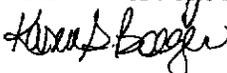




NOTICE OF AWARD

State Of Missouri
Office Of Administration
Division Of Purchasing And Materials Management
PO Box 809
Jefferson City, MO 65102-0809
<http://content.oa.mo.gov/purchasing-materials-management>

SOLICITATION NUMBER B3Z14153	CONTRACT TITLE Water Treatment Services
CONTRACT NUMBER C314153001	CONTRACT PERIOD January 1, 2015 through December 31, 2016
REQUISITION NUMBER NR 300 22004000035	VENDOR NUMBER 3709087450 1
CONTRACTOR NAME AND ADDRESS Walter Louis Fluid Technologies 530 South 5 th Street Quincy, IL 62301-4896	STATE AGENCY'S NAME AND ADDRESS Office of Administration, Division of Facilities Management, Design and Construction 301 West High Street, Room 730 Jefferson City, MO
ACCEPTED BY THE STATE OF MISSOURI AS FOLLOWS: The proposal submitted by Walter Louis Fluid Technologies in response to B3Z14153 is accepted in its entirety, with the inclusion of signed Amendment #1.	
BUYER Kyle Wilde	BUYER CONTACT INFORMATION Email: kyle.wilde@oa.mo.gov Phone: (573) 751- 4148 Fax: (573) 526-9816
SIGNATURE OF BUYER 	DATE 9/23/2014
DIRECTOR OF PURCHASING AND MATERIALS MANAGEMENT  Karen S. Boeger	



STATE OF MISSOURI
OFFICE OF ADMINISTRATION
DIVISION OF PURCHASING AND MATERIALS MANAGEMENT (DPMM)
REQUEST FOR PROPOSAL (RFP)

RFP NO.: B3Z14153
TITLE: Water Treatment Services
ISSUE DATE: April 29, 2014

REQ NO.: NR 300 22004000035
BUYER: Kyle Wilde
PHONE NO.: (573) 751-4148
E-MAIL: kyle.wilde@oa.mo.gov

RETURN PROPOSAL NO LATER THAN: Tuesday July 15, 2014 AT 2:00 PM CENTRAL TIME

MAILING INSTRUCTIONS: Print or type RFP Number and Return Due Date on the lower left hand corner of the envelope or package. Delivered sealed proposals must be in DPMM office (301 W High Street, Room 630) by the return date and time.

RETURN PROPOSAL TO: (U.S. Mail) DPMM or (Courier Service) DPMM
PO BOX 809 301 WEST HIGH STREET, RM 630
JEFFERSON CITY MO 65102-0809 JEFFERSON CITY MO 65101-1517

CONTRACT PERIOD: Effective Date of Contract through Two (2) Years

DELIVER SUPPLIES/SERVICES FOB (Free On Board) DESTINATION TO THE FOLLOWING ADDRESS:

Office of Administration Division of Facilities Management, Design and Construction Various Locations throughout the State of Missouri	Missouri Veterans Commission, Department of Corrections, and Various FMDM Managed Facilities throughout the State of Missouri
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WLFT hereby declares understanding, agreement and certification of compliance to provide the items and/or services, at the prices quoted, in accordance with all requirements and specifications contained herein and the Terms and Conditions Request for Proposal (Revised 12/27/12). WLFT further agrees that the language of this RFP shall govern in the event of a conflict with his/her proposal. WLFT further agrees that upon receipt of an authorized purchase order from the Division of Purchasing and Materials Management or when a Notice of Award is signed and issued by an authorized official of the State of Missouri, a binding contract shall exist between WLFT and the State of Missouri.

SIGNATURE REQUIRED

DOING BUSINESS AS (DBA) NAME Walter Louis Fluid Technologies	LEGAL NAME OF ENTITY/INDIVIDUAL FILED WITH IRS FOR THIS TAX ID NO. Walter Louis Chemicals & Associates
MAILING ADDRESS 530 So. 5 th Street	IRS FORM 1099 MAILING ADDRESS 530 So. 5 th Street
CITY, STATE, ZIP CODE Quincy, IL 62301-4896	CITY, STATE, ZIP CODE Quincy, IL 62301-4896

CONTACT PERSON Walter L. Giesing		EMAIL ADDRESS wgiesing@walterlouis.com
PHONE NUMBER 217-223-2017		FAX NUMBER 217-223-7734
TAXPAYER ID NUMBER (TIN) 37-0908745	TAXPAYER ID (TIN) TYPE (CHECK ONE) <input checked="" type="checkbox"/> FEIN <input type="checkbox"/> SSN	VENDOR NUMBER (IF KNOWN) 37090874501
VENDOR TAX FILING TYPE WITH IRS (CHECK ONE) <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Individual <input type="checkbox"/> State/Local Government <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietor <input type="checkbox"/> IRS Tax-Exempt		
AUTHORIZED SIGNATURE 		DATE 7/11/2014
PRINTED NAME Walter L. Giesing		TITLE President

1. INTRODUCTION AND GENERAL INFORMATION

1.1 Introduction:

1.1.1 This document constitutes a request for competitive, sealed proposals for the provision of water treatment services as set forth herein.

1.1.2 Organization - This document, referred to as a Request for Proposal (RFP), is divided into the following parts:

- 1) Introduction and General Information
- 2) Contractual Requirements
- 3) Proposal Submission Information
- 4) Pricing Page(s)
- 5) Exhibits A - K
- 6) Terms and Conditions
- 7) Attachments 1-4: WLFT is advised that attachments exist to this document which provide additional information and instruction. These attachments are separate links that must be downloaded from the Division of Purchasing and Materials Management's Internet web site at: <https://www.moolb.mo.gov>. It shall be the sole responsibility of WLFT to obtain each of the attachments. WLFT shall not be relieved of any responsibility for performance under the contract due to the failure of WLFT to obtain a copy of the attachments.

1.2 **Pre-Proposal Conference - A pre-proposal conference regarding this Request for Proposal will be held on Monday, May 12, 2014 at 1:30 p.m. in Room 850 of the Harry S Truman Building, 301 West High Street, Jefferson City, Missouri.**

1.2.1 Pre-Proposal Conference Agenda - WLFT did bring a copy of the RFP since it will be used as the agenda for the pre-proposal conference.

1.2.2 Pre-Proposal Conference RFP Questions – WLFT did attend the Pre-Proposal Conference as it will be used as the forum for questions, communications, and discussions regarding the RFP. WLFT should become familiar with the RFP and develop all questions prior to the conference in order to ask questions and otherwise participate in the public communications regarding the RFP.

- a. Prior Communication – Prior to the Pre-Proposal Conference, WLFT may submit written communications and/or questions regarding the RFP to the buyer identified on page one. Such prior communication will provide the State of Missouri with insight into areas of the RFP which may be brought up for discussion during the conference and which may require clarification.
- b. During the Pre-Proposal Conference, it shall be the sole responsibility of WLFT to orally address all issues previously presented to the buyer by WLFT, including any questions regarding the RFP or areas of the RFP requiring clarification.
- c. Amendment to the RFP - Any changes needed to the RFP as a result of discussions from the Pre-Proposal Conference will be accomplished as an amendment to the RFP. Neither formal minutes of the conference nor written records of the questions/communications will be maintained.

1.2.3 Pre-Proposal Conference Special Accommodations - WLFTs are strongly encouraged to advise the Division of Purchasing and Materials Management within five (5) working days of the scheduled pre-proposal conference of any special accommodations needed for disabled personnel who will be attending the conference so that these accommodations can be made.

1.3 Requirements for Submitting Proposals:

- 1.3.1 Prior to submitting a proposal in response to the RFP for the provision of water treatment services, potential WLFT has inspected the steam and hydronic systems and obtained water samples from the water side areas of the steam and hydronic systems at all facilities listed on Attachment #1 herein.
- 1.3.2 The purpose of the inspection is to allow potential WLFT an opportunity to inspect the facilities' steam and hydronic systems prior to submitting a proposal. As a result, WLFT is solely responsible for a prudent and complete personal inspection, examination, and assessment of the facilities' steam and hydronic systems and any other existing condition, factor, or item that may affect or impact the performance of service described and required by the contractual requirements herein.
- 1.3.3 WLFT will contact each facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor for each facility listed on Attachment #1 to schedule the inspection of the facility's steam and hydronic system and for information about the inspection. WLFT must provide at least 72 hours advance notice of WLFT's desire to inspect the steam and hydronic system. WLFT must be prepared to provide the state agency with the name, social security number, state of residence, and date of birth for the person(s) conducting the inspections in order for the state agency to conduct a security clearance check. WLFT must obtain prior authorization from the facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor if WLFT is anticipating the use of camera equipment during the inspection of the steam and hydronic system. A record of those potential WLFTs attending the inspection will be maintained for verification purposes.
- 1.3.4 During the inspections, if WLFT discovers a discrepancy/conflict with the information provided on Attachment #1, WLFT should immediately notify the buyer of record, Kyle Wilde, at the Division of Purchasing and Materials Management at (573) 751-5341 or kyle.wilde@oa.mo.gov of such discrepancy/conflict.
- 1.3.5 WLFT is strongly encouraged to advise the facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor for each facility listed on Attachment #1, at least five (5) calendar days prior to the inspection of the facilities' steam and hydronic systems of any special accommodations needed for any personnel who will be attending the inspection so that these accommodations can be made.
- 1.3.6 WLFT is advised that no questions will be answered and no information concerning the RFP's requirements for the water treatment services shall be provided during the inspections. Other than questions pertaining to the inspection, all questions regarding this Request for Proposal (RFP) and/or the competitive procurement process must be directed to Kyle Wilde of the Division of Purchasing and Materials Management at (573) 751-4148 or: kyle.wilde@oa.mo.gov.
- 1.3.7 If available for a facility, a summary of the water steam production for each facility is included in Attachment #1.
- 1.3.8 A previous contract exists for the services being obtained via this RFP. A copy of the contract can be viewed and printed from the Division of Purchasing and Materials Management's Awarded Bid & Contract Document Search System located on the Internet at: <http://content.oa.mo.gov/purchasing-materials-management/>. In addition, all proposal and evaluation documentation leading to the award of that contract may also be viewed and printed from the Division of Purchasing and Materials Management's Awarded Bid & Contract Document Search System. Please reference the Bid number B3Z09010 or the contract number C309010001 when searching for these documents.
- 1.3.9 Although an attempt has been made to provide accurate and up-to-date information, the State of Missouri does not warrant or represent that the background information provided herein reflects all relationships or existing conditions related to this Request for Proposal.

2. CONTRACTUAL REQUIREMENTS

2.1 General Requirements:

- 2.1.1 Walter Louis Fluid Technologies shall provide water treatment services, chemicals, test equipment, supplies, technical expertise, and training (hereinafter referred to as a "water treatment program") for the steam and hydronic systems, chemical feed equipment, and storage tanks at the facilities identified on Attachment #1.
- 2.1.2 Walter Louis Fluid Technologies shall perform all services to the sole satisfaction of the state agencies, in accordance with the provisions and requirements of this document.
- 2.1.3 Addition/Removal of Facilities – Due to circumstances that may arise, the state agency may add or remove one or more facility(ies) at any time during the term of the contract. Any added or removed facility shall be accomplished by an amendment to the contract issued by the Division of Purchasing and Materials Management.
- a. For any additional facility(s) that may require a water treatment program(s), Walter Louis Fluid Technologies shall provide the state agency with mutually agreed to guaranteed not-to-exceed pricing for providing the water treatment program(s).
 - b. It is the state agencies' intent to utilize the contract for all additional facility requirements. Walter Louis Fluid Technologies is advised that the contract shall not be construed as an exclusive arrangement and if it is in the best interest of the State of Missouri and approved by the Division of Purchasing and Materials Management, the state agency may obtain alternate services elsewhere.
- 2.1.4 Revisions to a Facility's Water Treatment Program – Due to the addition, change, or removal of equipment at a facility, Walter Louis Fluid Technologies shall revise the affected water treatment program in order to accommodate the addition, change or removal of the equipment, including any pricing changes as mutually agreed between Walter Louis Fluid Technologies and the state agency. Walter Louis Fluid Technologies' revised water treatment program shall meet the same objectives described herein. Such revisions to a current water treatment program shall be accomplished by an amendment to the contract issued by the Division of Purchasing and Materials Management.
- 2.1.5 Because Walter Louis Fluid Technologies was familiar with the facility and the conditions that existed prior to award of the contract, Walter Louis Fluid Technologies shall not be relieved of responsibility for performance under the contract for any reason whatsoever.

2.2 Start-up / Implementation Period Requirements:

- 2.2.1 Within fourteen (14) calendar days after notification by the state agency to proceed with services, Walter Louis Fluid Technologies shall be fully operational, including purchasing of all required chemicals, providing required personnel, completing all functions, actions, set-up, etc. necessary for successful business operation, and full implementation of all required services pursuant to the requirements stated herein.
- 2.2.2 Contract Manager - Walter Louis Fluid Technologies shall designate a contract manager in an appropriate managerial position within Walter Louis Fluid Technologies' organization who shall coordinate and direct Walter Louis Fluid Technologies' field representatives' activities at all facilities. The contract manager shall serve as the primary liaison to the state agency's representative(s).
- a. Within five (5) days after the issuance of the Notice of Award, Walter Louis Fluid Technologies shall provide the state agency with the name, address, and phone number of Walter Louis Fluid Technologies' contract manager servicing the contract.

2.2.3 Test Procedure Manual - By no later than sixty (60) calendar days after notification by the state agency to proceed with services, Walter Louis Fluid Technologies shall develop a test program specific to each facility. Walter Louis Fluid Technologies shall develop and submit to each facility a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, of a Test Procedure Manual. The Test Procedure Manual shall include step-by-step instructions of the water chemistry tests to be performed by the state agency staff at each facility and remedial action to be taken if test results indicate an operating status outside of established operating parameters. Walter Louis Fluid Technologies shall comply with the following regarding testing requirements and procedures:

- a. All tests shall be by titration (or color comparison or colorimeter only if titration is not available), micro ohms meter, and pH Meter. Litmus paper or soap tests shall not be acceptable.
- b. Tests shall include testing for PPM of supplied ingredients, discharged to drain during daily and special operations of equipment treated.

2.2.4 Water Treatment Program Manual - By no later than ninety (90) calendar days after notification by the state agency to proceed with services, Walter Louis Fluid Technologies shall develop and submit to each facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, of the water treatment program manual. Walter Louis Fluid Technologies' water treatment program manual must be specific to each facility and must include, but not necessarily be limited to, the following:

- a. The specific equipment to be treated pursuant to Walter Louis Fluid Technologies' water treatment program, the chemical feed rates, and the existing feed equipment;
- b. Instructions for the state agency's personnel on how to implement and perform Walter Louis Fluid Technologies' water treatment program;
- c. Instructions and information detailing how deliveries of chemicals, reagents, test supplies, etc., shall be accomplished and the proposed delivery access routes through the facility water treatment plant; and
- d. The test control ranges.

WLFT has provided a sample water treatment manual as separate submittal.

2.2.5 WLFT Database – Walter Louis Fluid Technologies shall provide a database consisting of water treatment data that is accessible through a website with a unique login for each user.

- a. Each user shall have the ability to enter into Walter Louis Fluid Technologies' database the water chemical test results for their specific facility.

Please reference document for WLFT Reports in the Appendix

2.3 Water Treatment Program Requirements:

2.3.1 Walter Louis Fluid Technologies' water treatment program shall:

- a. Prevent corrosion, scale, and microbiological activity in equipment and systems;
- b. Protect the existing equipment;
- c. Ensure optimum heat transfer and equipment operating efficiency; and
- d. Maintain the highest cycle of concentration possible in boiler and cooling tower systems without boiler water carryover, forming scale, or corrosion of the system(s).

2.3.2 Walter Louis Fluid Technologies' water treatment program shall utilize the state agency's existing chemical feed equipment.

2.4 Inspection and Testing Requirements:

2.4.1 On an annual basis, the state agency will disassemble and open the equipment to conduct an internal inspection of pressure vessels and chillers, as well as internal boilers. In conjunction with pressure vessels and chillers and internal boiler inspections by the state agency, Walter Louis Fluid Technologies shall perform an annual waterside inspection of all systems and equipment, including piping. Walter Louis Fluid Technologies shall be given at least forty-eight (48) hours notice by the state agency prior to the annual waterside inspection. Walter Louis Fluid Technologies shall provide a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, to the facility's head of maintenance, designated plant maintenance engineer or maintenance supervisor detailing the findings of the waterside inspection and recommendations to remedy any deficiencies discovered.

- a. In the event that any waterside inspection conducted by Walter Louis Fluid Technologies reveals additional mineral buildup, scale accumulation, or corrosion damage in excess of that documented in Walter Louis Fluid Technologies' previous waterside inspection report, the contactor shall chemically clean the surfaces at no additional cost to the state agency if there is sufficient documentation that the water chemistry was maintained within the recommended control ranges.
- b. If any component of any facility's system experiences scaling/corrosion damage, Walter Louis Fluid Technologies shall send a sample of the mineral buildup/scaling/corrosion to Walter Louis Fluid Technologies' laboratory at the request of the facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor for scaling/corrosion analysis. The level of analysis to be performed shall be determined by the state agency.
 - 1) If the state agency is not satisfied with the results of the mineral buildup/scaling/corrosion analysis, Walter Louis Fluid Technologies shall send another sample to a third-party laboratory mutually agreed upon by the state agency and Walter Louis Fluid Technologies at the state agency's expense. This mineral buildup/scaling/corrosion analysis shall be used to determine the corrective action, if any, to be performed by Walter Louis Fluid Technologies in the treatment of the systems.
 - 2) Walter Louis Fluid Technologies shall forward a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, of the test results and recommendations regarding the findings from the waterside inspection to the facility.

