

DIVISION 500 - RECOATING SPECIFICATION

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501. GENERAL

501.1 Project Description

The El Pueblo Clear Well Storage Tank is a welded steel tank built in 1970. The reservoir is 46 feet in diameter and 32 feet tall with a nominal capacity of 400,000 gallons. The existing interior coating system consists of hot mop enamel on the floor and up the shell 4', the shell roof and rafters coal tar epoxy. The system is failed in areas below and above the water line and throughout the roof area which displays significant rust, pitting accumulation. The District anticipates welding repairs throughout the tank and should be in the Contractors schedule. Welding repairs shall be completed after the first blast; repaired areas will be re blasted as per the specifications. All welding repairs shall be completed prior to the application of the prime coat. The existing exterior coating system appears to consist of either alkyd enamel or epoxy system. The tank exterior shall be abrasive blasted; The District requires full containment during abrasive blasting and coating operations. The tank is located in Scotts Valley California. The Contractor shall have a current C-33 license.

Tank interior surface preparation specified is for white metal blast SSPC-Sp#5. Continuous dehumidification is required until interior coatings have fully cured. Power is unavailable at this site. The Contractor will be required to provide generators. The exterior roof, shell and all appurtenances will require power abrasive blasting to SSPC-Sp#10 near white metal. The contract time for this project is 50 working days and liquidated damages may apply for failure to complete the project within the specified contract period.

501.2 Project Schedule

The work covered under this project as defined in these Contract Documents shall be diligently prosecuted in accordance with the schedule proposed by the Contractor and approved by the Engineer to insure completion within **50-working days** from the date of the Notice to Proceed.

Time for performance shall start running on the day after the date of the Notice to Proceed, and shall run continuously thereafter, excluding Saturdays, Sundays, and District-Observed holidays.

The storage reservoir to be painted is an integral element of the Scotts Valley Water District's water distribution system. The removal of this tank from the system for needed maintenance causes certain unavoidable risks for the customers and the District as well as additional maintenance responsibilities for District staff. To minimize the risks and hardships associated with taking these tanks offline, it is necessary to establish firm schedule requirements and set significant financial penalties if the Contractor does not meet these scheduling requirements.

The Contractor shall be responsible for supplying power necessary to complete all work.

Liquidated Damages shall be enforced per Section 1-08.11, "Assessment of Damages for Delay (Liquidated Damages)" SVWD Standard Specifications if the work is not completed by the Contractor in the time specified herewith. The Contractor shall refer to Sections 1-08.10, "Compensation to the District for Delay," Section 1-03.14, "Damages for Delay (Liquidated Damages)," and Division 1, "General Conditions" for additional provisions.

SCHEDULE OF LIQUIDATED DAMAGES		
ORIGINAL AMOUNT OF CONTRACT		PER DIEM AMOUNT OF LIQUIDATED DAMAGES
FOR MORE THAN	UP TO AND INCLUDING	
\$0.00	\$100,000.00	\$500.00
\$100,000.00	\$500,000.00	\$500.00
\$500,000.00	\$1,000,000.00	\$750.00
\$1,000,000.00	\$2,000,000.00	\$1,000.00
OVER \$2,000,000.00		AS SPECIFIED

501.3 Protection of Property and Materials

Description

Section 106.13, "Protection of Property and Utilities" of the Standard Specifications is amended with the provisions of Section 501.2, "Protection of Property and Materials".

In accordance with the provisions of Section 106.13, "Protection of Property and Utilities" of the Standard Specifications, the Contractor shall contact each property owner near the tank sites at the District's direction. The District Engineer shall provide a list to the Contractor of property owners to be notified, at least two days prior to start of work. The Contractor shall keep said residents fully informed of the plan of operation throughout the course of this contract.

No work shall be permitted before 8 AM nor after 5 PM each working day, except for emergencies as defined in the Standard Specifications and Standard Plans. No work shall be performed on weekends or holidays without prior written approval of the District Engineer. For the purposes of this Section, the word "work" shall mean all noise producing activities including but not limited to starting of trucks or equipment, haulage, construction, and transiting the access roads. Due to the need for continuous dehumidification from start of white metal abrasive blasting (SP #5) until a minimum of seven (7) days after final coat application and completion of all repairs.

The Contractor shall protect all public and private road surfaces used during construction and shall restore said surfaces to an equivalent or better condition upon completion of all work, at no additional cost to the District. During the course of work, the Contractor shall make any interim repairs or maintenance to access road surfaces, as necessary, at the direction of the District Engineer, at no additional cost to the District.

Facilities including but not limited to catch basins, retaining walls, curbs, gutters, structures, and fences shall be protected from damage by construction activities. The Contractor shall repair or remove and replace damaged improvements as directed by the District Engineer, at no additional cost to the District.

Measurement and Payment

All costs associated with the protection of property and materials adjacent to the work site shall be considered as included in the contract unit or lump sum prices for other items of work. No additional compensation will be considered therefore.

501.4 Pre-construction Conferences

A pre-construction conference will be scheduled after award of the contract and before the actual work on the project. The arranged time and place will be mutually agreeable between the District Engineer and the Contractor. The Contractor, together with the person to be designated as the Contractor's Foreman for the project, shall attend the meeting.

During the pre-construction conference, the Contractor shall submit the proposed construction schedule for review and acceptance, and certify conformance with the Contract Documents.

The schedule shall specify tasks and time periods for completing each task.

The Contractor shall supply the District with material submittals during the pre-construction conference or within 10-calendar days thereafter. The submittals shall be supplied per SVWD Section 107.10, "Submittals".

501.5 Superintendence

The Contractor shall have on the job site at all times a competent superintendent/foreman with proper authority to represent the Contractor and all directions given by the District shall be as binding as given to the Contractor.

The Contractor should refer to SVWD Specification 106.05, "Superintendence" for further information regarding superintendence.

501.6 Insurance Requirements

The Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:

Coverage

Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:

- a) Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001)
- b) Insurance Services Office (ISO) Business Auto Coverage (Form CA 0001), covering Symbol 1 (any auto)

Limits

The Contractor shall maintain limits no less than the following:

- c) General Liability - One million dollars (\$1,000,000) per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit or products-completed operations aggregate limit is used, either the general aggregate limit shall apply separately to the

project/location (with the ISO CG 2503, or ISO CG 2504, or insurer's equivalent endorsement provided to the Scotts Valley Water District) or the general aggregate limit and products-completed operations aggregate limit shall be twice the required occurrence limit.

- d) Automobile Liability - One million dollars (\$1,000,000) for bodily injury and property damage each accident limit.

Required Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

- e) The Scotts Valley Water District, its directors, officers, employees, and authorized volunteers are to be given insured status (via ISO endorsement CG 2010, CG 2033, or insurer's equivalent for general liability coverage) as respects: liability arising out of activities performed by or on behalf of the Contractors; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; and automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Scotts Valley Water District, its directors, officers, employees, or authorized volunteers.
- f) For any claims related to this project, the Contractor's insurance shall be primary insurance as respects the Scotts Valley Water District, its directors, officers, employees, or authorized volunteers. Any insurance, self-insurance, or other coverage maintained by the Scotts Valley Water District, its directors, officers, employees, or authorized volunteers shall not contribute to it.
- g) Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the Scotts Valley Water District, its directors, officers, employees, or authorized volunteers.
- h) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- i) Each insurance policy required by this agreement shall state, or be endorsed to state, that the insurance carrier or the Contractor shall not cancel coverage, except after thirty (30) days (10 days for non-payment of premium) prior written notice by U.S. mail has been given to the Scotts Valley Water District.

Such liability insurance shall indemnify the Contractor and his/her sub-contractors against loss from liability imposed by law upon, or assumed under contract by, the Contractor or his/her sub-contractors for damages on account of such bodily injury (including death), property damage, personal injury, completed operations, and products liability.

