INFORMATION FOR BIDDERS

BIDS will be received by the CITY OF MAYSVILLE UTILITY DEPARTMENT, hereinafter called CITY, at the Municipal Building (216 Bridge Street, Maysville, Kentucky) until ***10:00 AM, 24th May 2023,*** and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to the CITY OF MAYSVILLE UTILITY DEPARTMENT, Attn. Utility Manager Mark Julian, 216 Bridge Street, Maysville, KY 41056. Each sealed envelope containing a BID must be plainly marked on the outside as "***Mays Lick Tank Rehab***" and the envelope should bear, on the outside, the name of the BIDDER, his address and his license number, if applicable. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the CITY OF MAYSVILLE, 216 Bridge Street, Maysville, KY 41056.

The BID proposal shall consist of ***UNIT PRICES***, **LUMP SUMS or otherwise specified** for completion of the WORK described in the contract documents and shall be submitted on the attached Bid Sheet.

The CITY may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a bid within 90 days after the actual date of the opening. Should there be reasons why the contract cannot be awarded within 90 days, the time may be extended by mutual agreement between the CITY and the BIDDER.

The CITY may make such investigations as deemed necessary to determine appropriateness of the items offered and the BIDDER shall furnish to the CITY all such information and data for this purpose as the CITY may request. The CITY reserves the right to reject any BID if the evidence submitted by the BIDDER fails to satisfy the CITY that the item offered does not meet the intent and requirements of the specifications.

A conditional or qualified BID will not be accepted.

A performance bond is not required.

Award will be made on the basis of the best bid, considering such factors as cost, quality, availability and any other factors deemed to be in the best interest of the CITY.

Additional information may be obtained from the Utility Manager, Mark Julian. Direct line: (606) 564-2507 or email: markjulian@cityofmaysvilleky.gov

SECTION 02600

Mays Lick Tank Rehab Project
BID SHEET

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Qty.	Unit	Unit Price	Total
1	Repaint the Interior including but not limited to SSPC-10 Blast, Epoxy Coating Application, Sterilization, Site Clean-up and all Incidental Work Necessary to return to Operating Conditions in Accordance with the Contract Documents - *Please refer to & follow Section 09 96 00 pages 1-14 for Bid Spec on High-Performance Coatings for Water Storage Tanks* **Interior Coating System (BASE BID)**	1	LS		
2	Repaint the Exterior including but not limited to SSPC-6 Blast, Epoxy/Urethane Coating Application and all Work Necessary to return to Operating Conditions in Accordance with the Contract Documents - *Please refer to & follow Section 09 96 00 pages 1-14 for Bid Spec on High-Performance Coatings for Water Storage Tanks* **Exterior Coating System**	1	LS		
3	**Tank Containment** during Surface Preparation and Painting, including all Materials and Labor required for Installation, Maintenance and Removal as described in the Contract Documents – Including Videotaping Project and Adjacent Area *Please refer to & follow Section 09 96 00 pages 1-14 for Bid Spec on High-Performance Coatings for Water Storage Tanks*	1	LS		
4	**New Frost Proof Vent Screen with 24-mesh screen**	1	LS		
5	**New stainless steel cable safety climb for interior and exterior ladders**	1	LS		

Item No.	Description	Qty.	Unit	Unit Price	Total
6	**Remove non-functional liquid level indicator and related non-functional equipment.**	1	LS		
7	**Add non-skid to the ladder rungs**	1	LS		
8	**Unit Price for Pit filling per one square inch based on (50sq. inches)**	50	SQ. IN		
9	**Concrete Crack filling up to 1/16" on one linear foot based on (2 linear feet)**	2	LF		
10	**Concrete repairs greater than 1/4" shall be listed as an alternate bid item based on six square inches at a depth of 2" and shall include all surface prep, edge conditioning per manufacturer's and ACI guidelines**.	4	6"x6"x2"		
11	**Install Grate over the Wet Riser (one unit) May use A-36 Carbon Steel w/ NSF/ AWWA approved paint. Min 4" overlap around standpipe. Holes must be greater than 1"x1"; not over 2"x2". Weld hinge prior to painting or affix with epoxy adhesive 3M or ITW. The grate should have a continuous hinge that allows it to fold in half then fold up and over on the two main hinges. The goal is to have a cover that can't fall into the standpipe or get locked down. Rough sketch of this can be supplied upon request.**	1	LS		
12	**Tank Disinfection (per 401 KAR 8:150, Section 4.) or ANSI/AWWA C652**	1	LS		
13	**Safety Signage** as required by KY-OSH Compliance	1	LS		
Total of All Unit Price Base Bid Items					$

Total Base Bid: $_____

(Figures)

_____

(Words)

Alternate Bid #1 (Decrease in Cost for the Alternate Interior Finish Coat being Tnemec Series 21 Epoxoline)

Total Alternate #1 Decrease in Base Bid:

$_____

(Figures)

_____

(Words)

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

The total sum of the BASE BID Items 1 through 13 shall be the basis upon which the Project shall be awarded to the lowest responsive, responsible, and acceptable bidder. The BASE BID amount shall be written in both words below and numerically above. In case discrepancy, amount shown in words will govern.

