

Addendum No. 2

Project: **MBW Flocculator #1 & #3 Painting of Flocculator Agitation System Equipment and Clarifier Bridge**
Control No: **1139**
Issued: **To all listed plan holders**
Date: **February 7, 2018**

This addendum forms a part of the Agreement described above. The original Contract Documents and any prior addenda remain in full force and effect except as modified by the following, which shall take precedence over any contrary provisions in prior documents.

1. Section 00140 – Information for Bidders

- DELETE Section 00140, page 1, and REPLACE with revised Section 00140, page 1, attached. In addition, the deleted pages are an obsolete version and the following changes have been made to paragraph 4:
 - H. Flocculator #1 – work to be done in March/April (See Section 01110, Description of Work, Item 2).
 - I. Flocculator #3 – work to be done in May/June (See Section 01110, Description of Work, Item 24).

2. Section 01110 Summary of Work

- DELETE Section 01110, in its entirety, and REPLACE with revised Section 01110, attached. In addition, the deleted pages are of an obsolete version and the following changes have been made:
 - Removed all references to painting of flocculator motor/gearbox concrete support base.
 - Clarified the surface prep for the cat-walk beam and rapid mix access door.
 - Edited Description of Work – see items 1, 2, 27 & 28

3. Clarification Item:

- A lead-based paint report for samples taken on all three clarifiers has been provided as part of this addendum.

END

Each Bidder/Proposer shall acknowledge receipt of this addendum by affixing his signature below, by noting this addendum on his Bid/Proposal Form, and by attaching this addendum to his Bid/Proposal. **Failure to acknowledge this addendum could be cause for bid/proposal rejection.**

ACKNOWLEDGMENT

The undersigned acknowledges receipt of this addendum and the Bid submitted is in accordance with information, instructions and stipulations set forth herein.

BIDDER / PROPOSER _____

AUTHORIZED SIGNATURE _____

DATE _____

SECTION 00140
INFORMATION FOR BIDDERS

1. Separate sealed bids for the **MBW Flocculator #1 & #3 Painting of Flocculator Agitation System Equipment and Clarifier Bridge, Control Number: 1139**, will be received by the Knoxville Utilities Board, an agency of the City of Knoxville, (the "OWNER") 4505 Middlebrook Pike, Knoxville, Tennessee 37921, until **2:00 p.m. local time, on February 15, 2018**, and then at said time publicly opened and read aloud.
2. **Description of work:** Contractor shall paint, (at a nearby location designated by KUB), flocculator agitator system equipment and associated hardware consisting of: agitator drive shafts (2 horizontal & 2 vertical), agitator arms (14), bearing drive shafts (16) and flocculator drive shafts (12) as per the PPG or Sherwin Williams paint specifications. **Bids shall be submitted based on one of these specifications provided with the bid documents.**
3. **A Mandatory pre-bid meeting will be held on February 1, 2018, at 1:30pm, EST, at KUB, 4505 Middlebrook Pike, Knoxville, TN 37921, followed by a mandatory on-site meeting at Mark B. Whitaker Water Treatment Plant, 2000 Riverside Dr., Knoxville, TN 37915.** Meeting attendees must bring **HARD HATS, SAFETY GLASSES WITH SIDE SHIELDS AND BOOTS WITH TOE PROTECTION** to participate in the on-site walk through. **Contractors must attend both meetings to be eligible to bid.**
4. NOT USED
5. **Our proposed schedule is as follows:**
 - A. Bid documents available on January 23, 2018.
 - B. **A Mandatory pre-bid meeting will be held on February 1, 2018, at 1:30pm, EST, at KUB, 4505 Middlebrook Pike, Knoxville, TN 37921, followed by a mandatory on-site meeting at Mark B. Whitaker Water Treatment Plant, 2000 Riverside Dr., Knoxville, TN 37915. Contractors must attend both meetings to be eligible to bid.**
 - C. Cut off for questions at 4:00PM, February 9, 2018.
 - D. Issue addendum if required 4:00PM, on February 12, 2018.
 - E. Bid opening on **February 15, 2018, at 2:00PM, EST**, in the Procurement Conference Room at the KUB Hoskins Operations Center, 4505 Middlebrook Pike.
 - F. Award project on or before February 16, 2018.
 - G. Notice to Proceed on or before March 5, 2018.
 - H. Flocculator #1 – work to be done in March/April (See Section 01110, Description of Work, Item 2).
 - I. Flocculator #3 – work to be done in May/June (See Section 01110, Description of Work, Item 27).