2.4.2 On a semi-annual basis, Walter Louis Fluid Technologies shall conduct an analysis of fuel oil at each facility. The state agency facility staff will obtain the fuel oil samples. Walter Louis Fluid Technologies shall analyze the fuel oil samples in accordance with the tests as indicated below. Walter Louis Fluid Technologies shall forward a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, of the test results regarding the findings as well as their recommendations of needed fuel oil treatment chemicals. The tests shall include, but not necessarily be limited to, the following industry standard for fuel oil analysis:

- a. BS & W, % (Bottom sediment and water).
- b. API Gravity @ 60° F, (American Petroleum Institute's inverted scale for denoting the "lightness" or "heaviness" of crude oils and other liquid hydrocarbons).
- c. lbs/gal (how much one gallon of fuel weighs).
- d. BTU/lb (British Thermal Units per pound of fuel).
- e. BTU/gal (British Thermal Units per gallons of fuel).
- f. Sulfur as S, %; Lead as Pb, ppm; Vanadium as V, ppm; Sodium as Na, ppm (Sulfur, lead, vanadium, and sodium are common chemical elements found in fuel oil.).

- 2.4.3 Upon request from the state agency, Walter Louis Fluid Technologies shall analyze the resin from a water softener or dealkalizer for fractured beads and perform an elution study. Based on the results of the resin analysis or the elution study, Walter Louis Fluid Technologies shall instruct the state agency to adjust cycles and timers to achieve optimum efficiency.
- a. If the results of the resin analysis or elution study indicate that the water softener or dealkalizer requires cleaning, Walter Louis Fluid Technologies shall propose corrective action.
 - b. Walter Louis Fluid Technologies shall forward a hardcopy and a digital copy downloadable through Walter Louis Fluid Technologies' website, of the results of the resin analysis and elution study to the facility's head of maintenance, designated plant maintenance engineer, or maintenance supervisor.
- 2.4.4 At the request of the state agency, Walter Louis Fluid Technologies shall perform water analysis on domestic water on an as needed basis at each facility.
- a. Walter Louis Fluid Technologies shall be responsible for any equipment damage that occurs as a direct result of Walter Louis Fluid Technologies' water treatment program. In the event any equipment is damaged, Walter Louis Fluid Technologies shall clean, repair, or replace the equipment, as determined necessary by the state agency, at no additional charge to the state agency if there is sufficient documentation that the water chemistry was maintained within the recommended control ranges.
- 2.4.5 In the event that test(s) are needed, as requested by the state agency, to determine if Walter Louis Fluid Technologies' water treatment program is protecting the existing equipment, the state agency shall obtain an independent laboratory test. If the results of the independent laboratory test show Walter Louis Fluid Technologies' water treatment program is not protecting the existing equipment as required, Walter Louis Fluid Technologies shall be responsible for any costs related to the independent laboratory test, as well as the correction of the problem.
- 2.4.6 Walter Louis Fluid Technologies shall make Walter Louis Fluid Technologies' laboratory and technical department available for consultation and testing at any time deemed necessary by the state agency.

2.5 Site Visit Requirements:

- 2.5.1 Walter Louis Fluid Technologies' field representatives shall conduct facility site visits as specified in Attachment #2 and at a minimum, must perform the following requirements:
- a. Review and evaluate logs, reports, tests, etc., completed by the state agency staff.
 - b. Perform verification testing on all systems and equipment.
 - c. Critique and evaluate with state agency staff, the in-house test practices, test results and data, and chemical safety practices being performed.
 - d. Identify and document potential problems affecting the facility's physical plant longevity, reliability, efficiency, and chemical safety.
 - e. Provide instruction and respond to any questions from state agency staff.
 - f. Review the chemical, reagent, and test supplies inventory with state agency staff and make written recommendations regarding inventory requirements in order to maintain the minimum and maximum inventories required herein, considering chemical shelf life and applicable regulating chemical storage codes.
- 2.5.2 In addition to the required facility site visits as specified in Attachment #2, Walter Louis Fluid Technologies' field representative shall provide up to two (2) additional site visits annually at each facility on an as needed, if needed basis at the request of the state agency.

- 2.5.3 By no later than thirty (30) calendar days after each facility site visit conducted by Walter Louis Fluid Technologies' field representative, Walter Louis Fluid Technologies shall provide an Equipment/Systems Inspection Report, Site Visit Report, and a Water Chemistry and Treatment Management Report accessible through each facility's specific website established by Walter Louis Fluid Technologies. At a minimum, the Equipment/Systems Inspection Report, Site Visit Report, and Water Chemistry and Treatment Management Report must include the following:
- a. Equipment/Systems Inspection Report:
 - 1) Equipment inspected;
 - 2) Any additional analyses to be performed;
 - 3) Preliminary findings of the equipment inspection and what effect, if any, these conditions would have on efficiency; and
 - 4) Recommendations based on the current findings.
 - b. Site Visit Report:
 - 1) Summarize all activities which took place during each site visit;
 - 2) Water chemistry data;
 - 3) Observations;
 - 4) Chemical, test reagent, and test supply inventories; and
 - 5) Recommendations such as chemical dosage adjustments, corrective adjustments, blow down adjustments, etc.
 - c. Water Chemistry and Treatment Management Report:
 - 1) The overall conditions of the systems at the facility;
 - 2) Recommended changes to the water treatment program; and
 - 3) Identification of any system not being maintained within the control range.

Please reference water treatment manual tab in separate submittal for examples

2.6 Chemical and Reagent Requirements:

- 2.6.1 As part of Walter Louis Fluid Technologies' water treatment program, Walter Louis Fluid Technologies shall provide each facility with at least a thirty (30) calendar day supply, but no more than a ninety (90) calendar day supply, of chemicals that meet the following conditions per each system. The chemicals, reagents, and test supplies shall be included in the guaranteed not-to-exceed pricing stated in Section 4 herein.
- a. Boilers (Steam) Systems - Walter Louis Fluid Technologies shall supply the following four (4) chemicals which shall be used individually or in combination, as needed. Chemicals shall be injected into each steam boiler separately.
 - 1) Synthetic Polymers
 - 2) Phosphates
 - 3) Chelates capable of controlling iron deposits and capable of being fed substoichiometrically
 - 4) Alkalinity Builder
 - b. Closed Loop Heating/Cooling Systems - Walter Louis Fluid Technologies shall supply the following three (3) chemicals which shall be used individually or in combination, as needed.
 - 1) Nitrite-based, non-chromate, non-zinc, anodic inhibitor for corrosion control
 - 2) Microbiocide compatible with the above
 - 3) Citricorganophosphonic acid for on line cleaning
 - c. Deaerator/Feedwater Pretreatment System - Walter Louis Fluid Technologies shall supply the following:

- 1) A catalyzed sodium sulfite in liquid form shall be injected into the deaerator to scavenge 100% of the oxygen from the feedwater prior to introduction into the boiler, and shall maintain a minimum of 20 PPM sulfite residual in the boiler at all times.
 - 2) Liquid caustic for dealkalizer regeneration.
- d. Condensate Treatment System - Walter Louis Fluid Technologies shall comply with the following:
- 1) Walter Louis Fluid Technologies' condensate chemical treatment program may consist of three (3) amines. The amines must not be blended with other boiler water treatment. Condensate treatment cannot be blended with boiler compounds and must be injected independently as a separate chemical into the steam header and must maintain a condensate pH from 8.0 to 8.5.
 - The amines shall meet FDA requirements for food handling applications.
- e. Cooling Towers and Systems - Walter Louis Fluid Technologies shall supply the following chemicals which shall be fed separately:
- 1) A mineral acid, if compatible with metallurgy.
 - A non-chromate, non-zinc, corrosion/scale inhibitor blend. This chemical must contain:
 - A corrosion inhibitor such as phosphate or molybdate,
 - The sequesterant HEDP,
 - A polymeric dispersant, and
 - A yellow corrosion inhibitor.
 - 2) Two (2) cooling water microbiocides, each liquid, non-oxidizing, and EPA-approved for direct discharge at use concentration. These chemicals shall be used alternately to prevent development by organisms of immunity to either microbiocide. Therefore, killing mechanisms must differ sufficiently to permit this mode of application.
- f. Waste Water Treatment System - Walter Louis Fluid Technologies shall supply the chemicals, test programs, and related training for the chemicals listed below. All chemicals must be acceptable for discharge at use concentrations by all federal, state, and local regulations.
- 1) Calcium Nitrate, or approved equal, for control of odor, and Hydrogen Sulfide,
 - 2) Aqueous Organic Sulfides for control of Flocculent Precipitant,
 - 3) Ferrous Sulfate for Sludge Conditioning, and
 - 4) Bio-L-220 Grease Digesting Bacteria, or approved equal.
- g. Domestic Water Systems - Walter Louis Fluid Technologies shall provide a polymerized sodium polyphosphate, or approved equal, for sequestering iron, manganese, and calcium and corrosion protection. In addition, Walter Louis Fluid Technologies shall provide a fifteen percent (15%) sodium hypochlorite bleach as needed to chlorinate wells, tanks, and lagoon systems.
- h. Water Softener and Dealkalizer Systems – Walter Louis Fluid Technologies shall provide a resin cleaning solution.
- i. Fuel Oil Treatment System – Walter Louis Fluid Technologies shall provide fuel oil chemicals recommended in the fuel oil analysis that prevents the following:
- 1) accumulation of sludge,
 - 2) sediment and water in storage tanks;
 - 3) corrosion of fuel oil storage tanks;

- 4) low viscosity;
- 5) sludge buildup in the fuel system,
- 6) varnish and rust;
- 7) deposits of sludge and rust in heaters;
- 8) plugging of strainers, burner tips and nozzles.

2.6.2 Walter Louis Fluid Technologies shall only provide water treatment chemicals approved by the Food and Drug Administration (FDA) and Environmental Protection Agency (EPA) which shall comply with all applicable federal, state, and local regulations including regulations for sewer system disposal.

2.6.3 For each chemical and test reagent used, Walter Louis Fluid Technologies must deliver Walter Louis Fluid Technologies' product specification sheet and a material safety data sheet prepared in accordance with the OSHA Hazard Communications Standard, 29 CFR 1910.12000 specific to each facility as identified in Attachment #1.

2.6.4 Walter Louis Fluid Technologies shall be allowed to modify, substitute, add or delete chemicals identified as part of Walter Louis Fluid Technologies' water treatment program as outlined on Exhibit E, in Walter Louis Fluid Technologies' awarded proposal, with another chemical.

- a. Prior to modifying, substituting, adding to, or deleting chemicals from Walter Louis Fluid Technologies' water treatment program at any facility, Walter Louis Fluid Technologies must notify the state agency in writing and obtain the state agency's approval.
- b. For each new chemical added to the water treatment program, Walter Louis Fluid Technologies must provide the state agency with a material safety data sheet and product specification sheet.
- c. Any approved chemical change must provide the same or better results.

2.6.5 In the event of an unforeseen or emergency situation (e.g. equipment malfunction, replacements, decrease of quality in feed water), the state agency reserves the right to require Walter Louis Fluid Technologies to provide additional chemical(s) or contingency chemical(s) shown on the Pricing Page of Walter Louis Fluid Technologies' awarded proposal to combat the situation.

- a. Any additional chemical(s) or contingency chemical(s) provided in the event of an unforeseen or emergency situation shall be in addition to the guaranteed not-to-exceed price as stated on the Pricing Page of Walter Louis Fluid Technologies' awarded proposal.

2.7 Test Equipment and Refractometer Requirements:

2.7.1 Test Equipment – By no later than thirty (30) calendar days after notification by the state agency to begin providing services, Walter Louis Fluid Technologies shall provide new test equipment at each state agency facility as listed below. Upon expiration, termination or cancellation of the original contract period, the ownership of all test equipment provided by Walter Louis Fluid Technologies shall transfer to the state agency.

- a. Bench top pH Meter with the following minimum features:
 - 1) Probe arm
 - 2) Probe
 - 3) AC/DC converter
 - 4) R analog output
- b. Bench top T.D.S. Conductivity Meter with the following minimum features:
 - 1) Battery operated
 - 2) Micro ohms scale 0-5000
 - 3) Increments of 1-10-100-1000

- 4) Battery test
- 5) Multi-range

Please reference Data Sheet in the equipment tab

2.7.2 Refractometers - By no later than thirty (30) calendar days after notification by the state agency to begin providing services, Walter Louis Fluid Technologies shall provide each state agency facility with glycol closed loop systems, a new handheld Propylene Glycol & Ethylene Glycol Refractometers, including the minimum features listed below, to be used for measuring concentration and freezing temperature of Ethylene Glycol and Propylene Glycol. Each refractometer shall include a protective storage case and owner's manual. Upon expiration, termination, or cancelation of the original contract period, the ownership of the refractometers provided by Walter Louis Fluid Technologies shall transfer to the state agency.

- a. PG concentration 0 - 70% (accuracy $\pm 1.0\%$)
- b. PG freezing point 0 to -50°C (accuracy $\pm 1.0^{\circ}\text{C}$)
- c. EG concentration 0 - 70% (accuracy $\pm 1.0\%$)
- d. EG freezing point 0 to -50°C . (accuracy $\pm 1.0^{\circ}\text{C}$)

Please reference Data Sheet in the equipment tab

2.7.3 Water Chemistry Test Kits – By no later than thirty (30) calendar days after notification by the state agency to begin providing services, Walter Louis Fluid Technologies shall supply each state agency facility with water chemistry test kits including, but not necessarily limited to the following:

- a. All sample containers, burettes, graduated cylinders, test tubes, beakers, petri dishes, measuring scoops, spoons, and all other test equipment and test reagents necessary to test by titration, for chemical residuals of all chemicals supplied by Walter Louis Fluid Technologies.
- b. Walter Louis Fluid Technologies shall provide test reagents on an as needed, if needed basis to maintain quantities for testing purposes.

2.8.5 Walter Louis Fluid Technologies shall provide the chemical feed equipment listed below with the requirements specified on Attachment #3 on an as needed, if needed basis at the request of the state agency. Walter Louis Fluid Technologies shall install the chemical feed equipment upon request by the state agency. In the event the state agency installs the equipment, Walter Louis Fluid Technologies shall guarantee the chemical feed equipment for one year from the date of purchase. In the event Walter Louis Fluid Technologies installs the equipment, Walter Louis Fluid Technologies shall guarantee the chemical feed equipment for one year from the date of installation.

- a. Chemical Metering Pumps
- b. Chemical Feed Controllers and Components
- c. Boiler Conductivity Controller

Please reference Data Sheet in the equipment tab

2.8 Storage Tank Requirements:

2.8.1 Walter Louis Fluid Technologies shall provide the state agency with chemical storage tanks and specifications including the requirements below, on an as needed, if needed basis. Walter Louis Fluid Technologies shall deliver the chemical storage tanks within fourteen (14) calendar days from the date of order by the state agency.

- a. Industrial grade quality.
- b. Professionally assembled.

- c Manufactured in accordance with ASTM D 1998 Standards.
- d Corrosion resistant.
- e Compatible with the chemicals used for water treatment.
- f Produced at 1.9 specific gravity.
- g Ranging in size from 15 gallons up to 500 gallons.
- h High Density Linear or cross-linked Polyethylene.
- i Cylinder shaped or square.
- j Double Wall/Dual Containment, reinforced, or heavy duty.
- k Has fitting connections or outlets.

Please reference Data Sheet in the equipment tab

2.9 Packaging and Delivery Requirements:

- 2.9.1 Walter Louis Fluid Technologies shall deliver all requested chemicals within fourteen (14) calendar days of receiving a written request from the state agency. Walter Louis Fluid Technologies shall contact the state agency at least twenty-four (24) hours prior to each delivery.
- a. Unless written permission for another time is obtained from the state agency, Walter Louis Fluid Technologies shall deliver chemicals between the hours of 8:00 a.m. and 3:00 p.m. Monday through Friday (excluding official state holidays). A list of Missouri State Holidays is posted on the Internet at: <http://content.oa.mo.gov/commissioners-office/state-holidays>.
- 2.9.2 Walter Louis Fluid Technologies shall agree and understand that the state agency will not receive, off load, or handle any chemicals, delivery/shipping drums, or other containers.
- 2.9.3 For those facilities using a drum-less, bulk storage water treatment program, Walter Louis Fluid Technologies shall deliver chemicals by bulk truck.
- a. Walter Louis Fluid Technologies shall transfer (pump) chemicals from Walter Louis Fluid Technologies' truck to the appropriate storage tank at the facility using only Walter Louis Fluid Technologies' transfer equipment.
 - b. Walter Louis Fluid Technologies shall be responsible for tank openings and closures, chemical transfer spillage, and spillage cleanup in accordance with all applicable laws.
 - c. Walter Louis Fluid Technologies' delivery operator shall be trained in chemical safety handling and capable of identification and proper application of the chemicals being delivered.
 - d. Walter Louis Fluid Technologies must have the material safety data sheets in the possession of the delivery operator at all times while the chemicals are in transport.