The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation, and removal of lateral support.

The automobile liability policy shall cover all owned, non-owned, and hired automobiles.

All of the insurance shall be provided on policy forms and through companies satisfactory to the Scotts Valley Water District.

Deductibles and Self-Insured Retentions

- j) Any deductible or self-insured retention must be declared to and approved by the Scotts Valley Water District. At the option of the Scotts Valley Water District, the insurer shall either reduce or eliminate such deductibles or self-insured retentions.

Acceptability of Insurers

- k) Insurance is to be placed with insurers having a current A.M. Best rating of no less than A:VII or equivalent or as otherwise approved by the Scotts Valley Water District.

Workers' Compensation and Employer's Liability Insurance

- l) The Contractor and all sub-contractors shall insure (or be a qualified self-insured) under the applicable laws relating to workers' compensation insurance, all of their employees working on or about the construction site, in accordance with the "Workers' Compensation and Insurance Act", Division IV of the Labor Code of the State of California and any Acts amendatory thereof. The Contractor shall provide employer's liability insurance with limits of no less than \$1,000,000 each accident, \$1,000,000 disease policy limit, and \$1,000,000 disease each employee.

Responsibility for Work

- m) Until the completion and final acceptance by the Scotts Valley Water District of all the work under and implied by this agreement, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erectations, and repairs occasioned or rendered necessary by causes of any nature whatsoever.
- n) The Contractor shall provide and maintain builder's risk insurance (or installation floater) covering all risks of direct physical loss, damage or destruction to the work in the amount specified in the General Conditions, to insure against such losses until final acceptance of the work by the Scotts Valley Water District. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The Scotts Valley Water District, its directors, officers, employees, and authorized volunteers shall be named insured on any such policy. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the Scotts Valley Water District or be construed as relieving the Contractor or his/her subcontractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the Scotts Valley Water District.
- o) The Contractor shall waive all rights of subrogation against the Scotts Valley Water District, its directors, officers, employees, or authorized volunteers.

Evidences of Insurance

- p) Prior to execution of the agreement, the Contractor shall file with the Scotts Valley Water District a certificate of insurance (Acord Form 25-S or equivalent) signed by the insurer's representative evidencing the coverage required by this agreement. Such evidence shall include an additional insured endorsement signed by the insurer's representative and evidence of waiver of rights of subrogation against the Scotts Valley Water District (if builder's risk insurance is applicable). Such evidence shall also

include confirmation that coverage includes or has been modified to include Required Provisions 1-5.

- q) The Contractor shall, upon demand of the Scotts Valley Water District, deliver to the Scotts Valley Water District such policy or policies of insurance and the receipts for payment of premiums thereon.

Continuation of Coverage

- r) If any of the required coverage expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against the Scotts Valley Water District (if builder's risk insurance is applicable) to the Scotts Valley Water District at least ten (10) days prior to the expiration date.

Sub-Contractors

- s) In the event that the Contractor employs other contractors (sub-contractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above.

501.7 Hold Harmless and Indemnification

To the fullest extent permitted by law, Contractor shall indemnify and hold harmless and defend Scotts Valley Water District, its directors, officers, employees, or authorized volunteers, and each of them from and against:

- a) Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind or nature whatsoever for, but not limited to, injury to or death of any person including Scotts Valley Water District and/or Contractor, or any directors, officers, employees, or authorized volunteers of Scotts Valley Water District or Contractor, and damages to or destruction of property of any person, including but not limited to, Scotts Valley Water District and/or Contractor or their directors, officers, employees, or authorized volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement, however caused, regardless of any negligence of Scotts Valley Water District or its directors, officers, employees, or authorized volunteers, except the sole negligence or willful misconduct or active negligence of Scotts Valley Water District or its directors, officers, employees, or authorized volunteers.
- b) Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor;
- c) Any and all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under the agreement. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.

- d) The Contractor shall defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions, or other legal proceedings of every kind that may be brought or instituted against Scotts Valley Water District or its directors, officers, employees, or authorized volunteers.
- e) The Contractor shall pay and satisfy any judgment, award or decree that may be rendered against Scotts Valley Water District or its directors, officers, employees, or authorized volunteers, in any and all such suits, actions, or other legal proceedings.
- f) Contractor shall reimburse Scotts Valley Water District or its directors, officers, employees, or authorized volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.
- g) Contractor's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the Scotts Valley Water District, or its directors, officers, employees, or authorized volunteers.

502. MOBILIZATION

502.1 General Description

Site preparation shall consist of work necessary to prepare the project site for construction improvements. This may include removal of vegetation for site access.

Property and Materials Protection shall extend to facility items on site, roadway/driveway or other access into the site, and other associated materials. The Contractor shall protect Property and Materials during the entire duration of the project.

The Contractor shall provide a minimum of one (1) chemical toilet of suitable type at the construction site and maintain the facilities in a sanitary condition, including cleaning and servicing at regular intervals. Facilities shall not cause a nuisance to the public.

502.2 Measurement And Payment

Under this item, the Contractor shall perform site work as described in these Special Provisions.

All costs associated with disposal, demolition and clearing shall be considered as included in the contract unit or lump sum prices for Mobilization. No additional compensation will be considered therefore. Payment will be made on a lump sum basis.

503. PREPARATION AND PAINTING OF TANK INTERIOR

503.1 Scope of Work

The Contractor shall provide all labor, materials, equipment and incidentals required to remove the existing interior coatings and repaint the reservoir interior shell, floor, ladder, overflow, ceiling, roof drain piping, and other miscellaneous steel on the interior of the 400,000 gallon, 46 foot diameter by 32 foot tall El Pueblo Clear Well Storage Tank with an epoxy coating system, in three coats. The District requires a full prime coat over the entire tank interior.

When the new coating has completely cured, the Contractor shall clean and disinfect the reservoir. After filling the reservoir, the District shall test the reservoir waters for bacteriologic and volatile organic contamination, and for aesthetic quality. The District shall not accept recoating work until the reservoir water meets California Department of Public Health (DPH) and federal drinking water

standards. In addition, the tank will not be accepted until the coating system is free of odor associated with the coating product and does not impart any adverse aesthetic quality to District water. The District shall retain a water sample of the reservoir water prior to emptying the reservoir for construction operations. The taste and odor shall meet the quality of post construction retained sample.

The Contractor shall dispose of all wastes from abrasive blasting and any other wastes or debris generated during work. The Contractor shall sample and test wastes as required by applicable regulatory agencies, and as necessary for classification of wastes prior to disposal. The Contractor shall bear all costs for waste sampling, testing, accumulation, transport, and disposal, including the cost for wastes classified as hazardous and non-hazardous.

The Contractor should expect that the entire surface under the existing coatings is corroded or has mill scale and shall provide for conditions accordingly including complete removal of such materials down to bare steel and providing (SSPC-SP#5) “White Metal Blast Cleaning” to allow for proper adhesion of the interior coating system.

The District shall conduct a one-year anniversary inspection and the Contractor shall provide floor protection, lighting, and scaffolding during the inspection. The Contractor shall be present at the inspection.

When considering the proposed work schedule, the Contractor shall allow three (3) consecutive working days for the District to fill the Reservoir after the coating has cured.

At least two days prior to start of work, the contractor shall arrange with the District for a pre-preparation conference at the job site to ensure that all parties are familiar with the entire project, including specifications and the manufacturer’s printed application instructions.

503.2 Governing Standards

The following standards (including the most recent update or version) shall govern the work unless specified otherwise in these specifications:

SSPC-Vol.1, Steel Structures Painting Manual, Good Painting Practice.

SSPC-Vol.2, Steel Structures Painting Manual, Systems and Specifications.