SECTION 01110
SUMMARY OF WORK

MBW Flocculator #1 & #3 Painting of Flocculator Agitation System Equipment and Clarifier Bridge, Control Number: 1139

KUB Responsibilities

- Complete job safety briefing
- Load flocculator equipment to be painted onto trailers furnished by painting contractor and unload for installation after painting is completed
- Provide covered area for painting of equipment
- Dispose of all paint removal debris and coating materials after it is placed into waste disposal containers.
- Conduct preconstruction job conference to be held at the job site before blast cleaning and painting is started. Attending this meeting will be KUB representatives and Contractor's Representative. The purpose of the meeting is to include the following:
 1. Review site safety conditions, requirements, and security procedures.
 2. Review Contractor's anticipated scheduling of work.
 3. Review Specification requirements for blast cleaning.
 4. Review Specification requirements for painting.
 5. Review paint manufacturer's recommendations regarding the work.
 6. Answer any questions the Contractor may have concerning the work.
 7. Review the Solid Waste Handling and Disposal Procedures.

Description of work to be completed by Contractor

1. Painting Contractor will need to coordinate with the equipment Contractor (separate project).
2. **Flocculator #1 (to be completed in March/April)** - Contractor should understand that this project will be broken into four phases (25 calendar days total for project) – Phase 1. Calendar day 1 - 5 of project - Equipment Removal (separate contractor), Phase 2. Calendar day 6 – 19 of project - Painting (this contract, up to 14 calendar days to complete the work as outlined below), Phase 3. Calendar day 20 – 24 of project - Equipment Installation (separate contractor) and Phase 4. Calendar day 25 of project - Painting Contractor to touch-up & paint bolts/nuts (see item 13, below).
3. Follow appropriate Lock Out Tag Out, Confined Space, Fall Protection and KUB Safety Guidelines.
4. Contractor shall paint, a nearby location designated by KUB, flocculator agitator system equipment and associated hardware consisting of: agitator drive shafts (2 horizontal & 2 vertical), agitator arms (14), bearing drive shafts (16) and flocculator drive shafts (12) as per the attached PPG or Sherwin Williams paint specifications. **Bids shall be submitted based on one of these specifications.**

5. Contractor shall protect all bearing drive shafts from painting in area of shaft to be enclosed by bearings.
6. Contractor shall protect all marks, stamps and numbering on removed equipment to ensure proper placement/alignment upon re-installation.
7. Contractor shall provide containment area at remote painting location for agitator system equipment. **Containment plans as well as Solid Waste Handling and Disposal Procedures must be submitted to KUB for review with bid.**
8. Contractor shall be responsible for furnishing truck and/or trailer with driver to transport equipment to a nearby location designated by KUB for painting as well as transport back to the original location after painting is completed.
9. Contractor to be responsible for offloading equipment for painting and reloading agitator system equipment onto trailer after painting.
10. Contractor shall hand clean in place with stainless steel brush or wheel: agitator rods (28 – clean to water level at highest point, approx. 8’).
11. Contractor shall paint in place: flocculator motor, flocculator gearboxes and steel pad, rapid mix gearbox, motor and steel support base and rapid mix access doors as per the attached PPG or Sherwin Williams paint specifications. **Bids shall be submitted based on one of these specifications.**
12. Contractor shall provide containment area around all equipment while painting equipment in place. **Containment plans as well as Solid Waste Handling and Disposal Procedures must be submitted to KUB for review with bid.**
13. After re-installation of all equipment is completed (by separate contractor), Painting Contractor shall touch-up paint all equipment as needed and paint all hardware not previously painted (bolts, nuts, etc.).
14. Contractor shall paint in place: clarifier bridge/catwalk, support brackets, etc. (except stainless handrails) as per the attached PPG or Sherwin Williams paint specifications. Walkway tread plates and steps shall be painted by contractor, as per the attached PPG or Sherwin Williams paint specifications, at a nearby location designated by KUB. **Bids shall be submitted based on one of these specifications.**
15. Contractor shall provide containment area for clarifier bridge/catwalk in clarification basin while painting equipment in place. No sand blasting or paint debris shall be allowed to contact or enter filters, basin or adjacent basins. **Containment plans as well as Solid Waste Handling and Disposal Procedures must be submitted to KUB for review with bid.**
16. Contractor shall ensure that all surfaces are properly prepared, the proper primer is applied to the correct mil thickness, and the finish coat is compatible with the primer coat and applied to the correct mil thickness .
17. Contractor shall furnish all necessary labor, tools, paint, supplies and equipment needed to perform job .
18. Contractor is solely responsible for the health and safety of its workers during the execution of this contract. Conduct all work in accordance with all applicable local, state, and federal regulations, including but not limited to; 29 CFR § 1926(Construction Industry), 29 CFR § 1910 (General Industry), 29 CFR § 1926.62 (Lead Exposure In

