 2) High Build Epoxy 3) Polyurethane	6,7,9,10, 11,12
JOINER DOORS					
1	Doors and Frames	I	Steel: SSPC-SP 3 -	1) High Build Epoxy -spray 2) Polyurethane - spray	5,7,9,10, 11,12
			Aluminum: Power tool clean using non-metallic abrasive padding, to remove all coatings and contamination	1) Multipurpose Primer 2) Polyurethane - spray	5,6,7,9, 10,11,12

VESSEL INTERIOR COATING SYSTEMS
Appendix B

Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
FURNITURE & GALLEY EQUIPMENT					
1	Furniture, Galley Equipment	I I	Steel: SSPC-SP 10 (1.5-2.5) Aluminum: Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material.	1) Zinc Phosphate pre-treatment, 2) Exterior Powder Coat – Follow Manufacturers Instruction 1) Chromate conversion coat Exterior Powder Coat– Follow Manufacturers Instruction	2,11 6
LADDERS - STAINLESS STEEL, GALVANIZED, AND ALUMINUM					
1	Ladders, Steel	I	SSPC-SP 10 (1.5-3.0) -OR- SSPC-SP 11 (1.0)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy 1) High Build Epoxy 2) High Build Epoxy	1,5
2	Ladders, Stainless Steel, Galvanized, Aluminum	I	NA	Do not paint	
INSULATED SURFACES					
1	Insulation Surfaces, Fiberglass Sheet/ Closed Cell PVC Foam	I	Clean with Adhesion Promoter/Cleaner. Break gloss with sandpaper as required.	1) Alkyd Enamel 2) Alkyd Enamel	1,9

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Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
INACCESSIBLE AREAS					
1	Inaccessible Areas, Steel	I	SSPC-SP 10 (1.5-3.0)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy	1,7,8,9
		I	SSPC-SP 11 (1.0)	1) High Build Epoxy 2) High Build Epoxy	7,8,9,10
2	Inaccessible Areas, Galvanized Steel and Aluminum	I	Roughen mechanically or abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert material	1) Multipurpose Primer 2) High Build Epoxy 3) High Build Epoxy	7,10
MACHINERY & PIPING - INTERIOR					
1	Machinery, Operating Temperatures Under 200^{O}F, Unmachined surfaces	I	Steel: SSPC-SP 3 Aluminum: Power tool clean using non-metallic abrasive padding, to remove all coatings and contamination	1) High Build Epoxy 2) Polyurethane 1) High Build Epoxy 2) Polyurethane	2,7,9, 10,11,12 2,6,7,9, 10,11,12
2	Machinery, Steel, Operating Temperatures Over 200^{O}F	I	SSPC-SP 3	1) Heat Resisting Paint 2) Heat Resisting Paint	7,9,10
3	Piping, Insulated and Uninsulated, Under 200^{O}F CuNi, Stainless, Galvanized	I	SSPC-SP 3	1) High Build Epoxy 2) Polyurethane	1,2,7,9, 10,11,12

VESSEL INTERIOR COATING SYSTEMS
Appendix B

Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
MACHINERY & PIPING – INTERIOR (CONTINUED)					
4	Piping, Insulated and Uninsulated, Under 200^{O}F STEEL	I	SSPC-SP11 (1.0)	1) High Build Epoxy 2) Polyurethane	
5	Piping, Uninsulated, Over 200^{O}F	I	SSPC-SP 3	1) Heat Resisting Paint 2) Heat Resisting Paint	7,9,10
TANKS & VOIDS					
1	Voids 100%	I	SSPC-SP 6 (1.5-3.5)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy	1,5,7,8,9
		II	SSPC-SP WJ-2	1) High Build Epoxy 2) High Build Epoxy	5,7,8,9,10
2	Voids Spot	I	SSPC-SP11 (1.0)	1) High Build Epoxy 2) High Build Epoxy	5,7,8,9,10
		II	SSPC-SP 6 (1.5-3.5)	1) Zinc Rich Primer 2) High Build Epoxy 3) High Build Epoxy	1,5,7,8,9
3	Sewage Tanks 100%	I	SSPC-SP 10 (1.5-3.5) -OR- SSPC-SP WJ-2	1) High Solids 2) High Solids	3,5