SSPC-SP 1	Solvent Cleaning
SSPC-SP 2	Hand Tool Cleaning
SSPC-SP 3	Power Tool Cleaning
SSPC-SP 5	White Metal Blast Cleaning
SSPC-SP 6	Commercial Blast Cleaning
SSPC-SP 7	Brush-Off Blast Cleaning
SSPC-SP 10	Near White Blast Cleaning
SSPC-SP 11	Power Tool Cleaning to Bare Metal
SSPC-AB 1	Mineral and Slag Abrasives
SSPC-PA 1	Shop, Field and Maintenance Painting
SSPS-PA 2	Measurement of Dry Paint Thickness with Magnetic Gages
SSPS-PA Guide 3	Guide to Safety in Paint Application
SSPC-Guide to Vis 1-89	Visual Standard for Abrasive Blast Cleaned Steel
SSPC-V15 (3-93)	Visual Standard for Power and Hand-Tool Cleaned Steel

AWWA D102-97, Standard for Painting Steel Water-Storage Tanks

AWWA C652, Disinfection of Water Storage Facilities.

All applicable OSHA and safety standards.

503.3 Submittals

The Contractor shall submit all submittals in accordance with SVWD Section 107.10, “Submittals”.

The Contractor shall provide a separate submittal for each material to be used in the work, including, but not limited to, submittals for Abrasive materials, Paint systems, Thinners, and any other additives

The Contractor shall include the following data in the interior coating system submittal:

1. Weight in pounds/gallon – ASTM D-2196
2. % solids by volume – ASTM D-2369
3. Percent solids by weight – ASTM D-2369
4. Air cure dry time to re-coat – ASTM D-1640
5. Minimum adhesion to steel substrate – ASTM D-4541
6. Adhesion between coats – ASTM D-4541
7. Manufacturer’s batch numbers and dates of manufacture for materials to be furnished as part of this project.

The Contractor shall include technical data documenting that the material to be provided complies with these specifications. Submittals will not be accepted until all requirements of this specification have been confirmed.

The Contractor shall include the following data in the manufacturer’s recommended handling and installation instructions for the proposed paint system submittal:

1. Storage – including maximum and minimum storage temperatures
2. Surface preparation
3. Coating repair
4. Application equipment
5. Mixing and application of coating system – including a table of minimum and maximum time to re-coat as a function of temperature
6. Curing – including curing time required before holiday testing, and curing time required before immersion as function of temperature and coating thickness. Minimum and maximum re-coat times.
7. Ventilation
8. Acceptable temperatures at the time of application
9. Thinner Addition – including maximum percent concentration allowable for potable water systems applications.
10. Containment system and dust collection system

The Contractor shall include the following data in the equipment submittal:

1. Details of vacuum system for removing dust and abrasive from abrasive blast cleaned surfaces; and,
2. The manufacturer’s latest written operation instructions including recommendations for air filter maintenance and change interval for air compressors used for work.

The Contractor shall include the following data in the report submittal:

1. Actual weight of blast cleaning abrasive used for field abrasive blast cleaning, submitted within 24 hours after blasting is completed.
2. Quantity of coating material used for each coat, submitted within 24 hours after completion of each coat.
3. Name of laboratories proposed to be used to test wastes or other materials prior to testing any materials.
4. Laboratory test results for representative waste samples prior to removing any waste materials from the job site. At a minimum, the samples shall be tested for total concentrations of the 17 metals identified in Title 22, for comparison to Total Threshold

Limit Concentrations (TTLC) values. The California Waste Extraction Test (WET) shall be performed for each analyte of each sample for which the total concentration exceeds 10 times the STLC value, if any, as specified in Title 22. Toxicity Characteristic Leaching Procedure (TCLP) testing shall be performed for each analyte of each sample for which the total concentration exceeds 20 times the TCLP values, if any, specified in the Federal Resource Conservation and Recovery Act. Reactivity, Corrosivity, and Ignitability testing shall be performed as required by Title 22 and/or the District or representative of the disposal facility.

5. Receipts from disposal site for all wastes. Receipts shall identify disposed material and source, show quantity of disposed material in tons or cubic yards, and show method used for final disposition as buried, incinerated, chemically treated, and/or other means.
6. Quantity of thinner used for each coat and total amount used.

The Contractor shall include the following data in the disposal plan submittal:

1. Certification that the materials disposal plan complies with all applicable requirements of: the Federal Resource Conservation and Recovery Act; Title 22 and Title 26 of the California Administrative Code; and other applicable regulations of local, state and federal agencies having jurisdiction over the disposal of spent abrasive blast media, removed coating materials, and other waste, whether hazardous or non-hazardous.
2. The name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will sample and test spent abrasive blast media and removed coating materials. Include statement of the laboratory's certified testing areas and analyses that the laboratory is qualified to perform.
3. Written permission to dispose of material from disposal site representative. Include name, address, and telephone number of disposal site and of representative.
4. The District shall provide written acceptance of the disposal plan prior to disposal of any wastes.

503.4 Quality Assurance

Qualifications

1. The Contractor shall provide evidence of regular engagement in application of similar coatings for at least two years prior to commencement of this work.
2. The Contractor shall certify in writing that foremen and workers on-site shall be experienced and knowledgeable in preparation for and application of high performance industrial coatings.

The Contractor's workmanship shall conform to standards and recommendations of SSPC Vol. 1, especially Chapters 5.1 and 6.

The District may use any testing method deemed necessary by the District Coating Inspector to verify quality of work. The District may, but is not required to, monitor the quality of work pursuant to this section.

The Contractor shall ensure proper materials handling and use, including: all coating materials are labeled and used in accordance with SSPC-PA 1, Paragraphs 5.1.1 thru 5.1.5, except all coating system materials without a stated shelf life shall be delivered and used within six months of the date of manufacture; and certification, from any source, that the coating system materials are still suitable for use beyond the stated shelf life or beyond the six month period specified above will not be accepted.

The Contractor shall perform the necessary quality assurance in accordance with an approved plan.

The Contractor shall comply with the following conditions in collection and analysis of wastes:

1. All testing of spent abrasive blast media and removed coating materials to classify these wastes as hazardous or non-hazardous shall be performed by a laboratory that complies with and is certified under the Environmental Laboratory Accreditation Program (ELAP) of the California Department of Health Services.
2. Any Laboratory performing analysis shall provide for comparison to TTLC, STLC, TCLP limits, and RCA limits, and to all other applicable regulatory limits. Laboratory shall retain samples at least ninety (90) calendar days after all analyses are complete.
3. The Contractor shall ensure collection of as many representative samples as required by the representative of the disposal facility, but not less than 4 total.
4. The Contractor shall ensure the following: each sample shall have an identifying sample number assigned when the sample is taken; each sample number shall be included on the sampling chain of custody and in all reports, correspondence, and other documentation related to the sample; each sample shall have a sampling chain of custody; and, each chain of custody shall show the name and organization of each person having custody of the sample, and also show the sample number, job name and location, time of day and date sample was taken, material sampled, and tests to be performed.
5. The Contractor shall notify the District at least 24 hours prior to sampling collection for the purpose of District verification of samples collected.

Manufacturer's Representative

The Contractor shall, at no cost to the District, provide a qualified technical representative of the coating system manufacturer at the job-site as required by the District to resolve problems related to the coating system or the application of the system.

503.5 Delivery, Storage, And Handling

The Contractor shall deliver materials as follows:

1. Delivery of abrasive grit shall be in original moisture-proof bags or airtight bulk containers.
2. Delivery of coating system materials shall be in original, unopened containers with seals unbroken and labels intact. Labels shall identify type of material, color, and batch number.

The Contractor shall store materials as follows:

1. Store materials in a single, approved location.
2. Store coating system materials in enclosed and ventilated structures, and maintain temperature inside the structure within the temperature range recommended by the manufacturer.
3. Keep storage location clean, neat, and free of fire hazards.