Please reference Technical Data Bulletin in the equipment tab

- 2.9.4 For those facilities with the conventional drum type water treatment program, Walter Louis Fluid Technologies shall comply with the following:
- a. Walter Louis Fluid Technologies shall make deliveries using a lift gate truck if the delivery includes drums, barrels, pallets, or containers with a unit weight of over one hundred pounds (100 lbs).
 - b. Delivery/shipping drums or containers made of paper, plastic, metal, or any combination of paper, plastic, or metal shall remain the property of Walter Louis Fluid Technologies. At a minimum,

Walter Louis Fluid Technologies shall remove all empty delivery/shipping containers every thirty (30) calendar days. Walter Louis Fluid Technologies shall dispose of such containers in compliance with all regulations and laws promulgated in the State of Missouri Department of Natural Resources, Department of Health and Senior Services, and other applicable state, local, and federal agencies.

- 2.9.5 Walter Louis Fluid Technologies shall agree and understand that unless the field representative also serves as a delivery operator, the arrival of Walter Louis Fluid Technologies' delivery operator shall not constitute a facility site visit by a field representative.

2.10 Personnel Requirements:

- 2.10.1 Field Representative(s) - Walter Louis Fluid Technologies must provide field representative(s) for the management of Walter Louis Fluid Technologies' water treatment program for all facilities identified herein.

- a. Each field representative shall have either (a) a minimum of a bachelor's degree in the physical sciences or mechanical engineering, plus at least five (5) years experience in institutional water treatment, or (b) at least five (5) years experience in institutional water treatment and certification through an accredited water treatment program.
- b. If Walter Louis Fluid Technologies' designated field representative is not available, Walter Louis Fluid Technologies must provide the state agency with a backup person with equal qualifications.
- c. After being contacted by the state agency, Walter Louis Fluid Technologies' Field Representative shall be available via telephone within a four (4) hour period.

- 2.10.2 Walter Louis Fluid Technologies' personnel shall be reasonably dressed and groomed while at the facilities.

- 2.10.3 Upon arrival to the facilities and prior to beginning service, Walter Louis Fluid Technologies' personnel shall follow the sign-in procedures specified below:

- a. For Department of Corrections (DOC) and Department of Mental Health (DMH) facilities listed on Attachment #1, Walter Louis Fluid Technologies shall provide five (5) calendar days advanced notice prior to arrival at the facility.
 - 1) Upon arrival to the facility, Walter Louis Fluid Technologies' personnel must present a legal photo form of identification, the tools being taken into the facilities, and a written inventory of the tools for verification.
- b. For the Department of Elementary and Secondary Education (DESE) facilities listed on Attachment #1, Walter Louis Fluid Technologies shall provide forty-eight (48) hours advanced notice prior to arrival at the facility.
 - 1) Upon arrival to the facility, Walter Louis Fluid Technologies' personnel shall sign in at the main reception/front desk or with the building manager.
- c. For Office of Administration, Division of Facility Management, Design and Construction (FMDC) and Missouri State Highway Patrol (MSHP) facilities listed on Attachment #1, Walter Louis Fluid Technologies shall sign in at the main reception/front desk or with the building manager upon arrival to the facility.

- 2.10.4 Walter Louis Fluid Technologies' personnel shall wear an article of clothing identifying Walter Louis Fluid Technologies or sub WLFT, including a picture ID tag visible at all times.

- 2.10.5 *WLFT Badge - Walter Louis Fluid Technologies shall obtain a WLFT badge from each location for the Department of Corrections, Department of Mental Health, Missouri State Highway Patrol, and each regional office of the Division of Facilities Management, Design and Construction. Walter Louis Fluid Technologies' personnel shall wear Walter Louis Fluid Technologies badge at all times while working at each facility.*
- 2.10.6 *Security Clearance- Walter Louis Fluid Technologies and Walter Louis Fluid Technologies' personnel assigned to the contract must have a security clearance in order to provide service under the contract.*
- a. *By no later than fifteen (15) calendar days after notification by the state agency to begin providing services, Walter Louis Fluid Technologies shall provide the following:*
 - 1) *For Walter Louis Fluid Technologies' personnel assigned to provide services at any Department of Corrections facility, Walter Louis Fluid Technologies must submit a list of names, social security numbers, and dates of birth of Walter Louis Fluid Technologies' personnel to the applicable Department of Corrections facility.*
 - 2) *For Walter Louis Fluid Technologies' personnel assigned to provide services at any Department of Mental Health facility, Walter Louis Fluid Technologies must submit a list of names, social security numbers, and dates of birth of Walter Louis Fluid Technologies' personnel to the applicable Department of Mental Health facility.*
 - 3) *For Walter Louis Fluid Technologies' personnel assigned to provide services at any Office of Administration, Facility Management, Design and Construction facility, Walter Louis Fluid Technologies must obtain a security clearance from the Missouri State Highway Patrol and submit it to Office of Administration, Division of Facilities Management, Design and Construction.*
 - 4) *For Walter Louis Fluid Technologies' personnel assigned to provide services at any Missouri State Highway Patrol facilities, Walter Louis Fluid Technologies must submit a list of names, social security numbers and dates of birth of Walter Louis Fluid Technologies' personnel to: the Missouri State Highway Patrol, Attn: Service Level Manager, 1510 E. Elm Street, PO Box 568, Jefferson City, Missouri, 65102.*
 - b. *For each new person assigned to provide services, Walter Louis Fluid Technologies must provide the required security clearance information at least five (5) calendar days prior to the new person providing services.*
 - c. *The state agency shall have the right to deny any of Walter Louis Fluid Technologies' personnel access to any facility for any reason.*
- 2.10.7 *Substitution of Personnel - Walter Louis Fluid Technologies agrees and understands that the State of Missouri's agreement to the contract is predicated in part on the utilization of the specific key individual(s) and/or personnel qualifications identified in the proposal. Therefore, Walter Louis Fluid Technologies agrees that no substitution of such specific key individual(s) and/or personnel qualifications shall be made without the prior written approval of the state agency. Walter Louis Fluid Technologies further agrees that any substitution made pursuant to this paragraph must be equal or better than originally proposed and that the state agency's approval of a substitution shall not be construed as an acceptance of the substitution's performance potential. The State of Missouri agrees that an approval of a substitution will not be unreasonably withheld.*
- 2.10.8 *Authorized Personnel:*
- a. *Walter Louis Fluid Technologies shall only employ personnel authorized to work in the United States in accordance with applicable federal and state laws. This includes but is not limited to the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) and INA Section 274A.*

- b. If Walter Louis Fluid Technologies is found to be in violation of this requirement or the applicable state, federal and local laws and regulations, and if the State of Missouri has reasonable cause to believe that Walter Louis Fluid Technologies has knowingly employed individuals who are not eligible to work in the United States, the state shall have the right to cancel the contract immediately without penalty or recourse and suspend or debar Walter Louis Fluid Technologies from doing business with the state. The state may also withhold up to twenty-five percent of the total amount due to Walter Louis Fluid Technologies.
- c. Walter Louis Fluid Technologies shall agree to fully cooperate with any audit or investigation from federal, state, or local law enforcement agencies.
- d. If Walter Louis Fluid Technologies meets the definition of a business entity as defined in section 285.525, RSMo, pertaining to section 285.530, RSMo, Walter Louis Fluid Technologies shall maintain enrollment and participation in the E-Verify federal work authorization program with respect to the employees hired after enrollment in the program who are proposed to work in connection with the contracted services included herein. If Walter Louis Fluid Technologies' business status changes during the life of the contract to become a business entity as defined in section 285.525, RSMo, pertaining to section 285.530, RSMo, then Walter Louis Fluid Technologies shall, prior to the performance of any services as a business entity under the contract:
 - 1) Enroll and participate in the E-Verify federal work authorization program with respect to the employees hired after enrollment in the program who are proposed to work in connection with the services required herein; AND
 - 2) Provide to the Division of Purchasing and Materials Management the documentation required in the exhibit titled, Business Entity Certification, Enrollment Documentation, and Affidavit of Work Authorization affirming said company's/individual's enrollment and participation in the E-Verify federal work authorization program; AND
 - 3) Submit to the Division of Purchasing and Materials Management a completed, notarized Affidavit of Work Authorization provided in the exhibit titled, Business Entity Certification, Enrollment Documentation, and Affidavit of Work Authorization.
- e. In accordance with subsection 2 of section 285.530, RSMo, Walter Louis Fluid Technologies should renew their Affidavit of Work Authorization annually. A valid Affidavit of Work Authorization is necessary to award any new contracts.

2.11 Training Requirements:

- 2.11.1 Walter Louis Fluid Technologies shall train state-agency staff at each facility: (1) to be proficient in the safe handling of chemicals and application of Walter Louis Fluid Technologies' water treatment program, and (2) improve the energy and operating efficiency at the facility.
- 2.11.2 Annual Training - By no later than ninety (90) calendar days after notification by the state agency to begin providing services and annually thereafter, Walter Louis Fluid Technologies shall conduct a training session which must be a minimum of four (4) hours for each region as specified in Attachment #4 to instruct state agency personnel in the topics listed below. The training shall take place at a location and on dates mutually agreed upon between Walter Louis Fluid Technologies and the state agency.
 - a. How to calculate the proper dosage of chemicals;
 - b. The function of each chemical;
 - c. Proper safety precautions and procedures in handling, administering, storing, and disposing of the chemicals;
 - d. Proper safety measures for emergency situations in accordance with OSHA and EPA standards;
 - e. How to perform the tests required in the Test Procedure Manual;
 - f. How to calculate production and reporting energy efficiency;
 - g. Water testing procedures

- h. Basic principles of water chemistry and treatment;
- i. Water softener operation and maintenance;
- j. Dealkalizer operation and its importance;
- k. Deaerator function and oxygen removal;
- l. Boiler water treatment and reaction;
- m. The importance of pH levels in the steam and hydronic systems; and
- n. Other applicable procedures.

Please reference document in the Appendix

- 2.11.3 Walter Louis Fluid Technologies shall provide written instructional material for state agency staff who attend the training. The instructional material must be current and shall be specific to the facility. In addition, Walter Louis Fluid Technologies must provide a training certificate for all state agency personnel who successfully complete training.
- 2.11.4 Walter Louis Fluid Technologies shall agree and understand that all instructional material shall become property of the state agency.
- 2.11.5 Walter Louis Fluid Technologies shall gear all training and instruction for entry-level and experienced operating personnel.

2.12 Reporting and Additional Requirements:

- 2.12.1 Walter Louis Fluid Technologies' Contract Manager shall meet with the state agency's Service Level Manager(s) or designee(s) in Jefferson City, Missouri on a quarterly basis as mutually agreed upon between the state agency and Walter Louis Fluid Technologies. At the quarterly meetings, Walter Louis Fluid Technologies shall provide the state agency with a quarterly report which documents the information listed below. Walter Louis Fluid Technologies must provide a hardcopy and a PDF copy of the quarterly report to the state agency Service Level Manager(s) or designee(s).
 - a. A summary detailing the present condition of the steam and hydronic systems and equipment at each facility serviced.
 - b. Confirmation of contract fulfillment and compliance by Walter Louis Fluid Technologies, including identification of training, chemicals, reagents, test supplies, and services provided.
 - c. A report of the disposal of delivery/shipping containers in accordance with the requirements specified elsewhere herein including, but not limited to, documented identification of all chemical containers delivered/shipped, in use, and disposed of during the quarter. The documentation shall include:
 - 1) Construction type;
 - 2) Size;
 - 3) Contents;
 - 4) Department of Transportation designation and specific unit identification;
 - 5) Date received;
 - 6) Dates used [from and to];
 - 7) Date removed; and
 - 8) Disposal documentation as required by the Missouri Department of Natural Resources (DNR), Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other applicable laws and regulations.

Please reference documents in the Appendix

- 2.12.2 Unless otherwise specified herein, Walter Louis Fluid Technologies shall furnish all material, labor, facilities, equipment, and supplies necessary to perform the services required herein.

- 2.12.3 Walter Louis Fluid Technologies must maintain financial and accounting records and evidence pertaining to the contract in accordance with generally accepted accounting principles and other procedures specified by the state agency.
- a. Walter Louis Fluid Technologies shall make all such records, books, and other documents relevant to the contract available to the state agency and its designees and the Missouri State Auditor in a format acceptable to the state agency at all reasonable times during the term of the contract.
 - b. Walter Louis Fluid Technologies shall retain all such records according to the state agency's retention period or the completion of an independent audit, whichever is later. If any litigation, claim, negotiation, audit, investigation, or other actions involving the records has been started before the expiration of the retention period, Walter Louis Fluid Technologies shall retain such records until completion of such action and resolution of all issues that arise from it.
 - c. Walter Louis Fluid Technologies shall permit the state agency, governmental auditors and authorized representatives of the State of Missouri to audit or examine, copy, or investigate any of Walter Louis Fluid Technologies' records, procedures, books, documents, papers, and records recording receipts and disbursements of any of the funds paid to Walter Louis Fluid Technologies. Failure to retain adequate documentation for any service billed may result in recovery of payments for services not adequately documented. Any audit exception noted by governmental auditors shall not be paid by the state agency and shall be the sole responsibility of Walter Louis Fluid Technologies. However, Walter Louis Fluid Technologies may contest any such exception by any legal procedure Walter Louis Fluid Technologies deems appropriate. The state agency will pay Walter Louis Fluid Technologies all amounts which Walter Louis Fluid Technologies may ultimately be held entitled to receive as a result of any such legal action.

2.13 Invoicing and Payment Requirements:

- 2.13.1 Prior to any payments becoming due under the contract, Walter Louis Fluid Technologies must return a completed State of Missouri Vendor Input/ACH-EFT Application, which is downloadable from the Vendor Services Portal at: <https://www.vendorservices.mo.gov/vendorservices/Portal/Default.aspx>.
- a. Walter Louis Fluid Technologies understands and agrees that the State of Missouri reserves the right to make contract payments through electronic funds transfer (EFT).
 - b. Walter Louis Fluid Technologies must submit invoices on Walter Louis Fluid Technologies' original descriptive business invoice form and must use a unique invoice number with each invoice submitted. The unique invoice number will be listed on the State of Missouri's EFT addendum record to enable Walter Louis Fluid Technologies to properly apply the state agency's payment to the invoice submitted. Walter Louis Fluid Technologies may obtain detailed information for payments issued for the past 24 months from the State of Missouri's central accounting system (SAM II) on the Vendor Services Portal at:
<https://www.vendorservices.mo.gov/vendorservices/Portal/Default.aspx>
- 2.13.2 Invoicing – Walter Louis Fluid Technologies shall submit a monthly invoice itemizing services provided as well as the specific purchase order (P.O.) number. Services or goods must be received before payment can be made. The invoice must be submitted to the state agency utilizing Walter Louis Fluid Technologies' services at the "bill to" address as specified on the purchase order.
- 2.13.3 Payments – After receipt and approval of the required written reports and invoice by the state agency, Walter Louis Fluid Technologies shall be paid and reimbursed for services performed.
- a. Water Treatment Program - Walter Louis Fluid Technologies shall be paid for the services provided at each facility for the performance of all requirements, including all chemicals, tests, and equipment

listed in Exhibit E of Walter Louis Fluid Technologies' awarded proposal, based upon the normal usage in accordance with all provisions and requirements of the water treatment program.

- b. Additional Chemicals/Equipment/Services – In the event Walter Louis Fluid Technologies provided any of the following, Walter Louis Fluid Technologies shall be paid in accordance with the following additional services and in addition to the water treatment program guaranteed not-to-exceed prices stated on the Pricing Page.
- 1) Chemicals – In the event Walter Louis Fluid Technologies provided additional chemical(s) or contingency chemical(s) due to an unforeseen or emergency circumstance for any of the steam and hydronic systems indicated on Exhibit E of Walter Louis Fluid Technologies' awarded proposal, Walter Louis Fluid Technologies shall be paid the applicable firm, fixed unit price stated on the Pricing Pages for such additional chemical or contingency chemical for the specific steam and hydronic system.
 - 2) Resin Analysis and Elution Study – In the event Walter Louis Fluid Technologies performed a Resin Analysis and Elution Study pursuant to the state agency's request, Walter Louis Fluid Technologies shall be paid the firm, fixed price stated on the Pricing Pages.
 - 3) Resin Cleaning Solution – For each gallon of Resin Cleaning Solution provided, Walter Louis Fluid Technologies shall be paid the firm, fixed price stated on the Pricing Pages.
 - 4) Domestic Water System – For each unit of polymerized sodium polyphosphate and sodium hypochloride bleach provided as required herein for the Domestic Water System, Walter Louis Fluid Technologies shall be paid the firm, fixed price stated on the Pricing Pages.
 - 5) Waste Water System – For each unit of Calcium Nitrate, Hydrogen Sulfide, Aqueous Organic Sulfides, Ferrous Sulfate, and Bio-L-220 Grease Digesting Bacteria provided as required herein for the Waste Water System, Walter Louis Fluid Technologies shall be paid the firm, fixed price stated on the Pricing Pages.
 - 6) Test Equipment or Refractometer – Walter Louis Fluid Technologies shall be paid the firm, fixed unit price stated on the Pricing Pages for any additional or replacement units of Test Equipment or Refractometer replaced by Walter Louis Fluid Technologies.
 - 7) Chemical Feed Equipment – Walter Louis Fluid Technologies shall be paid the firm, fixed percentage over actual net cost for Chemical Feed Equipment as stated on the Pricing Pages.
 - 8) Storage Tank – Walter Louis Fluid Technologies shall be paid the firm, fixed percentage over actual net cost for Storage Tanks as stated on the Pricing Pages.

2.13.4 Other than the payments specified above, no other payments or reimbursements shall be made to Walter Louis Fluid Technologies for any reason whatsoever.