TOTAL SUM BASE BID LABOR, MATERIALS AND EQUIPMENT PRICE:

_____

TOTAL SUM ALTERNATE DEDUCTIVE BID LABOR, MATERIALS AND EQUIPMENT PRICE:

_____

COMPANY AND SIGNATURE; _____

DATE; _____

BIDDER acknowledges receipt of the following Addenda:

Addendum No. _____ Addendum No. _____ Addendum No. _____

END OF SECTION

ADDENDUM NUMBER 1

City of Maysville Kentucky
Utility Department
Mays Lick Tank Rehab Project 2023

Revised Bid Opening Date: May 24th, 2023 at 10:00 AM EDT

Date of Addendum: May 15th, 2023

Bidders shall conform to the following changes as same shall become binding upon the Contract to be issued in response to the Invitation to Bid. The Contract Documents shall be revised and/or amended as set forth herein:

1. The tank is located near 6134 Helena Rd., Mays Lick, KY 41055 or 38.514507, -83.816013

2. The contractor will supply a typical one-year warranty on workmanship and materials.

3. The contract documents for this project shall include, Advertisement for Bids, Information for Bidders, BID Sheet (BID), AGREEMENT, Notice of Award, Notice to Proceed, Contract Drawings, Specifications, Addenda, and Change Order (if applicable.)

4. Develop and implement safety measures for work in compliance with Occupational Safety and Health Administration (OSHA) regulations to ensure a safe work environment for workers.

5. All exposed surfaces should be prepped and painted inside and outside including the riser, support legs, etc. (Refer to & follow Section 09 96 00 pages 1-14 for Bid Spec on High-Performance Coatings for Water Storage Tanks)

6. No cathodic protection system will be installed.

7. Please see Section 09 96 00 pages 1-14 for Bid Spec on High-Performance Coatings for Water Storage Tanks. This is the spec for this project.

8. The entire tank, including all the structure, interior and exterior is to be sandblasted, inspected, corrosion cleaned and recoated according to Section 09 96 00 – High Performance Coatings for Water Storage Tanks. Also, ancillary high-performance coatings go on the pipes & fittings. Refer to Section 3.15 Ancillary High Performance Coating Schedule in Section 09 96 00 – High Performance Coatings for Water Storage Tanks.

9. The Notice to Proceed for this project will be given to the contractor once a booster pump station that needs to be installed to supply water to the service area around this tank is in

service. This work needs to be completed before we proceed with this project. At this time, the date of the installation of the booster pump station is unknown. The booster station work is being completed by others and is not part of this contract.

10. Once the notice to proceed is given, the contractor will have 90 days to complete this project as specified in the contract documents.

11. The tank exterior will be painted without a logo. It will be a solid white color to be selected by OWNER from manufacturers color options during shop drawing review.

12. Note that a tank inspection report if supplied is used as a reference only and shall not be interpreted as a work to be done list.

13. There is no Bid Bond required for this project. Please refer to the contract documents for amount withheld until inspection and project completion. Proof of Valid Workers Compensation Policy and Liability insurance with minimum coverage amount of $1,000,000 with City of Maysville or City of Maysville Utility Department as named insured on policy is required.

14. The side rails should be completely free of obstructions. No conduits or cables should be attached, supported, or tied to the ladders. The balcony entrance & balcony walkway should have stainless steel safety chains to guard the opening.

15. The interior ladder will be replaced with an OSHA compliant ladder using the same fall protection method as the Primary Climbing ladder on the outside of the tank. A safety grate hinged in the middle to allow insertion through the existing hatches will be provided by the contractor which when folded over for access will not interfere with access to the ladder or limit a worker's ability to safely enter the riser. When the grate is closed only one side will have attachment points for hinging the grate. The idea is to have the grate split by a piano or continuous type hinge that can fold in half then fold up and over on the two main hinges. The overall goal is to have a cover that cannot fall into the standpipe or get locked down. On bid sheet item #11. A sketch will be supplied upon request.

16. Tank Disinfection will be performed per ANSI/AWWA C652 or at a minimum per 401 KAR 8:150, Section 4. Potable water will be available on-site. The Utility Department will cover the cost of the water for one disinfection cycle. Additional fill cycles due to failed tests or inspections will be at the contractor's expense.

