

BID SPECIFICATIONS FOR TREATMENT
PLANTS HYDROPNEUMATIC TANKS
INTERIOR COATINGS

SPECIFICATIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Work by Contractor
- B. Work by Owner

1.02 WORK BY CONTRACTOR

- A. The Contractor(s) shall provide labor, material, equipment (including safety equipment) and supervision to paint the interior of one (1) 10,000 gallon hydro-pneumatic tank located at 4400 Pollard Road, one (1) 3,254 gallon hydro-pneumatic tank located at 734 Lake Ned Road, and one (1) 8,000 gallon hydro-pneumatic tank located at 3140 Cypress Wood Blvd. All tanks are located in the City of Winter Haven Florida.
- B. The Contractor(s) shall provide and install new man-way seals. The seals shall provide a leak proof seal after installation.
- C. The Contractor(s) shall comply with all city, state, local and federal regulations.
- D. The Contractor(s) will provide all necessary permits. The fees for City permits will be waved. No construction will start before the permit is received.
- E. Bidders shall submit five references of similar type work.
- F. The contractor shall be a certified applicator of the manufacturers' paint products used for this application with a minimum of five (5) years experience.

1.03 WORK BY OWNER

- A. The owner will meet the prospective bidders to go over the details of the project and answer any questions as required.

PART 2- PRODUCTS

2.01 General

A. Hydropneumatic Tank Interior Coating

2.02. DEFINITIONS:

Specific coating terminology used in this section is in accordance with definitions contained in ASTM D16, ASTM D3960, and the following definitions:

- a. Dry Film Thickness (DFT): The thickness of one fully cured continuous application of coating.
- b. Volatile Organic Content: The portion of the coating that is a compound of carbon, is photochemically reactive, and evaporates during drying or curing, expressed in grams per liter or pounds per gallon.
- c. Touch-Up Painting: The application of a paint on areas of painted surfaces to repair marks, scratches, and areas where the coating has deteriorated to restore the coating film to an unbroken condition.
- d. Contractor: Person responsible performing the interior painting of the hydropneumatic tank.

2.03 REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document

dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM D16	Standard Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products
ASTM D2200 (SSPC-Visl-67T)	Pictorial Surface Preparation Standards for Painting Steel Surfaces
ASTM D3359	Methods for Measuring Adhesion by Tape Test-Method A
ASTM D3960	Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
ASTM D4417	Field Measurement of Surface Profile of Blast Cleaned Steel
AWWA D102	Painting Steel Water-Storage Tanks
NSF 61	Drinking Water System Components Health Effects
SSPC	Steel Structures Painting Council Specifications, Vol. 2

2.04 STANDARDIZATION:

Materials and supplies provided shall be the standard products of manufacturers. Materials in the system shall be the products of a single manufacturer.

The standard products of manufacturers other than those specified will be accepted when it is demonstrated to the Owner that they are equal in composition, durability, usefulness, and convenience for the purpose intended. Requests for substitutions will be considered, provided the following minimum conditions are met:

- a. The proposed coating system shall use an equal or greater number of separate coats to achieve the required dry film thickness.
- b. The proposed coating system shall use coatings of the same generic type as that specified.
- c. Requests for substitution shall have directions for application and descriptive literature which includes generic type, percent solids by volume, volatile organic content (grams per liter), and information confirming that the substitution is equal to the specified coating system.
- d. The Contractor shall provide a list of references where paint of the same generic type has been applied. The reference list shall give the

project name, city, state, owner, phone number of owner, coating system reference and number, and year paint was applied.

2.05. COATING SYSTEMS

All materials of a specified coating system, including primer, intermediate, and finish coats, shall be produced by the same manufacturer. Thinners, cleaners, driers, and other additives shall be as recommended by the coating manufacturer for the particular coating system.

The coating system shall consist of a primer, intermediate and finish coat to build up the coating to the specified dry film thickness. Unless otherwise specified, subsequent coats shall not be applied until the previous coat has been inspected and, if necessary, repaired.

