

UPDATE LOG FOR TECHNICAL PROVISIONS – DIVISION 9		
Date	Item(s) Changed	Page #
10/1/11	<p>TECHNICAL PROVISIONS DIVISION 9 - WELDED STEEL WATER STORAGE RESERVOIR COATING SPECIFICATIONS</p> <p>Replace the entire Technical Provision Document for Division 9.</p>	9-1 through 9-14

Change Legend:

Added

~~Strike-out~~

DIVISION 9

WELDED STEEL WATER STORAGE RESERVOIR COATING SPECIFICATIONS

9.1 General

9.1.1 Scope

The purpose of this specification is to establish methods and procedures for coating and disinfection. Work to be performed includes application of protective coatings to interior and exterior surfaces and disinfection of interior surfaces, including surface preparation and other Work necessary to accomplish the approved end result of a totally protected and usable structure. Areas to be coated shall include: all interior surfaces including, but not limited to, shell, roof plates, framing, columns, reinforcing, ladder, floor, piping, and access manholes; all exterior surfaces including, but not limited to, shell, roof, roof hatch, reservoir vents, ladder, and piping. This specification applies to both existing and proposed steel reservoirs.

9.2 Specifications and Standards

All Work and equipment shall comply with American Water Works Association Standard for Coating Steel Water Storage Tanks AWWA D102-06, as latest revised, and all referenced standards.

Without limiting the general aspects or other requirements of this specification, all Work and equipment shall conform to all applicable requirements of municipal, state, and federal codes, laws and ordinances governing the Work, The Society for Protective Coatings (SSPC) Specifications including "SSPC-VIS 1-89," coating manufacturer's printed instructions and material safety data sheets, and the National Association of Corrosion Engineers manual, T-6D-5, "A Manual for Painter's Safety."

District's decision shall be final as to interpretation and/or conflict between any of the reference codes, laws, ordinances, specifications, and standards contained herein.

9.3 Submittals

Prior to scheduling any Work, Contractor shall submit the following to District:

- a. Construction schedule showing the order in which Contractor proposes to carry out Work, method and application of all coatings, dates of anticipated commencement and completion of Work and salient components thereof, and estimated percentage of Work to be completed at any time during construction period.
- b. Manufacturer's data sheets and material safety data sheets for each coating material to be used.

- c. Manufacturer's recommendations for height profile for each coating material to be used.
- d. Color sample (4-inch x 4-inch minimum on metal panel) for exterior paint.
- e. Affidavit of compliance, after coating completion, in accordance with AWWA D102-06.

District shall approve the above Work prior to Contractor beginning any Work.

9.4 Sequence of Work

Unless specified otherwise, reservoir coating shall be performed in the following sequence:

- a. Reservoir interior surfaces (other than floor)
- b. Reservoir floor surfaces
- c. Belowground exterior surfaces
- d. Aboveground exterior surfaces

After the reservoir interior surface coating (other than floor) has been completed, District will inspect same for specified dry film thickness and holidays. Said inspection will require approximately seven working days. Contractor shall temporarily terminate Work until said inspection is completed. Contractor shall repair all defects in reservoir interior surface (other than floor) coating prior to beginning reservoir floor coating Work. All repairs shall be performed as required by District at no additional cost. If repairs are required, District will perform a re-inspection. Contractor shall temporarily terminate Work until said inspection is completed.

After the reservoir floor coating has been completed, Contractor shall perform holiday detection on same. Contractor shall repair all defects in reservoir floor coating at no cost to District until all holidays are eliminated. Reservoir floor shall be completed, inspected, repaired, and approved by District prior to starting reservoir exterior Work.

Repair Work performed by Contractor will not justify adjustment of Contract completion dates. Said Work will subject Contractor to liquidated damages if Work extends beyond Contract completion dates.

9.5 Initial Reservoir Draining and Cleaning

For interior recoating of existing reservoirs, Contractor shall provide District a written request to drain the reservoirs at least three weeks prior to desired entry date. A maximum amount of two (2) feet of water may be left in the tank for Contractor removal. Contractor shall remove any remaining water left in the tank after draining by the District. Removal of excess water may be accomplished by Contractor-supplied pumping equipment or the reservoir floor drain (if reservoir is so equipped).