2.14 Other Contractual Requirements:

2.14.1 Contract - A binding contract shall consist of: (1) the RFP, amendments thereto, and any Best and Final Offer (BAFO) request(s) with RFP changes/additions, (2) Walter Louis Fluid Technologies' proposal including any WLFT BAFO response(s), (3) clarification of the proposal, if any, and (4) the Division of Purchasing and Materials Management's acceptance of the proposal by "notice of award". All Exhibits and Attachments included in the RFP shall be incorporated into the contract by reference.

- a. A notice of award issued by the State of Missouri does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services for the State of Missouri, Walter Louis Fluid Technologies must receive a properly authorized purchase order or other form of authorization given to Walter Louis Fluid Technologies at the discretion of the state agency.
- b. The contract expresses the complete agreement of the parties and performance shall be governed solely by the specifications and requirements contained therein.

- c. Any change to the contract, whether by modification and/or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representative of Walter Louis Fluid Technologies and the Division of Purchasing and Materials Management prior to the effective date of such modification. Walter Louis Fluid Technologies expressly and explicitly understands and agrees that no other method and/or no other document, including correspondence, acts, and oral communications by or from any person, shall be used or construed as an amendment or modification to the contract.
- 2.14.2 Contract Period - The original contract period shall be as stated on page 1 of the Request for Proposal. The contract shall not bind, nor purport to bind, the state for any contractual commitment in excess of the original contract period. The Division of Purchasing and Materials Management shall have the right, at its sole option, to renew the contract for three (3) additional one-year periods, or any portion thereof. In the event the Division of Purchasing and Materials Management exercises such right, all terms and conditions, requirements and specifications of the contract, including prices, shall remain the same and apply during renewal periods. However, Walter Louis Fluid Technologies shall understand and agree the state may determine funding limitations necessitate a decrease in Walter Louis Fluid Technologies' pricing for the renewal period(s). If such action is necessary and Walter Louis Fluid Technologies rejects the decrease, the contract may be terminated, and a new procurement process may be conducted.
- 2.14.3 Renewal Periods - If the option for renewal is exercised by the Division of Purchasing and Materials Management, Walter Louis Fluid Technologies shall agree that the prices for the renewal period shall not exceed the maximum price for the applicable renewal period stated on the Pricing Page of the contract.
- a. If renewal prices are not provided, then prices during renewal periods shall be the same as during the original contract period.
 - b. In addition, Walter Louis Fluid Technologies shall understand and agree that renewal period price increases specified in the contract are not automatic. At the time of contract renewal, if the state determines funding does not permit the specified renewal pricing increase or even a portion thereof, the renewal pricing shall remain the same as during the previous contract period. If such action is rejected by Walter Louis Fluid Technologies, the contract may be terminated, and a new procurement process may be conducted. Walter Louis Fluid Technologies shall also understand and agree the state may determine funding limitations necessitate a decrease in Walter Louis Fluid Technologies' pricing for the renewal period(s). If such action is necessary and Walter Louis Fluid Technologies rejects the decrease, the contract may be terminated, and a new procurement process may be conducted.
- 2.14.4 Termination - The Division of Purchasing and Materials Management reserves the right to terminate the contract at any time, for the convenience of the State of Missouri, without penalty or recourse, by giving written notice to Walter Louis Fluid Technologies at least thirty (30) calendar days prior to the effective date of such termination. Walter Louis Fluid Technologies shall be entitled to receive compensation for services and/or supplies delivered to and accepted by the State of Missouri pursuant to the contract prior to the effective date of termination.
- 2.14.5 Transition:
- a. Upon award of the contract, Walter Louis Fluid Technologies shall work with the state agency and any other organizations designated by the state agency to ensure an orderly transition of services and responsibilities under the contract and to ensure the continuity of those services required by the state agency.
 - b. Upon expiration, termination, or cancellation of the contract, Walter Louis Fluid Technologies shall assist the state agency to ensure an orderly and smooth transfer of responsibility and continuity of those services required under the terms of the contract to an organization designated by the state

agency. If requested by the state agency, Walter Louis Fluid Technologies shall provide and/or perform any or all of the following responsibilities:

- 1) Walter Louis Fluid Technologies shall deliver, FOB destination, all records, documentation, reports, data, recommendations, or printing elements, etc., which were required to be produced under the terms of the contract to the state agency and/or to the state agency's designee within seven (7) days after receipt of the written request in a format and condition that are acceptable to the state agency.
- 2) Walter Louis Fluid Technologies shall discontinue providing service or accepting new assignments under the terms of the contract, on the date specified by the state agency, in order to ensure the completion of such service prior to the expiration of the contract.
- 3) If requested in writing via a formal contract amendment, Walter Louis Fluid Technologies shall agree to continue providing any part or all of the services in accordance with the terms and conditions, requirements and specifications of the contract for a period not to exceed sixty (60) calendar days after the expiration, termination or cancellations date of the contract for a price not to exceed those prices set forth in the contract.

2.14.6 **WLFT Liability** - Walter Louis Fluid Technologies shall be responsible for any and all personal injury (including death) or property damage as a result of Walter Louis Fluid Technologies' negligence involving any equipment or service provided under the terms and conditions, requirements and specifications of the contract. In addition, Walter Louis Fluid Technologies assumes the obligation to save the State of Missouri, including its agencies, employees, and assignees, from every expense, liability, or payment arising out of such negligent act.

- a. Walter Louis Fluid Technologies also agrees to hold the State of Missouri, including its agencies, employees, and assignees, harmless for any negligent act or omission committed by any WLFT sub or other person employed by or under the supervision of Walter Louis Fluid Technologies under the terms of the contract.
- b. Walter Louis Fluid Technologies shall not be responsible for any injury or damage occurring as a result of any negligent act or omission committed by the State of Missouri, including its agencies, employees, and assignees.
- c. Under no circumstances shall Walter Louis Fluid Technologies be liable for any of the following: (1) third party claims against the state for losses or damages (other than those listed above); or (2) economic consequential damages (including lost profits or savings) or incidental damages, even if Walter Louis Fluid Technologies is informed of their possibility.

Please reference documents in the Appendix

2.14.7 **Insurance** - Walter Louis Fluid Technologies shall understand and agree that the State of Missouri cannot save and hold harmless and/or indemnify Walter Louis Fluid Technologies or employees against any liability incurred or arising as a result of any activity of Walter Louis Fluid Technologies or any activity of Walter Louis Fluid Technologies' employees related to Walter Louis Fluid Technologies' performance under the contract. Therefore, Walter Louis Fluid Technologies must acquire and maintain adequate liability insurance in the form(s) and amount(s) sufficient to protect the State of Missouri, its agencies, its employees, its clients, and the general public against any such loss, damage and/or expense related to his/her performance under the contract. General and other non-professional liability insurance shall include an endorsement that adds the State of Missouri as an additional insured. Self-insurance coverage or another alternative risk financing mechanism may be utilized provided that such coverage is verifiable and irrevocably reliable and the State of Missouri is protected as an additional insured.

- 2.14.8 *WLFT Subs - Any subcontracts for the products/services described herein must include appropriate provisions and contractual obligations to ensure the successful fulfillment of all contractual obligations agreed to by Walter Louis Fluid Technologies and the State of Missouri and to ensure that the State of Missouri is indemnified, saved, and held harmless from and against any and all claims of damage, loss, and cost (including attorney fees) of any kind related to a subcontract in those matters described in the contract between the State of Missouri and Walter Louis Fluid Technologies.*
- a. *Walter Louis Fluid Technologies shall expressly understand and agree that he/she shall assume and be solely responsible for all legal and financial responsibilities related to the execution of a subcontract.*
 - b. *Walter Louis Fluid Technologies shall agree and understand that utilization of WLFT subs to provide any of the products/services in the contract shall in no way relieve Walter Louis Fluid Technologies of the responsibility for providing the products/services as described and set forth herein.*
 - c. *Walter Louis Fluid Technologies must obtain the approval of the State of Missouri prior to establishing any new subcontracting arrangements and before changing any WLFT subs. The approval shall not be arbitrarily withheld.*
 - d. *Pursuant to subsection 1 of section 285.530, RSMo, no WLFT or WLFT subs shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri. In accordance with sections 285.525 to 285.550, RSMo, a general WLFT or WLFT sub of any tier shall not be liable when such WLFT or WLFT subs contracts with its direct WLFT sub who violates subsection 1 of section 285.530, RSMo, if the contract binding Walter Louis Fluid Technologies and WLFT sub affirmatively states that*
 - 1) *The direct WLFT sub is not knowingly in violation of subsection 1 of section 285.530, RSMo, and shall not henceforth be in such violation.*
 - 2) *Walter Louis Fluid Technologies or WLFT sub receives a sworn affidavit under the penalty of perjury attesting to the fact that the direct WLFT sub's employees are lawfully present in the United States.*
- 2.14.9 *Participation by Other Organizations - Walter Louis Fluid Technologies must comply with any Organization for the Blind/Sheltered Workshop, Service-Disabled Veteran Business Enterprise (SDVE), and/or Minority Business Enterprise/Women Business Enterprise (MBE/WBE) participation levels committed to in Walter Louis Fluid Technologies' awarded proposal.*
- a. *Walter Louis Fluid Technologies shall prepare and submit to the Division of Purchasing and Materials Management a report detailing all payments made by Walter Louis Fluid Technologies to Organizations for the Blind/Sheltered Workshops, SDVEs, and/or MBE/WBEs participating in the contract for the reporting period. Walter Louis Fluid Technologies must submit the report on a monthly basis, unless otherwise determined by the Division of Purchasing and Materials Management.*
 - b. *The Division of Purchasing and Materials Management will monitor Walter Louis Fluid Technologies' compliance in meeting the Organizations for the Blind/Sheltered Workshop and SDVE participation levels committed to in Walter Louis Fluid Technologies' awarded proposal. The Division of Purchasing and Materials Management in conjunction with the Office of Equal Opportunity (OEO) will monitor Walter Louis Fluid Technologies' compliance in meeting the MBE/WBE participation levels committed to in Walter Louis Fluid Technologies' awarded proposal. If Walter Louis Fluid Technologies' payments to the participating entities are less than the amount committed, the state may cancel the contract and/or suspend or debar Walter Louis Fluid Technologies from participating in future state procurements, or retain payments to Walter Louis*

Fluid Technologies in an amount equal to the value of the participation commitment less actual payments made by Walter Louis Fluid Technologies to the participating entity. If the Division of Purchasing and Materials Management determines that Walter Louis Fluid Technologies becomes compliant with the commitment, any funds retained as stated above, will be released.

- c. If a participating entity fails to retain the required certification or is unable to satisfactorily perform, Walter Louis Fluid Technologies must obtain other certified MBE/WBEs or other organizations for the blind/sheltered workshops or other SDVEs to fulfill the participation requirements committed to in Walter Louis Fluid Technologies' awarded proposal.
 - 1) Walter Louis Fluid Technologies must obtain the written approval of the Division of Purchasing and Materials Management for any new entities. This approval shall not be arbitrarily withheld.
 - 2) If Walter Louis Fluid Technologies cannot obtain a replacement entity, Walter Louis Fluid Technologies must submit documentation to the Division of Purchasing and Materials Management detailing all efforts made to secure a replacement. The Division of Purchasing and Materials Management shall have sole discretion in determining if the actions taken by Walter Louis Fluid Technologies constitute a good faith effort to secure the required participation and whether the contract will be amended to change Walter Louis Fluid Technologies' participation commitment.
 - d. No later than 30 days after the effective date of the first renewal period, Walter Louis Fluid Technologies must submit an affidavit to the Division of Purchasing and Materials Management. The affidavit must be signed by the director or manager of the participating Organizations for the Blind/Sheltered Workshop verifying provision of products and/or services and compliance of all WLFT payments made to the Organizations for the Blind/Sheltered Workshops. Walter Louis Fluid Technologies may use the affidavit available on the Division of Purchasing and Materials Management's website at <http://content.oa.mo.gov/sites/default/files/bswaffidavit.doc> or another affidavit providing the same information.
- 2.14.10 WLFT Status - Walter Louis Fluid Technologies is an independent WLFT and shall not represent Walter Louis Fluid Technologies or Walter Louis Fluid Technologies' employees to be employees of the State of Missouri or an agency of the State of Missouri. Walter Louis Fluid Technologies shall assume all legal and financial responsibility for salaries, taxes, FICA, employee fringe benefits, workers compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save, and hold the State of Missouri, its officers, agents, and employees, harmless from and against, any and all loss; cost (including attorney fees); and damage of any kind related to such matters.
- 2.14.11 Coordination - Walter Louis Fluid Technologies shall fully coordinate all contract activities with those activities of the state agency. As the work of Walter Louis Fluid Technologies progresses, advice and information on matters covered by the contract shall be made available by Walter Louis Fluid Technologies to the state agency or the Division of Purchasing and Materials Management throughout the effective period of the contract.
- 2.14.12 Property of State – Walter Louis Fluid Technologies shall agree and understand that all documents, data, reports, supplies, equipment, and accomplishments prepared, furnished, or completed by Walter Louis Fluid Technologies pursuant to the terms of the contract shall become the property of the State of Missouri. Upon expiration, termination, or cancellation of the contract, said items shall become the property of the State of Missouri, which shall include all rights and interests for present and future use or sale as deemed appropriate by the state agency.
- a. The State of Missouri understands and agrees that any ancillary software tools or pre-printed materials (e.g., project management software tools or training software tools, etc.) developed or acquired by Walter Louis Fluid Technologies that may be necessary to perform a particular service

required hereunder but not required as a specific deliverable of the contract, shall remain the property of Walter Louis Fluid Technologies; however, Walter Louis Fluid Technologies shall be responsible for ensuring such tools and materials are being used in accordance with applicable intellectual property rights and copyrights.

- b. Walter Louis Fluid Technologies shall further agree that no reports, documentation, or material prepared, including the program(s) developed as required by the contract, shall be used or marketed by Walter Louis Fluid Technologies or released to the public without the prior written consent of the state agency.

2.14.13 Confidentiality:

- a. Walter Louis Fluid Technologies shall agree and understand that all discussions with Walter Louis Fluid Technologies and all information gained by Walter Louis Fluid Technologies as a result of Walter Louis Fluid Technologies' performance under the contract shall be confidential and that no reports, documentation, or material prepared as required by the contract shall be released to the public without the prior written consent of the state agency.
- b. If required by the state agency, Walter Louis Fluid Technologies and any required WLFT personnel must sign specific documents regarding confidentiality, security, or other similar documents upon request. Failure of Walter Louis Fluid Technologies and any required personnel to sign such documents shall be considered a breach of contract and subject to the cancellation provisions of this document.

2.14.14 Publicity - Any publicity release mentioning contract activities shall reference the contract number and the state agency. Any publications, including audiovisual items produced with contract funds, shall give credit to the contract and the state agency. Walter Louis Fluid Technologies shall obtain approval from the state agency prior to the release of such publicity or publications.

2.14.15 WLFT Equipment Use:

- a. Title - Title to any equipment required by the contract shall be held by and vested in Walter Louis Fluid Technologies. The State of Missouri shall not be liable in the event of loss, incident, destruction, theft, damage, etc., for the equipment including, but not limited to, devices, wires, software, technical literature, etc. It shall be Walter Louis Fluid Technologies' sole responsibility to obtain insurance coverage for such loss in an amount that Walter Louis Fluid Technologies deems appropriate.
- b. Liability - Walter Louis Fluid Technologies shall agree that the State of Missouri shall not be responsible for any liability incurred by Walter Louis Fluid Technologies or Walter Louis Fluid Technologies' employees arising out of the ownership, selection, possession, leasing, rental, operation, control, use, maintenance, delivery, return, and/or installation of equipment provided by Walter Louis Fluid Technologies, except as otherwise provided in the contract.

2.14.16 State agency equipment - Equipment purchased by the state agency and placed in the custody of Walter Louis Fluid Technologies shall remain the property of the state agency. Walter Louis Fluid Technologies must ensure these items are safeguarded and maintained appropriately, and return such equipment to the state agency within the time frame specified by the state agency.

2.14.17 Commercial Drivers License - Walter Louis Fluid Technologies and Walter Louis Fluid Technologies' drivers who, in the provision of services under the contract: (1) operate any single vehicle with a Gross Vehicle Weight Rating (GVWR) of over 26,000 pounds or any combination vehicle with a Gross Combination Weight Rating of over 26,000 pounds provided the Gross Vehicle Weight Rating of the vehicle(s) being towed is in excess of 10,000 pounds, (2) operate any size vehicle which requires hazardous materials placards, (3) operate any vehicle designed to transport more than 15 persons

(including the driver), or (4) engage in any other activity outlined in the Commercial Motor Vehicle Safety Act, must comply with all other requirements in the Commercial Motor Vehicle Safety Act. Walter Louis Fluid Technologies must submit proof or verification of compliance with such Act to the state agency no later than thirty (30) calendar days after award of the contract.

2.14.18 Hazardous Materials Data Sheet and Labeling - The State of Missouri, Division of Purchasing and Materials Management, in accordance with the revised rules and regulations of the Occupational Safety and Health Administration (OSHA) requires that all hazardous chemicals and other appropriate commodities purchased by the State of Missouri must contain a material safety data sheet and warning labels with each shipment. Therefore, Walter Louis Fluid Technologies must comply with this mandatory requirement for all commodities which contain hazardous material. Failure to comply with this requirement may cause cancellation of the contract with goods returned at Walter Louis Fluid Technologies' expense as well as suspension from the solicitation list for future requirements.