The Contractor shall handle materials as follows:

1. Avoid spilling thinners, solvents, paint products or other materials that contain toxic substances.
2. Remove discarded thinners, solvents, and paint products from the job-site daily.

503.6 Safety

The Contractor shall comply with all Federal, State, and Local applicable safety regulations and requirements.

503.7 Existing Interior Coatings

The District assumes present coating system is the second coating system re-coated in 1983.

The Contractor shall bear all cost associated with stripping, handling, storing, testing, transport, and disposal of all waste. It shall be the Contractor's responsibility to estimate the quantity and classification of waste associated with work.

503.8 Warranty

Anniversary inspection requirements and failure criteria shall be in accordance with AWWA D-102, Section 9, except as modified herein.

The District will conduct a first anniversary warranty inspection approximately one year following final acceptance of the work, including inspection of the interior and exterior of the tank. The District will establish the date of the inspection and will notify the Contractor at least thirty (30) calendar days in advance of the inspection.

The Contractor shall furnish ventilation, scaffolding, and lighting equipment as necessary for any warranty inspections, and shall be present for such inspections.

The District will provide an inspection report to the Contractor detailing the number and types of failures observed, the percentage of surface area where failures have occurred, and the names of the persons making the inspections.

The District shall consider any location where coating has delaminated, peeled, blistered, or cracked; and any location where rusting is evident as failure of the coating system. In addition, the District shall consider photographs or reports of the coating imperfections or failures as acceptable evidence of failure.

The Contractor shall be liable for all remedial work including repair of all failures by removing the deteriorated coating, cleaning the surface, and recoating with the same system in accordance with this Section. The District may allow surface preparation of small failures (areas less than 1 sq ft.) by cleaning to bare metal in accordance with appropriate SSPC-SP standards, however, the method of repair is at the sole discretion of the District.

The District will prepare a schedule for remedial work completion, to be no more than thirty (30) calendar days after the submittal of the inspection report to the Contractor. Upon failure of the Contractor to commence remedial work within ten calendar days after the starting date established by the District, the District may at its option, retain another Contractor to perform the remedial work. The Contractor shall be liable for actual cost of all such remedial work plus a 20 percent District administrative cost.

The Contractor shall bear the expense of all warranty inspections of the remedial work required by the District.

503.9 Products For Interior Coating System Materials

The Contractor shall provide one of the following new interior coating systems consisting of high solids epoxy recommended for corrosion protection of steel water storage tanks: #233H, by Devoe; 140 Porta-Pox Plus by Tnemec; or #400 by Ameron. Solids content shall not be less than 65% by weight. Volatile organic compound concentration shall be less than 250 grams per liter.

The materials shall consist of a three-coat system in accordance with DOD-C-24654, and including a primer that shall contrast with the white or special colors selected for the intermediate and finish coats as described in the AWWA standard D102.97 4.3.3.

The Contractor shall not use or allow to come in contact with any portion of the tank interior, any coating system and/or any thinners or additives which have not been approved and listed by the National Sanitation Foundation, Standard 61 (NSF 61) for use in potable water reservoirs.

The Contractor shall provide coating “certified non-lead” (less than 0.06 percent lead by weight in the dried film) as defined in Part 1303 of the Consumer Products Safety Act.

503.10 Abrasives

The Contractor shall use abrasive grit for field blast cleaning conforming to the following:

1. Produce a surface profile of 1.5 to 2.5 mils
2. New, clean and free of contaminants, and containing no hazardous materials.
3. Certified by California Air Resources Board, Executive Order G-565.
4. Conform to all applicable requirements of the local Air Quality District.
5. Copper slag will not be allowed.

503.11 Quality Control

The Contractor shall provide adequate lighting, without shadows, during all phases of work to insure that work is performed as specified and that the entire work area is illuminated.

The Contractor shall provide ground supported scaffolding and lighting, as determined by the Inspector, to facilitate visual and instrument inspection by the Inspector of each phase of the work and of the completed work, as so placed as directed to minimize glare and shadows.

The Contractor shall provide personnel to move scaffolding and furnish other assistance to District Inspectors as required.

The District Coating Inspector will examine surfaces after blast cleaning to verify that all deposits of contaminants have been removed. The Contractor shall blow down, or vacuum all surfaces prior to District inspection.

The Contractor shall verify at a minimum of two times daily that air supply is free of oil and moisture contamination. The Contractor shall use effective oil, air dryers and water separators in all main compressor airlines and shall be placed as close as practicable to the equipment. Prior to using compressed air, the Contractor shall test the quality of air downstream of the separators at suitable outlets by blowing the air on clean white blotter for 2 minutes to check for any contamination, oil, or moisture.

The Contractor shall daily: measure air temperature, humidity, relative humidity, and metal surface temperature, and determine dew point and relative humidity prior to abrasive blasting or painting; provide portable temperature / humidity recorders to provide continuous permanent hard copy of the reservoir conditions; and, repeat measurements and determination of dew point as often as the District Inspector deems necessary but not less often than every four hours.

The Contractor shall maintain a written record of measurements and dew points, and time that measurements were taken, keep such record on-site, and make records available to District Inspector on request.

The Contractor shall furnish 2 rolls of Testex tape 1.5 to 2.5 mils X-course prior to the start of abrasive blasting. The District Coating Inspector may evaluate surface preparation using field abrasive blasting standards, and Testex tape. Evaluation may include inspection of blasted surfaces for dust and abrasive residue, using clear adhesive coated tape. Evaluation will be made immediately prior to coating application.

The Contractor shall verify cleanliness of all spray application equipment prior to, or no later than, time of mixing coating material.

The Contractor shall measure wet film thickness during coating application of coating to ensure

adequate coating thickness, taking at least one measurement for each 100 square feet of application area.

The Contractor shall measure dry film thickness after each coat using a non-destructive magnetic dry film thickness gauges, as follows:

1. Measure in accordance with SSPC-PA 2 except: Delete paragraph 3.1.1 through 3.1.3 and replace with: “for each 1,000 square feet area, three 100 square feet areas shall be randomly selected and measured.”
2. The District Coating Inspector may, but is not required to, also measure coating thickness, at random locations, after each coat.
3. The District Coating Inspector may evaluate cleanliness of coated surface immediately prior to application of a subsequent coat.

The Contractor shall test all coated surfaces for pinholes and holidays after application of the final coat in accordance with the following:

1. Perform test in presence of the District Coating Inspector.
2. Perform test after coating has cured as recommended by the manufacturer.
3. Use an appropriate detector, such as a D.E Sterns Model 14/20 or as approved by the District representative.
4. Re-test after coating repairs.
5. The District may hire a third party inspector to inspect Contractor’s work, but the ultimate responsibility for the quality of the Contractor’s work and the performance of contractual obligations remains with the Contractor.

503.12 Limiting Environmental Conditions

The Contractor shall not abrasive blast when air temperature is less than 5°F above dew point.

The Contractor shall apply coatings only when conditions are within the limits prescribed by the manufacturer and shall not apply coatings when the following conditions exist:

1. Metal temperature is less than 50°F.
2. Relative humidity is greater than 60 percent.

503.13 Dehumidification

The Contractor shall provide dehumidification as required to establish and maintain the specified temperature and relative humidity inside the reservoir. The Contractor shall complete any blasting, coating and testing operations within the duration of time as specified in Section 501.01, “Project Schedule”. The District shall not provide a time extension for weather delay. The Contractor shall bear all cost and liability for work resulting from dehumidification equipment failure, breakdown, power failure, or down time.

The Contractor shall provide dehumidification continuously from start of white metal (SP #5) abrasive blasting, until a minimum of seven (7) days after application of final coat and all repairs are completed, or for a longer period as recommended by the coating system’s manufacturer.

The Contractor shall provide dehumidification equipment consisting of a solid desiccant (not liquid, granular, or loose lithium chloride) design having a single rotary desiccant bed capable of continuous operation, fully automatic with drip-proof electrical controller. Air heaters alone are not acceptable as dehumidification units.