17. Prior to the tank being put into service, a third-party inspector will be hired to inspect the work under this contract. Inspections may include but are not limited to the items in Section 3.10 of the 09 96 00 Specification – High Performance Coatings on Water Storage Tanks. A final inspection will also be performed before the tank is placed in service.

18. Keep records of all work performed, materials used, inspections conducted, and any other

relevant information related to the rehabilitation of the drinking water tank in compliance with EPA and Kentucky Division of Water standards.

19. After painting appropriate safety signage meeting OSHA (Kentucky OSH) and or KAR regulations will be replaced or installed in appropriate locations on and around the tank.

END OF ADDENDUM NO. 1

Receipt of this Addendum must be acknowledged on the Bid Sheet.

By: Mark Julian, Utility Manager; City of Maysville Kentucky

Mark Julian
Utility Manager
City of Maysville, Kentucky

END OF DOCUMENT

SECTION 09 96 00 – HIGH-PERFORMANCE COATINGS FOR WATER STORAGE TANKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. This Section includes field surface preparation and field painting related to the repainting of welded steel water storage tanks.

1. Surface preparation for field applications of primers and finishes are specified in this Section.

B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 REFERENCES

A. This Section contains references to the governing standards and documents listed below. They are a part of this Section as specified and modified; the current version shall apply unless otherwise noted. In case of conflict between the requirements of this section and those of the listed documents, the more stringent of the requirements shall prevail.

1. AAMA – American Architectural Manufacturers Association

a.	AAMA 2605	Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

2. ASTM – American Society for Testing and Materials

a.	ASTM B 117	Salt Spray (Fog)
b.	ASTM D 149	Dielectric Strength
c.	ASTM D 4060	Abrasion
d.	ASTM D 4417	Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
e.	ASTM D 4541	Adhesion
f.	ASTM D 4585	Humidity
g.	ASTM D 5894	Cyclic Salt Fog/UV
h.	ASTM D 4587	QUV Exposure
i.	ASTM D 4141	EMMAQUA (Equatorial Mount with Mirrors for Acceleration with Water) Outdoor Accelerated Weathering Test Method
j.	ASTM G 8	Cathodic Disbondment
k.	ASTM G 85	Prohesion

3. AWWA – American Water Works Association

a.	ANSI/AWWA D102	Coating Steel Water Storage Tanks

4. ISO – International Organization for Standardization

    a. ISO 12944-9:2018 Corrosion Protection of Steel Structures

5. NACE International

    a. NACE SP0188 Standard Practice for Discontinuity (Holiday) Testing of Protective Linings

6. National Association of Pipe Fabricators (NAPF)

    a. NAPF 500-03 Surface Preparation Standards for Ductile Iron Pipe & Fittings

7. NSF International

    a. NSF/ANSI/CAN Std. 61 Drinking Water System Components
    b. NSF/ANSI/CAN Std. 600 Health Effects Evaluation and Criteria for Chemicals in Drinking Water

8. SSPC – The Society for Protective Coatings

    a. SSPC-SP 1 Solvent Cleaning
    b. SSPC-SP 2 Hand Tool Cleaning
    c. SSPC-SP 3 Power Tool Cleaning
    d. SSPC-SP 6 Commercial Blast Cleaning
    e. SSPC-SP 7 Brush-off Blast Cleaning
    f. SSPC-SP 10 Near White Metal Blast Cleaning
    g. SSPC-SP 11 Power Tool Cleaning to Bare Metal
    h. SSPC-SP 13 Surface Preparation of Concrete
    i. SSPC-SP 16 Brush-off Blast Cleaning of Non-Ferrous Metals
    j. SSPC-SP WJ-4 Waterjet Cleaning of Metals – Light Cleaning
    k. SSPC Paint 20 Zinc-Rich Coating
    l. SSPC Paint 22 Epoxy Polyamide Paints
    m. SSPC Paint 36 Two Component Weatherable Aliphatic Polyurethane Topcoat
    n. SSPC PA 2 Measurement of Dry Coating Thickness with Magnetic Gauges

1.3 SUMMARY

A. This Section includes surface preparation and application of high-performance coating systems on the following substrates:

1. Exterior Substrates:

    a. Ferrous Metals
    b. Concrete

2. Interior Substrates:

a. Ferrous Metals, Immersion (Interior Wet)

B. Related Sections include the following:

1. Division 1, Section “Disinfection of Water Storage Facilities”
2. Division 9, Section “Lead Abatement/Paint Removal”

1.4 SUBMITTALS

A. Submit under provisions of Division 1.

B. Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.
4. Operation and maintenance data.
5. Provide material analysis, including vehicle type and percentage by weight and by volume of vehicle, resin, and pigment.