Contractor is responsible for any damages caused by his draining operations, both on-site and off-site. Contractor will be required to open and close the existing man-ways to access the interior of the reservoir for Work covered within Division 9.

After excess water has been drained, Contractor shall remove any mud, rock, concrete, or any other materials remaining in the reservoir. Contractor shall not use the reservoir floor drain to remove said material. Removal of said material shall be accomplished with brooms, squeegees, shovels, and buckets.

9.6 Dewatering

Contractor shall not allow any discharges from the construction site which may have an adverse effect on receiving waters of the United States. Contractor shall, at his expense, obtain a discharge permit from the California Regional Water Quality Control Board, San Diego Region for the discharge of water from the construction site **for all phases of the construction project**. A copy of said discharge permit shall be provided to the District. Contractor shall comply with conditions therein and perform the monitoring required. If the Regional Board determines that a discharge permit is not required for said Work, then Contractor shall comply with any and all applicable criteria and conditions established by the Regional Board.

9.7 Surface Preparation

9.7.1 General

All interior welds shall be neutralized with an approved solvent, as recommended by the coating manufacturer. All surfaces shall then be abrasive-blasted by the dry abrasive blasting method. Abrasive used in the operation shall be washed and graded. It shall be free of contaminants that could interfere with adhesion of the coating to be applied. Maximum particle size of abrasive particles shall produce a height profile in accordance with the recommendations of the coating manufacturer. At all times during the blast cleaning operations, means shall be employed to ensure that the existing coating shall not be exposed to abrasion from blast cleaning operations. All surfaces must be clean, dry, and free of any dirt, dust, grease, oil, salt, and other deleterious materials before any protective coatings are applied.

All slag and weld metal accumulation and spatters not previously removed by the fabricator, erector, or installer shall be removed by chipping and grinding. All sharp edges shall be peened, ground, or otherwise blunted as required by District.

9.7.2 Interior Surfaces

Preparation of all interior surfaces to receive protective coatings shall be blast-cleaned to "near-white" metal in conformance with The Society for Protective Coatings Surface Preparation Specification SSPC-SP10 (95% of each square inch shall be free from all visible residues). For existing reservoirs, all existing coating shall be completely removed.

9.7.3 Belowground Exterior Surfaces

Preparation of all exterior surfaces to receive protective coatings shall be blast-cleaned to "near-white" metal in conformance with The Society for Protective Coatings Surface Preparation Specification SSPC-SP10 (95% of each square inch shall be free from all visible residues).

9.7.4 Aboveground Exterior Surfaces

Unless specified otherwise, preparation of all exterior surfaces to receive protective paints shall be "commercial blast-cleaned" metal in conformance with The Society for Protective Coatings Surface Preparation Specification SSPC-SP6 (67% of each square inch shall be free from all visible residues). For existing reservoirs, washing and rinsing exterior surfaces may be permitted, if specified. Surfaces shall be thoroughly scrubbed and washed with a detergent cleanser and rinsed with water until all surfaces are free from chalking paint, dirt, grease, oil, graffiti, and other materials. Cleaned surfaces shall be approved by District prior to the application of any coating. All areas where the new coating will not adhere to the old coating or where existing coating or primer have been removed or steel is exposed, shall be sandblasted to "commercial blast-cleaned" metal per SSPC-SP6.

9.7.5 Bottom of Floor Plates

Bottom of floor plates shall be thoroughly cleaned of rust, dust, filings, blisters, loose mill scale, dirt, oil, grease, and other foreign matter.

9.8 Materials

Protective coatings shall be "AMERCOAT" series as manufactured by PPG Protective & Marine Coatings of Pittsburgh, Pennsylvania, "CARBOLINE" series as manufactured by Carboline Company of St. Louis, Missouri, "DEVOE" series as manufactured by International Paint of Houston, Texas, "SHERWIN WILLIAMS" series as manufactured by The Sherwin-Williams Company of Cleveland, Ohio, or "TNEMEC" series as manufactured by Tnemec Company, Incorporated of Compton, California. All interior coating materials shall be of one manufacturer and all exterior coating materials shall be of one manufacturer.