2.14.19 Prison Rape Elimination Act (PREA) Requirements:

- a. All of Walter Louis Fluid Technologies' employees and agents providing service in the facility must be at least 18 years of age. A Missouri Uniform Law Enforcement System (MULES) or other background investigation may be required on Walter Louis Fluid Technologies' employees and agents before allowing entry into the institution. Such investigation shall be equivalent to investigations required of all personnel employed by the Department. The institution shall have the right to deny access into the institution for any of Walter Louis Fluid Technologies' employees or agents for any reason. Such denial shall not relieve Walter Louis Fluid Technologies of any requirements of the contract.
- b. WLFT's employees and agents under active federal or state felony or misdemeanor supervision must receive written division director approval prior to performing services on a Department contract. WLFTs/employees/agents with prior felony convictions and not under active supervision must receive written division director approval in advance.
- c. Walter Louis Fluid Technologies, its employees, and others acting under Walter Louis Fluid Technologies' control, shall at all times observe and comply with all applicable state statutes, Department rules, regulations, guidelines, internal management policy and procedures, and general orders of the Department that are applicable, regarding operations and activities in and about all Department property. Furthermore, Walter Louis Fluid Technologies, its agents or employees, shall not obstruct the Department nor any of its designated officials from performing their duties in response to court orders or in the maintenance of a secure and safe correctional environment. Walter Louis Fluid Technologies shall comply with the Department's policy and procedures relating to employee conduct.
 - 1) The Department has a zero tolerance policy for any form of sexual misconduct to include staff/WLFT/volunteer on offender or offender on offender sexual harassment, sexual assault, sexual abusive contact and consensual sex. Any WLFT or WLFT's employee or agent who witnesses sexual abuse or sexual harassment must immediately report it to the warden. A WLFT or WLFT's employee or agent who engages in, fails to report, or knowingly condones sexual harassment or sexual contact with or between offenders shall be grounds for canceling the contract and may subject Walter Louis Fluid Technologies or WLFT's employee or agent to criminal prosecution.
 - 2) Any WLFT, WLFT's employee or agent who has engaged in sexual abuse in a prison, jail, lockup, community confinement facility, juvenile facility or other institution shall be denied access into the institution.
- d. Walter Louis Fluid Technologies and/or WLFT's employees and agents shall not interact with the offenders except as is necessary to perform the requirements of the contract. Walter Louis Fluid

Technologies and/or WLFT's employees and agents shall not give anything to nor accept anything from the offenders except in the normal performance of the contract.

3. PROPOSAL SUBMISSION INFORMATION

3.1 Submission of Proposals:

3.1.1 ELECTRONIC SUBMISSION OF PROPOSALS THROUGH THE ON-LINE BIDDING/VENDOR REGISTRATION SYSTEM WEB SITE IS NOT AVAILABLE FOR THIS RFP.

3.1.2 When submitting a proposal, WLFT will include six (6) additional copies along with their original proposal. The front cover of the original proposal is labeled "original" and the front cover of all copies are labeled "copy".

- a. Recycled Products - The State of Missouri recognizes the limited nature of our resources and the leadership role of government agencies in regard to the environment. Accordingly, WLFT is requested, but not required, to print the proposal double sided using recycled paper, if possible, and minimize or eliminate the use of non-recyclable materials such as plastic report covers, plastic dividers, vinyl sleeves, and binding. Lengthy proposals may be submitted using printer or other loose leaf paper in a notebook or binder.
- b. Open Records - Pursuant to section 610.021, RSMo, WLFT's proposal shall be considered an open record after a contract is executed or all proposals are rejected. At that time, all proposals are scanned into the Division of Purchasing and Materials Management imaging system.
 - 1) The scanned information will be available for viewing through the Internet from the Division of Purchasing and Materials Management Awarded Bid & Contract Document Search system. Therefore, WLFT is advised not to include any information in the proposal that WLFT does not want to be viewed by the public, including personal identifying information such as social security numbers.
 - 2) In preparing a proposal, WLFT should be mindful of document preparation efforts for imaging purposes and storage capacity that will be required to image the proposals and should limit proposal content to items that provide substance, quality of content, and clarity of information.

3.1.3 To facilitate the evaluation process, WLFT is encouraged to organize their proposal into sections that correspond with the individual evaluation categories described herein. WLFT is cautioned that it is WLFT's sole responsibility to submit information related to the evaluation categories and that the State of Missouri is under no obligation to solicit such information if it is not included with the proposal. WLFT's failure to submit such information may cause an adverse impact on the evaluation of the proposal.

- a. Each section should be titled with each individual evaluation category and all material related to that category should be included therein.
- b. The proposal should be page numbered.
- c. The signed page one from the original RFP and all signed amendments should be placed at the beginning of the proposal.

3.1.4 Questions Regarding the RFP – Except as may be otherwise stated herein, WLFT and WLFT's agents (including WLFT subs, employees, consultants, or anyone else acting on their behalf) must direct all of their questions or comments regarding the RFP, the solicitation process, the evaluation, etc., to the buyer of record indicated on the first page of this RFP. Inappropriate contacts to other personnel are grounds for suspension and/or exclusion from specific procurements. WLFT and their agents who have questions regarding this matter should contact the buyer.

- a. The buyer may be contacted via e-mail or phone as shown on the first page, or via facsimile to 573-526-9816.
- b. Only those questions which necessitate a change to the RFP will be addressed via an amendment to the RFP. Written records of the questions and answers will not be maintained. WLFTs are advised that any questions received less than ten calendar days prior to the RFP opening date may not be addressed.
- c. WLFT may contact the Office of Equal Opportunity (OEO) regarding MBE/WBE certification or subcontracting with MBE/WBE companies.

3.2 Competitive Negotiation of Proposals - WLFT is advised that under the provisions of this Request for Proposal, the Division of Purchasing and Materials Management reserves the right to conduct negotiations of the proposals received or to award a contract without negotiations. If such negotiations are conducted, the following conditions shall apply:

- 3.2.1 Negotiations may be conducted in person, in writing, or by telephone.
- 3.2.2 Negotiations will only be conducted with potentially acceptable proposals. The Division of Purchasing and Materials Management reserves the right to limit negotiations to those proposals which received the highest rankings during the initial evaluation phase. WLFT is involved in the negotiation process and will be invited to submit a best and final offer.
- 3.2.3 Terms, conditions, prices, methodology, or other features of WLFT’s proposal may be subject to negotiation and subsequent revision. As part of the negotiations, WLFT may be required to submit supporting financial, pricing and other data in order to allow a detailed evaluation of the feasibility, reasonableness, and acceptability of the proposal.
- 3.2.4 The mandatory requirements of the Request for Proposal shall not be negotiable and shall remain unchanged unless the Division of Purchasing and Materials Management determines that a change in such requirements is in the best interest of the State of Missouri.

3.3 Evaluation and Award Process:

3.3.1 After determining that a proposal satisfies the mandatory requirements stated in the Request for Proposal, the evaluator(s) shall use both objective analysis and subjective judgment in conducting a comparative assessment of the proposal in accordance with the evaluation criteria stated below. The contract shall be awarded to the lowest and best proposal.

- a. Cost.....100 points
- b. WLFT’s Experience, Reliability and Expertise of Personnel..... 30 points
- c. Method of Performance 60 points
- d. MBE/WBE Participation 10 points

3.3.2 After an initial screening process, a question and answer conference or interview may be conducted with WLFT, if deemed necessary by the Division of Purchasing and Materials Management. In addition, WLFT may be asked to make an oral presentation of their proposal during the conference. Attendance cost at the conference shall be at WLFT 's expense. All arrangements and scheduling shall be coordinated by the Division of Purchasing and Materials Management.

3.4 Evaluation of Cost:

3.4.1 Pricing – WLFT must provide pricing as required on the Pricing Page.

3.4.2 Objective Evaluation of Cost – The objective evaluation of cost shall be calculated based on a total cost determined using the quantities stated below and the firm, fixed price stated on the Pricing Page for the original and each potential renewal period:

- 1) Guaranteed not-to-exceed prices for each facility,
- 2) One (1) of each Chemical and Contingency chemical
- 3) One (1) of each chemical for the closed loop heating and cooling systems to treat 10,000 gallons of makeup water, and the contingency chemicals,
- 4) One (1) of each fuel oil chemical needed to treat 400,000 gallons of diesel fuel, and the contingency chemicals,
- 5) One (1) resin analysis and elution study,
- 6) One (1) gallon of resin cleaning solution,
- 7) 55-gallons of polymerized sodium polyphosphate,
- 8) 55-gallons of sodium hypochlorite bleach,
- 9) One (1) gallon of Calcium Nitrate,
- 10) One (1) gallon of Aqueous Organic Sulfides,
- 11) One (1) gallon of Ferrous Sulfate,
- 12) One (1) gallon of Bio-L-220 Grease Digesting Bacteria or approved equal,
- 13) One (1) Bench top PH. Meter/Microcomputer (test equipment),
- 14) One (1) Bench top T.D.S. Conductivity Meter (test equipment),
- 15) Propylene Glycol & Ethylene Glycol Refractometer,
- 16) \$10,000 worth of chemical feed equipment*, and
- 17) \$5,000 worth of storage tanks*.

*The \$10,000 worth of chemical feed equipment, and the \$5,000 worth of storage tanks shall not be included in the cost evaluation, only the total of the percentage over the actual net cost shall be included.

a. Cost evaluation points shall be determined from the result of the calculation stated above using the following formula:

$$\frac{\text{Lowest Responsive WLFT's Price}}{\text{Compared WLFT's Price}} \times \frac{\text{Maximum Cost Evaluation}}{\text{points (100)}} = \text{Assigned Cost Points}$$

b. WLFT shall agree and understand that the quantities used in the evaluation of cost are provided solely to document how cost will be evaluated. The State of Missouri makes no guarantee regarding the accuracy of the quantities stated nor does the State of Missouri intend to imply that the figures used for the cost evaluation in any way reflect either actual or anticipated usage.

3.5 Evaluation of WLFT's Experience and Reliability and Expertise of Personnel:

3.5.1 Experience and reliability of WLFT 's organization will be considered subjectively in the evaluation process. Therefore, WLFT is advised to submit information concerning WLFT 's organization and information documenting WLFT 's experience in past performances, especially those performances related to the requirements of this RFP. If WLFT is proposing an entity other than WLFT to perform the required services, WLFT should also submit the information requested for such proposed WLFT sub.

- a. WLFT Information - WLFT should provide information about WLFT 's organization on Exhibit A.
- b. Experience - WLFT should provide information related to previous and current services/contracts of WLFT or WLFT's proposed WLFT sub where performance was similar to the required services of this RFP. The information may be shown on Exhibit B or in a similar manner.

- 1) As part of the evaluation process, the State of Missouri may contact WLFT 's references, including references not listed or identified within WLFT 's proposal but who have current or previous experiences with WLFT .
- 2) WLFT shall agree and understand that the State of Missouri is not obligated to contact WLFT 's references.

3.5.2 The qualifications of the personnel proposed by WLFT to perform the requirements of this RFP, whether from WLFT 's organization or from a proposed WLFT sub, will be subjectively evaluated. Therefore, WLFT should submit detailed information related to the experience and qualifications, including education and training, of proposed personnel.

a. Personnel Expertise - WLFT should provide the information requested on Exhibit C for each key person proposed to provide the services required herein. *If additional personnel resources are available, WLFT may provide information for such personnel by completing Exhibit D.*

- 1) The information provided should be structured to emphasize relevant qualifications and experience of the personnel in completing contracts/performing services of a similar size and scope to the requirements of this RFP.
- 2) The information submitted should clearly identify previous experience of the person in performing similar services and should include beginning and ending dates, a description of the role of the person in such performances, results of the services performed, and whether the person is proposed for the same services for the State of Missouri.

b. Personnel Qualifications - If personnel are not yet hired, WLFT should provide detailed descriptions of the required employment qualifications; and detailed job descriptions of the position to be filled, *including the type of person proposed to be hired.*

3.6 Evaluation of Method of Performance - Proposals will be subjectively evaluated based on WLFT 's plan for performing the requirements of the RFP. Therefore, WLFT should present information which demonstrates the method or manner in which WLFT proposes to satisfy these requirements and which confirms WLFT 's ability to satisfy the requirements. The language of the narrative should be straightforward and limited to facts, solutions to problems, and plans of action.

3.6.1 Water Samples– WLFT should conduct a chemistry analysis of each sample taken during the inspection of each waterside area of the steam and hydronic system at each of the facilities listed on Attachment #1. WLFT should submit dated test results of the chemistry analysis of the water sample with the proposal.

3.6.2 Water Treatment Program - Based on WLFT 's inspections of the steam and hydronic systems, WLFT should utilize Exhibit E and submit supporting documentation to fully describe and explain the proposed water treatment program for each facility.

3.6.3 Description of Proposed Services – Exhibit F is provided for WLFT 's use in providing information about the proposed method of performance. Unless a particular requirement is not conducive to elaboration, each paragraph within the Contractual Requirements may be addressed by writing a description of how, when, by whom, with what, to what degree, why, and where the requirement will be satisfied and otherwise detailing WLFT 's understanding of the requirements and ability and methodology to successfully perform. When responding to the appropriate provisions in the Contractual Requirements, WLFT should identify the paragraph or subparagraph number then provide the additional elaboration describing WLFT 's plans for performing or meeting the requirement.

3.7 Evaluation of WLFT's Minority Business Enterprise (MBE)/ Women Business Enterprise (WBE) Participation:

3.7.1 In order for the Division of Purchasing and Materials Management (DPMM) to meet the provisions of Executive Order 05-30, WLFT should secure participation of certified MBEs and WBEs in providing the

products/services required in this RFP. The targets of participation recommended by the State of Missouri are 10% MBE and 5% WBE of the total dollar value of the contract.

- a. These targets can be met by a qualified MBE/WBE WLFT themselves and/or through the use of qualified WLFT subs, suppliers, joint ventures, or other arrangements that afford meaningful opportunities for MBE/WBE participation.
- b. The services performed or the products provided by MBE/WBEs must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract. Therefore, if the services performed or the products provided by MBE/WBEs is utilized, to any extent, in WLFT 's obligations outside of the contract, it shall not be considered a valid added value to the contract and shall not qualify as participation in accordance with this clause.
- c. In order to be considered as meeting these targets, the MBE/WBEs must be "qualified" by the proposal opening date (date the proposal is due). (See below for a definition of a qualified MBE/WBE.)

3.7.2 WLFT 's proposed participation of MBE/WBE firms in meeting the targets of the RFP will be considered in the evaluation process as specified below:

- a. If Participation Meets Target: WLFTs proposing MBE and WBE participation percentages that meet the State of Missouri's target participation percentage of 10% for MBE and 5% for WBE shall be assigned the maximum stated MBE/WBE Participation evaluation points.
- b. If Participation Exceeds Target: WLFTs proposing MBE and WBE participation percentages that exceed the State of Missouri's target participation shall be assigned the same MBE/WBE Participation evaluation points as those meeting the State of Missouri's target participation percentages stated above.
- c. If Participation Below Target: WLFT proposing MBE and WBE participation percentages that are lower than the State of Missouri's target participation percentages of 10% for MBE and 5% for WBE shall be assigned a proportionately lower number of the MBE/WBE Participation evaluation points than the maximum MBE/WBE Participation evaluation points.
- d. If No Participation: WLFTs failing to propose any commercially useful MBE/WBE participation shall be assigned a score of 0 in this evaluation category.

3.7.3 MBE/WBE Participation evaluation points shall be assigned using the following formula:

$$\frac{\text{WLFT's Proposed MBE \%} \leq 10\% + \text{WBE \%} \leq 5\%}{\text{State's Target MBE \% (10) + WBE \% (5)}} \times \begin{matrix} \text{Maximum} \\ \text{MBE/WBE} \\ \text{Participation} \\ \text{Evaluation points} \\ \text{(10)} \end{matrix} = \begin{matrix} \text{Assigned} \\ \text{MBE/WBE} \\ \text{Participation} \\ \text{points} \end{matrix}$$

3.7.4 If WLFT is proposing MBE/WBE participation, in order to receive evaluation consideration for MBE/WBE participation, WLFT must provide the following information with the proposal.

- a. Participation Commitment - If WLFT is proposing MBE/WBE participation, WLFT must complete Exhibit G, Participation Commitment, by listing each proposed MBE and WBE, the committed percentage of participation for each MBE and WBE, and the commercially useful products/services to be provided by the listed MBE and WBE. If WLFT submitting the proposal is a qualified MBE

and/or WBE, WLFT must include WLFT in the appropriate table on the Participation Commitment Form.