C. Manufacturer’s Safety Data Sheets (SDS) and other safety requirements.

D. Manufacturer's Certificates:

1. Certify products meet or exceed specified requirements documented with certified test reports detailing any proposed substitute product(s) performance as outlined herein.
2. Submitted products shall be compared to the specified performance criteria for each product, along with case histories, for review by the Engineer.

E. Submittals shall detail work methodology including, but not limited to surface preparation, cleanup, environmental control, coating application, and timeline.

F. Color Samples

1. Submittal of manufacturer’s standard color card for the specified finish colors shall be included for approval by the Engineer.

1.5 QUALITY ASSURANCE

A. Manufacturer's Quality Assurance:

1. Submit manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.
2. Performance criteria must be included for comparison with specified products.

B. Manufacturer’s Qualifications

1. Specialized in manufacture of the submitted coatings for a minimum of five (5) years on the projects of similar nature.

C. Applicator's Quality Assurance: Submit list of a minimum of five completed projects of comparable size and complexity to this Work. Include for each project:

1. Project name and location.
2. Name and contact information for Owner.
3. Name and contact information for Contractor.
4. Name and contact information for Engineer.
5. Name of coating manufacturer.
6. Approximate area of coatings applied.
7. Date of completion.
8. Estimate of remaining useful service life.

D. Pre-application Meeting: Convene a pre-application meeting before start of application of coating systems. Require attendance of parties directly affecting work of this section, including Contractor, Engineer, applicator, and manufacturer's representative. Review the following:

1. Approved coating submittal.
2. Environmental requirements.
3. Protection of surfaces not scheduled to be coated.
4. Surface preparation.
5. Application methods.
6. Repair.
7. Field quality control.
8. Cleaning.
9. Protection of coating systems.
10. One-year inspection.
11. Coordination with other work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:

1. Coating or material name
2. Manufacturer
3. Color name and number
4. Batch or lot number
5. Date of manufacture
6. Mixing and thinning instructions

B. Storage:

1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
2. Keep containers sealed until ready for use.
3. Do not use materials beyond manufacturer's shelf-life limits.

C. Handling: Protect materials during handling and application to prevent damage or contamination.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Weather:

1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
5. Wind: Do not spray coatings if wind velocity is above manufacturer's recommended limit.

C. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

D. Dust and Contaminants:

1. Schedule coating work to avoid excessive dust and airborne contaminants.
2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

1.8 WARRANTIES

1. Outside Coating System (OCS) with FEVE Fluoropolymer Finish Coat Warranty Requirements

    a. Coating systems shall be installed as required to qualify for manufacturer’s standard fifteen (15) year warranty against corrosion, crack, check, peel, color shift, loss of gloss and chalking.
    b. Warranted product’s documented commercial availability in the marketplace shall not be a shorter duration than the specified warranty term.
    c. Warranty coverage shall be expressed in the following terms:

        1) Corrosion (Applicable to Systems Including Zinc Rich Primer): Allowable % of corroded surface area as measured per ASTM D 610-95 for first five years and each year thereafter.
        2) Fade (Color Change): DE Hunter Units per ASTM D 2244.
        3) Gloss: Units as measured by a gloss meter referencing ASTM D 523-89 with 60-degree geometry.
        4) Chalk: Rating as per ASTM D 4214, Method A.

B. Inside Coating System (ICS) Warranty Requirements

1. Coating systems shall be installed as required to qualify for manufacturer's five (5) year material replacement guarantee.

C. The CONTRACTOR shall guarantee their work for a period of one year to the extent that CONTRACTOR shall repair any defects due to faulty workmanship or materials which may appear on the structure during this period.

PART 2 - PRODUCTS

2.1 HIGH PERFORMANCE COATINGS GENERAL

A. Materials Compatibility:

1. Provide shop and field primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
2. Provide products of same manufacturer for each coat in a coating system.

2.2 MANUFACTURERS

A. Basis of Design (Standard of Quality):

1. Tnemec Company, Incorporated
   800.890.7580, www.tnemec.com

B. Product Distribution and Technical Representation:

1. Nexgen Coating Resources, Inc
   615.333.1000; customerservice@nexgen-cr.com

C. Materials specified herein shall not preclude consideration of equivalent or superior materials. Suggested equivalent materials or other substitutions shall be submitted to specifier for consideration in compliance with substitution procedures included in this Project Manual not fewer than ten (10) days prior to the date set for receipt of bids and shall include the following:

1. Evidence of satisfactory past performance in similar environment
2. Complete side-by-side coating system comparisons which provide, at minimum:

   a. Direct correlation of the submitted products to the specified products, organized and outlined to coincide with, and reference directly to, the Coating Schedule as listed in this specification.
   b. All required performance criteria testing data referencing the specified testing protocols for each product. Complete test results must be submitted. "Pass/Fail" results shall not be accepted.
   c. Any alternate manufacturer's system meeting the performance requirements set forth will be included by addendum.