Interior coating materials must appear on current National Sanitation Foundation (NSF) or Underwriters Laboratories (UL) Lists for Drinking Water System Components (NSF 61) and California Department of Public Health (CDPH). They shall conform to the requirements of California Air Resources Board Rule 1113 and all applicable requirements of local and state air pollution regulatory agencies. Products containing perchloroethylene or tetrachloroethylene (PCE) will not be permitted.

All materials shall be delivered to the job site in original unopened containers bearing manufacturer's name, brand, shelf life, and batch number. They shall not be opened or used until Engineer has physically inspected the contents and obtained necessary data from information printed on containers or labels. All open and all materials not approved shall be removed from the Work site before any Work shall begin. A request for material substitutions must be made and

approved by District in writing prior to submission of bids.

9.9 Application

9.9.1 General

Coating application shall conform to the requirements of this specification and to the manufacturer's coating materials printed literature.

Thinning shall only be permitted as recommended by the manufacturer and approved by the District in writing. Each application of coating shall be applied evenly, free of brush marks, sags, runs, and no evidence of poor workmanship. Care should be exercised to avoid lapping on glass or hardware. Coating and painting shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes. Over-spray of coating material shall be avoided at all times.

At the conclusion of each day's blast cleaning and coating operations, a 6-inch wide strip of blast-cleaned substrate shall remain uncoated to facilitate locating point of origin for successive day's blast cleaning operations.

9.9.2 First Coat

The application of the prime coat shall immediately follow surface preparation; it shall be completed within the period of an 8-hour working day. Contractor shall use a fine bristle broom and air to clean surfaces after abrasive blasting and prior to application of prime coat. Any such cleaned areas not receiving prime coat within said 8-hour period shall be re-blasted prior to application of prime coat. All blast-cleaned areas shall be approved by District prior to application of the coating. Any areas coated without District's approval shall be re-blasted to remove all coating, inspected, and then recoated.

9.9.3 Additional Coats

Contractor shall allow previous coat to thoroughly dry as specified herein before cleaning same. Contractor shall use a fine bristle broom and air to remove dust and other matter from each coat prior to application of any additional coats. All areas to receive additional coats shall be approved by District prior to application of said additional coats. Any areas receiving additional coats without District's approval shall be re-blasted to remove all coating, inspected, and then recoated.

9.9.4 Special Coats

9.9.4.1 Inaccessible Areas

Prior to erection, all interior surfaces (except bottom floor plates) that will be made inaccessible after erection shall be abrasive-blasted as specified herein and shall receive the complete coating system as specified herein. Such surfaces shall include, but shall not be limited to, the top flanges of rafters, the top flanges of girders, column caps, column bearing plates, earthquake bars, and drain piping.

For existing reservoirs, the coating of interior surfaces shall include all interior surface areas and metal-to-metal contact areas including, but not limited to, roof plates, rafters, and column bases. Roof plates must be wedged at the rafter for complete coverage.

The coating Contractor shall coordinate Work in inaccessible areas with a separate reservoir Contractor. The coating Contractor shall develop coating Work schedule based on the reservoir Contractor's Work schedule. The coating Contractor shall coordinate, organize, and perform his Work sufficiently in advance of the reservoir Contractor's Work so that the reservoir Contractor can accommodate the Work of the coating Contractor.

All interior and exterior surfaces of the reservoir shall have all surface preparation and coating Work performed in the field, except as provided herein. Shop priming of the interior roof plates (above the knuckle), rafter, column cap plates, rafter clips, base plates, and top of wear plates may be allowed by District provided Contractor performs the shop priming in accordance with the provisions set forth in these Specifications. This procedure shall be submitted in writing in accordance with Section 9.3 of this Specification. Costs for inspection of shop priming shall include District's representative's hourly cost, including overhead, and any cost required for travel, including air fare, hotel accommodations, and car rental including mileage on a per diem rate for the District's Representative and these costs shall be borne by Contractor. **No shop priming shall be done without written authorization of the submitted procedure and without the presence of District's Representative.**

9.9.4.2 Brush-Applied Coat

All sharp edges, nuts, bolts, welds, joints, connections, and similar surfaces shall receive a brush-applied coat of the specified coating prior to application of each complete coat. The specified coating shall be brushed in multiple directions to insure penetration and coverage.