The Contractor shall ensure that relative humidity of processed air from dehumidification unit not

exceed forty percent.

The Contractor shall ensure dehumidification equipment provides a minimum of two complete air changes inside the reservoir every sixty minutes.

The Contractor shall ensure areas adjacent to the surface that is to be blasted and coated are not exposed to a relative humidity greater than forty-five percent at any time during blasting, cleaning, coating, or curing.

The Contractor shall ensure that during blast cleaning and coating, and for 48 hours after final coat and all repairs are completed, dehumidification units maintain an air temperature of 60°F minimum inside the reservoir.

The Contractor shall ensure dehumidification equipment is placed as close to reservoir manhole as possible.

The Contractor shall ensure cleaning of dehumidification filters prior to start of dehumidification and weekly cleaning thereafter.

The Contractor shall ensure dehumidification tubing is maintained as follows:

1. Mechanically connected and sealed with duct tape at joints.
2. Extended to the center of the Reservoir and attached to a diffuser that will distribute air equally throughout Reservoir.
3. Have no dust or other foreign matter inside tubing.

The Contractor shall provide and maintain 24-hour strip chart recorder for humidity and temperature and place humidity and temperature measuring devices inside reservoir.

503.14 Preparation

The Contractor shall prepare surfaces to be coated in accordance with the coating manufacturer's instructions but not less than specified herein.

The Contractor shall clean surfaces including: removal of all visible oil, grease, dirt, welding residue, and other contaminants from areas to be coated; inspection using a black light to locate oil and grease; and removal of slag and weld metal accumulation and splatters by chipping or grinding as required.

The Contractor shall provide blast cleaning including: removal of existing coating, under film corrosion, corrosion, and other corrosion products from all areas to be coated; and, preparation of all surfaces to be coated by abrasive blast cleaning to SSPC-SP 5 with a surface profile of 1.5 to 2.5 mils.

The Contractor shall ensure complete abrasive blast cleaning of metal prior to application of coating system.

The Contractor shall not reuse abrasive blast media unless the media is specifically designed for reuse.

The Contractor shall ensure maintenance of abrasive blasting equipment including:

1. Installation of an oil moisture separator in the airline between compressor and blast machine.

2. Installation of an air cooler in the airline between the compressor and the oil and moisture separator.
3. Use of venturi nozzle.
4. Changing of compressor air filters at least as often as required by compressor manufacturer's written instructions.

The Contractor shall ensure all surfaces to be blast cleaned are electrically grounded during blast cleaning.

The Contractor shall provide exhaust air dust collectors to prevent discharge of dust to outside air.

The Contractor shall mask-off and protect all exposed machined metal surfaces, plastic, and other surfaces not to be painted or that may be damaged by abrasive blasting.

The Contractor shall remove all dust and abrasive from freshly blasted surfaces by use of a District approved vacuum system.

The Contractor shall dispose of abrasive blast media and other waste materials off-site and in accordance with approved material disposal plan and discard material directly from Reservoir to a portable container and remove container from site. The Contractor shall ensure media is not placed on ground or other intermediate location.

503.15 Application

The Contractor shall adhere to general application requirements as follows:

1. Mix and apply all coatings in accordance with the manufacturer's recommendations and instructions, the applicable requirements of SSPC-PA 1, and as specified herein. No split kits shall be allowed.
2. Obtain Inspector's evaluation and approval of steel surface preparation immediately prior to application of first coat.
3. Obtain Inspector's evaluation and approval of cleanliness of previous coat immediately prior to application of a subsequent coat.
4. Stripe coat all welds, bolts, nuts, washers, and edges by brush only, between the first coat and second coat.
5. Completely coat all surfaces above floor prior to coating floor.
6. For each portion of the Reservoir-shell, roof, and floor, complete application of first coat before application of second coat.
7. Re-stripe all welds, bolts, nuts, washers, and edges by brush only, between the second coat and finish coat.
8. Apply coatings by airless spray except:
 - Areas of less than 3 square inches may be brushed.
 - Required brush striping of welds, nuts, bolts, and edges.
9. Apply coatings at a temperature recommended by manufacturer. Prior to mixing, coating materials shall be not less than 60°F. Use explosion-proof inline heaters, as necessary.
10. Discard all catalyzed coatings at the end of each working day or at the end of manufacturer's recommended pot life, whichever is first.
11. Scaffolding or other support system shall be free of abrasive blast media, dirt, and other foreign matter.
12. After each coat and immediately prior to application of a subsequent coat, clean surface as required to remove dirt, dust, over-spray, and other contaminants that may affect adhesion of the subsequent coat.
13. Each coat shall be a different color than the preceding coat. Additional coats, where required, shall be tinted to provide color contrast but finish coat shall be color specified.

14. Finish coat shall be uniform in color and gloss over the entire surface. Finish coat shall be smooth to touch with no sags, runs, over-spray, cracks, pinholes or other surface defects.
15. Coating should not be applied closer than 6 inches from an unprepared surface.

The Contractor shall provide color as follows, all interior coatings shall be NSF approved:

1. First coat: White
2. Second coat: Different than first and finish coats
3. Finish coat: White

The Contractor shall provide a Dry Film Thickness (DFT) as follows:

1. First coat: Devco #233H 5.0 mils minimum to 6.0 mils maximum
2. Second coat: Devco #233H 5.0 mils minimum to 6.0 mils maximum
3. Finish coat: Devco #233H 5.0 mils minimum to 6.0 mils maximum

Minimum total DFT: 15.0 mils

Maximum total DFT: 18.0 mils

4. The Contractor shall remove areas of paint in excess of allowable mils specified.

Note: The Contractor shall provide additional coats to achieve specified minimum dry film thickness.

The Contractor shall provide application equipment as follows:

5. Airless spray pump in compliance with manufacturer's requirements, having an anti-freeze device, and fluid filter.
6. Use fluid tip size recommended by manufacturer.
7. Use 3/8" minimum interior diameter fluid hose.
8. Use clean fluid lines not previously used to apply zinc-rich or water-based coating materials.
9. Clean equipment using only products recommended by the coating manufacturer.
10. Blow lines to remove all thinners prior to painting.

The Contractor shall provide coating repairs as follows:

11. Touch-up or refinish all chipped, abraded, or otherwise unsatisfactory portions of the work in accordance with the manufacturer's recommendations.
12. Re-coating or touch-up of areas that have cured beyond the maximum time recommended by the manufacturer require the following special preparation:
 - Sweep blast area and 3-inches into the surrounding area. Sweep blast under low pressure to uniformly abrade surface and feather edges. Feather edges by sanding or other means acceptable to the Inspector.
 - Remove abrasive blast residue from blasted area with special attention to marginal areas of intact coating.
 - Clean area with a bond solvent recommend by the manufacturer.

503.16 Interior Curing and Cleaning

The Contractor shall ensure curing of all coatings by forced heated air ventilation for a minimum of 168 (ventilating) hours, or longer if recommended by the manufacturer after coating application and repairs are completed. Curing shall include:

1. Providing ventilation at a rate of at least one complete air change every four hours.
2. Equipment shall have a time recorder that provides a cumulative record of operating time.
3. Deliver air from ventilating fan to center of reservoir through continuous flexible duct that is not reduced in area from the fan outlet.

Prior to re-installation of roof vent covers removed during forced air ventilation, the Contractor shall

ensure cleaning as follows:

4. Clean dust and abrasive-blasting residue from the roof ventilation screens.
5. Thoroughly wash down with water all interior surfaces, including but not limited to, roof, walls, floor, piping and supports.
6. Steam clean surfaces where necessary.