3. Substitutions will not be considered that change the generic chemistry, number of coats, or specified dry film thicknesses.

4. Substitution submittals must be made only by qualified bidders who have purchased a complete bid documents set and are on the official plan holders list.
5. Requests for substitution shall include life cycle cost analysis as compared to basis-of-design products and referencing service life data from actual case histories for the submitted products.
6. Incomplete substitution submittals will be rejected without further review.

7. After second submittal, Engineer/Owner or Owner's Agent hourly rates will be charged to review further submittals.

D. Bidders desiring to use coatings other than those specified shall submit those products with their proposal based on the specified materials, together with the information required in PART 1 and Paragraph 2.2.C above and shall indicate the sum which will be deducted from the base bid should alternate materials be accepted. Any bid submitted without such documentation and stipulated price adjustment shall be understood by all parties to be based upon the specified materials, and as such shall preclude the submittal of alternate products after the fact.

E.

2.3 Pit Filler, Seam Sealer, and Fairing Compound

A. Modified Polyamine Epoxy

1. Tnemec Series 215 Surfacing Epoxy

2.4 Exterior and Interior Steel Primer

A. Organic Zinc Rich Moisture Cured Urethane

1. Tnemec Series 94-H2O Hydro-Zinc

2.5 Primer, Stripe, or Intermediate Coat

A. Polyamidoamine Epoxy

1. Tnemec Series N69 Hi-Build Epoxoline II

2.6 High Solids Epoxy Tank Lining or Prime, Intermediate, Stripe Coat

A. Modified Polyamine Epoxy

1. Tnemec Series 21 Epoxoline

2.7 100% Solids Epoxy Tank Lining (Heated Plural Component)

A. Modified Polyamine Epoxy

1. Tnemec Series FC22 Epoxoline or Series 22 Epoxoline

2.8 Exterior Intermediate or Finish Coat

A. Aliphatic Acrylic Polyurethane

1. Tnemec Series 1094, 1095 Endura-Shield

2.9 Exterior Finish Coat & Logo

A. Advanced Thermoset Solution Fluoropolymer

1. Tnemec Series 700, 701 Hydroflon

2.10 Sealant

A. Sika USA Sikaflex 1A, or Engineer approved equal

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.2 CONTAINMENT

A. SSPC Class IIA Containment shall be required during all exterior surface preparation and coating application at the project site.

1. Containment shroud material shall be impermeable mesh or solid material as manufactured by Eagle Industries or Engineer approved equal. Alternate materials shall be evaluated based upon density, weight, support strength, stitching, and reinforcement.
2. Containment shall be sufficient to contain spent abrasive and other debris within the containment shrouds and the confines of the tank extremities. No abrasive release shall be permitted.
3. Damaged shrouds shall be immediately repaired or replaced.
4. Minimum design standards for containment connections to the basin shall be:

a.	Steel Plating & Other Structural Shapes	ASTM A36
b.	Bolts	ASTM A307
c.	Welds	E70XX Electrodes

3.3 VENTILATION

A. Supply mechanical ventilation systems sufficient to accomplish six (6) complete air changes per hour.

B. Maintain ventilation in wet interior areas for a minimum of seven (7) days after completion of lining application, or until the lining has fully cured. Curing ventilation must be sufficient to accomplish two (2) complete air changes per hour.

3.4 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.

B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

1. After completing coating application, reinstall equipment that was removed using workers skilled in the particular trade(s) involved.

3.5 SURFACE PREPARATION

A. Prepare surfaces in accordance with manufacturer's instructions.

1. Interior Surfaces

a. Blast Cleaning: In accordance with SSPC-SP10/NACE No. 2 – Near White Blast Cleaning.
b. Angular Profile: Minimum of a 1.5 mil angular profile.

2. Exterior Surfaces

a. Blast Cleaning: In accordance with SSPC-SP6/NACE No. 3 – Commercial Blast Cleaning.
b. Angular Profile: Minimum of a 1.5 mil angular profile.

3. Areas where blast cleaning is not permitted

a. Where abrasive blasting is not permitted, surfaces and substrates shall be prepared in accordance with SSPC-SP11 – Power Tool Cleaning to Bare Metal to achieve a 1.5 mil angular profile. Other methods of surface preparation must be approved by the Engineer.

B. Steel Substrates: Remove rust and loose mill scale.

1. Fabrication defects:

a. Correct steel and fabrication defects revealed by surface preparation.
b. Remove weld spatter and slag.
c. Round sharp edges and corners of welds to a smooth contour.

d. Smooth weld undercuts and recesses.
e. Grind down porous welds to pinhole-free metal.
f. Remove weld flux from surface.

2. Ensure surfaces are dry.
3. Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE 3, unless otherwise specified.
4. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.