9.9.5 Ventilation

Ventilating fans shall be attached to reservoir shell manhole to provide air exhaust near bottom of reservoir. All reservoir roof openings shall be left open to provide air supply.

- a. During coating application, Contractor shall ventilate tank coating with ventilating fans with a capacity of at least 300 cfm per gallon of coating applied per hour.
- b. At the end of each work day, Contractor shall force-ventilate reservoir interior until the next work day with a minimum of one complete air change each hour. Contractor shall force-ventilate reservoir interior over weekends and holidays with one complete air change each hour. Ventilation fans shall operate 24 hours each day.
- c. After each reservoir interior coat has been completed, Contractor shall force-ventilate reservoir interior for a minimum of three days with one complete air change each hour. Ventilation fans shall operate 24 hours each day.

- d. After reservoir interior coating has been completed, inspected, and accepted by District, Contractor shall force-ventilate reservoir interior for a minimum of 14 days with one complete air change each hour. Ventilation fans shall operate 24 hours each day.
- e. Contractor shall furnish all required equipment and labor to ventilate reservoir interior including fans, generators, fuel, and manpower to insure adherence to the ventilation requirements.

9.9.6 Dehumidification

Contractor shall provide for dehumidification of the reservoir interior during the entire period of surface preparation and application of the coating from the time Contractor has completed the final sandblast of the interior until final curing is completed. Contractor shall use a dehumidifier capable of from two (2) to four (4) complete air changes per hour operated 24 hours per day and capable of maintaining a relative humidity of 35%.

9.9.7 Safety

During abrasive blasting operations and coating applications, Contractor shall use head protection, fire protection, fall protection, and respiratory devices in accordance with AWWA D102-06. Use of these devices shall be mandatory on and strictly enforced by Contractor as his total responsibility. District's representatives will not be continuously present and shall not be responsible or liable for enforcing Contractor's adherence to these and other lawfully mandatory safety practices.

9.9.8 Skilled Craftsmen

All Work shall be performed by skilled craftsmen who are qualified to perform the required Work in a manner compatible with the best standards of practice found in the trade. Contractor or his subcontractor shall be a licensed Painting and Decorating Contractor in the State of California (Classification C-33) with a minimum of five (5) years of practical experience and successful history in the application of specified products to surfaces of steel water storage reservoirs. Upon request, Contractor shall substantiate this requirement by furnishing a written list of references.

9.9.9 Restrictions

No coating shall be applied: when the surrounding air temperature or the temperature of the surface to be coated is below 60°F or above 125°F; to wet or damp surfaces or in rain, snow, fog, or mist; when the temperature is less than 5°F above the dew point; when it is expected the air temperature will drop below 60°F or less than 5°F above the dew point within eight (8) hours after application of coating. Dew point shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables or equivalent.

If above conditions are prevalent, coating application shall be delayed or postponed until

conditions are favorable. The day's coating application shall be completed in time to permit the film sufficient drying time prior to damage by atmosphere conditions.

**9.10 Coating for Interior Surface of Reservoir and Appurtenances
AWWA Inside Coating System No. 2 (ICS-2-W), As Modified Herein**

9.10.1 Prime Coat

Prime coat shall be Devoe Bar-Rust 233H Low VOC or Tnemec Series L140 Pota-Pox Plus Epoxy. Prime coat shall consist of one coat applied at a dry film thickness of five to seven (5-7) mils.

9.10.2 Intermediate Coat

Intermediate coat shall be Devoe Bar-Rust 233H Low VOC or Tnemec Series L140 Pota-Pox Plus Epoxy. Intermediate coat shall consist of one coat applied at a dry film thickness of five to seven (5-7) mils.