503.17 Shell to Roof Junction Gap Caulking

After epoxy finish coat is cured (finger nail depression test), the Contractor shall completely fill the shell to roof juncture gap with Sikaflex-1A caulking or approved substitute to provide a tightly adherent, smooth and continuous seam of caulk.

503.18 Manway Gasket Replacement

The Contractor shall supply new manway gaskets for all manways of the tank. The Contractor shall supply new gaskets, for all flanges exposed during the project.

503.19 Reservoir Disinfection

Prior to wash down and disinfection the Contractor shall provide a letter to the District that the Reservoir is fully cured and ready to be placed in potable water service. Upon complete curing, the Contractor shall submit in writing to the District certification that the coating is cured and ready to be placed into service for disinfection and testing. Reservoir cleaning and disinfection shall not commence without written certification.

After all other work has been completed, the Contractor shall ensure that the interior of the Reservoir is thoroughly cleaned and disinfected in accordance with the most current edition of AWWA C652, Disinfection of Water Storage Facilities. The Contractor shall ensure the reservoir is disinfected in accordance with Chlorination Method 2, which requires spray wash of the Reservoir interior with a 200-mg/ml chlorine solution. Contractor shall notify SVWD Operations Manager 1 working day prior to chlorination and SVWD Treatment Supervisor shall provide inspection during chlorination. The District will assist the Contractor in filling the Reservoir and the Contractor shall allow three (3) consecutive working days for the owner to fill the Reservoir.

The Contractor shall furnish all cleaning and disinfection materials and all equipment and labor necessary for the cleaning and disinfecting operations.

After the first 24 hours have elapsed once the tank is full, the District will take a sample of the water to be used for bacteriological contaminants. If the results of this test are negative, the tank will be considered satisfactorily disinfected. If the results are positive, the tank shall be emptied and super-chlorinated using sodium hypochlorite to a residual of no less than 50 mg/L for a period of 24 hours.

The Contractor shall ensure that any water used in cleaning and in disinfection of the Reservoir, is discharged in a manner acceptable to the District and the appropriate water pollution control agency. The Contractor shall ensure all water discharged is de-chlorinated under the supervision of the SVWD Treatment Supervisor.

503.20 Soak Period & Testing For Volatile Organic Compounds

The Contractor shall ensure that water in the Reservoir is allowed to soak for five (5) days after the Reservoir has been filled to the over-flow level and disinfected.

After the five-day soak period the District will sample and submit a single sample to a certified laboratory to test the water for presence of organic chemical contaminants (e.g. TCE, PCE, etc.) possibly having leached from the new paint system. The sample is to be tested in accordance with

EPA Method 524.2. The water sample will be collected by the District in the presence of the Contractor and should be a true representation of the water in the Reservoir at the time.

After the five-day soak period the District will sample and submit a single sample to a certified laboratory to test the water for general physical properties. The analysis will include a test for odor, measured on the TON scale. The results of this test will be used as consideration for aesthetic water quality.

The Contractor shall be liable for all cost associated with re-testing water if reservoir water draining and refilling is necessary.

The District Engineer shall evaluate and determine acceptability of the aesthetic quality of the water as a condition of final acceptance of the work. Constituent levels found from sample results which are at or below regulated maximum contaminant levels specified by state and federal standards shall not be the sole basis for tank acceptance.

The District Engineer may reject all work or a portion thereof based on any adverse taste or odor detected or other conditions affecting the aesthetic quality of the water.

503.20-503.21 Disposal of Existing Coatings and Spent Abrasive Blast Media

The Contractor shall dispose of spent abrasive blast media and removed coating materials in accordance with a District approved disposal plan.

The Contractor shall coordinate and pay all costs for sampling and testing of spent abrasive blast media and removed coating materials in order to document waste class. Minimum sampling and testing requirements are listed previously in this Section.

Prior to removal of hazardous wastes off-site, the Contractor shall allow adequate time for District to review laboratory test results, as well as the time required to obtain a Hazardous Waste Generator's U.S. EPA ID Number, if required.

The District will provide the Contractor with written notice to dispose of all or a portion of the spent abrasive blast media and/or removal coating materials as hazardous waste, if so determined by the District that such disposal is required.

The Contractor shall be responsible for all costs associated with accumulating, transporting, and disposing of spent abrasive blast media and removed coating materials.

503.21-503.22 Clean-Up

Upon completion of the work, the Contractor shall make a detailed inspection of all work.

The Contractor shall be solely responsible for all paint over-spray or dust fallout claims.

The Contractor shall remove all spattering, spits, and blemishes.

Upon completion, of work, the Contractor shall remove all staging, tarps, scaffolding, and containers from the site, including but not limited to: paint and thinner containers and excess paint and thinner (to be disposed of in conformance to all current regulations); paint spots removed and the entire job site cleaned; all damage to surfaces resulting from the work from this section to be cleaned, repaired or refinished to the complete satisfaction of the District. All clean up shall be completed within 7 calendar days starting at the last day of holiday testing of the reservoir. The Contractor shall allow adequate time for District for review of laboratory test results, as well as the time required to obtain a Hazardous Waste Generator's U.S. EPA ID Number if required.

The District will provide the Contractor with written notice to dispose of all or a portion of the spent abrasive blast media and/or removed coating materials, as required.

The Contractor shall bear all costs associated with site cleanup.

503.22-503.23 Measurement and Payment

Under this item, the Contractor shall remove all existing coatings from the inside of the tank and sandblast interior surfaces. The Contractor shall then recoat the tank interior using the system specified. The Contractor shall also provide the necessary environmental controls (dehumidification, heaters, enclosures, etc) and arrange with District for the VOC testing, disinfecting of the tank, and arrange with District for bacteriological testing.

Payment will be made on a lump sum basis in accordance with Section 1-08, “Measurement and Payment” of the Standard Specifications.

504. PREPARATION AND PAINTING OF TANK EXTERIOR

504.1 Scope

The Contractor shall properly prepare all exterior surfaces of the water storage tank including, shell, roof, ladders, structural supports, bracing, piping, and appurtenances. The Contractor shall apply a coating system as indicated herein and in a manner prescribed by these specifications and the manufacturers printed application instructions.

At least two days prior to start of work, the Contractor shall arrange with the District for a pre-preparation conference at the job site to ensure that all parties involved are familiar with the entire project, including all specifications, safety codes, and job site conditions

504.2 Materials

The District provides the following protective coatings manufacturers, as specified herein, as a standard of quality, or equal. All finish colors shall be colored at the factory as a dry grind only, no quick colors shall be accepted.

Tnemec	Ameron	DEVOE
PO Box 3540	475 Industrial Way	1476 Contra Costa Blvd.
Napa, CA 94558	Benecia, CA 94510	Pleasant Hill, CA 94523
707-226-1801	800-747-4950	510-685-2722

504.3 Reference Standards

The Contractor shall comply with the requirements of the Steel Structures Painting Council Painting Manual, Volume 1 and 2, Good Painting Practices, including the National Association of Corrosion Engineers, American Society of Testing and Materials, and American Water Works Association D-102-97, for application and surface preparation.

The Contractor shall consult the District Engineer regarding any situations not covered by the

reference standards or this specification; however, it is the Contractor not the District that is ultimately responsible for proper exterior coating application.

504.4 Submittals

The Contractor shall submit the manufacturers latest written product data sheets on each product to be used, and current manufacturer's safety data sheets (M.S.D.S.) on all materials to be used in the surface and coating operations including abrasives, thinners, cleaning fluids, and solvents.

The Contractor shall submit, for the District Engineer's acceptance, a written program detailing measures for containment equipment and dust and over-spray control.

The Contractor shall submit, for the District Engineer's acceptance, minimum and maximum re-coat times for each coating product.

The Contractor shall maintain on the job site at all times M.S.D.S. and product data sheets.

504.5 Delivery

The Contractor shall assure the all materials delivered to the job site are in their original unopened containers.