- Construction), 29 CFR § 1926 Subpart L (Scaffolds), 29 CFR § 1926 Subpart M (Fall Protection) and 29 CFR § 1910.146 (Permit Required Confined Spaces).
19. Contractor is advised that the existing coatings on the equipment contain lead below the EPA/HUD allowable limit of 0.5% by weight.
 20. Due to the fall potentials associated with this project, pay specific and special attention to fall prevention, and compliance with 29 CFR 1926.104, 29 CFR 1926.105, and 29 CFR 1926.451.
 21. Cleaning of tank of all debris after work is complete.
 22. Provide any confined space entry support, personal protective equipment and the use of clothes changing, washing, and showering facilities, as may be used for workers who work in the paint removal containment/confined area, and to inspectors who may enter the containment area.
 23. Containment Plan: Provide a description of the form of containment proposed for use during both surface preparation and coating application. The plan must include measures for ensuring paint removal debris and coating materials do not contaminate surrounding soils, fall outside the perimeters of the established containment, nor damage/deface surrounding equipment. The plan should also include procedures that will be used to remove paint removal debris from the established containment to waste disposal containers – 55 gallon drums supplied by contractor. KUB will dispose of all paint removal debris and coating materials after it is placed into waste disposal containers.
 24. Solid Waste Handling and Disposal Procedures: Handle, contain, and store paint removal waste, including the mixture of paint chips and spent abrasive, in accordance with applicable local, state, and federal regulations. Contractor is solely responsible for the design, fabrication, set up, operation, performance, and maintenance of any containment facilities and assuring compliance with any federal, state and local regulations and owner requirements. Design the form of containment to maintain all debris or paint spray associated with the repainting activities within the bounds of the Owner's designated area and collect the debris for transportation to an approved waste handling facility. Submit copy of proposed form of containment to the Owner. The frequency of blasting waste collection by the Contractor is to be in accordance with applicable local, state, and federal regulations, or more frequently as agree upon by Owner. Blasted paint debris is not to be left exposed to the elements during the progress of work. Exterior paint has been sampled by the Owner for total lead content, and are below the EPA/HUD allowable limit of 0.5% by weight. Contractor will place the blasted paint debris into 55 gallon drums supplied by contractor. Only blasted paint debris will be permitted in the contractor-supplied 55 gallon drums. All 55 gallon drums must be covered during rain events and when blasted paint debris is not being placed in the containers.
 25. Contractor shall guarantee all exterior work for a period of five (5) years from the date of acceptance. All paint products must be guaranteed for a period of ten (10) years by the manufacturer.
 26. Protection of surfaces not to be painted: Use extreme diligence to assure that vehicles, dwellings, equipment, hardware, fixtures, and other materials are protected against abrasive damage, paint spillage, overspray, etc. The Contractor is responsible to make full restitution for damages caused. No surrounding surfaces or equipment shall receive

splatter, drops, or contamination from preparation or coating process. Use protective coverings, shields, or masking as necessary to protect equipment nameplates, identification plates, surrounding mechanical and electrical equipment, machinery, drainage systems, liquid pumping systems, etc. from damage created by the surface preparation and painting work of the Contractor. This includes preventing debris, overspray, etc. from entering the tank during the exterior repainting activities. Maintain all protective coverings during the entire period the work is being performed, and remove all coverings upon completion of the work. Erect all scaffolding and staging required for the work and remove it upon project completion. Exercise extreme care in fastening, bracing, and handling the scaffolding and staging to avoid scratching or damaging tank surfaces and surrounding property and equipment. The Contractor is responsible for the repair of any damage created.

27. **Flocculator #3 (work to be done in May/June)** – The same logic will apply for Flocculator #3, as Item 2 (listed above). Contractor should understand that this project will be broken into four phases (25 calendar days total for project) – Phase 1. Equipment Removal (separate contractor has 5 calendar days to remove), Phase 2. Painting (begin immediately upon removal of equipment (separate contractor), then, up to 14 calendar days to complete the painting), Phase 3. Equipment Installation (separate contractor has 5 calendar days to install) and Phase 4. Painting Contractor to touch-up & paint bolts/nuts (immediately following installation contractor (separate contract) see item 13, above).
28. Items 3-26 listed above will also apply to Flocculator #3.

PPG Specifications and Coatings Recommendations for KUB's MBW Flocculator Project

1. **Agitator Drive Shafts (2 horizontal & 2 vertical), Agitator Arms (14), Flocculator Drive Shafts (12), Bearing Drive Shafts (16), Cat-Walk Beam and Steps, Rapid Mix Access Door:**

Surface Prep: Surface must be clean, dry and free of contaminates. Clean the surface of all soluble contaminates using SSPC-SP1 Solvent Cleaning method; Pressure washing and use of PPG's Prep 88 Degreaser can be used with owners approval. After removal of soluble contaminates, abrasive blast per SSPC-SP6 Commercial Blast Cleaning Method.

Containment of paint chips, blast media and solvents from water may be required. Stainless Steel Shaft extending from agitator arm to scum line (approx. 8') will be Brush-Off blast cleaned to remove existing coatings.

Note: Cat-Walk Beam and Rapid Mix Access Door Surface Prep: Surface must be clean, dry and free of contaminates. Clean the surface per SSPC-SP1 Solvent Cleaning Method to remove all soluble contaminates. After solvent cleaning, surface should be cleaned per SSPC-SP2 Hand-Tool Cleaning Method and SSPC-SP3 Power-Tool Cleaning Method to remove rust and loose or peeling coatings. Surface shall be thoroughly sanded and deglossed.