- b. Documentation of Intent to Participate – WLFT must either provide a properly completed Exhibit H, Documentation of Intent to Participate Form, signed and dated no earlier than the RFP issuance date by each MBE and WBE proposed or must provide a letter of intent signed and dated no earlier than the RFP issuance date by each MBE and WBE proposed which: (1) must describe the products/services the MBE/WBE will provide and (2) should include evidence that the MBE/WBE is qualified, as defined herein (i.e., the MBE/WBE Certification Number or a copy of MBE/WBE certificate issued by the Missouri OEO). If WLFT submitting the proposal is a qualified MBE and/or WBE, WLFT is not required to complete Exhibit H, Documentation of Intent to Participate Form or provide a recently dated letter of intent.
- 3.7.5 Commitment – If WLFT's proposal is awarded, the percentage level of MBE/WBE participation committed to by WLFT on Exhibit G, Participation Commitment, shall be interpreted as a contractual requirement.
- 3.7.6 Definition -- Qualified MBE/WBE:
- a. In order to be considered a qualified MBE or WBE for purposes of this RFP, the MBE/WBE must be certified by the State of Missouri, Office of Administration, Office of Equal Opportunity (OEO) by the proposal opening date.
 - b. MBE or WBE means a business that is a sole proprietorship, partnership, joint venture, or corporation in which at least fifty-one percent (51%) of the ownership interest is held by minorities or women and the management and daily business operations of which are controlled by one or more minorities or women who own it.
 - c. Minority is defined as belonging to one of the following racial minority groups: African Americans, Native Americans, Hispanic Americans, Asian Americans, American Indians, Eskimos, Aleuts, and other groups that may be recognized by the Office of Advocacy, United States Small Business Administration, Washington, D.C.
- 3.7.7 Resources - A listing of several resources that are available to assist WLFT in their efforts to identify and secure the participation of qualified MBEs and WBEs is available at the website shown below or by contacting the Office of Equal Opportunity (OEO) at:

Office of Administration, Office of Equal Opportunity (OEO)
Harry S Truman Bldg., Room 630, P.O. Box 809, Jefferson City, MO 65102-0809
Phone: (877) 259-2963 or (573) 751-8130
Fax: (573) 522-8078
Web site: <http://o eo.mo.gov>

3.8 Miscellaneous Submittal Information:

- 3.8.1 Organizations for the Blind and Sheltered Workshop Preference - Pursuant to section 34.165, RSMo, and 1 CSR 40-1.050, a ten (10) bonus point preference shall be granted to WLFTs including products and/or services manufactured, produced or assembled by a qualified nonprofit organization for the blind established pursuant to 41 U.S.C. sections 46 to 48c or a sheltered workshop holding a certificate of approval from the Department of Elementary and Secondary Education pursuant to section 178.920, RSMo.
- a. In order to qualify for the ten bonus points, the following conditions must be met and the following evidence must be provided:

- 1) WLFT must either be an organization for the blind or sheltered workshop or must be proposing to utilize an organization for the blind/sheltered workshop as a WLFT sub and/or supplier in an amount that must equal the greater of \$5,000 or 2% of the total dollar value of the contract for purchases not exceeding \$10 million.
- 2) The services performed or the products provided by an organization for the blind or sheltered workshop must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract. Therefore, if the services performed or the products provided by the organization for the blind or sheltered workshop is utilized, to any extent, in WLFT 's obligations outside of the contract, it shall not be considered a valid added value to the contract and shall not qualify as participation in accordance with this clause.
- 3) If WLFT is proposing participation by an organization for the blind or sheltered workshop, in order to receive evaluation consideration for participation by the organization for the blind or sheltered workshop, WLFT must provide the following information with the proposal:
 - Participation Commitment - WLFT must complete Exhibit G, Participation Commitment, by identifying the organization for the blind or sheltered workshop, the amount of participation committed, and the commercially useful products/services to be provided by the listed organization for the blind or sheltered workshop. If WLFT submitting the proposal is an organization for the blind or sheltered workshop, WLFT must be listed in the appropriate table on the Participation Commitment Form.
 - Documentation of Intent to Participate – WLFT must either provide a properly completed Exhibit H, Documentation of Intent to Participate Form, signed and dated no earlier than the RFP issuance date by the organization for the blind or sheltered workshop proposed or must provide a recently dated letter of intent signed and dated no earlier than the RFP issuance date by the organization for the blind or sheltered workshop which: (1) must describe the products/services the organization for the blind/sheltered workshop will provide and (2) should include evidence of the organization for the blind/sheltered workshop qualifications (e.g. copy of certificate or Certificate Number for Missouri Sheltered Workshop).

NOTE: If WLFT submitting the proposal is an organization for the blind or sheltered workshop, WLFT is not required to complete Exhibit H, Documentation of Intent to Participate Form or provide a recently dated letter of intent.

- b. A list of Missouri sheltered workshops can be found at the following Internet address:
<http://dese.mo.gov/se/sw/se-sw-directories.html>
- c. The websites for the Missouri Lighthouse for the Blind and the Alphapointe Association for the Blind can be found at the following Internet addresses:
<http://www.lhbindustries.com>
<http://www.alphapointe.org>
- d. Commitment – If WLFT 's proposal is awarded, the organization for the blind or sheltered workshop participation committed to by WLFT on Exhibit G, Participation Commitment, shall be interpreted as a contractual requirement.

3.8.2 Service-Disabled Veteran Business Enterprises (SDVEs) – Pursuant to section 34.074, RSMo, and 1 CSR 40-1.050, the Division of Purchasing and Materials Management (DPMM) has a goal of awarding three (3) percent of all contracts for the performance of any job or service to qualified service-disabled veteran

business enterprises (SDVEs). A three (3) point bonus preference shall be granted to WLFTs including products and/or services manufactured, produced or assembled by a qualified SDVE.

- a. In order to qualify for the three bonus points, the following conditions must be met and the following evidence must be provided:
- 1) WLFT must either be an SDVE or must be proposing to utilize an SDVE as a WLFT sub and/or supplier that provides at least three percent (3%) of the total contract value.
 - 2) The services performed or the products provided by the SDVE must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract. Therefore, if the services performed or the products provided by the SDVE are utilized, to any extent, in WLFT's obligations outside of the contract, it shall not be considered a valid added value to the contract and shall not qualify as participation in accordance with this clause.
 - 3) In order to receive evaluation consideration for participation by an SDVE, WLFT must provide the following information with the proposal:
 - Participation Commitment - WLFT must complete Exhibit G, Participation Commitment, by identifying each proposed SDVE, the committed percentage of participation for each SDVE, and the commercially useful products/services to be provided by the listed SDVE. If WLFT submitting the proposal is a qualified SDVE, WLFT must be listed in the appropriate table on the Participation Commitment Form.
 - Documentation of Intent to Participate – WLFT must either provide a properly completed Exhibit H, Documentation of Intent to Participate Form, signed and dated no earlier than the RFP issuance date by the SDVE or a recently dated letter of intent signed and dated no earlier than the RFP issuance date by the SDVE which: (1) must describe the products/services the SDVE will provide and (2) must include the SDV Documents described below as evidence that the SDVE is qualified, as defined herein.
 - Service-Disabled Veteran (SDV) Documents - If a participating organization is an SDVE, unless previously submitted within the past five (5) years to the DPMM, WLFT must provide the following Service-Disabled Veteran (SDV) documents:
 - ✓ a copy of the SDV's award letter from the Department of Veterans Affairs or a copy of the SDV's discharge paper (DD Form 214, Certificate of Release or Discharge from Active Duty); and
 - ✓ a copy of the SDV's documentation certifying disability by the appropriate federal agency responsible for the administration of veterans' affairs.

NOTE:

- a) If WLFT submitting the proposal is a qualified SDVE, WLFT must include the SDV Documents as evidence that WLFT qualifies as an SDVE. However, WLFT is not required to complete Exhibit H, Documentation of Intent to Participate Form or provide a recently dated letter of intent.
- b) If the SDVE and SDV are listed on the following Internet address, WLFT is not required to provide the SDV Documents listed above.
<http://content.ia.mo.gov/sites/default/files/sdvelisting.pdf>

- b. Commitment – If awarded a contract, the SDVE participation committed to by WLFT on Exhibit G, *Participation Commitment*, shall be interpreted as a contractual requirement.
 - c. Definition - Qualified SDVE:
 - 1) SDVE is doing business as a Missouri firm, corporation, or individual or maintaining a Missouri office or place of business, not including an office of a registered agent;
 - 2) SDVE has not less than fifty-one percent (51%) of the business owned by one (1) or more service-disabled veterans (SDVs) or, in the case of any publicly-owned business, not less than fifty-one percent (51%) of the stock of which is owned by one (1) or more SDVs;
 - 3) SDVE has the management and daily business operations controlled by one (1) or more SDVs;
 - 4) SDVE has a copy of the SDV's award letter from the Department of Veterans Affairs or a copy of the SDV's discharge paper (DD Form 214, Certificate of Release or Discharge from Active Duty), and a copy of the SDV's documentation certifying disability by the appropriate federal agency responsible for the administration of veterans' affairs; and
 - 5) SDVE possesses the power to make day-to-day as well as major decisions on matters of management, policy, and operation.
- 3.8.3 Affidavit of Work Authorization and Documentation - Pursuant to section 285.530, RSMo, if WLFT meets the section 285.525, RSMo, definition of a "business entity" (<http://www.moga.mo.gov/statutes/C200-299/2850000525.HTM>), WLFT must affirm WLFT's enrollment and participation in the E-Verify federal work authorization program with respect to the employees hired after enrollment in the program who are proposed to work in connection with the services requested herein. WLFT should complete applicable portions of Exhibit I Business Entity Certification, Enrollment Documentation, and Affidavit of Work Authorization. The applicable portions of Exhibit I must be submitted prior to an award of a contract.
- 3.8.4 WLFT should complete and submit Exhibit J, Miscellaneous Information.
- 3.8.5 Business Compliance - WLFT must be in compliance with the laws regarding conducting business in the State of Missouri. WLFT certifies by signing the signature page of this original document and any amendment signature page(s) that WLFT and any proposed WLFT subs either are presently in compliance with such laws or shall be in compliance with such laws prior to any resulting contract award. WLFT shall provide documentation of compliance upon request by the Division of Purchasing and Materials Management. The compliance to conduct business in the state shall include, but not necessarily be limited to:
- a. Registration of business name (if applicable)
 - b. Certificate of authority to transact business/certificate of good standing (if applicable)
 - c. Taxes (e.g., city/county/state/federal)
 - d. State and local certifications (e.g., professions/occupations/activities)
 - e. Licenses and permits (e.g., city/county license, sales permits)
 - f. Insurance (e.g., worker's compensation/unemployment compensation)
- 3.8.6 Debarment Certification – WLFT certifies by signing the signature page of this original document and any amendment signature page(s) that WLFT is not presently debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded from participation, or otherwise excluded from or ineligible for participation under federal assistance programs. WLFT should complete and return the attached certification regarding debarment, etc., Exhibit K with the proposal. This document must be satisfactorily completed prior to award of the contract.

4. PRICING PAGE

- 4.1 **WLFT shall provide guaranteed not-to-exceed pricing for all facilities identified herein to provide the Water Treatment Services in accordance with the provisions and requirements of the RFP. (c/s code 96896)**

Water Treatment Services - WLFT shall state a guaranteed not-to-exceed price for the original contract period and a maximum guaranteed not-to-exceed price for each potential renewal period for each facility for performance of all requirements, including all chemicals identified in Exhibit E, based upon normal usage in accordance with the provisions and requirements of the RFP. All costs associated with providing the required services identified within the scope of the RFP, including training, personnel, inspection, testing, reporting, chemicals, reagents, equipment (as specified in Attachment #3), and manuals shall be included in the guaranteed not-to-exceed price per facility.

Line Item	FACILITY	ORIGINAL CONTRACT PERIOD GUARANTEED NOT-TO-EXCEED PRICE (2 YEARS)	FIRST RENEWAL PERIOD GUARANTEED NOT-TO-EXCEED MAXIMUM PRICE (1 YEAR)	SECOND RENEWAL PERIOD GUARANTEED NOT-TO-EXCEED MAXIMUM PRICE (1 YEAR)	THIRD RENEWAL PERIOD GUARANTEED NOT-TO-EXCEED MAXIMUM PRICE (1 YEAR)
Department of Corrections Facilities					
001	Algoa Correctional Center	\$ 2,100.00	\$ 2,184.00	\$ 2,271.00	\$ 2,362.00
002	Boonville Correctional Center	\$ 13,789.00	\$ 14,341.00	\$ 14,914.00	\$ 15,511.00
003	Central Missouri Correctional Center	\$ 0	\$ 0	\$ 0	\$ 0
004	Chillicothe Correctional Center	\$ 9,350.00	\$ 9,724.00	\$ 10,112.96	\$ 10,517.48
005	Crossroads Correctional Center	\$ 9,300.00	\$ 9,672.00	\$ 10,059.00	\$ 10,461.00
006	Eastern Reception Diagnostic and Correctional Center	\$ 25,700.00	\$ 26,728.00	\$ 27,797.00	\$ 28,909.00
007	Farmington Community Supervision Center	\$ 0	\$ 0	\$ 0	\$ 0
008	Farmington Correctional Center	\$ 59,800.00	\$ 62,192.00	\$ 64,680.00	\$ 67,267.00
009	Fulton Reception & Diagnostic Center	\$ 3,300.00	\$ 3,432.00	\$ 3,569.00	\$ 3,712.00

010	Hannibal Community Supervision Center	\$ 0	\$ 0	\$ 0	\$ 0
011	Jefferson City Correctional Center	\$ 39,600.00	\$ 41,184.00	\$ 42,831.00	\$44,545.00
012	Kansas City Community Release Center	\$ 0	\$ 0	\$ 0	\$ 0
013	Kennett Community Supervision Center	\$ 0	\$ 0	\$ 0	\$ 0
014	Maryville Treatment Center	\$ 2,600.00	\$ 2,704.00	\$ 2,812.16	\$ 2,925.00
015	Missouri Eastern Correctional Center	\$ 0	\$ 0	\$ 0	\$ 0
016	Moberly Correctional Center	\$ 13,570.00	\$ 14,113.00	\$ 14,677.00	\$ 15,264.00
017	Northeast Correctional Center	\$ 0	\$ 0	\$ 0	\$ 0
018	Ozark Correctional Center	\$ 17,700.00	\$ 18,408.00	\$ 19,144.00	\$ 19,910.00
019	Poplar Bluff Community Supervision Center	\$ 0	\$ 0	\$ 0	\$ 0
020	Potosi Correctional Center	\$12,650.00	\$13,156.00	\$ 13,682.00	\$ 14,230.00
021	South Central Correctional Center	\$ 11,852.00	\$ 12,326.00	\$ 12,819.00	\$ 13,332.00
022	Southeast Correctional Center	\$ 13,420.00	\$ 13,957.00	\$ 14,515.00	\$ 15,096.00
023	St. Louis Community Release Center	\$ 0	\$ 0	\$ 0	\$ 0
024	St. Joseph Community Supervision Center	\$ 0	\$ 0	\$ 0	\$ 0
025	Tipton Correctional Center	\$ 10,700.00	\$ 11,128.00	\$ 11,573.00	\$ 12,036.00
026	Western Missouri Correctional Center	\$ 1,700.00	\$ 1,768.00	\$ 1,839.00	\$ 1,912.00

027	Western Reception Diagnostic and Correctional Center	\$ 33,500.00	\$ 34,840.00	\$ 36,234.00	\$ 37,683.00
028	Women's Eastern Reception Diagnostic and Correctional Center	\$ 22,300.00	\$ 23,192.00	\$ 24,120.00	\$ 25,085.00
029	MVE Complex (Jefferson City)	\$ 1,850.00	\$ 1,924.00	\$ 2,001.00	\$ 2,081.00
Division of Facilities Management, Design and Construction Facilities					
030	Fletcher Daniels State Office Building	\$ 9,200.00	\$ 9,568.00	\$ 9,950.72	\$ 10,348.75
031	Kansas City DOLIR State Office Building	\$ 0	\$ 0	\$ 0	\$ 0
032	Prince Hall State Office Building	\$ 4,800.00	\$ 4,992.00	\$ 5,192.00	\$ 5,399.00
033	St. Joseph Career Center	\$ 0	\$ 0	\$ 0	\$ 0
034	St. Joseph State Office Building	\$ 4,200.00	\$ 4,368.00	\$ 4,543.00	\$ 4,724.00
035	Wainwright State Office Building	\$ 4,900.00	\$ 5,096.00	\$ 5,300.00	\$ 5,512.00
Department of Elementary and Secondary Education Facilities					
036	B.W. Robinson State School	\$ 0	\$ 0	\$ 0	\$ 0
037	Boonslick State School	\$ 0	\$ 0	\$ 0	\$ 0
038	Cedar Ridge State School	\$ 0	\$ 0	\$ 0	\$ 0
039	College View State School	\$ 0	\$ 0	\$ 0	\$ 0
040	Delmar Cobble State School	\$ 0	\$ 0	\$ 0	\$ 0
041	Gateway/Hubert Wheeler State School	\$ 0	\$ 0	\$ 0	\$ 0

042	Greene Valley State School	\$ 0	\$ 0	\$ 0	\$ 0
043	Lakeview Woods State School	\$ 0	\$ 0	\$ 0	\$ 0
044	Maple Valley State School	\$ 0	\$ 0	\$ 0	\$ 0
045	Missouri School for the Blind	\$ 7,800.00	\$ 8,112.00	\$ 8,436.00	\$8,774.00
046	Missouri School for the Deaf-Kerr	\$ 0	\$ 0	\$ 0	\$ 0
047	Missouri School for the Deaf-Resource Center	\$ 0	\$ 0	\$ 0	\$ 0
048	Missouri School for the Deaf-Rice	\$ 0	\$ 0	\$ 0	\$ 0
049	Missouri School for the Deaf-Stark	\$ 3,900.00	\$ 4,056.00	\$ 4,218.24	\$ 4,386.97
050	Missouri School for the Deaf-Tate	\$1,400.00	\$ 1,456.00	\$ 1,514.00	1,575.00
051	Missouri School for the Deaf-Vocational	\$ 0	\$ 0	\$ 0	\$ 0
052	Missouri School of the Deaf-Wheeler	5,800.00	\$ 6,032.00	\$ 6,273.28	\$ 6,524.22
053	Oakview State School	\$ 0	\$ 0	\$ 0	\$ 0
054	Prairie View State School	\$ 0	\$ 0	\$ 0	\$ 0
055	Rolling Meadows State School	\$ 0	\$ 0	\$ 0	\$ 0
056	Shady Grove State School	\$ 2,400.00	\$ 2,496.00	\$ 2,595.84	\$ 2,699.68
057	Trails West State School (Dale M. Thompson)	\$ 1,800.00	\$ 1,872.00	\$ 1,947.00	\$ 2,025.00
058	Verelle Peniston State School	\$ 0	\$ 0	\$ 0	\$ 0