VESSEL INTERIOR COATING SYSTEMS
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Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
TANKS & VOIDS (CONTINUED)					
4	Sewage Tanks Spot	I	SSPC-SP11 (1.0)	1) High Solids 2) High Solids	3,5,10
5	Bilge Water Holding Tank 100%	I	SSPC-SP 6 (1.5-3.5)	1) Zinc Rich Primer 2) High Solids 3) High Solids	1,3,5,7, 8,9
		II	SSPC-SP WJ-2	1) High Solids 2) High Solids	5,7,8,9,10
6	Bilge Water Holding Tank Spot	I	SSPC-SP11 (1.0)	1) High Solids 2) High Solids	5,7,8,9,10
7	Lube Oil and Fuel Tanks	I	SSPC-SP6	Apply a heavy coat of lube oil	
8	Tanks, Potable Water 100%	I	Steel: SSPC-SP 10 (1.5-3.5) Aluminum: Abrasive blast to bare metal with clean, fine aluminum oxide, garnet or equivalent inert (1.5-2.5)	1) Potable Water Tank Primer 2) Potable Water Tank Topcoat	4,5,7 6
9	Tanks, Potable Water Spot	I	SSPC-SP11 (1.0)	1) Potable Water Tank Primer 2) Potable Water Tank Topcoat	4,5,7,10

VESSEL INTERIOR COATING SYSTEMS
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Item	Interior Surfaces To Be Preserved	Option	Surface Preparation (Minimum Anchor Profile In Mils)	Coating System	Notes
WOOD INTERIOR					
1	Wood, Painted Interior	I	Remove any loose paint by scraping, sanding, or milling the surface. Apply commercial wood paste filler as necessary to fill dents, holes, and cracks. Allow 18 hrs for drying. Sand surface smooth, wipe clean.	1) Alkyd Enamel 2) Alkyd Enamel	1,7,9
2	Wood, Stained and Varnished Interior	I	Remove varnish as necessary by scraping or sanding. Sand surface smooth, wipe clean.	1) Interior Wood Stain 2-4) Spar Varnish (3 coats)	7,9

VESSEL INTERIOR COATING SYSTEMS
Appendix B

NOTES:

1. Water-based coatings, including zinc rich primer, may only be applied when ambient air and substrate temperature are above 50 degrees F., in order for the water to evaporate completely and form a continuous coating. Water-based coatings will not dry at relative humidity above 80 percent.
2. Galley equipment, decorative plastic surfaces such as those on tabletops, porcelain surfaces, and stainless steel are not to be painted.
3. Drying times between coats and final system cure for specified tank coatings other than potable water tanks shall be in accordance with manufacturer's recommendations.
4. Drying time between coats for potable water tank coatings, including stripe coat, shall be in accordance with manufacturer's recommendations. Final system curing prior to putting tanks back in service shall be in accordance with manufacturer's recommendations.
5. Stripe coat is required on all edges, welds, corners, crevices, etc. after the initial primer coat.
6. For aluminum surfaces, remove all oil, grease, dirt, metal oxides (corrosion products) and other foreign material by cleaning per SSPC-SP 1 prior to blast cleaning and following blast cleaning immediately prior to coating. The end result of abrasive blasting will be a surface cleanliness similar to that of SSPC-SP 10 for steel with all coating removed.
7. Where both film thickness and number of coats is specified, both requirements must be fully met.
8. An extra coat of the topcoat may be required, particularly when brushing or rolling, to achieve proper dry film thickness or to get complete color coverage of the primer underneath.
9. Roughening of the Metal Repair may be required before painting with the normal coating system. See manufacturer’s instructions for required surface profile.
10. Isolation between aluminum and steel shall be accomplished by coating faying surfaces with one (1) coat of the appropriate epoxy or urethane coating system, applied in accordance with the coating system technical representative for the specific area; and one (1) layer of 3M Tape # 50, or equal.
11. Faying surfaces of aluminum furniture and dissimilar metals shall be protected by application of one (l) coat of the appropriate epoxy or urethane coating system, applied in accordance with the coating system technical representative for the specific area to both surfaces as a minimum prior to setting the furniture. Fasteners shall be new 316L S. Stl fasteners, flat washers, and Nylok nuts.