Pre-Prime Coat: Apply one spot pre-prime coat of PPG Amerlock Sealer @ 1.0-1.5 mils DFT to areas where inaccessibility to surface prep may be result in less than the surface prep standard. Inaccessibility would be described as those areas that because of design may limit the contractor's ability to adequately abrasive blast the surface to SSPC-SP6. Those areas will be noted to the owners representative and surface prep approved prior to proceeding with pre-prime coating application.

Prime Coat: Apply one Full Coat of PPG Amerlock 2 Fast Cure Epoxy @ 4-8 mils DFT. Color: White

Intermediate Coat: Apply second Full Coat of PPG Amerlock 2 Fast Cure Epoxy @ 4-8 mils DFT. Color Off White

Finish Coat: Apply one full coat of PPG PSX700 Engineered Siloxane Coating @ 4-7 mils DFT: Color to be selected.

2. Flocculator Motor, Gearbox and Steel Pad:

Surface Prep: Surface must be clean, dry and free of contaminates. Clean the surface per SSPC-SP1 Solvent Cleaning Method to remove all soluble contaminates. After solvent cleaning, surface should be cleaned per SSPC-SP2 Hand-Tool Cleaning Method and SSPC-SP3 Power-Tool Cleaning Method to remove rust and loose or peeling coatings. Surface shall be thoroughly sanded and deglossed.

Pre-Prime: Apply one spot pre-prime coat of Amerlock Sealer @ 1.5 mils DFT to areas inaccessible to surface prep and where corrosion may result in rust weeping.

Spot Prime Coat: Apply one spot prime coat of PPG Amercoat One Single Pack Epoxy Coating @ 4-6 mils DFT. Color: gray

Finish Coat: Apply one full coat of PSXONE Single Pack Siloxane Coating @ 2-3 mils DFT. Color to be selected.

3. Rapid Gearbox and Motor:

Surface Prep: Surface must be clean, dry and free of contaminates. Clean the surface per SSPC-SP1 Solvent Cleaning Method to remove all soluble contaminates. After solvent cleaning, surface should be cleaned per SSPC-SP2 Hand-Tool Cleaning Method and SSPC-SP3 Power-Tool Cleaning Method to remove rust and loose or peeling coatings. Surface shall be thoroughly sanded and deglossed.

Pre-Prime: Apply one spot pre-prime coat of Amerlock Sealer @ 1.5 mils DFT to areas inaccessible to surface prep and where corrosion may result in rust weeping.

Spot Prime Coat: Apply one spot prime coat of PPG Amercoat One Single Pack Epoxy Coating @ 4-6 mils DFT to all bare steel or areas of corrosion. Color: gray

Finish Coat: Apply one full coat of PSXONE Single Pack Siloxane Coating @ 2-3 mils DFT. Color to be selected.

Sherwin Williams Specifications and Coatings Recommendations for KUB's MBW Flocculator Project

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coating systems for wastewater processing facilities.

1.2 RELATED SECTIONS

- A. Section 01 33 00 Submittal Procedures.
- B. Section 08 11 13 Hollow Metal Doors and Frames
- C. Section 09 20 00 Plaster and Gypsum Board

1.3 REFERENCES

- A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.
- C. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- D. AWWA D 102- Painting Steel Water Storage Tanks
- E. International Concrete Repair Institute (ICRI) Guideline No. 310.2-1997 (formerly 03732) - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- F. NACE SP0188 - Standard Recommended Practice, Discontinuity (Holiday) Testing of Protective Coatings.
- G. NAPF 500-03-04 Abrasive Blast Cleaning.
- H. SSPC-SP 1 - Solvent Cleaning.
- I. SPPC-SP 5/NACE 1 - White Metal Blast Cleaning.
- J. SSPC-SP 6/NACE 3 - Commercial Blast Cleaning.
- K. SSPC-SP 10/NACE 2 - Near-White Metal Blast Cleaning.
- L. SSPC-SP 16 Brush-Off Blast Cleaning of Non-Ferrous Metals
- M. SSPC-SP 13/NACE 6 - Surface Preparation of Concrete.
- N. SSPC-TU 11 - Inspection of Fluorescent Coating Systems

1.4 DEFINITIONS

- A. Definitions of Painting Terms: ASTM D 16, unless otherwise specified.
- B. Dry Film Thickness (DFT): Thickness of a coat of cured paint measured in mils (1/1000 inch).

1.5 SUBMITTALS

- A. Comply with Section 01 33 00 Submittal Procedures.
- B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.
- C. Color Samples: Submit manufacturer's color samples showing full range of standard colors.
- D. Manufacturer's Quality Assurance: Submit manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.

- E. Applicator's Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
 - 1. Project name and location.
 - 2. Name of owner.
 - 3. Name of contractor.
 - 4. Name of engineer.
 - 5. Name of coating manufacturer.
 - 6. Approximate area of coatings applied.
 - 7. Date of completion.