C. **Pit Filling**: Pit filling shall be listed a as an add alternate bid item based on one square inch. This shall be a line item on the bid tabulation. Crack filling up to 1/16" shall be listed a as an add alternate bid item based on one linear foot. Concrete repairs greater than ¼" shall be listed a as an add alternate bid item based on six square inches at a depth of 2" and shall include all surface prep, edge conditioning per manufacturer's and ACI guidelines.

3.6 APPLICATION

A. Apply coatings in accordance with manufacturer's instructions.

1. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
2. Keep containers closed when not in use to avoid contamination.
3. Do not use mixed coatings beyond pot life limits.
4. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.

B. Uniformly apply coatings at spreading rate required to achieve specified DFT.

C. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.

D. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer.

3.7 HOLIDAY DETECTION

A. The integrity of interior coated surfaces shall be tested for holidays in accordance with NACE Standard SP0188. For dry films less than 20 mils, a non-destructive holiday detector shall not exceed 67.5 volts, nor shall destructive holiday detector exceed the voltage recommended by the manufacturer of the coating system. A solution of 1-ounce non-sudsing type wetting agent, such as Kodak Photo-Flo, and 1 gallon of tap water shall be used to perform the holiday testing. For coating thickness at 20 mils and greater, a high voltage Tinker & Rasor AP/W holiday tester shall be used. Contact coating manufacturer for voltage recommendations and curing parameters.

B. All pinholes and/or holidays shall be marked and repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted in the final coating.

3.8 REPAIR

A. Materials and Surfaces Not Scheduled to Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.

B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.

C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.9 TANK CLEANING & DISINFECTION

A. Final cleaning and bacteriological disinfection shall be completed in accordance with AWWA C652. Contractor shall submit proposed AWWA C652 compliant method to Engineer for review and approval.

3.10 FIELD QUALITY CONTROL

A. Inspector's Services:

1. Verify coatings and other materials are as specified.
2. Verify surface preparation and application are as specified.

    a. Blast profile shall be measured using replica tape in accordance with ASTM D 4417 a minimum of three times.

3. Verify DFT of each coat and total DFT of each coating system specified using wet film and dry film gauges.

    a. DFT measurements shall be measured using a Type 2 magnetic gauge according to the requirements of SSPC-PA2.

4. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
5. Report:

    a. Submit written reports describing inspections made and actions taken to correct nonconforming work.
    b. Report nonconforming work not corrected.
    c. Submit copies of report to Engineer and Contractor.

B. Manufacturer's Technical Services: Coordinate with coating manufacturer's technical service department or independent sales representative for current technical data and instructions.

3.11 SITE CLEANING AND PROTECTION

A. Remove temporary coverings and protection of surrounding areas and surfaces.

B. Protect surfaces of coating systems from damage during construction.

C. Touch-up, or repair damaged products before Substantial Completion.

3.12 ONE-YEAR INSPECTION

A. Owner will set date for one-year inspection of coating systems.

B. Inspection shall be attended by Owner, Contractor, Engineer, and manufacturer's representative.

C. Repair deficiencies in coating systems as determined by Engineer in accordance with manufacturer’s instructions.

3.13 INTERIOR HIGH-PERFORMANCE COATING SCHEDULE

A. Interior Wet Surfaces (Base Bid):

1. AWWA D102 ICS No. 3 – Zinc/100% Solids Epoxy Lining System:

    a. Surface Preparation: Abrasive blast referencing SSPC-SP 10 to provide a uniform 2.0 mil angular surface profile. Prepared substrate must be clean, dry, and free of contaminants.
    b. Primer: Tnemec Series 94-H20 Hydro-Zinc applied at 2.5 to 3.5 mils DFT
    c. Pit Filler, Seam Sealer, and Fairing Compound: Tnemec Series 215 Surfacing Epoxy
    d. Stripe: Tnemec Series 21 Epoxoline
    e. Finish: Tnemec Series FC22 or 22 Epoxoline applied at 25.0 to 40.0 mils DFT
    f. Warranty: Manufacturer’s five-year material replacement guarantee.

B. Interior Wet Surfaces (Alternate Deductive Bid):

1. AWWA D102 ICS No. 6 – Zinc/High Solids Epoxy Lining System:

    a. Surface Preparation: Abrasive blast referencing SSPC-SP 10 to provide a uniform 1.5 mil angular surface profile. Prepared substrate must be clean, dry, and free of contaminants.
    b. Primer: Tnemec Series 94-H20 Hydro-Zinc applied at 2.5 to 3.5 mils DFT
    c. Pit Filler, Seam Sealer, and Fairing Compound: Tnemec Series 215 Surfacing Epoxy
    d. Stripe: Tnemec Series 21 Epoxoline
    e. Finish: Tnemec Series 21 Epoxoline applied at 12.0 to 16.0 mils DFT
    f. Warranty: Manufacturer’s five-year material replacement guarantee.