WSF AUTHORIZED COATING SYSTEMS
Appendix C

WSF Approved Coatings/Materials

C.1 **Generic Categories.**

Coating	Color
ADHESION PROMOTER/CLEANER	
PPG Prep 88	
Jotun Cleaner Degreaser	
International GMA	
Sherwin Williams Proline 747 cleaner	
Chlor-Rid Chlor-Wash cleaner	
Carboline Surface Cleaner #3	
BILGE EPOXY COATING SYSTEM	
Sherwin-Williams Seaguard 6000 series	Various
Sherwin-Williams Seaguard 5000 series	Various
International Interbond 808	Various
International Interbond 998	Various
International Intershield 300, 300V	
Amercoat 240 or Amercoat 240LT	Buff-haze gray-oxide red
Jotun Jotamastic 90	Various
Carboline Carboguard 635	Tan-gray-beige-white
Tnemec Series N69F Expoxoline II	Various
CERAMIC INSULATION COATING	
Mascoat Delta T	White
Temp-Coat Brand Temp-Coat #101	White
Lifelast - Thermolast	White
Carboline Carbotherm 3300	White
CORROSION INHIBITIVE THERMOPLASTIC	
A & E Systems Enviropeel	Various
DIELECTRIC SHIELD FAIRING COMPOUND	
Somay Hycote 461 (Underwater repair only)	
Evoqua Water Technologies (Trowelable)	
UNDERWATER BODY POLISHING ANTIFOULING COATING SYSTEM	
Ameron, ABC#3	Red & Black
Ameron, Nexeon 610 (Non copper)	Red & Black
International, Interspeed 640 Antifouling	Red & Black
International, Interspeed 5640 Antifouling (Non-Copper)	Red & Black

WSF AUTHORIZED COATING SYSTEMS
Appendix C

Coating	Color
Jotun, Seaforce 200 Antifouling	Dark Red & Black
Sherwin-Williams, Seaguard Ablative AF	Red & Black
Sherwin-Williams, Seavoyager Ablative (Non copper)	Red & Black
Tnemec Series 195 HullClad CU	
Carboline C-Flex 123	Red & Black
HIGH BUILD EPOXY (General purpose epoxies)	
PPG Amercoat 235	Various
PPG Amercoat 240 series	Various
Hempel Hempadur 45880	Various
Carboline Carboguard 635	Various
Carboline Carboguard 235	Various
Jotun Jotacote Universal	Various
Jotun Jotamastic 90	Various
International Intertuf (262) KH Series	Various
Sherwin-Williams Seaguard 5000 HS	Various
International Intershield 300v, 300 HS	Bronze – Aluminum
Sherwin Williams Seaguard 6000	Various
Tnemec Series N69F Epoxoline II	
Tnemec Series 132 Pro Tuff	
Tnemec Series 191 Hull Clad TC	
Zinc Rich Primer	
Sherwin Williams Seaguard Corothane I Galva-Pac Zinc	Green
Hempel Hempadur Zinc 17360	Reddish Gray
PPG Dimetcote 302H	Green
Carboline CarboZinc 859	Gray Green
Jotun Barrier AV	Yellow – Green
International Interzinc 52	Green
Tnemec Series 94-H20 Hydro-Zinc	
POLYURETHANE SYSTEM	
Zinc Rich Primer	
Sherwin Williams Seaguard Corothane I Galva-Pac Zinc	Green
Hempel Hempadur Zinc 17360	Redish Gray
PPG Dimetcote 302H	Green
Carboline Carbozinc 808	Green

WSF AUTHORIZED COATING SYSTEMS
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Coating	Color
International Interzinc 52	Green, Gray
Jotun Barrier Av	Yellow Green
Tnemec Series 94-H20 Hydro-Zinc	
Epoxy Primer/Mid-Coat	
Sherwin-Williams Seaguard 6000/5000	Various
International Intertuf 262	Various
Sherwin-William Seaguard Tie Coat	
Hempel Mastic 45880/45881	Various
PPG Amercoat 240	Various
Carboline Carbozinc235	Various
Carboline Carbozinc635	Various
Jotun Jotacote Universal	Various
Jotun Jotamastic 90	Various
International Intershield 300v, 300HS	Bronze / Aluminum
Tnemec Series N69F Epoxoline II	Various
Hempel Hempathane 55610	Various
International Interthane 990	Various
Sherwin-Williams Hi-Solids Polyurethane	Various
Carboline CarboThane133	Various
Carboline CarboThane134	Various
Jotun Hardtop XP	Various
PPG Amershield	Various
Tnemec 1090 Endura-Shield	
SEWAGE TANK COATING SYSTEM	
Arcor S-20	Various
Jotun Tankguard SF / Tankguard Special Ultra	Various
International Interline 604	Grey
Hempadur 85671	
PPG Novaguard 810ER	
PPG Amercoat 253	White – Red – Blue
Sherwin Williams Phenicon FF / Phenicon HS	Reddish Gray – Off White
Sherwin Williams Sheraplate PW 1000	
Sherwin Williams Sheraplate 6000	
Sherwin Williams FastClad ER Epoxy	