Department of Mental Health Facilities					
059	Albany Regional Center	\$ 0	\$ 0	\$ 0	\$ 0
060	Bellefontaine Habilitation Center	\$ 6,700.00	\$ 6,968.00	\$ 7,247.00	\$ 7,537.00
061	Fulton State Hospital	\$ 39,050.00	\$ 40,612.00	\$ 42,236.00	\$ 43,926.00
062	Hawthorne Children's Psychiatric Hospital	\$ 0	\$ 0	\$ 0	\$ 0
063	Higginsville Habilitation Center	\$ 1,600.00	\$ 1,664.00	\$ 1,731.00	\$ 1,800.00
064	Joplin Regional Center	\$ 0	\$ 0	\$ 0	\$ 0
065	Marshall Habilitation Center	\$ 3,060.00	\$ 3,182.00	\$ 3,310.00	\$ 3,442.00
066	Metropolitan St. Louis Psychiatric Center	\$ 6,425.00	\$ 6,682.00	\$ 6,949.00	\$ 7,227.00
067	Missouri Sex Offender Treatment Center	\$ 0	\$ 0	\$ 0	\$ 0
068	Nevada Habilitation Center	\$ 8,400.00	\$ 8,736.00	\$ 9,085.00	\$ 9,449.00
069	Northwest Habilitation Center	\$ 0	\$ 0	\$ 0	\$ 0
070	Northwestern Missouri Psychiatric Rehabilitation Center	\$ 10,280.00	\$ 10,691.00	\$ 11,119.00	\$ 11,564.00
071	Sikeston Regional Office	\$ 0	\$ 0	\$ 0	\$ 0
072	South County Habilitation Center	\$ 0	\$ 0	\$ 0	\$ 0
073	Southeast Missouri Mental Health Center	\$ 8,610.00	\$ 8,954.00	\$ 9,313.00	\$ 9,685.00
074	St. Charles Habilitation Center	\$ 0	\$ 0	\$ 0	\$ 0

075	St. Louis Psychiatric Rehabilitation Center	\$ 12,500.00	\$ 13,000.00	\$ 13,520.00	\$ 14,060.80
076	Western Missouri Mental Health Center	\$ 7,560.00	\$ 7,862.00	\$ 8,177.00	\$ 8,504.00
Missouri State Highway Patrol Facilities					
077	MSHP Crime Lab – Springfield	\$ 0	\$ 0	\$ 0	\$ 0
078	MSHP General Headquarters Academy: Jefferson City	\$ 0	\$ 0	\$ 0	\$ 0
079	MSHP General Headquarters Annex: Jefferson City	\$ 0	\$ 0	\$ 0	\$ 0
080	MSHP General Headquarters – Jefferson City	\$ 8,100.00	\$ 8,424.00	\$ 8,761.00	\$ 9,111.00
081	MSHP Troop A – Lee’s Summit	\$ 0	\$ 0	\$ 0	\$ 0
082	MSHP Troop B – Macon	\$ 0	\$ 0	\$ 0	\$ 0
083	MSHP Troop C Service Center – Park Hills	\$ 0	\$ 0	\$ 0	\$ 0
084	MSHP Troop F – N. Shamrock Rd, Jefferson City	\$ 0	\$ 0	\$ 0	\$ 0
085	MSHP Troop I - Rolla	\$ 0	\$ 0	\$ 0	\$ 0
Missouri Veterans Commission Facilities					
086	Missouri Veterans Home-Cameron	\$ 6,500.00	\$6,760.00	\$ 7,030.00	\$7,312.00
087	Missouri Veterans Home-Cape Girardeau	\$ 6,600.00	\$ 6,864.00	\$ 7,139.00	\$ 7,424.00
088	Missouri Veterans Home-Mexico	\$ 7,700.00	\$8,008.00	\$ 8,328.00	\$ 8,661.00
089	Missouri Veterans Home-Mt. Vernon	\$8,200.00	\$8,528.00	\$ 8,869.00	\$ 9,224.00
090	Missouri Veterans				

	Home-St. James	\$6,700.00	\$6,968.00	\$7,247.00	\$7,537.00
091	Missouri Veterans Home-St. Louis	\$ 4,960.00	\$ 5,158.00	\$ 5,365.00	\$ 5,579.00
092	Missouri Veterans Home-Warrensburg	\$ 8,600.00	\$ 8,944.00	\$ 9,302.00	\$ 9,674.00
Division of Social Services, Youth Services Facilities					
093	Fulton Treatment Center	\$ 0	\$ 0	\$ 0	\$ 0
094	Hogan Street Youth Center	\$ 0	\$ 0	\$ 0	\$ 0
095	Montgomery City Youth Center	\$ 0	\$ 0	\$ 0	\$ 0
096	Mt. Vernon Treatment Center	\$ 0	\$ 0	\$ 0	\$ 0
097	Riverbed Treatment Center	\$ 0	\$ 0	\$ 0	\$ 0
098	W.E. Sears Youth Center	\$ 0	\$ 0	\$ 0	\$ 0

4.2 Additional Chemicals: WLFT shall provide firm, fixed pricing for all additional chemicals identified in the following tables for the original contract period and a maximum price for each potential renewal period:

Chemicals – WLFT must identify the proposed chemicals for each of the following systems and provide a firm, fixed unit price for each proposed chemical listed for the original contract period and a maximum price for each potential renewal period. WLFT must identify the unit (e.g. gallon, pound, etc) and the container size (e.g. 55 gallon, 5 gallon, etc) for each identified chemical.

Contingency Chemicals – In addition to the identification of the chemicals outlined on Exhibit E, WLFT may list chemicals that may be needed in the treatment of the system on an emergency basis or for an unforeseen situation. For all such identified chemicals, WLFT must provide a firm, fixed unit price for each proposed chemical for the original contract period and a maximum price for each potential renewal period. WLFT must also identify the unit (e.g. gallon, pound, etc) and the container size (e.g. 55 gallon, 5 gallon, etc) for each identified chemical.

WLFT may copy these pages to provide additional room to identify each chemical as outlined in Exhibit E.

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
BOILER SYSTEM CHEMICALS						
T 99	89-L Boiler Compound	5 gal, 15 gal, 55 gal	\$ 79.83/gal	\$ 83.03/gal	\$ 86.36/gal	\$ 89.82/gal
Z 100	155-L Single Blend Boiler Compound	15 gal, 55 gal, bulk	\$ 19.23/gal	\$ 20.00/gal	\$ 20.80/gal	\$ 21.64/gal
3 101	157-L Single Blend Boiler Compound	15 gal, 55 gal, bulk	\$ 19.23/gal	\$ 20.00/gal	\$ 20.80/gal	\$ 21.64/gal
4 102	1435 Boiler Compound	15 gal, 55 gal, bulk	\$ 47.48/gal	\$ 49.38/gal	\$ 51.36/gal	\$ 53.42/gal
8 103	1450 Boiler Compound	15 gal, 55 gal, bulk	\$ 36.18/gal	\$ 37.63/gal	\$ 39.14/gal	\$ 40.71/gal
8 104	1460 Boiler Compound	15 gal, 55 gal, bulk	\$ 42.96/gal	\$ 44.68/gal	\$ 46.47/gal	\$ 48.33/gal
7 105	1495 Boiler Compound	15 gal, 55 gal, bulk	\$ 36.18/gal	\$ 37.63/gal	\$ 39.14/gal	\$ 40.71/gal
8 106	1655 Boiler Compound	15 gal, 55 gal, bulk	\$ 24.88/gal	\$ 25.88/gal	\$ 26.92/gal	\$ 28.00/gal
9 107	LC-25 Liquid Caustic Soda 25%	15 gal, 55 gal, bulk	\$ 3.69/gal	\$ 3.84/gal	\$ 4.00/gal	\$ 4.16/gal
10 108	LC-50 Liquid Caustic Soda 50%	15 gal, 55 gal, bulk	\$ 6.30/gal	\$ 6.56/gal	\$ 6.83/gal	\$ 7.11/gal
Contingency Chemicals						
11 109	123 Acid Cleaner	15 gal, 55 gal	\$ 17.26/gal	\$ 17.95/gal	\$ 18.67/gal	\$ 19.42/gal
12 110	29-A Boiler Banking Lay Up	15 gal, 55 gal	\$ 18.81/gal	\$ 19.57/gal	\$ 20.36/gal	\$ 21.18/gal
13 111	1146 Liquid Alkaline Boil Out	15 gal, 55 gal	\$ 20.53/gal	\$ 21.36/gal	\$ 22.22/gal	\$ 23.11/gal
14 112	1147 Alkaline Boil Out (Dry)	50 lb	\$ 2.50/lb	\$ 2.60/lb	\$ 2.71/lb	\$ 2.82/lb

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
	DEAERATOR / FEEDWATER SYSTEM CHEMICALS					
15 113	592-L Oxygen Scavenger	15 gal, 55 gal, bulk	\$ 11.88/gal	\$ 12.36/gal	\$ 12.86/gal	\$ 13.38/gal
16 114	595 Oxygen Scavenger	15 gal, 55 gal, bulk	\$ 16.97/gal	\$ 17.65/gal	\$ 18.36/gal	\$ 19.10/gal
	Contingency Chemicals					
			\$	\$	\$	\$

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
	STEAM SYSTEM CHEMICALS					
17 115	358 Steamline Treatment	15 gal, 55 gal	\$ 12.15/gal	\$ 12.64/gal	\$ 13.15/gal	\$ 13.68/gal
18 116	1535 Steamline Treatment	15 gal, 55 gal, bulk	\$ 45.21/gal	\$ 47.02/gal	\$ 48.90/gal	\$ 50.86/gal
19 117	1565 Steamline Treatment	15 gal, 55 gal, bulk	\$ 45.21/gal	\$ 47.02/gal	\$ 48.90/gal	\$ 50.86/gal
20 118	1575 Steamline Treatment	15 gal, 55 gal, bulk	\$ 45.21/gal	\$ 47.02/gal	\$ 48.90/gal	\$ 50.86/gal
21 119	PAC-50 Flocculant	15 gal, 55 gal	\$ 21.42/gal	\$ 22.28/gal	\$ 23.18/gal	\$ 24.11/gal
	Contingency Chemicals					
			\$	\$	\$	\$

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
	COOLING TOWER AND SYSTEM CHEMICALS					
22 120	206 Biodispersant	15 gal	\$ 92.69/gal	\$ 96.40/gal	\$ 100.26/gal	\$ 104.27/gal
23 121	290 Dispersant (Oil Problems)	5 gal, 15 gal	\$ 93.82/gal	\$ 97.58/gal	\$ 101.49/gal	\$ 105.55/gal
24 122	1248 Cooling Tower Wet Lay Up	5 gal, 15 gal, 55 gal	\$ 65.25/gal	\$ 67.86/gal	\$ 70.58/gal	\$ 73.41/gal
25 123	4707 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 33.92/gal	\$ 35.28/gal	\$ 36.70/gal	\$ 38.17/gal
26 124	4709 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 29.40/gal	\$ 30.58/gal	\$ 31.81/gal	\$ 33.09/gal

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
	COOLING TOWER AND SYSTEM CHEMICALS					
27 125	4714 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 24.88/gal	\$ 25.88/gal	\$ 26.92/gal	\$ 28.00/gal
28 126	7116 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 56.52/gal	\$ 58.78/gal	\$ 61.14/gal	\$ 63.59/gal
29 127	7221 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 45.21/gal	\$ 47.02/gal	\$ 48.90/gal	\$ 50.86/gal
30 128	7351 Cooling Water Treatment	15 gal, 55 gal, bulk	\$ 33.97/gal	\$ 35.33/gal	\$ 36.75/gal	\$ 38.22/gal
129 31	AM-545 Microbiocide	5 gal	\$ 90.44/gal	\$ 94.06/gal	\$ 97.83/gal	\$ 101.75/gal
32 130	AM-66 Microbiocide Tablets	50 lb	\$ 9.06/lb	\$ 9.43/lb	\$ 9.81/lb	\$ 10.21/lb
131 33	AM-714 Microbiocide	6 gal	\$ 73.47/gal	\$ 76.41/gal	\$ 79.47/gal	\$ 82.65/gal
132 34	CTT Tabs	43 lb	\$ 13.58/lb	\$ 14.13/lb	\$ 14.70/lb	\$ 15.29/lb
133 35	ISO-15 Microbiocide	5 gal	\$ 81.39/gal	\$ 84.65/gal	\$ 88.04/gal	\$ 91.57/gal
36 134	Verox-8 Microbiocide	5 gal, 15 gal, 55 gal	\$ 71.53/gal	\$ 74.40/gal	\$ 77.38/gal	\$ 80.48/gal
37 135	1237 Passivating Tower Blend	5 gal, 15 gal, 55 gal	\$ 18.86/gal	\$ 19.62/gal	\$ 20.41/gal	\$ 21.23/gal
134 38	Sulfuric Acid 66 BE	55 gal	\$ 7.25/gal	\$ 7.54/gal	\$ 7.85/gal	\$ 8.17/gal
	Contingency Chemicals					
39 137	123 Acid Cleaner	15 gal, 55 gal	\$ 17.26/gal	\$ 17.95/gal	\$ 18.67/gal	\$ 19.42/gal

Line Item	Product Name	CONTAINER SIZE AND UNIT	Original Contract Period (Firm, Fixed Price)	First Renewal Period (Maximum Price)	Second Renewal Period (Maximum Price)	Third Renewal Period (Maximum Price)
	DEALKALIZER SYSTEM CHEMICALS					
40 138	LC-25 Liquid Caustic Soda 25%	15 gal, 55 gal, bulk	\$ 3.69/gal	\$ 3.84/gal	\$ 4.00/gal	\$ 4.16/gal
41 139	LC-50 Liquid Caustic Soda 50%	15 gal, 55 gal, bulk	\$ 6.30/gal	\$ 6.56/gal	\$ 6.83/gal	\$ 7.11/gal
	Contingency Chemicals					
			\$	\$	\$	\$
			\$	\$	\$	\$

**In addition, WLFT must indicate the amount of chemicals needed to treat 10,000 gallons of make-up water and the total price for such based on the firm, fixed prices provided for the original contract period and a maximum price for each potential renewal periods. WLFT shall agree and understand that such information is requested for cost evaluation purposes only.

ORIGINAL CONTRACT PERIOD					
	Product Name	Firm, Fixed Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
	CLOSED LOOP COOLING SYSTEM CHEMICALS				
142 140	839 Closed System Inhibitor	\$ 41.84/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,673.60
		\$			\$
		\$			\$
		\$			\$
	Contingency Chemicals				
143 141	0225 Closed System Treatment	\$ 47.47/gal	15 gal, 55 gal, bulk		
144 142	96 System Precleaner	\$ 23.74/gal	15 gal, 55 gal, bulk		
143 145	996 Resin Cleaner	\$ 23.74/gal	15 gal, 55 gal, bulk		
144 145	AM-50 Microbiocide	\$45.21/gal	15 gal		
145 146	Thermal-Guard HT-1	\$ 17.26/gal	15 gal, 55 gal, bulk		
146 147	Thermal-Guard FG	\$ 19.64/gal	15 gal, 55 gal, bulk		
147	ISA-10 Cleaner	\$ 8.23/lb	50 lb		

FIRST RENEWAL PERIOD

	Product Name	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
	CLOSED LOOP COOLING SYSTEM CHEMICALS				
50	839 Closed System Inhibitor	\$ 43.52/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,740.80
	Contingency Chemicals				
51	0225 Closed System Treatment	\$ 49.37/gal	15 gal, 55 gal, bulk		
52	96 System Precleaner	\$ 24.69/gal	15 gal, 55 gal, bulk		
53	996 Resin Cleaner	\$ 24.69/gal	15 gal, 55 gal, bulk		
54	AM-50 Microbiocide	\$ 47.02/gal	15 gal		
55	Thermal-Guard HT-1	\$ 17.95/gal	15 gal, 55 gal, bulk		
56	Thermal-Guard FG	\$ 20.43/gal	15 gal, 55 gal, bulk		
57	ISA-10 Cleaner	\$ 8.56/lb	50 lb		

SECOND RENEWAL PERIOD

	Product Name	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
	CLOSED LOOP COOLING SYSTEM CHEMICALS				
58	839 Closed System Inhibitor	\$ 45.26/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,810.40
	Contingency Chemicals				
59	0225 Closed System Treatment	\$ 51.35/gal	15 gal, 55 gal, bulk		
60	96 System Precleaner	\$ 25.68/gal	15 gal, 55 gal, bulk		
61	996 Resin Cleaner	\$ 25.68/gal	15 gal, 55 gal, bulk		
62	AM-50 Microbiocide	\$ 48.90/gal	15 gal		
63	Thermal-Guard HT-1	\$ 18.67/gal	15 gal, 55 gal, bulk		
64	Thermal-Guard FG	\$21.25/gal	15 gal, 55 gal, bulk		
65	ISA-10 Cleaner	\$ 8.91/lb	50 lb		