The Contractor shall not use any product older than twelve months from the manufacturer's factory batch date as listed on the container.

504.6 Storage

The Contractor shall submit, for the District Engineer's acceptance, a specified material storage area and store all materials in the approved location.

The Contractor shall maintain material storage areas in a clean condition, free of solvent rags, and wastepaper. The Contractor shall remove debris and other fire hazards and dispose of such items in accordance with all the applicable regulations at the end of each work day.

504.7 Safety

This project is subject to all applicable Safety and Health regulations and Industry Safety Standards.

The Contractor shall submit a notarized letter signed by a principal officer certifying the Contractor fully complies with the California Code of Safety Regulations and the Federal Code of Regulations pertaining to the scope of this project, but not limited to the following; as well as any other applicable orders, codes, ordinances, or laws, State, Federal, and Local. (GISO-General Industry Safety Orders, CSO-Construction Safety Orders, CFR-Code of Federal Regulations).

Title	Code Regulation	Section
Illness Injury Prevention Program	CSO/GISO	1508-3203
Hazard Communication	GISO	5194
Emergency Medical Service	CSO	1512
Safety Instructions for Employees	CSO	1510
Dust, Fumes, Mist, Vapors, and Gases	CSO	1528
Metal Scaffolding	CSO	1644
General Industry Standards	29 CFR	1910.1025
Respiratory Protection	CSO/GISO	1531-5144

504.8 Hazardous Substances

The Contractor shall exercise extreme care when handling or disposing of materials or substances listed in Section 8-339 of Division 4 (California Code of Occupational Safety And Health Regulations) of Title 26 (Toxics) of the California Code of Regulations, or as evidenced by the M.S.D.S.

The Contractor shall immediately notify the District Engineer of any spill of material that is a hazardous substance in accordance with the appropriate jurisdiction.

The existing tank exterior coating has been analyzed. Results are included in Appendix A-2 Existing Coatings Analysis Results.

504.9 Dust/Over-Spray Control

The Contractor shall provide adequate dust and over-spray control from the coating and surface preparation operations to prevent damage or nuisance to property or persons, full containment is required.

The Contractor shall be solely responsible for all claims resulting from dust and over-spray control from the coating and surface preparation operations or any damage or nuisance to property or persons.

504.10 Workmanship

The Contractor shall provide written evidence to the District Engineer that workers furnished have performed quality work and possess experience and knowledge in surface preparation and the application of high performance industrial coatings.

The Contractor shall provide written evidence to the District Engineer that the Contractor has a minimum of two years experience in the painting of water storage tanks and a current list of water tank painting projects for the past two years (two minimum).

The Contractor shall conform to the standards of craftsmanship as discussed in the Steel Structures Painting Council's Painting Manual, Volume 1, Good Painting Practice. These techniques include, but are not limited to: multiple passes of the spray gun, with each pass overlapped 50%, and "cross hatching" successive coats of paint.

504.11 Equipment

The Contractor shall use properly functioning equipment capable of performing the task required herein that is, the high pressure blasting equipment shall be capable of providing 95 psi minimum at the blast nozzle(s).

504.12 Surface Preparation

The Contractor shall prepare all surfaces to be painted as per SSPC-SP 1.

The Contractor shall spot repair all areas referenced in the Inspectors report, directed by the Inspector and as directed by the District Engineer. The roof, shell, ladder, piping and all appurtenances shall be abrasive blasted to SSPC-Sp#10 near white metal.

The Contractor shall schedule cleaning and painting so that detrimental amounts of dust or other contaminants do not fall on wet, or newly painted surfaces. Surfaces not to be painted shall be suitably protected from the effects of cleaning and painting operations. Prior to priming, surfaces shall be cleaned by a combination of blowing with clean dry air with a 1/2" hose with a shut off device, vacuuming, brooming, or as directed by the District Engineer.

504.13 Pre-Cleaning

The Contractor shall clean and make free of grease and oil the top concourse of the shell (as per SSPC-SP 1 "Solvent Cleaning").

504.14 Metal and Weld Preparation

The Contractor shall remove by grinding all surface defects such as welding and torch cut slag, welding flux, and or splatter.

504.15 Degree of Cleanliness

The Roof and all steel attachments shall be abrasive blasted to SSPC-Sp #10 near white metal.

504.16 Air Compressors

The Contractor shall remove from the work site air compressors that are undersized or will not supply sufficient air for the coating operations.

504.17 Coating Application/ Environmental Conditions

The Contractor shall not apply coating when any of the following conditions occur: metal temperature is less than five degrees above the dew point; expected weather conditions are such that the temperature will drop below forty-five degrees within five hours after the coating has been applied; or, when the relative humidity is above eighty percent.

The Contractor shall measure relative humidity and dew point using a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables.

504.18 Application Procedures

The Contractor shall apply all coatings in accordance with the manufacturer's latest written recommendations and the best state of the art techniques that will result in a finish that is free of runs, sags, pinholes, dry spray, orange peel, or de-laminations.

The Contractor shall bring all materials to the job site in the original factory sealed containers. The

Contractor shall not use any material until the Engineer has inspected the contents and obtained the information from the containers or labels. All materials shall be mixed as full kits only. Materials shall only be thinned with the manufacturer’s recommended thinners, and will be thinned as required to adjust for viscosity for temperature variations, proper atomization and flow. Thinning shall not exceed the Local, State, or Federal V.O.C. limits. Any catalyzed material remaining at the end of each day shall be properly discarded. The entire primer application shall be complete before the finish coat is applied.

In order to prevent the degradation or contamination of cleaned surfaces, the first coat of paint shall be applied immediately after the surfaces have been cleaned and approved by the Inspector. Succeeding coats shall be applied before contamination of the under surface occurs.

504.19 Curing

Each coat of paint shall be allowed to either dry or cure for the amount of time recommended by the coating manufacture before successive coats of paint are applied.

All successive coats of paint shall be applied within the re-coat threshold time as recommended by the manufacturer.

504.20 Color Scheme

The Contractor shall submit color chips at least 3-inches by 5-inches in dimension within twenty five days prior to the start of application of the exterior top coat. The Contractor shall order final coating materials only after receiving written approval from the District Engineer. Failure to obtain the District’s approval prior to ordering shall not be cause for additional compensation.

504.21 Exterior Surfaces- Coating Systems

The Contractor shall full prime all exterior surfaces including, shell, roof, hatches, vents, ladders and piping.

The following are three different coating systems approved by the District. All primer and finish coats shall be of one Manufacturer.

TNEMEC COMPANY

Prime Coat: Series 135 Surface tolerant epoxy at 5.0-8.0 dry mils

Finish Coat: Series 74/75-Color Edura-Shield at 3.0-4.0 dry mils

System minimum 8.0 mils dft.

AMERON

Primer: Amerlock #400 Surface tolerant epoxy @ 5.0-8.0 mils dft.

Finish: Amercoat Amershield aliphatic polyurethane @ 3.0-4.0-mils dft.

System minimum 8.0 mils dft.

DEVOE

Primer: Bar-Rust #235H Surface tolerant epoxy @ 5.0-8.0 mils dft.

Finish: Devthane 379H aliphatic gloss polyurethane @ 3.0-4.0 mils dft.

System minimum 8.0 mils dft.

504.22 Film Thickness

The tank Coating Inspector shall inspect film thickness with a non-destructive dry film thickness gauge (e.g., Posi-Tech 6000). The Contractor shall provide to the District upon request U.S. Department of Commerce, Bureau of Standards calibration plates to verify accuracy.

504.23 Coating Repairs

If it is necessary to touch-up or re-coat damaged areas after the coatings have cured beyond the maximum re-coat time, the Contractor shall prepare surfaces prior to applying touch-up paint. The Contractor shall mask off and spray designated areas only.