3.14 EXTERIOR HIGH PERFORMANCE COATING SCHEDULE

A. Exterior Steel Coating Systems:

1. AWWA D102 OCS No. 4 – Zinc/Urethane/Fluoropolymer System, Gloss:

a. Surface Preparation: Abrasive blast referencing SSPC-SP 6 to provide a uniform 1.0 mil angular surface profile. Prepared substrate must be clean, dry, and free of contaminants.
b. Primer: Tnemec Series 94-H20 Hydro-Zinc applied at 2.5 to 3.5 mils DFT
c. Stripe: Tnemec Series N69 Hi-Build Epoxoline II
d. Intermediate: Tnemec Series 1095 Endura-Shield applied at 2.0 to 3.0 mils DFT
e. Finish: Tnemec Series 700 Hydroflon applied at 2.0 to 3.0 mils DFT
f. Logo: Tnemec Series 700 Hydroflon applied at 2.0 to 3.0 mils DFT
g. Warranty: Manufacturer's standard fifteen-year corrosion, color, and gloss guarantee.

3.15 ANCILLARY HIGH PERFORMANCE COATING SCHEDULE

A. Pipe & Fittings

1. Surface Preparation:

a. Ferrous Metal: Abrasive blast referencing SSPC-SP 6 to produce a minimum 1.5 mil angular surface profile.
b. Non-Ferrous Metal: Abrasive blast referencing SSPC-SP 16 to produce a minimum 1.0 mil angular surface profile.
c. Ductile Iron Pipe: Abrasive blast referencing NAPF 500-03-04
d. Ductile Iron Fittings: Abrasive blast referencing NAPF 500-03-05
e. All prepared substrates must be clean, dry, and free of contaminants.

2. Primer:

a. Steel: Tnemec Series 94-$H_2$0 Hydro-Zinc applied at 2.5 to 3.5 mils DFT.
b. Ductile Iron: Tnemec Series N69 Hi-Build Epoxoline II applied at 6.0 to 8.0 mils DFT *
c. Non-Ferrous: Tnemec Series N69 Hi-Build Epoxoline II applied at 2.0 to 3.0 mils DFT *

3. Intermediate:

a. Steel: Tnemec Series N69 Hi-Build Epoxoline II applied at 4.0 to 6.0 mils DFT *
b. Ductile Iron: Tnemec Series N69 Hi-Build Epoxoline II applied at 6.0 to 8.0 mils DFT*

4. Finish:

a. Interior: Tnemec Series N69 Hi-Build Epoxoline II applied at 4.0 to 6.0 mils DFT *
b. Exterior: Tnemec Series 1094 Endura-Shield applied at 2.0 to 3.0 mils DFT

*Utilize Series 21 Epoxoline for potable water applications.

B. Concrete Pedestals

1. Concrete Repair (as required): Cracks and spalls greater than 1/16" and up to ¼" are to be prepared to a surface profile of ICRI-CSP 5 and then filled flush with Series 218 MortarClad; cracks must first be routed. Cracks and spalls greater than ½" utilize Series 217 MortarCrete data sheet and application guide for surface preparation, thickness limitations, instructions on edge conditioning and the addition of additional aggregate(s).
2. Repair of hairline cracks and cracks up to 1/16": After the application of the Series 151 primer, fill hairline cracks less than 1/64 inch (.4 mm) wide by brushing Series 154 TnemeGuard into them prior to applying Series 154 over the entire area to be coated. For cracks wider than 1/64 inch up to 1/16" and/or moving cracks, gaps and expansion joints use Series 152 Tneme-Tape. Refer to Series 152 product data sheet for details. Note: Use Series 154 to embed Tneme- Tape prior to topcoating with 156.
3. Primer/Adhesion Promoter: Tnemec Series 151 Elasto-Grip FC applied at 0.7 to 1.5 dry mils.
4. Intermediate Coat: Tnemec Series 156 Enviro-Crete applied at 6.0 to 8.0 dry mils.
5. Finish Coat: Tnemec Series 156 Enviro-Crete applied at 6.0 to 8.0 dry mils.

END OF SECTION 09 96 00

T N E M E T E C H

SUBJECT

NSF 61/NSF 600 Extraction Requirement Changes

PURPOSE

To provide an explanation of the changes to NSF/ANSI/CAN Standard 61 and outline the requirements of NSF/ANSI/CAN 600.