- F. Warranty: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Specialize in manufacture of coatings with a proven successful experience.
 - 2. Able to demonstrate successful performance on comparable projects.
 - 3. Single Source Responsibility: Coatings and coating application reducers and additives shall be products of a single manufacturer.
- B. Applicator's Qualifications:
 - 1. Experienced in application of specified coatings on projects of similar size and complexity to this Work.
 - 2. Applicator's Personnel: Employ persons trained for application of specified coatings.
- C. Preapplication Meeting: Convene a preapplication meeting two [2] weeks 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. Environmental requirements.
 - 2. Protection of surfaces not scheduled to be coated.
 - 3. Surface preparation.
 - 4. Application.
 - 5. Repair.
 - 6. Field quality control.
 - 7. Cleaning.
 - 8. Protection of coating systems.
 - 9. One-year inspection.
 - 10. Coordination with other work.

1.7 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.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. 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 limit.
- B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D 102.
- C. 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.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. The Sherwin-Williams Company (www.sherwin.com/protective).

2.2 COATING SYSTEMS FOR STEEL - STRUCTURAL, TANKS, PIPE, EQUIPMENT, AND MISCELLANEOUS

- A. Exterior Exposed:
 1. System Type: Zinc/epoxy/urethane.
 2. Surface Preparation: SSPC-SP 6 with a surface profile of 2.0 to 3.0 mils.
 3. Primer: Corothane I Galvapac Zinc Primer. DFT 3.0 to 4.0 mils.
 4. Intermediate Coat: Macropoxy 646. DFT 3.0 to 5.0 mils.
 5. Finish Coat: Sher-Loxane 800 DFT 4.0 to 6.0 mils.
 6. Total DFT: 10.0 to 15.0 mils.
 7. Finish Color: As indicated on the drawings.
- B. Immersion
 1. System Type: Epoxy/epoxy
 2. Surface Preparation: SSPC-SP 10
 3. Primer: Dura-Plate UHS Primer: DFT 8.0 to 10.0 mils.

4. Finish Coat: Dura-Plate UHS: DFT 8.0 to 14.0 mils.
5. Total DFT: 16.0 to 24.0 mils
6. Finish Color: As indicated on the drawings.

2.3 COATING SYSTEMS FOR GALVANIZED STEEL AND NONFERROUS PIPE AND MISCELLANEOUS FABRICATIONS METAL -

A. Exterior Exposed:

1. System Type: Epoxy/urethane.*
 2. Surface Preparation: SSPC SP 16.
 3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
 4. Finish Coat: Sher-Loxane 800 DFT 4.0 to 6.0 mils.*
 5. Total DFT: 7.0 to 11.0 mils.
 6. Finish Color: As indicated on the drawings, or color schedule.
- * Use Sher-Loxane 800 as stand alone system for galvanized steel.

2.4 COATING SYSTEMS FOR DUCTILE OR CAST IRON - PIPE, PUMPS, AND VALVES

A. Exterior Exposed:

1. System Type: Epoxy/epoxy/urethane.
2. Surface Preparation: NAPF 500-03-04 with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain.
3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
4. Finish Coat: Sher-Loxane 800 DFT 4.0 to 6.0 mils.
5. Total DFT: 7.0 to 11.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.

2.5 COATING SYSTEMS FOR PRECAST CONCRETE, CAST-IN-PLACE CONCRETE, AND DENSE CONCRETE MASONRY UNITS

A. Exterior Exposed:

1. System Type: Elastomeric Acrylic
2. Surface Preparation: SSPC-SP 13/NACE 6 with a surface profile of ICRI CSP 2 or 3. Clean and dry.
3. Primer: Loxon XP. Spreading Rate 90 to 115 sf/gal.
4. Finish Coat: Loxon XP. Spreading Rate 90 to 115 sf/gal.
6. Finish Color: As indicated on the drawings.

B. Immersion, **Severe Service***:

1. System Type: Epoxy.
2. Surface Preparation: SSPC-SP 13/NACE 6 with a surface profile of ICRI CSP 3 to 6.
3. Resurfacer: A.W. Cook MSM Mortar
4. Filler: Fill bug holes, air pockets and other voids with Steel-Seam FT910.
5. Primer: Dura-Plate UHS Primer. DFT 8.0 to 10.0 mils
6. Finish: Dura-Plate UHS. DFT 40.0 to 50.0 mils

7. Total DFT: 48.0 to 60.0 mils.

2.6 ACCESSORIES

- A. Coating Application Accessories:
 1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
 2. Products of coating manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.

3.2 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.

3.3 SURFACE PREPARATION OF STEEL

- A. Prepare steel surfaces in accordance with manufacturer's instructions.
- B. Fabrication Defects:
 1. Correct steel and fabrication defects revealed by surface preparation.
 2. Remove weld spatter and slag.
 3. Round sharp edges and corners of welds to a smooth contour.
 4. Smooth weld undercuts and recesses.
 5. Grind down porous welds to pinhole-free metal.
 6. Remove weld flux from surface.
- C. Ensure surfaces are dry.
- D. Immersion or Below Grade Surfaces: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 10/NACE 2. Create a surface profile as specified in Part 2 or as required by the coating manufacturer..
- E. Exterior Exposed or Interior Exposed Surfaces: 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. Create a surface profile as specified in Part 2 or as required by the coating manufacturer..
- F. 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.
- G. Shop Primer: Shop primed steel shall receive a field sweep blast prior to the application of subsequent coats. Prepare shop primer to receive field coat in accordance with manufacturer's instructions. Removal all unknown shop primers and re-prime in accordance with this specification.