504.24 Contractor's Responsibility

The Contractor shall dispose of any residual waste from surface preparation operations in compliance with all Federal, State, and Local regulations. The Contractor shall ensure that all openings are covered and protected to prevent over-spray from entering the Reservoir. The Contractor will be responsible for all costs in the event of contamination of the water inside the Reservoir.

504.25 Site Restoration

Upon completion of the work, the Contractor shall restore the site to the original condition, including removing all trash and other debris from the site.

504.26 Steel Tank 1-Year Inspection

At the time of tank acceptance for service, the District Engineer shall schedule the first anniversary inspection provided for in AWWA D102-97. The inspection of the tank shall be scheduled for a date between the first day of the eleventh month and the thirtieth day of the thirteenth month following acceptance. This schedule for the inspection shall be considered tentative and the Contractor will be notified of the inspection schedule no later than the first day of the tenth month following acceptance of the tank. In scheduling this inspection, the Contractor shall notify Sub-Contractors.

Upon completion of this inspection, the inspecting firm will prepare a report that includes but is not limited to, the methods used in the inspection, the equipment and personnel on hand at the time of the inspection, a summary of findings, photographs of all deficiencies found, and any other information relevant to the condition and maintenance of the tank.

The Contractor shall have a representative on site at the time of inspection to authorize any minor repairs the inspection subcontractor is willing to perform during or directly after the inspection.

504.27 Omissions

Care has been taken to delineate herein those surfaces to be coated. However, if the coating requirements have been inadvertently omitted from this section or any other section of the specifications, it is intended that all metal surfaces unless specifically exempted herein, shall receive a first class protective system equal to that given the same type surface pursuant to these specifications.

504.28 Measurement and Payment

Under this item, the Contractor shall spot clean and prepare the tank exterior surface as per these special provisions. The existing exterior coating contains lead, and the Contractor is responsible for the disposal of any hazardous material that is generated from this project and shall be in

conformance with all federal, state, and local regulations. The Contractor shall then spot coat the tank exterior using the system specified.

Payment will be made on a lump sum basis in accordance with Section 1-08, “Measurement and Payment” of the Standard Specifications.

505. CONTRACTOR/COATING INSPECTOR INTERACTION & COMPLIANCE

505.1 Inspection

The District has retained a coating inspection firm to oversee all quality control related to coating operations. The tank inspector will report directly to the District Engineer and shall act with the Engineer’s authority in all matters related to tank construction. The Inspector will be an N.A.C.E. Certified Coating Inspector, who will inspect any or all phases of work to be performed as outlined herein. The tank inspector shall be an addition to the District Inspector; authority shall be limited to tank related work only. The District Inspector shall remain the primary observer for all work on the project. The tank inspector shall work for and report to the District. The Contractor shall not rely upon the tank inspector for documentation of environmental conditions and assuring compliance with plans and specifications.

The Contractor shall notify the District Engineer in advance (48 hours minimum) of all surface preparation or paint application in order to perform a preliminary examination and provide acceptance of the surface preparation and each coat prior to application of the next coat.

The Coating Inspector shall examine all materials, tools, and equipment to be used in the blasting and coating operations and shall have the authority to direct the Contractor to remove, replace, or repair any materials, tools, or equipment found not to be in conformance with the Contract Documents including the approved shop drawings and manufacturer’s recommendations. The tank inspector will also observe the Contractor’s safety activities throughout blasting and coating operations and the Contractor shall immediately rectify any deficiencies noted in that observation. The Contractor shall be fully responsible for compliance with all safety measures, hazardous and toxic materials regulations, and site security. Observation of or failure to observe any safety efforts of the Contractor by the Tank Inspector shall not relieve the Contractor of this responsibility nor shall any liability transfer from the Contractor to the District or the Tank Inspector. The Contractor shall indemnify, defend, and save harmless the District and the Tank Inspector from all liability associated therewith.

The SSPC-Vis1 pictorial surface standards along with dry film and wet film thickness gauges will be used by the Coating Inspector to determine acceptability of the paint application. The Contractor shall provide necessary testing equipment to perform the above-mentioned tests.

The Contractor shall afford the tank inspector all reasonable facilities and assistance in monitoring the coating and priming operations. The Contractor shall provide weekly copies of their daily work reports to the tank Coating Inspector. Such reports shall include, but not be limited to, the day and date of work performed, the relevant weather conditions, the type and amount of work performed, all work related to the safety of the operation, and personnel assigned to work actually performed.

To facilitate adequate inspection of all surfaces, the Contractor shall provide scaffolding or rigging necessary for the Coating Inspector to perform dry film thickness readings, and visual holiday inspection as required by these specifications and reference standards. The Contractor shall provide personnel to move scaffolding or rigging at the instructions of the Engineer.

The tank Coating Inspector shall have authority to direct the Contractor to suspend operations when

environmental conditions fall outside the manufacturer's recommended parameters. The Contractor shall comply with these directions and shall not proceed until the tank Coating Inspector determines environmental conditions are sufficient to proceed. Failure to suspend coating operations as directed or restarting work without the direction of the tank Coating Inspector shall be cause for rejection of work so performed.

The Contractor shall immediately remove and replace all such work in accordance with these Project Special Provisions and directions of the tank inspector. No additional compensation will be allowed for work resulting from failure to comply with the tank inspector or for surfaces not otherwise conforming to the provisions of these Project Special Provisions.

505.2 Coating Inspector Authority

The tank Coating Inspector shall have authority to direct the Contractor to suspend operations when environmental conditions fall outside the manufacturer's recommended parameters.

The Contractor shall comply with directions and shall not proceed until the tank Coating Inspector determines environmental conditions are sufficient to proceed. Failure to suspend coating operations as directed or restarting work without the direction of the tank Coating Inspector shall be cause for rejection of work so performed.

The Contractor shall immediately remove and replace all such work in accordance with these Project Special Provisions and directions of the Coating Inspector.

No additional compensation will be allowed for work resulting from failure to comply with the tank inspector or for surfaces not otherwise conforming to the provisions of these Project Special Provisions.

505.3 Safety

The Contractor shall provide a safe work environment at all times. In the event the Coating Inspector or Engineer notes any safety deficiencies, the Contractor shall immediately rectify noted deficiencies.

The Contractor shall be fully responsible for compliance with all safety measures, hazardous and toxic materials regulations, and site security. Observation of or failure to observe any safety deficiencies of the Contractor by the Coating Inspector or Engineer shall not relieve the Contractor of this responsibility nor shall any liability transfer from the Contractor to the District or the Coating Inspector.

The Contractor shall save harmless the District and the Coating Inspector from all liability associated therewith.

505.4 Inspection Assistance

To facilitate adequate inspection of all surfaces, the Contractor shall provide scaffolding or rigging necessary for the Coating Inspector to perform dry film thickness readings, and visual holiday inspection as required by these specifications and reference standards.

The Contractor shall provide personnel to move scaffolding or rigging at the instructions of the Coating Inspector.

505.5 Notification

The Contractor shall notify the Coating Inspector in advance (48 hours minimum) of all surface preparation or paint application in order to perform a preliminary examination and provide

acceptance of the surface preparation and each coat prior to application of the next coat.

505.6 Acceptability for Paint Application

The SSPC-Vis1 pictorial surface standards along with dry film and wet film thickness gauges will be used by the Coating Inspector to determine acceptability of the paint application.

The Contractor shall provide necessary testing equipment to perform the above-mentioned tests.

505.7 Reporting

The Contractor shall afford the Coating Inspector all reasonable facilities and assistance in monitoring the coating and priming operations.

The Contractor shall provide weekly copies of daily work reports to the tank Coating Inspector. Such reports shall include, but not be limited to, the day and date of work performed, the type and amount of work performed, all work related to the safety of the operation, and personnel assigned to work actually performed.

506. Appendix

- A-1 Vicinity/Site Map
- A-2 Existing Coatings Analysis Results