9.10.3 Finish Coat

Finish coat shall be Devoe Bar-Rust 233H Low VOC or Tnemec Series L140 Pota-Pox Plus Epoxy. Finish coat shall consist of one coat applied at a dry film thickness of five to seven (5-7) mils.

9.10.4 Total Thickness

The total dry film thickness shall be fifteen to twenty-one (15-21) mils.

9.10.5 Application Requirements

Contractor shall comply with the coating manufacturer's written minimum and maximum recoat times. Nevertheless, a minimum of 24 hours shall elapse between coats. Materials shall be stirred thoroughly with a slow speed power mixer until a smooth uniform consistency is obtained. Compound shall be mixed in exact proportions specified by manufacturer. The material shall not be thinned except possibly in cold weather and then only in strict accordance with the manufacturer's written recommendations. Coatings shall not be applied when the surface temperature of the area to be coated is below 60° F.

9.10.6 Dry Film Thickness Verification

After adequate curing, District will measure the thickness of the coating in accordance with SSPC-PA 2 to insure that the specified dry film thickness has been obtained.

9.10.7 Cure Time

Time of cure between application of the finish coat and filling the reservoir with water for disinfection, filling, testing, and sampling, shall be per the coating manufacturer's written recommendations.

9.10.8 Color

Each coat shall be a different color than the preceding coat. The final coat shall be Tnemac "Tank White" color number WH02, or equal.

9.10.9 Caulking

Contractor shall caulk all baseplate perimeters on the reservoir floor and the lapped steel roof plates on the underside of the roof structure for each reservoir with SIKAFLEX-1A (NSF 61 approved caulking) after completion of the interior recoating.

9.11 Coating of Belowground Exterior Surfaces

Coating the underside of the reservoir floor is not required.

9.12 Coating for Exterior Reservoir Surfaces and Appurtenances AWWA Outside Coating System No. 5 (OCS-5-S), As Modified Herein

9.12.1 Prime Coat

Prime coat shall be Sherwin-Williams Recoatable Epoxy Primer Low VOC or Devoe Bar-Rust 231L applied to a dry film thickness of five to six (5-6) mils, or Amercoat Amerlock 2 VOC applied to a dry film thickness of four to five (4-5) mils.

Prime coat shall not be required for existing reservoirs where the steel is not exposed.

9.12.2 Intermediate Coat

Intermediate coat shall be Sherwin-Williams Recoatable Epoxy Primer Low VOC , Devoe Bar-Rust 231L, or Amercoat Amerlock 2 VOC applied to a dry film thickness of four to five (4-5) mils. Intermediate coat shall be applied at such locations as required by the Engineer to cover thin or uneven areas after Prime Coat has been applied.

Intermediate coat may or may not be required for existing reservoirs where steel is not exposed. A determination shall be made by the Engineer based on condition of the existing coating and proposed finish coat.

9.12.3 Finish Coat

Finish coat shall be Sherwin-Williams Hi-Solids Polyurethane 100 or Devoe Devthane 378H applied to a dry film thickness of three to four (3-4) mils, or Amercoat Amershield VOC applied to a dry film thickness of four to five (4-5) mils.

When coating existing reservoirs, the finish coat shall be compatible with the existing coating system.

9.12.4 Total Thickness

The total dry film thickness shall be eight to ten (8-10) mils.

9.12.5 Application Requirements

Time period between recoats shall be per the coating manufacturer's written recommendations.

9.12.6 Dry Film Thickness Verification

After adequate curing, District will measure the thickness of the coating in accordance with SSPC-PA 2 to insure that the specified dry film thickness has been obtained.

9.12.7 Color

The final color shall be approved by District prior to coating. Contractor shall submit a current chart of the manufacturer's available colors to District well in advance of coating operations. If the color or colors applied do not conform to those approved by District, applicator shall change the color or colors to District's satisfaction.

In addition, the Contractor shall paint a small section of the reservoir with the proposed final color. Said sample shall be approved by the District prior to the Contractor ordering the final coat for the reservoir.