WSF AUTHORIZED COATING SYSTEMS
Appendix C

Coating	Color
Carboline Phenoline 353	
Carboline Plasite 4550S	
Tnemec Series 21 Epoxoline	
POTABLE WATER TANK COATING SYSTEM	
Arcor S-16 NSF	
JotunTankguard DW	
International Interline 850	
Duraplate UHS NSF	
Carboline Carboguard 891 NSf	
Carboline Phenoline Tank Shield Plus	
Sherwin Williams Sherplate PW 1000	
Tnemec 21 Epoxoline	
PPG Novaguard 810ER	
SYNTHETIC WOOD FINISH (USE FOLLOWING OR SIMILAR MATERIAL.)	
Akzo Nobel Sikkens Cetol Marine	Satin
Akzo Nobel Sikkens Cetol Marine Gloss	Gloss Overcoat
Flood Deks Olje #1	Matte
Flood Deks Olje #2	Gloss Overcoat
Jotun Spontan Varnish	Clear
EPOXY NON-SKID	
All Non-Skidded areas with exception of tops of vehicle deck curbs	
Sherwin Williams Metal Primer	Various
Sherwin Williams Resigrip 250 Nonskid	Various
Tops of Vehicle Deck Curbs	
Sherwin Williams Resigrip 500	Yellow
POLYUREA	
Arcor Spraythane	Various
Sherwin-Williams Envirolastic AR 425 SS Polyurea	Various
Alkyd Enamel	
International Interlac 665	Various
Sherwin Williams DTM	Various
Tnemec 2H Tnemec – Gloss	Various
Anti-Condensation Coatings	
Mascoat Marine -DTM	White
Tnemec Series 972 Aerolon Marine	

WSF AUTHORIZED COATING SYSTEMS
Appendix C

C.2. **Vendor Information**. The following phone numbers are provided for the vendors listed in WSF Approved Coatings or elsewhere in this manual.

Arcor Northwest
11109 73rd Avenue East
Puyallup, WA 98373
253-777-9812 / Fax: 253-268-2120
kevin@arcor-northwest.com

Belzona Technology Northwest.
22021 W. Bostian Rd. A2
Woodinville, WA 98072
Local Rep: Scott Taylor
Phone: (425) 610-4902
Cell: 425-765-1118
Scott@belzonatnw.com

Carboline Company
12117 E Marginal Way S
Tukwila, Wa 98168
Local Rep: Dan Janulek
206-612-4180
djanulek@carboline.com
Craig Figgins 503-313-5438

Evoqua Water Technologies
2 Milltown Court
Union, New Jersey 07083
908 851-6915
Rosanna Valle
Rosanna.Valle@evoqua.com

Hempel Coatings (USA), Inc.
600 Conroe Park North Drive
Conroe, TX 77303
936-523-6000 / Fax: 936-523-6073
matt@hempel.com

International Paint Inc. (Akzo)
Customer Order Service Dept.
1541 South 92nd Place
Suite C, Bldg F
Seattle, Washington 98108
Rep: Chris Heide (South Puget Sound)
Cell: (206) 550-3802
Office(206) 763-8003
chris.heide@akzonobel.com
Rep Nick Salesky (North Puget Sound)
253-279-9922

Nicholas. Salesky@akzonobel.com

Jotun Paints, Inc.
9203 Highway 23
P.O. Box 159
Belle Chasse, LA 70037
504-394-3538 / Fax: 504-394-3726
Local Rep: Curt Wikstrom
253-370-9980
Curt.wikstrom@jotun.com

Mascoat
4310 Campell Rd.
Houston, TX 77041
713-465-0304
Mark Samoriga
832-379-0549
mark.samoriga@sealforlife.com

PPG Protective & Marine Coatings
1220 37th Street NW
Suite #104
Auburn, Washington 98001
253-804-4350 / Fax 253-804-4271
Local Rep: Kurt Mensing
206-595-6095
Kurt.mensing@ppg.com