A. INTERIOR COATING AFTER SSPC-SP10 NEAR WHITE METAL BLAST:

1. PRIMER: Shall be Tnemec Series 1 Omnithane @ 2.5 – 3.5 mils DFT or equal.
2. FILLER/SURFACER: Fill pits and voids using Tnemec Series 215 Surfacing Epoxy or equal.
3. STRIPE COAT (stripe all welds, nuts, bolts, and edges by brush): Shall be Tnemec Series N140-1255 (Beige) @ 3.0-5.0 mils DFT or equal.
4. INTERMEDIATE COAT: Shall be Tnemec Series N140-15BL Tank White @ 4.0 – 6.0 mils DFT or equal.
5. FINISH COATING: Interior finish coating shall be Tnemec Series N140-00WH Tnemec White @ 4.0 – 6.0 mils DFT or equal.

B. PRODUCT DATA

Before materials are delivered to the job site, the Contractor shall provide in the form of a submittal the following information for approval.

1. Manufacturer's standard product data and material safety data sheet for each primer and finish coating.
2. List of materials proposed to be used under this section.

3. Manufacturer's literature and written instructions for surface preparation, mixing, and application of each primer and finish coating.

2.06 PREPARATION

A. GENERAL:

Surfaces to be coated shall be clean and dry. Before applying coating or surface treatments, oil, grease, dirt, rust, mold, mildew, chalk, loose mill scale, old weathered coatings, and other foreign substances shall be removed except as specified. Oil and grease shall be removed before mechanical cleaning is started. Where mechanical cleaning is accomplished by blasting, the abrasive used shall be washed, graded and free of contaminants which might interfere with the adhesion of the coatings. The Contractor shall examine all surfaces to be coated and shall correct all surface defects before application of any coating.

Clean cloths and clean fluids shall be used in solvent cleaning. Cleaning and painting shall be scheduled so that dust and spray from the cleaning process shall not come in contact with wet, newly painted surfaces.

The Contractor shall perform an adhesion test in accordance with ASTM D3359 to demonstrate that (1) the primer adheres to the prepared substrate, and (2) the specified coatings adhere to the primer. Test results showing an adhesion rating of 4A or better shall be considered acceptable. Where unacceptable test results are obtained, the Contractor shall be responsible for removing and reapplying the specified coatings at no expense to the City of Winter Haven.

B. PREPARATION OF METALLIC SURFACES WITH SSPC SP10:

Metallic surfaces shall be prepared in accordance with applicable portions of surface preparation specifications of the Steel Structures Painting Council (SSPC). Unless otherwise specified herein, interior ferrous metal surfaces prepared in accordance with SSPC SP10 (Near White Metal Blast). Blast particle size shall be selected by the contractor to produce the specified surface profile. The solvent in solvent cleaning operations shall be as recommended by the manufacturer.

C. ABRASIVE BLAST CLEANING:

The specified limitations on the application of coatings also applies to blast cleaning. Blast cleaning shall only be done when conditions permit the immediate subsequent application of coating, and only for the area that can be coated with primer during the same day. Changed humidity or a delay, such as equipment failure, may cause a cleaned surface to color or slightly oxidize from condensation before the coating can be applied. In the event that a surface colors or becomes moist, it shall be blast cleaned again before applying the coating.

Abrasive blast cleaning shall comply with the following:

1. Dry abrasive blast shall be used for cleaning metal surfaces. Sand used for cleaning shall be washed, uniformly graded, dry, and free of contaminants. Sand containing salt or unwashed beach sand shall not be used. When shop blast cleaning with stationary automatic equipment that recycles the blast particles, new abrasives shall be used in the equipment at the beginning of the blast cleaning operations. Use of abrasives that have become contaminated in automatic equipment is prohibited. When shop or field blast cleaning with hand-held nozzles, blast particles shall not be recycled or reused.
2. After blast cleaning and prior to application of coating, surfaces to be coated shall be dry cleaned by dusting, sweeping, and vacuuming to remove residue from blasting. The blasting and the specified primer or touch-up coating shall be applied within the period of an 8-hour working day. Coating shall not be applied over damp or moist surfaces. Prior to application of primer, any blast cleaned surface not coated within the 8-hour working day shall be re-cleaned.
3. The area of the work shall be kept in a clean condition and blasting particles shall not be permitted to accumulate and constitute a nuisance or hazard. The tank inlet, outlet, drain, and overflow piping shall be covered, and blasting particles prevented from being blown into the piping.
4. During blast cleaning, caution shall be exercised to prevent damage to adjacent pre-applied coatings. Blast cleaning and coating shall be scheduled such that dust, dirt, blast particles,

old coatings, rust, mill scale, etc., shall not damage or come in contact with wet or newly coated surfaces. Damaged coatings shall be restored to their specified condition.

2.07 APPLICATION

A. WORKMANSHIP:

Coated surfaces shall be free from runs, drops, ridges, waves, laps, and brush marks. Coats shall be applied to produce an even film of uniform thickness completely coating corners and crevices. Painting shall be done in accordance with the requirements of SSPC Paint Application Specification No. 1.

The Contractor's equipment shall be designed for application of the materials specified. Compressors shall have suitable traps and filters to remove water and oils from the air. Spray equipment shall be equipped with mechanical agitators, pressure gages, and pressure regulators, and spray nozzles of the proper sizes.

Each coat of paint shall be applied evenly and sharply cut to line. Care shall be exercised to avoid over spraying or spattering paint on surfaces not to be coated. Adjacent areas, structures and other property shall be protected by suitable measures.

B. PAINT PROPERTIES, MIXING AND THINNING:

Paint, when applied, shall provide a satisfactory film and smooth even surface, and glossy undercoats shall be lightly sanded to provide a surface suitable for the proper application and adhesion of subsequent coats. Paints shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Coatings consisting of two or more components shall be mixed in accordance with the manufacturer's instructions. Where necessary to suit the conditions of the surface, temperature, weather and method of application, the paint may be thinned immediately prior to use.

The volatile organic content (VOC) of the coating as applied shall comply with prevailing air pollution control regulations. Unless otherwise specified, paint shall not be thinned more than necessary to obtain the proper application characteristics. Thinner shall be as recommended by the coating manufacturer.

C. ATMOSPHERIC CONDITIONS:

Paints shall be applied only to surfaces that are dry, and only under conditions of evaporation rather than condensation. Paint shall not

be applied during rainy, misty weather, or to surfaces upon which there is moisture condensation. Coatings shall not be applied when the temperature of the surface to be coated is more than 5 degrees F below the air temperature, or when the surface temperature is over 120 degrees F. During painting, and for a period of at least 8 hours after the paint has been applied, the temperature of the surfaces to be painted, the painted surfaces, and the atmosphere in contact shall be maintained at or above 50 degrees F and at least 10 degrees F above the dew point. Paint, when applied, shall be approximately the same temperature as that of the surface on which it is applied.

If conditions are adverse as noted above, the application of coating shall be delayed or postponed until conditions are favorable. Dew or moisture condensation should be anticipated and if such conditions are prevalent, coating work shall be delayed until midmorning to be certain that the surfaces are dry. The day's coating shall be completed in time to permit the film sufficient drying time prior to damage by climatic conditions. Climatic conditions will be monitored by the Independent Inspector to aid in inspection. If a change in climatic conditions damages a coating application, repair of the damaged coatings to their specified condition shall be made at no additional cost to the Owner.

D. PROTECTION OF COATED SURFACES:

Items which have been coated shall not be handled, worked on, or otherwise disturbed, until the paint is completely dry and hard.