9.13 Disinfection

Reservoirs shall be disinfected in accordance with *both* Chlorination Method 2 *and* Chlorination Method 3 as set forth in AWWA C652, latest edition, Sections 4.3.2 and 4.3.3.

9.14 Cleanup

Contractor shall, at his own expense, minimize the effects of dust, overspray, and noise to the surrounding properties and Contractor shall keep the project sites clean during all stages of construction. Contractor shall comply with all federal, state, and local laws, ordinances, or rules and regulations relating to these effects.

Upon completion of The Work, all staging, scaffolding, containers, chunks of hot-applied enamel, rags, pieces of enamel, spent abrasive, and all materials and equipment used in the performance of The Work shall be removed from the site. All damage to surfaces resulting from The Work shall be cleaned, repaired, or refinished to the complete satisfaction of District.

Materials, by their composition, that come within the category of a hazardous waste by virtue of ruling by federal, state, or county regional environmental control agencies within the framework of federal and state laws shall be disposed of in a manner prescribed by these rules and laws. Contractor shall have the removed coating materials tested for hazardous and toxic components by a qualified testing laboratory in accordance with the California Administrative Code of

Environmental Health, Title 22, Division 4. The test results shall include a determination by the testing laboratory as to whether or not the material is in compliance with the limits set forth in Title 22 for both STLC and TTLC values. If deemed hazardous, the removed coating material, including the spent abrasive, if applicable, must be removed, transported, and disposed of in strict accordance with Title 22. A written notification of the intent to dispose of the waste must be made to the California Department of Public Health (CDPH) whether sold to a recycling firm or consigned to a hazardous waste hauler. A receipt for the disposition of these materials shall be obtained from the consignee, and a certified copy given the District showing the amounts and destination or end use. The cost for processing and disposing of these wastes shall be included in the various bid items set forth in these documents and no additional compensation will be granted therefore.

9.15 Inspection

Unless specified otherwise, District will inspect Work as follows:

9.15.1 Surface Preparation

To facilitate inspection, Contractor shall, on the first day of abrasive blasting operations, blast metal panels furnished by District to the degree specified herein. After District determines that specific panels meet the requirements of the specification, they shall be coated with a clear, non-yellowing finish (provided by Contractor). Panels shall be prepared for each type of sandblasting specified and shall be maintained and utilized by District for all Contract Work.

After each section of the reservoir has been abrasive-blasted, it shall be inspected and approved by District prior to the application of any coating or paint. District will inspect for specified height profile by the use of a profile meter. To allow District the opportunity to inspect each blasted area, Contractor shall clean said surfaces with a fine bristle broom and air and furnish scaffolding and lighting (including moving of same) to permit inspection as requested by District.

9.15.2 Coating

Each coat shall be approved by District for specified cleaning before subsequent coats are applied. All areas coated without said approval shall be sandblasted to remove all coatings and re-coated after the specified inspection, at no additional cost to the District.

9.15.3 Holiday Detection and Dry Film Thickness Verification

District will perform dry film thickness measurements and holiday detection. All areas will be measured for specified dry film thickness in accordance with SSPC-PA 2 and all interior areas will be holiday tested with special emphasis on bolts, welds, and edges. All areas not meeting the specified dry film thickness and all areas with holidays shall be repaired by Contractor as directed by District. All repairs shall be performed at no cost to District.

9.15.4 Illumination and Scaffolding

Whenever and wherever required by the District's Representative, Contractor shall furnish illumination (level of illumination as determined by District) and scaffolding (level of scaffolding as

determined by District) to permit inspection prior to acceptance of Work. Contractor shall move lights and scaffolding as directed by District to enable inspection of all surfaces, inside and out.

9.15.5 Anniversary Inspection

Prior to expiration of the guarantee period, all coatings (interior and exterior) of the reservoir will be inspected for defects. Contractor shall attend the anniversary inspection. District will notify Contractor of any needed repair Work prior to the expiration period. Contractor shall perform such Work on a timely basis after making arrangements with District to do so. All costs associated with the anniversary inspection (e.g. draining, cleaning, repair of coating, disinfection, bacteriological tests, etc.) shall be paid by Contractor.