Sherwin-Williams Company, Marine Customer Service
2940 6th Ave S
Seattle, Washington 98134
206-622-3896
Local Rep: Samuel Schuetz
206-391-1293
Samuel.D.Shuetz@sherwin.com

Tnemec Marine Inc
123 West 23rd Avenue.
North Kansas City, Missouri 64116
1-816-483-3400
Local Rep: Rick Gilbreath
206-762-5755
PNW@TNEMEC.COM

WSF QUALITY CONTROL
Appendix D

QA-1 QUALITY ASSURANCE INSPECTION FORM
(PRESERVATION CHECKLIST)

Vessel Name	Contract #	Work Item #	Work Item Title

Location of Work (incl. frame #'s)	Area (sqft)

CHECKPOINT 1 – COATING SYSTEM COMPLIANCE	
	Ensure all coatings are in compliance with SFLC Standard Specification 6310, Appendix C.
CHECKPOINT 2 - PAINT STORAGE	
	Ensure all coatings are kept at a temperature of 65 to 85°F at all times, unless otherwise specified by the coating mfgr.
CHECKPOINT 3 - AMBIENT CONDITIONS	
	Ensure surface and surrounding temperatures are each between 50 and 90°F for water-based coatings, and 35 and 95°F for other coatings, unless otherwise specified by the coating manufacturer(s).
	Ensure maximum relative humidity (RH) is as follows, from surface preparations through final curing of topcoat: 50% for tanks, voids, and vent plenum; and 85% for all other areas, unless otherwise specified by manufacturer(s).
	Ensure surface temperature is at least 5°F above the dew point, unless otherwise specified by the coating mfgr.
CHECKPOINT 4 - PRE-SURFACE PREPARATION	
	Remove surface contaminants (soluble salts, loose rust, mud, and marine growth) with low pressure freshwater wash down. (maximum 5,000 psi). If oil and grease are present, perform solvent cleaning, as per SSPC SP-1.
	Verify equipment setup, blast media, and surface preparation methods match designated test coupon.
CHECKPOINT 5 - SURFACE PREPARATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure cleanliness of prepared surface is as per specification (i.e.: SSPC SP-12, SP-11, SP-10…).
	Verify surface anchor profile using ASTM D4417-Methods B or C against SFLC Standard Specification 6310 reqs. Conduct profile readings at a minimum of 5 locations for the first 1000-sqft area, and 2 locations for each succeeding 1000-sqft area.
	Measure soluble salt conductivity in accordance with SSPC-Guide 15. Conduct 5 measurements per each 1000-sqft area (max.threshold: 70 microsiemens/cm for non-submerged surfaces, 30 microsiemens/cm for submerged surfaces).
CHECKPOINT 6 - PRIMER COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Verify proper mixing and stand-in (induction) times.
	Ensure no paint is applied when the temperature is expected to drop to freezing before the paint has dried.
	Ensure surfaces are completely dry, unless otherwise allowed by the coating manufacturer(s).
	Verify wet film thickness (WFT) at random, to prevent under or over application. Verify final DFT.
	Brush out all runs, sags, drips, and puddles.
	Perform visual inspection for holidays and other defects.
CHECKPOINT 7 – STRIPE COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure overcoating window is as per manufacturer's instructions.
	After primer coat (mist coat after inorganic zinc), brush-apply un-thinned coat of same primer paint over edges, weld seams, cut-outs, and areas of complex geometries @ 3-4 mils wet film thickness (WFT).
CHECKPOINT 8 – TOP COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure overcoating window is as per manufacturer's instructions.
	Verify proper mixing and stand-in (induction) times, as applicable.
	Verify wet film thickness at random, to prevent under or over application.
	Brush out all runs, sags, drips, and puddles.
CHECKPOINT 9 – FINAL INSPECTION	
	Verify final system DFT's. Conduct 5 sets of 3 readings for each of the first 3 100-sqft areas, followed by 5 sets of 3 readings for each succeeding 1000-sqft area.
	Ensure that system cure is in accordance with manufacturer's recommendation for intended service.
	Ensure potable water tank exhaust ventilation is maintained continuously from and during coating application through final system
	For immersion coatings (including tank U/W body), record date and time of the following events: Final coat application: _____/____; Return to service or removal from environment controls: _____/_____
CHECKPOINT 10 – RECORD KEEPING	
	Complete, sign, and submit all provided QA Inspection Forms.