E. PROCEDURES:

1. GENERAL: Procedures for application of coatings shall comply with the following:

- a. Coating applicator shall conform to the requirements of SSPC PA-1 and follow the recommendations of the coating manufacturer including the selection of spray equipment, brushes, rollers, cleaners, thinners, mixing, drying time, temperature and humidity of application, and safety precautions.
- b. Coating applicator shall stir, strain, and keep coating materials at a uniform consistency during application. A different shade or tint shall be used on succeeding coating applications to indicate coverage. Finished surfaces shall be free from defects or blemishes.

- c. If allowed, thinning shall not exceed the maximum manufacturer allowable amount of thinner per gallon of coating material. Coating materials shall be stirred at all times when adding thinner; flooding the coating material surface with thinner prior to mixing is prohibited. Coating materials shall not be thinned more than is absolutely necessary to obtain the proper application characteristics and to obtain the specified dry-film thicknesses.
- d. Blast cleaned surfaces shall be cleaned as specified in paragraph 09901-3.02 C. Dust shall be removed from coated surfaces by dusting, sweeping, and vacuuming prior to applying succeeding coats.
- e. Coating applicator shall observe minimum and maximum recoat times between primer and succeeding coating applications to achieve maximum crosslinking of coatings. If the recommended minimum or maximum recoat time is violated, the surface shall be prepared as directed by the coating manufacturer. A second application of the primer or coating shall be applied if the maximum recoat time has been exceeded.
- f. Coating systems shall be applied to the specified minimum dry-film thicknesses as measured from above the peaks of the surface profile. Measurement will be in accordance with SSPC PA-2 and will be corrected for the magnetic effect of the surface profile.
- g. Primer or touch-up coating shall be applied immediately after blast cleaning and before any surface rusting occurs, or any dust, dirt, or any foreign matter has accumulated. Steel surfaces that have surface color or become moist prior to coating application shall be re-cleaned by blast cleaning.

2.08 TOUCH-UP OF APPLIED PRIMERS:

Touch-up of applied primers shall comply with the following:

- a. Contaminants that have accumulated on the surfaces of the applied primers and erection shall be removed and corrective action performed as noted.
- b. Coating applicator shall remove any oil and grease surface contaminants in accordance with SSPC SP-1. The coating

applicator shall use clean rags wetted with a degreasing solution, rinse with clean water, and wipe dry.

- c. Coating applicator shall remove dust, dirt, salts, moisture, chalking primers, or other surface contaminants that will affect the adhesion or durability of the coating system by using a high-pressure water blaster or scrubbing all surfaces with a broom or brush wetted with a solution of tri-sodium phosphate, detergent, and water. Scrubbed surfaces shall be rinsed with clean water.
- d. Loose or peeling primer and other surface contaminants not easily removed by the previous cleaning methods shall be removed in accordance with SSPC SP-7. Care shall be taken that remaining primers are not damaged by the blast-cleaning operation. Remaining primers shall be firmly bonded to the steel surfaces with blast-cleaned edges feathered.
- e. Repair procedures used on damaged primer shall protect adjacent primer. Blast cleaning may require the use of lower air pressure, smaller nozzles and abrasive particle sizes, short blast nozzle distance from surface, shielding, and/or masking.
- g. If damage to primer in a specific area exceeds 50 percent of the total surface of any specific area, the area shall be cleaned by blasting in accordance with SSPC SP-10 and a second application of the specified primer applied to the total surface of the specific area.
- h. When primed surfaces have exceeded the manufacturer's recommended recoat time or recoat time when exposed to sunlight, surface shall be blast cleaned in accordance with SSPC SP-10 and a second coat of the specified primer applied.

2.09 INTERIOR COATING:

Procedures for application of interior coatings shall comply with the following:

- a. Coating applicator shall remove sandblasted dust. Primer shall be applied with rollers that leave a smooth surface or by spraying. Rollers shall be used when wind causes unacceptable drift. The finish coats shall be sprayed except spraying is not allowed when wind or other weather conditions are unfavorable.

- b. The mil thickness and the dryness of each coat shall be verified before over coating.