3.4 SURFACE PREPARATION OF GALVANIZED STEEL AND NONFERROUS METAL

- A. Prepare galvanized steel and nonferrous metal surfaces in accordance with SSPC-SP16

and the coating manufacturer's instructions.

- B. Test galvanized surfaces for chromate treatments and remove as required by SSPC-SP 16, or other Engineer approved method.
- C. Ensure surfaces are dry.

3.5 SURFACE PREPARATION OF DUCTILE OR CAST IRON

- A. Prepare ductile or cast iron surfaces in accordance with NAPF 500-03-04 Abrasive Blast Cleaning with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain. Bituminous coated pipe shall NOT be allow if field painting is required..
- B. Bituminous coated pipe shall NOT be allow if field painting is required.
- C. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

3.6 SURFACE PREPARATION OF CONCRETE

- A. Interior, Wet Substrate:
 - 1. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2.
 - 2. Allow concrete to cure for a minimum of 28 days.
 - 3. Test concrete for moisture in accordance with ASTM D 4263 and, if necessary, F 1869.
 - 4. Abrasive blast surface to remove laitance and solid contaminants and to provide clean, sound substrate with uniform anchor profile.
 - 5. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.
 - 6. Fill holes, pits, voids, and cracks with manufacturer approved surfacer.
 - 7. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.

- B. Exterior and Interior Dry:
 - 1. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2.
 - 2. Allow concrete to cure for a minimum of 28 days.
 - 3. Test concrete for moisture in accordance with ASTM D 4263 and, if necessary, F 1869.
 - 4. Level concrete protrusions and mortar spatter.
 - 5. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.
 - 6. Fill hairline cracks less than 1/64 inch (0.4 mm) in accordance with manufacturer's instructions.
 - 7. Prepare cracks wider than 1/64 inch (0.4 mm), moving cracks, gaps, and expansion joints in accordance with manufacturer's instructions.
 - 8. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.

3.7 APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions.
- B. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
- C. Keep containers closed when not in use to avoid contamination.
- D. Do not use mixed coatings beyond pot life limits.
- E. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
- F. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- G. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- H. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer. Apply and additional strip coat of the intermediate coating material in immersion areas.
- I. Roll or backroll the first coat of epoxy or block filler applied to concrete or interior block substrates to work the material into the substrate.

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 FIELD QUALITY CONTROL

- A. Required Inspections and Documentation:
 - 1. Verify coatings and other materials are as specified.
 - 2. Verify environmental conditions are as specified.
 - 3. Verify surface preparation and application are as specified.
 - 4. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges. DFT's shall be measured in accordance with SSPC-PA2.
 - 5. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
 - a. Check for holidays on interior steel immersion surfaces using holiday detector in accordance with NACE SP0188 or SSPC TU-11 using a safe blue light inspection lamps if OAP technology is used.
 - 6. Report:
 - a. Prepare inspection reports daily.
 - b. Submit written reports describing inspections made and actions taken to correct nonconforming work.
 - c. Report nonconforming work not corrected.

d. Submit copies of report to Engineer and Contractor.

B. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.10 CLEANING

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

3.11 PROTECTION OF COATING SYSTEMS

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

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 manufacturers instructions.

3.13 SCHEDULES

A. Coating System Schedule:

Refer to the drawings for coating system schedules.

B. Color Schedule:

To facilitate identification of piping in plants and pumping stations follow the TenStates Identification with Sherwin-Williams Colors system (See appendix):

END OF SECTION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-73393-1
Client Project/Site: MBW Clarifier Arms

For:
Knoxville Utilities Board
PO BOX 51326
Knoxville, Tennessee 37950

Attn: Mr. David Rosecrance

Heather Baker

Authorized for release by:
3/4/2015 10:55:53 AM

Heather Baker, Project Manager I
(615)301-5043
heather.baker@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Knoxville Utilities Board
Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-73393-1	MBW-C1Arm-LBP01	Solid	03/02/15 14:20	03/03/15 08:50
490-73393-2	MBW-C2Arm-LBP01	Solid	03/02/15 14:25	03/03/15 08:50
490-73393-3	MBW-C3Arm-LBP01	Solid	03/02/15 14:30	03/03/15 08:50

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Case Narrative

Client: Knoxville Utilities Board
Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Job ID: 490-73393-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-73393-1

Comments

No additional comments.