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**

Instrumentation Used	Serial #	Calibration Date

WSF QUALITY CONTROL
Appendix D

QA-2A QUALITY ASSURANCE INSPECTION FORM
(SSPC – SP1 CLEANLINESS CHECKPOINT)

VESSEL	
WORK ITEM	
LOCATION	
DATE / TIME	
REESTABLISH DATE /TIME	

Accomplish SSPC-SP-1 degreasing/cleaning to ensure the removal of surface contaminants.	Date/Time:
Accomplish degreasing/cleaning a maximum of 4 hours prior to surface preparation, ensuring the adequate removal of surface contaminants.	Date/Time:
Start of Surface Preparation Coating Removal:	Date/Time:
If evidence of contamination exists, accomplish degreasing/cleaning a maximum of 4 hours prior to the application of each coat of paint to ensure removal of surface contaminants.	Date/Time:

COMMENTS

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF QUALITY CONTROL
Appendix D

QA-2B - QUALITY ASSURANCE INSPECTION FORM
(ENVIRONMENTAL READINGS)

Vessel Name	Contract #	Work Item #	Work Item Title

Use one sheet for each activity. Record conditions every four hours from before surface preparation to application of final coating system coat.							
DATE & TIME	ACTIVITY (Surface preparation, primer coat, barrier coat, top coat, etc…)	LOCATION (Frame & Deck, relation to equipment, etc.)	TEMPERATURE				% REL. HUMID-ITY
			DEW PT.	SURFACE	AMBIENT	ΔT | DP - Surface |	

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF QUALITY CONTROL
Appendix D

QA-3 - QUALITY ASSURANCE INSPECTION FORM
(SURFACE PROFILE LOG FOR PROFILE MEASUREMENTS IAW ASTM D4417-METHOD-B or METHOD C)

Vessel Name	Contract #	Work Item#	Work Item Title

Location of Work (incl. frame #'s)	Area (sqft)

SURFACE PREPARATION METHOD	PROFILE ACHIEVED (mils)		
	Min	Max	Mean
SSPC-SP-10/NACE No. 2			
SSPC-SP-12/NACE No. 5			
SSPC-SP-3			
SSPC-SP-11			
SSPC-SP-11 (inaccessible area)			
Brush-blasting (non-metallic substrate)			

Abrasive Manufacturer and Sieve Size: _____

Record measurements taken in the spaces provided below, to serve as permanent QA record. Maintain separate log for each location. When an area is divided into separate sections, maintain a separate log for each section.					
Reading:	mils	mils	mils	mils	mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	mils	mils	mils	mils	mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	mils	mils	mils	mils	mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils
Reading:	mils	mils	mils	mils	mils
Mean Mil Reading (IAW ASTM D4417-Method B or Method C) for above 10 readings (by column):					
	_____ mils	_____ mils	_____ mils	_____ mils	_____ mils

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF QUALITY CONTROL
Appendix D

QA-4 - QUALITY ASSURANCE INSPECTION FORM
(SURFACE SOLUBLE SALT CONDUCTIVITY LOG)

Vessel Name	Contract #	Work Item	Work Item Title

Location of Work (incl. frame #'s)	Area (sqft)

SOLUBLE SALT CONDUCTIVITY MEASUREMENTS IAW SSPC-GUIDE 15

DATE	TEST LOCATIONS	CONDUCTIVITY (microsiemens/cm)

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF QUALITY CONTROL
Appendix D

QA-5 - QUALITY ASSURANCE DATA FORM
(COATING THICKNESS) (Use one sheet for each sequence)

Vessel Name	Contract #	Work Item#	Work Item Title

Coating Mfg	Product Name	Batch #	Induction Time	Coating System Sequence

DRY FILM THICKNESS (DFT) MEASUREMENTS IAW SSPC-PA 2

Location (Frame Reference): _____

SPOT	1	2	3	4	5	Overall Average DFT
1						
2						
3						
Avg.						

Location (Frame Reference): _____

SPOT	1	2	3	4	5	Overall Average DFT
1						
2						
3						
Avg.						

Location (Frame Reference): _____

SPOT	1	2	3	4	5	Overall Average DFT
1						
2						
3						
Avg.						

Application Method (Airless, Conventional Spray, Rolled)	Average DFT

Name of QP-1/AMPP Inspector	Signature	Cert. #	Date / Time
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF QUALITY CONTROL
Appendix D

QA-6 - QUALITY ASSURANCE INSPECTION FORM
(TOUCH UP/SPOT COAT PRESERVATION FORM)

VESSEL	
WORK ITEM	
LOCATION	
DATE / TIME	
TOTAL SQ. FT.	