2.10 LIMITATIONS ON COATING APPLICATIONS:

Coatings shall not be applied under the following conditions:

- a. When the air and surface temperature are outside the range recommended by the coating manufacturer.
- b. When the ambient temperature is less than 5 degrees F above the dew point.
- c. When the surfaces are wet or moist.
- d. During rain, fog, or mist.
- e. When it is expected that the air temperature will drop below or above that recommended by the paint manufacturer or will drop to less than 5 degrees F above the dew point within 8 hours after applying the coating.

Coating applicator shall maintain a thermometer in the shade on the project site and keep informed of the dew point and the humidity from the weather bureau.

2.11 PAINT THICKNESS AND MINIMUM NUMBER OF COATS:

- a. GENERAL:

The number of coats specified shall be applied unless the measured dry-film thickness is less than specified, in which case additional coats shall be applied.

- b. INTERIOR:

Primer: Tnemec Series 1 Omnithane @ 2.5 – 3.5 mils DFT.

Stripe Coat: Tnemec Series N140-1255 Beige @ 3.0 – 5.0 mils DFT.

Intermediate Coat: Tnemec Series N140-15BL Tank White @ 4.0 – 6.0 mils DFT

Finish Coat: Tnemec Series N140-00WH Tnemec White @ 4.0 – 6.0 mils DFT.

2.12 INSPECTION

The contractor will perform such tests as are required to demonstrate substantial compliance with all phases of the surface preparation, abrasive blast cleaning, and application of the coating systems. Test equipment shall include the following: SSPC surface preparation standards, surface profile comparator, test tape, micrometer, abrasive sieve test, ultraviolet lamp, mirror, certified thickness calibration plates, magnetic-type dry-film thickness gage, nondestructive holiday detector, and non-sudsing-type wetting agent. Equipment will be calibrated by the Independent Inspector in the presence of the Contractor to verify its accuracy prior to use. The Contractor shall provide the test equipment.

The contractor will determine the degree and surface profile of the shop and field blast cleaned surface. Additional blast cleaning shall be performed over areas not conforming to the specified surface preparation.

The contractor will inspect each coat of primer, touch-up, intermediate, and finish coating to determine thickness and integrity. Each coating application will be checked and deficiencies marked. After observing specified recoat time, additional coating materials shall be applied over area not having the specified minimum dry-film thickness and areas having any holidays or pinholes. After correction of deficiencies, the contractor will re-inspect those areas to determine the acceptability of additional coating.

2.13 WARRANTY

The contractor and the paint manufacture are to provide a one year written warranty on the interior coating. A first-anniversary warranty inspection of the interior surfaces of the tank will be conducted during the eleventh month following final acceptance of the work by the Owner to determine whether any repair work is necessary. Inspection shall comply with Section 9 of AWWA-D 102 except as specified. The Owner will establish the inspection date and notify the Contractor. Where coatings have peeled off, bubbled, or cracked, and any location where rusting is evident shall be considered to be a failure of the coating system. Repairs at failures shall be performed by removing the deteriorated coating; preparing the surface by abrasive blast cleaning and applying the same coating systems as specified in this section. Repairs shall be performed at no cost to the Owner.

PART 3- CONTRACT CLOSEOUT GENERAL

3.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final Cleaning.
- C. Project records documents.

3.02 CLOSE-OUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed. Work has been inspected, and that work is complete in accordance with Contract Documents and ready for inspection.
- B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- C. Final completion is 60 days after bid is awarded.

3.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Fill any holes created by the contractor and grade to surrounding undisturbed land.
- C. Clean disturbed portions of site; sweep paved areas, rake clean landscape surfaces.
- D. Remove waste and surplus materials, and rubbish from the site.

3.05 PROJECT RECORD DOCUMENTS

- A. Maintain on-site one set of the following record documents as applicable: record actual revisions to the work;
 - 1. Contract Drawings.

2. Specifications.
 3. Addenda.
 4. Change Orders and Other Modifications to the Contract.
 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.