Receipt

The samples were received on 3/3/2015 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 18.9° C.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Definitions/Glossary

Client: Knoxville Utilities Board
Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Knoxville Utilities Board
 Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Client Sample ID: MBW-C1Arm-LBP01

Lab Sample ID: 490-73393-1

Date Collected: 03/02/15 14:20

Matrix: Solid

Date Received: 03/03/15 08:50

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0325		0.000986		% by Wt		03/03/15 14:34	03/03/15 19:56	10

Client Sample ID: MBW-C2Arm-LBP01

Lab Sample ID: 490-73393-2

Date Collected: 03/02/15 14:25

Matrix: Solid

Date Received: 03/03/15 08:50

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0322		0.00100		% by Wt		03/03/15 14:34	03/03/15 20:01	10

Client Sample ID: MBW-C3Arm-LBP01

Lab Sample ID: 490-73393-3

Date Collected: 03/02/15 14:30

Matrix: Solid

Date Received: 03/03/15 08:50

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.00244		0.000962		% by Wt		03/03/15 14:34	03/03/15 20:14	10

QC Sample Results

Client: Knoxville Utilities Board
Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 490-231235/1-A
Matrix: Solid
Analysis Batch: 231339

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 231235

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.000101		% by Wt		03/03/15 14:13	03/03/15 18:29	1

Lab Sample ID: LCS 490-231235/2-A
Matrix: Solid
Analysis Batch: 231339

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 231235

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.00197	0.001780		% by Wt		90	80 - 120

Lab Sample ID: LCSD 490-231235/3-A
Matrix: Solid
Analysis Batch: 231339

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 231235

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.00197	0.001783		% by Wt		91	80 - 120	0	20

Lab Sample ID: 490-73280-A-1-L MS
Matrix: Solid
Analysis Batch: 231339

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 231235

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.00117		0.00199	0.003118		% by Wt		98	75 - 125

Lab Sample ID: 490-73280-A-1-M MSD
Matrix: Solid
Analysis Batch: 231339

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 231235

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	0.00117		0.00194	0.003122		% by Wt		100	75 - 125	0	20

QC Association Summary

Client: Knoxville Utilities Board
 Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Metals

Prep Batch: 231235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-73280-A-1-L MS	Matrix Spike	Total/NA	Solid	3051A	
490-73280-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	3051A	
490-73393-1	MBW-C1Arm-LBP01	Total/NA	Solid	3051A	
490-73393-2	MBW-C2Arm-LBP01	Total/NA	Solid	3051A	
490-73393-3	MBW-C3Arm-LBP01	Total/NA	Solid	3051A	
LCS 490-231235/2-A	Lab Control Sample	Total/NA	Solid	3051A	
LCSD 490-231235/3-A	Lab Control Sample Dup	Total/NA	Solid	3051A	
MB 490-231235/1-A	Method Blank	Total/NA	Solid	3051A	

Analysis Batch: 231339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-73280-A-1-L MS	Matrix Spike	Total/NA	Solid	6010B	231235
490-73280-A-1-M MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	231235
490-73393-1	MBW-C1Arm-LBP01	Total/NA	Solid	6010B	231235
490-73393-2	MBW-C2Arm-LBP01	Total/NA	Solid	6010B	231235
490-73393-3	MBW-C3Arm-LBP01	Total/NA	Solid	6010B	231235
LCS 490-231235/2-A	Lab Control Sample	Total/NA	Solid	6010B	231235
LCSD 490-231235/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	231235
MB 490-231235/1-A	Method Blank	Total/NA	Solid	6010B	231235

Lab Chronicle

Client: Knoxville Utilities Board
 Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Client Sample ID: MBW-C1Arm-LBP01

Date Collected: 03/02/15 14:20

Date Received: 03/03/15 08:50

Lab Sample ID: 490-73393-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			0.507 g	100 mL	231235	03/03/15 14:34	NJB	TAL NSH
Total/NA	Analysis	6010B		10	0.507 g	100 mL	231339	03/03/15 19:56	ADN	TAL NSH

Client Sample ID: MBW-C2Arm-LBP01

Date Collected: 03/02/15 14:25

Date Received: 03/03/15 08:50

Lab Sample ID: 490-73393-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			0.499 g	100 mL	231235	03/03/15 14:34	NJB	TAL NSH
Total/NA	Analysis	6010B		10	0.499 g	100 mL	231339	03/03/15 20:01	ADN	TAL NSH

Client Sample ID: MBW-C3Arm-LBP01

Date Collected: 03/02/15 14:30

Date Received: 03/03/15 08:50

Lab Sample ID: 490-73393-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3051A			0.520 g	100 mL	231235	03/03/15 14:34	NJB	TAL NSH
Total/NA	Analysis	6010B		10	0.520 g	100 mL	231339	03/03/15 20:14	ADN	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Knoxville Utilities Board
Project/Site: MBW Clarifier Arms

TestAmerica Job ID: 490-73393-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL NSH

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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Certification Summary