	YES	**NO**
SSPC-SP1 achieved prior to surface preparation:		
SSPC-SP_____ surface prep achieved:		
Surface Conductivity/Chloride Check satisfactory:		

	1st AC	**2nd AC**	**1st AF**	**Top Coat**
Start Date & Time				
Paint Temperature				
Paint Batch Numbers (Part A&B)				
Color				
Ambient Temperature				
Lowest Substrate Temperature				
Dew Point				
% RH				
Average DFT				
Completion Date & Time				
Cure Time (Required/Actual)				
Final Cure to Immersion	NA	NA		

Name of QP-1/AMPP Inspector	**Signature**	**Cert. #**	**Date / Time**
Name of WSF Inspector	**Signature**	**Cert. #**	**Date / Time**
Instrumentation Used	**Serial #**	**Calibration Date**	

WSF APPROVED COLOR & CHEME
Appendix E

E.1 AUTHORIZED COLOR

WSF Color Description	AMS Standard 595A Color Number
Green	14090
Haze Gray	26270
Dark Gray	26008
White	17875
Signal Yellow	13591
Black	17038
Red	11120
Beige	27780

E.2 COLOR SCHEME

- Pilothouse visors, and any other structures on the Texas deck having a canopy top with a curved edge (no coaming), are to be **Green**.
- The tops of all other structures not having a canopy top with a curved edge (has a coaming), including the pilothouse, crew's quarters, stack house, and machinery houses are to be **Haze Gray**.
- Interior curtain plates and machinery casings are to have a **Haze Gray** dado approx. 39" up from the deck, or follow the height of the first longitudinal below curtain plate window cut-outs.
- Car decks and car ramps in areas that are painted are to be **Dark Gray.**
- All other exterior decks are to be **Haze Gray**.
- All exterior white is to be **White**.
- Freeboard above the water line and below the guard will be coated with **Green**
- Underwater Hull below the waterline is to be **Black** anti-fouling.
- Draft and Hull Markings are to be **White**.
- Stanchions, railings, cap-rails, and both sides of all screens are to be painted **Green** on the Texas deck/Sun deck, and the Bridge deck.
- Railing on the car deck ramps and on the elevator access ramps shall be painted solid **Signal Yellow**.
- All curbing against the curtain plating is to have the vertical surfaces and the first six inches (6”) of the horizontal surface painted **Signal**

Yellow. The remainder of the curbing, extending to the curtain plate, is to be **Haze Gray**.

- All curbing against machinery casing and all round bumpers are to be solid **Signal Yellow**.
- The exterior curtain plate stripe above the guard is to be **Green**.
- Stacks shall be painted **White** with a **Green** stripe at the bottom and a **Black** stripe at the top.
- All fire stations, emergency stations, fire ax boxes etc., are to be **Red**.
- Exterior gutters between decks are to be painted **Haze Gray**.
- Issaquah Class Vessels shall have their masts painted **Flat Black** from the bottom edge of the Radar platform up the entire height of the mast.
- All exhaust stack tubes are to be **Flat Black** good to 1300 degrees F.
- The exterior side of doors is to be painted **White**.
- The exterior side of all machinery casing doors is to be painted **Haze Gray** unless otherwise specified.
- The interior of all shelter decks are to be White with a **Haze Gray** dado from the deck up six inches (6”), including the passenger cabin bulkheads.
- All vessels are to have a six-inch (6") **Haze Gray** dado up from the deck around the exterior passenger cabin, pilothouse and promenade bulkheads.
- Promenade decks, pickle-fork decks, and Texas decks are to be coated with **Haze Gray** non-skid in traffic areas. No non-skid is to be applied under seating, or within four inches (4") of bulkheads, coamings, or other vertical surfaces.
- Car deck non-skid walkways are to be painted with **Dark Gray** non-skid and striped with a four-inch (4") **Signal Yellow** stripe on each outside edge.
- Car decks are to have **Black** and **Signal Yellow** striping in way of elevator entrances, entry ways to machinery casings, and emergency gear lockers.
- Car deck hatches to steering gear spaces, emergency escapes, etc., are to be **Signal Yellow**.
- Car deck aprons shall have a six inch (6”) **White** fog line at the perimeter.