GENERAL

There are significant changes that will affect coating products certified to meet the NSF/ANSI/CAN 61: *Drinking Water System Components – Health Effects* standard (NSF 61). This standard includes requirements for organic solvents among a number of other chemical extraction limitations. The maximum contaminant levels (MCLs) were drastically lowered for xylene, ethylbenzene, and toluene as part of the changes to the 2018 version of the standard. These changes will effectively eliminate most solvent based coatings, commonly used for potable water service, from being certified to the standard. While the current version of the standard specifies these new MCLs, certifying bodies such as NSF have some discretion on the implementation time frame. NSF has informed industry that they will make these changes effective January 1, 2023 to allow industry time to prepare.

At the same time the MCL changes for xylene, ethylbenzene and toluene were implemented, the extraction requirements used by both the NSF/ANSI/CAN 60: *Drinking Water Treatment Chemicals - Health Effects* (NSF 60) and NSF 61 standards were moved to a separate standard NSF/ANSI/CAN 600: *Health Effects Evaluation and Criteria in Drinking Water* (NSF 600). This was done to increase the accessibility of the health criteria and create a single source (NSF 600) for the multiple drinking water standards that reference the criteria, including, NSF 60 and NSF 61.

A comprehensive review was made to identify Tnemec products that will meet the NSF 600 extraction requirements for xylene, ethylbenzene, and toluene that are effective January 1. 2023. Tnemec is labeling these products with a combined NSF 61 and NSF 600 mark to allow users to quickly identify Tnemec products that will meet the more stringent criteria. The product data sheets for these products will include special qualification statements indicating NSF 600 compliance and NSF is including the following statement to the NSF online listing notes:

> "Meets the health effects requirements of NSF/ANSI/CAN 600 according to the requirements of NSF/ANSI/CAN 61"

NSF
Certified to
NSF/ANSI/CAN 61
NSF/ANSI/CAN 600

Please reference the appendix for more information on the new NSF/ANSI/CAN Standard 61-2018 edition.

Appendix:

NSF International

Memorandum

To: NSF/ANSI/CAN 61 and NSF/ANSI 14 Certified and Applied Clients

From: Theresa Bellish, General Manager, Water Systems

Date: April 10, 2019

Re: New NSF/ANSI/CAN Standard 61-2018 Edition

A new edition of NSF/ANSI/CAN Standard 61-2018 has recently published. A PDF copy is available via your NSF Connect account or by contacting your Account Manager. Unless otherwise noted, all changes have been implemented immediately by NSF International.

This edition of the Standard is the first to be designated as a National Standard of Canada in compliance with the requirements and guidance set out by the Standards Council of Canada (SCC). You will receive information about the updated NSF Certification Marks that will be available for download and/or purchase in the upcoming weeks.

This version of NSF/ANSI/CAN 61 contains the following changes:

1. **Issue 138:** This revision clarifies which test water is to be used when triplicate exposures are required for brass or bronze containing in-line devices evaluated under section 8.4.1 of the standard. Previously, triplicate exposures were to be performed using the pH 10 test water, but that requirement needed to be updated now that there are two tables directing which test waters are to be used (Tables B3a and B3b). When testing is being performed under the original test water selection table (B3a), the pH 10 test water is to be used for the triplicate exposures. When the new exposure water selection table is used (B3b) the pH 8 test water is to be used.

2. **Issue 140:** Language has been updated in Annex B to specify that lead and other USEPA regulated metallic contaminants shall be excluded from multiple time point analysis. This language already existed in the standard, but it has been updated to specify USEPA regulated metallic contaminants and has been moved from note format to a normative paragraph format.

3. **Issue 141 of NSF 61 and Issues 1 & 2 of NSF 600:** These revisions removed

Annexes A and D from NSF/ANSI/CAN 61 and resulted in the first edition of NSF/ANSI/CAN 600– *Health effects evaluation and criteria for chemicals in drinking water*. This new standard creates a single reference source for the toxicological review and evaluation procedures of treatment chemicals added to drinking water and those substances imparted to drinking water through contact with drinking water system components, as well as the current drinking water criteria. A PDF of NSF/ANSI/CAN 600 is available for you to download from your NSF Connect account.

These issues also contained several updates to pass/fail criteria. Those updates and the implementation periods for products to comply can be found in the table below.

Compound	Previous Criteria in ppb (TAC/SPAC)	New Criteria in ppb (TAC/SPAC)	Implementation Deadline
Benzo(a)pyrene	0.2/0.02	0.04/0.004	Immediate
Perfluorooctanoic acid (PFOA) & Perfluorooctanesulfanic acid (PFOS)	3/0.3	0.07/0.007 (Total)	Products must comply by 1/1/2020
Triphenylphosphine Oxide	3/0.3	1/0.1	Products must comply by 1/1/2020
Total Xylenes	10,000/1000	90/9	Products must comply by 1/1/2023
Toluene	1000/100	60/6	Products must comply by 1/1/2023
Ethylbenzene	700/70	140/14	Products must comply by 1/1/2023

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