Client: Knoxville Utilities Board
 Project/Site: MBW Clarifier Arms

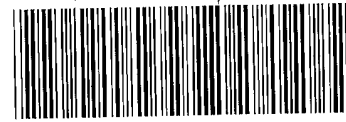
TestAmerica Job ID: 490-73393-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-15
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	10-31-15
Arizona	State Program	9	AZ0473	05-05-15
Arkansas DEQ	State Program	6	88-0737	04-25-15
California	State Program	9	2938	10-31-16
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-15
Illinois	NELAP	5	200010	12-09-15
Iowa	State Program	7	131	04-01-16
Kansas	NELAP	7	E-10229	03-31-15 *
Kentucky (UST)	State Program	4	19	06-30-15
Kentucky (WW)	State Program	4	90038	12-31-15
Louisiana	NELAP	6	30613	06-30-15
Maryland	State Program	3	316	03-31-16
Massachusetts	State Program	1	M-TN032	06-30-15
Minnesota	NELAP	5	047-999-345	12-31-15
Mississippi	State Program	4	N/A	06-30-15
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-15
New Hampshire	NELAP	1	2963	10-09-15
New Jersey	NELAP	2	TN965	06-30-15
New York	NELAP	2	11342	03-31-15
North Carolina (WW/SW)	State Program	4	387	12-31-15
North Dakota	State Program	8	R-146	06-30-15
Ohio VAP	State Program	5	CL0033	10-16-15
Oklahoma	State Program	6	9412	08-31-15
Oregon	NELAP	10	TN200001	04-29-15
Pennsylvania	NELAP	3	68-00585	06-30-15
Rhode Island	State Program	1	LAO00268	12-30-15
South Carolina	State Program	4	84009 (001)	02-28-15 *
South Carolina (DW)	State Program	4	84009 (002)	02-23-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-15
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-15
Virginia	NELAP	3	460152	06-14-15
Washington	State Program	10	C789	07-19-15
West Virginia DEP	State Program	3	219	02-28-16
Wisconsin	State Program	5	998020430	08-31-15
Wyoming (UST)	A2LA	8	453.07	12-31-15

* Certification renewal pending - certification considered valid.



Cooler Received/Opened On 3/3/2015 @ 0850

1. Tracking # 5110 (last 4 digits, FedEx)

Courier: Fed-ex IR Gun ID 97310166

2. Temperature of rep. sample or temp blank when opened: 18.9 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 Front / 1 Back

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) [Signature]

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (initial) [Signature]

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) [Signature]

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) [Signature]

I certify that I attached a label with the unique LIMS number to each container (initial) [Signature]

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# _____

Knoxville Utilities Board 4505 Middlebrook Pike Knoxville, TN 37921

Alternate billing information:

Report to: *David Roseance*
E-mail to: *David.Roseance@kub.org*

Analysis/Container/Preservative

Deliver to:

Fast America

Chain of Custody
Page 1 of 1

Loc: 490
73393

Project Description: *MBW Char-Fir Arms*

City/State Collected: *Knoxville TN*

Phone: *865/358-2195*

Client Project #:

Fax: *865/358-2195*

Site/Facility ID#:

P.O.#:

Collected by (signature): *D Roseance*

Collected by (signature): *D Roseance*

Date Results Needed: *3/4/15*

No. of Chits

Collected by (signature): *[Signature]*

Date Results Needed: *3/4/15*

No. of Chits

Packed on Ice: Yes

Date Results Needed: *3/4/15*

No. of Chits

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Chits	Analysis/Container/Preservative	Remarks/Contaminant	Sample # (lab only)
<i>MBW-C1Arm-LBPO1</i>	<i>G</i>	<i>OT</i>	<i>T</i>	<i>3/2/15</i>	<i>1420</i>	<i>1</i>	<i>X</i>	<i>Lead (90 by weight)</i>	<i>01</i>
<i>MBW-C2Arm-LBPO1</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>1425</i>	<i>1</i>	<i>X</i>		<i>02</i>
<i>MBW-C3Arm-LBPO1</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>1430</i>	<i>1</i>	<i>X</i>		<i>03</i>

Matrix: SS - Silt/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other

Remarks: *Please report in to by weight*

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature)	Date: <i>3/4/15</i>	Time: <i>1545</i>	Received by: (Signature)	Date: <i>3-27-15</i>	Time: <i>15:45</i>	Samples returned via: <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Bottles Received: <input type="checkbox"/> UPS	Condition: (lab use only)
Relinquished by: (Signature)	Date: <i>3-2-15</i>	Time: <i>16:00</i>	Received by: (Signature)	Date: <i>3-27-15</i>	Time: <i>15:45</i>	Samples returned via: <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Bottles Received: <input type="checkbox"/> UPS	Condition: (lab use only)
Relinquished by: (Signature)	Date: <i>3-2-15</i>	Time: <i>16:00</i>	Received by: (Signature)	Date: <i>3-27-15</i>	Time: <i>15:45</i>	Samples returned via: <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Bottles Received: <input type="checkbox"/> UPS	Condition: (lab use only)

Login Sample Receipt Checklist

Client: Knoxville Utilities Board

Job Number: 490-73393-1

Login Number: 73393

List Source: TestAmerica Nashville

List Number: 1

Creator: Gambill, Shane

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