If District is unable to remove reservoir from service for the anniversary inspection, Contractor shall provide diving services to inspect, videotape, and repair the reservoir, at no additional cost to District. If the interior surfaces need coating repair, Contractor shall repair all defects with AquataPoxy A-7 underwater epoxy applied by an approved and certified installer.

9.15.6 Payment for Inspection

District will provide one free inspection for each sandblasting and coating application. Contractor will be charged for all additional inspections of sandblasting and coating applications. District will also provide one free final inspection consisting of dry film thickness measurements and holiday detection. If Work does not meet the coating Specifications, Contractor will be charged for all subsequent inspections required to insure compliance with said Specifications. If additional inspections and repairs are required during the one year warranty period, the costs of said inspections (e.g. draining, cleaning, repair of coating, disinfection, bacteriological tests, etc.) shall be paid by Contractor.

9.16 One Year Warranty Inspection

9.16.1 General

A warranty inspection will be conducted during the tenth month following completion of all coating (interior and exterior) Work and acceptance of the project. It shall be the responsibility of Contractor to coordinate the inspection operations with District. All personnel present at the pre-construction conference shall be present at this inspection. All defective Work shall be repaired in strict accordance with the Contract Documents and to the satisfaction of District. Contractor shall perform the warranty inspection and repair Work on a timely basis after making arrangements with District to do so.

9.16.2 Notification

The District will establish the date for the inspection and notify Contractor at least thirty (30) days in advance. **At District's option, District will drain the reservoir and Contractor shall provide, at his expense, suitable lighting, scaffolding, and ventilation for the inspection. Contractor will be required to open and close all man-ways and to clean the reservoir, if required for**

inspection. If District cannot drain the reservoir, District will require the inspection of the full reservoir to be performed by a certified diving inspector at Contractor's expense.

9.16.3 Inspection

The entire exterior and/or interior coating system shall be visually inspected by Contractor in the presence of the District's Representative. All defective coating as well as damaged or rusting spots of the tank shall be satisfactorily repaired by Contractor. All repair areas shall then be electrically tested. Any remaining defects shall continue to be repaired until specifications are met.

9.16.4 Inspection by Certified Divers

Inspection of the entire interior coating system of a full reservoir shall be performed in accordance with AWWA C652-92, or latest, and all federal, state, and local rules and regulations including, but not limited to, OSHA and CAL-OSHA.

A dive team shall consist of a minimum of two fully-suited persons. Each diver shall use a rubber dry suit, encapsulated hard hat helmet with external or surface-supplied air source, and full-time voice communication with surface personnel. The dive inspection shall consist of a video camera capable of supplying live video feed to the surface for viewing by surface personnel and the District's Representative. The video feed shall also be recorded on tape for District's use.

9.16.5 Inspection Report

District will prepare and deliver to Contractor an inspection summary covering the first anniversary inspection, setting forth the number and type of failures observed, the percentage of the surface area where failures occurred, and the names of the persons making the inspection. For diving inspections, the taped video and completed diver's inspection report will satisfy the requirements of this section.

9.16.6 Schedule

Upon completion of the inspection and receipt of the inspection report as noted above, District will establish a date for Contractor to proceed with remedial work. Any delay on the part of Contractor to meet the schedule established by District shall constitute breach of this Contract and District may proceed to have the defects remedied at the expense of Contractor.

9.16.7 Remedial Work

Any location where the coating has peeled, bubbled, or cracked, and any location where rusting is evident, shall be considered to be a failure of the system. Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surface, and recoating with the specified coating system. If the area of failure exceeds 25% of the total coated surface, the entire coating system shall be required to be removed and recoated in accordance with the specified coating system, at Contractor's expense. For minor interior repair work in a full reservoir, Contractor shall repair all defects with AquataPoxy A-7 underwater epoxy applied by an

approved and certified installer.

9.16.8 Costs

All costs for Contractor's warranty inspection and all costs for repair shall be borne by Contractor. During preparation of the bid, Contractor shall include an appropriate amount for the warranty inspection and repair including, but not limited to, reservoir draining, cleaning, repair of coating, disinfection, and bacteriological tests.