THIRD RENEWAL PERIOD					
	Product Name	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
	CLOSED LOOP COOLING SYSTEM CHEMICALS	MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
66	839 Closed System Inhibitor	\$ 47.07/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,882.80
	Contingency Chemicals				
67	0225 Closed System Treatment	\$ 53.41/gal	15 gal, 55 gal, bulk		
68	96 System Precleaner	\$ 26.71/gal	15 gal, 55 gal, bulk		
69	996 Resin Cleaner	\$26.71/gal	15 gal, 55 gal, bulk		
70	AM-50 Microbiocide	\$ 50.86/gal	15 gal		
71	Thermal-Guard HT-1	\$ 19.42/gal	15 gal, 55 gal, bulk		
72	Thermal-Guard FG	\$ 22.10/gal	15 gal, 55 gal, bulk		
73	ISA-10 Cleaner	\$ 9.27/lb	50 lb		

ORIGINAL CONTRACT PERIOD					
	Product Name	Firm, Fixed Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
	CLOSED LOOP HEATING SYSTEM CHEMICALS	UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
148	74 839 Closed System Inhibitor	\$ 41.84/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,673.80
	Contingency Chemicals				
149	75 0225 Closed System Treatment	\$ 47.47/gal	15 gal, 55 gal, bulk		
150	76 96 System Precleaner	\$ 23.74/gal	15 gal, 55 gal, bulk		
151	77 996 Resin Cleaner	\$ 23.74/gal	15 gal, 55 gal, bulk		
152	78 AM-50 Microbiocide	\$ 45.21/gal	15 gal		
153	79 Thermal-Guard HT-1	\$ 17.26/gal	15 gal, 55 gal, bulk		
154	80 Thermal-Guard FG	\$ 19.64/gal	15 gal, 55 gal, bulk		
155	81 1193 Aluminum Corrosion Inhibitor	\$ 41.84/gal	5 gal, 15 gal, 55 gal, bulk		
156	82 2193 High Temp Corrosion Inhibitor	\$ 41.84/gal	5 gal, 15 gal, 55 gal, bulk		

FIRST RENEWAL PERIOD					
	Product Name CLOSED LOOP HEATING SYSTEM CHEMICALS	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
83	839 Closed System Inhibitor	\$ 43.52/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,740.80
	Contingency Chemicals				
84	0225 Closed System Treatment	\$ 49.37/gal	15 gal, 55 gal, bulk		
85	96 System Precleaner	\$ 24.69/gal	15 gal, 55 gal, bulk		
86	996 Resin Cleaner	\$ 24.69/gal	15 gal, 55 gal, bulk		
87	AM-50 Microbiocide	\$ 47.02/gal	15 gal		
88	Thermal-Guard HT-1	\$ 17.95/gal	15 gal, 55 gal, bulk		
89	Thermal-Guard FG	\$ 20.43/gal	15 gal, 55 gal, bulk		
90	1193 Aluminum Corrosion Inhibitor	\$ 43.52/gal	5 gal, 15 gal, 55 gal, bulk		
91	2193 High Temp Corrosion Inhibitor	\$ 43.52/gal	5 gal, 15 gal, 55 gal, bulk		

SECOND RENEWAL PERIOD					
	Product Name CLOSED LOOP HEATING SYSTEM CHEMICALS	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
92	839 Closed System Inhibitor	\$ 45.26/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,810.40
	Contingency Chemicals				
93	0225 Closed System Treatment	\$ 51.35/gal	15 gal, 55 gal, bulk		
94	96 System Precleaner	\$ 25.68/gal	15 gal, 55 gal, bulk		
95	996 Resin Cleaner	\$ 25.68/gal	15 gal, 55 gal, bulk		
96	AM-50 Microbiocide	\$ 48.90/gal	15 gal		
97	Thermal-Guard HT-1	\$ 18.67/gal	15 gal, 55 gal, bulk		
98	Thermal-Guard FG	\$ 21.25/gal	15 gal, 55 gal, bulk		
99	1193 Aluminum Corrosion Inhibitor	\$ 45.26/gal	5 gal, 15 gal, 55 gal, bulk		
100	2193 High Temp Corrosion Inhibitor	\$ 45.26/gal	5 gal, 15 gal, 55 gal, bulk		

THIRD RENEWAL PERIOD

	Product Name	Maximum Unit Price		**Treatment of 10,000 Gallons of Makeup Water	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
101	839 Closed System Inhibitor	\$ 47.07/gal	15 gal, 55 gal, bulk	40 gallon	\$ 1,882.80
	Contingency Chemicals				
102	0225 Closed System Treatment	\$ 53.41/gal	15 gal, 55 gal, bulk		
103	96 System Precleaner	\$ 26.71/gal	15 gal, 55 gal, bulk		
104	996 Resin Cleaner	\$ 26.71/gal	15 gal, 55 gal, bulk		
105	AM-50 Microbiocide	\$ 50.86/gal	15 gal		
106	Thermal-Guard HT-1	\$ 19.42/gal	15 gal 55 gal, bulk		
107	Thermal-Guard FG	\$ 22.10/gal	15 gal, 55 gal, bulk		
108	1193 Aluminum Corrosion Inhibitor	\$ 47.07/gal	5 gal, 15 gal, 55 gal, bulk		
109	2193 High Temp Corrosion Inhibitor	\$ 47.07/gal	5 gal, 15 gal, 55 gal, bulk		

***In addition, WLFT must indicate the amount of chemicals needed to treat 400,000 gallons of diesel fuel and the total price for such based on the firm, fixed prices provided for the original contract period and a maximum price for each potential renewal period. WLFT shall agree and understand that such information is requested for cost evaluation purposes only.

ORIGINAL CONTRACT PERIOD					
	Product Name FUEL OIL SYSTEM CHEMICALS	Firm, Fixed Unit Price		***Treatment of 400,000 Gallons of Diesel Fuel	
		UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
157 110	Sludge-Free Dispersant	\$ 34.21/gal	5 gal, 15 gal, 55 gal	13 gallon	\$ 444.73
158 111	Fuel-Save Stabilizer (Anti-bacterial)	\$ 77.94/gal	5 gal	1.8 gallon	\$ 140.30
		\$			\$
		\$			\$
	Contingency Chemicals				
		\$			
		\$			

FIRST RENEWAL PERIOD					
	Product Name FUEL OIL SYSTEM CHEMICALS	Maximum Unit Price		***Treatment of 400,000 Gallons of Diesel Fuel	
		MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
112	Sludge-Free Dispersant	\$ 35.58/gal	5 gal, 15 gal, 55 gal	13 gallon	\$ 462.54
113	Fuel-Save Stabilizer (Anti-bacterial)	\$ 81.06/gal	5 gal	1.8 gallon	\$ 145.91
		\$			\$
		\$			\$
	Contingency Chemicals				
		\$			
		\$			

SECOND RENEWAL PERIOD					
	Product Name	Maximum Unit Price		***Treatment of 400,000 Gallons of Diesel Fuel	
	FUEL OIL SYSTEM CHEMICALS	MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
114	Sludge-Free Dispersant	\$ 37.01/gal	5 gal, 15 gal, 55 gal	13 gallon	\$ 481.13
115	Fuel-Save Stabilizer (Anti-bacterial)	\$ 84.31/gal	5 gal	1.8 gallon	\$ 151.76
		\$			\$
		\$			\$
	Contingency Chemicals				
		\$			
		\$			

THIRD RENEWAL PERIOD					
	Product Name	Maximum Unit Price		***Treatment of 400,000 Gallons of Diesel Fuel	
	FUEL OIL SYSTEM CHEMICALS	MAXIMUM UNIT PRICE	CONTAINER SIZE AND UNIT	Amount of Chemical Required	Total Price
116	Sludge-Free Dispersant	\$ 38.49/gal	5 gal, 15 gal, 55 gal	13 gallon	\$ 500.37
117	Fuel-Save Stabilizer (Anti-bacterial)	\$ 87.69/gal	5 gal	1.8 gallon	\$ 157.85
		\$			\$
		\$			\$
	Contingency Chemicals				
		\$			
		\$			

4.3 **Resin Analysis and Elution Study and Cleaning Solution** – WLFT shall state a firm, fixed price for the analysis of resin in a water softener or dealkalizer for fractured beads and performing an elution study for the original contract period and a maximum price for each potential renewal period. In addition, WLFT shall state a firm, fixed price per gallon for resin cleaning solution for the original contract period and a maximum price for each potential renewal periods.

		ORIGINAL CONTRACT PERIOD FIRM, FIXED PRICE	FIRST RENEWAL PERIOD MAXIMUM PRICE	SECOND RENEWAL PERIOD MAXIMUM PRICE	THIRD RENEWAL PERIOD MAXIMUM PRICE	
159	118	Resin Analysis and Elution Study	\$ 297.44 (per study)	\$309.34 (per study)	\$321.72 (per study)	\$334.59 (per study)
160	119	Resin Cleaning Solution	\$23.74 (per gallon)	\$24.69 (per gallon)	\$25.68 (per gallon)	\$26.71 (per gallon)

4.4 **Domestic Water System** – WLFT shall state a firm, fixed unit price for polymerized sodium polyphosphate and sodium hypochlorite bleach for the original contract period and a maximum price for each potential renewal period. In addition, WLFT shall identify the container size (e.g. 55 gallon, 5 gallon, etc).

		CONTAINER SIZE	ORIGINAL CONTRACT PERIOD UNIT PRICE	FIRST RENEWAL PERIOD MAXIMUM PRICE	SECOND RENEWAL PERIOD MAXIMUM PRICE	THIRD RENEWAL PERIOD MAXIMUM PRICE	
161	120	Polymerized Sodium Polyphosphate (Phosflo)	55 gal	\$ 30.95/gal	\$ 32.19/gal	\$ 33.48/gal	\$ 34.82/gal
162	121	(IMCA-10) Sodium Hypochlorite Bleach	55 gal or bulk	\$ 2.72/gal	\$ 2.83/gal	\$ 2.95/gal	\$ 3.07/gal

4.5 **Waste Water System** – WLFT shall state a firm, fixed unit price for Calcium Nitrate, or approved equal, for control of odor and Hydrogen Sulfide; Aqueous Organic Sulfides for control of Flocculent Precipitant; Ferrous Sulfate for Sludge Conditioning, and Bio-L-220 Grease Digesting Bacteria, or approved equal for the original contract period and a maximum price for each potential renewal period. In addition, WLFT shall identify the container size (e.g. 55 gallon, 5 gallon, etc). If WLFT is proposing to provide a chemical other than Calcium Nitrate or Bio-L-220 Grease Digesting Bacteria, WLFT should identify the proposed chemical.

		CONTAINER SIZE	ORIGINAL CONTRACT PERIOD FIRM, FIXED PRICE	FIRST RENEWAL PERIOD MAXIMUM PRICE	SECOND RENEWAL PERIOD MAXIMUM PRICE	THIRD RENEWAL PERIOD MAXIMUM PRICE
122 163	Calcium Nitrate, or approved equal, for control of odor, and Hydrogen Sulfide (WLFT 426 Nitraid)	55 gal	\$ 11.88/gal	\$ 12.36/gal	\$ 12.86/gal	\$ 13.38/gal
123 164	Aqueous Organic Sulfides for control of Flocculent Precipitant (WLFT 1100)	5 gal, 15 gal, 55 gal	\$ 35.70/.gal	\$ 37.13/gal	\$ 38.62/gal	\$ 40.17/gal
124 165	Ferrous Sulfate for Sludge Conditioning	15 gal, 55 gal, bulk	\$ 9.05/gal	\$ 9.42/gal	\$ 9.80/gal	\$ 10.20/gal
125 166	Bio-L-220 Grease Digesting Bacteria, or approved equal	55 gal	\$ 31.65/gal	\$ 32.92/gal	\$ 34.24/gal	\$ 35.61/gal

4.6 **Test Equipment and Refractometer** - WLFT shall state a firm, fixed price for providing the following pieces of test equipment and refractometer for the original contract period and a maximum price for each potential renewal period.

			ORIGINAL CONTRACT PERIOD FIRM, FIXED PRICE	FIRST RENEWAL PERIOD MAXIMUM PRICE	SECOND RENEWAL PERIOD MAXIMUM PRICE	THIRD RENEWAL PERIOD MAXIMUM PRICE
167	125	Bench top PH. Meter/Microcomputer	\$ 505.65/ea	\$ 525.88/ea	\$ 546.92/ea	\$ 568.80/ea
168	127	Bench top T.D.S. Conductivity Meter	\$ 505.65/ea	\$ 525.88/ea	\$ 546.92/ea	\$ 568.80/ea
169	128	Propylene Glycol & Ethylene Glycol Refractometer	\$ 192.00/ea	\$ 199.68/ea	\$ 207.67/ea	\$ 215.98/ea
170	129	TPHI Combination pH/Conductivity	\$ 965.00/ea	\$ 1,003.60/ea	\$ 1,043.75/ea	\$ 1,085.50/ea

4.7 **Chemical Feed Equipment**- WLFT shall state a firm, fixed percentage over actual net cost for chemical feed equipment. WLFT shall agree and understand that the percentage over net cost shall remain firm and unchanged for the entire term of the contract.

171		FIRM, FIXED PERCENTAGE
130	Percentage Over Actual Net Cost	10%

4.8 **Storage Tank**- WLFT shall state a firm, fixed percentage over actual net cost for storage tanks. WLFT shall agree and understand that the percentage over net cost shall remain firm and unchanged for the entire term of the contract.

172		FIRM, FIXED PERCENTAGE
131	Percentage Over Actual Net Cost	10%

EXHIBIT A
WLFT INFORMATION

Information about WLFT's organization:

Please reference documents in the Appendix for more details

- a. Provide a brief company history, including the founding date and number of years in business as currently constituted.

In Summary the current Walter Louis Fluid Technologies was originated in Quincy in 1968 as "Walter Louis Chemicals" initially supplying water treatment chemicals for local customers. In the following years the company expanded capabilities and coverage area. We currently service chemical treatment programs in Illinois, Iowa and Missouri as well at equipment installations nationwide. For a complete company history please see the "Experience and Reliability" document included in this proposal.

- b. Describe the nature of WLFT's business, type of services performed, etc. Identify WLFT's website address, if any.

Water Treatment Chemicals such as boiler compounds, cooling water treatment, steamline treatment, waste water treatment, etc., as well as providing chemical feed systems, pumps, & custom built equipment such as Reverse Osmosis systems, water softeners, D.I. systems, etc. Our website is as follows: www.walterlouis.com.

- c. Provide a list of and a short summary of information regarding WLFT's current contracts/clients.

Currently have the Missouri OA Facilities contract, State of Illinois contract for state institutions, Illinois Universities as well as our regular list of customers.

- d. List, identify, and provide reasons for each contract/client gained and lost in the past 2 years.

Clients gained:

ICM Biofuels LLC – St. Joseph, MO
Sunset Homes – Quincy, IL
Quincy Housing Authority – Quincy, IL
Related Management – Chicago, IL
Blue Sun St. Joseph Refining – St. Joseph, MO
Form Systems – Haysville, KS
Kemira – St. Louis, MO
Landmark LLC – Wichita, KS
Wichita Executive Services (W.E.C) – Wichita, KS

Farmers & Bankers LLC – Wichita, KS
Holcim Cement Cape Girardeau Mo
Village Green Management – Chicago, IL

All the above customers chose Walter Louis, because of the cost performance improvements that we provided compared to competitive suppliers.

In the last two years Walter Louis has lost only two customers. Tama Paper Board was mandated by their corporate office to use their National accounts vendor. We have received a call last week from Tama Paper. They told us that in the 12 months using the National accounts vendor: they had seen a significant increase in the steam required to produce their paper compared to what we had provided. WLFT had provided a unique film forming condensate program that the current vendor could not match. Local management has asked us to present a proposal that they can take to their corporate office to reinstitute our water treatment program.

Quincy Senior Center in Quincy had hired new maintenance personnel. He refused to follow our recommendations to the point of potential damage to their equipment. Walter Louis has worked long and hard to develop our reputation. We felt that we could not produce the results that we expected. We informed management that we could not continue doing business with them, and fired them as a customer

- e. Describe the structure of the organization including any board of directors, partners, top departmental management, corporate organization, corporate trade affiliations, any parent/subsidiary affiliations with other firms, etc.

Walter Louis Fluid Technologies is an S-corporation with one owner, Walter L. Giesing. The company was founded in 1968 by Catherine and Walter J. Giesing. The structure of the company is straight forward in regards to its organizational chart.

The President, (Walt Giesing, 42 years of service) sets the course in terms of vision. The Vice President (Diane Giesing, 26 years of service) acts as counsel and aids in the President's decision-making. The Director of Operations (Frank Murphy, 10 years of service) carries out the President's orders with the Director of Administration (Christy Emerick, 37 years of service) and the Director of Process Control (Roger Smith, 35 years of service) joining in the Operations effort. The Operations Manager (Chris Huckstep, 6 years of service) carries out daily operations and maintains supervision over the Operations and Transportation Specialist (J.D. Caster, 12 years of service) and the Chemical Production Specialist (David Coultas 4 years of service). The Operations Manager reports directly to both the Director of Process Control and the Director of Operations. Both the Customer Support Specialist Kathy Martin, 4 years of service) and the Quality Control Specialist (Tina Darnell, 3 years of service) maintain levels of quality in both the office and in the Laboratory. The Customer Support Specialist maintains client and customer relationships while the Quality Control Specialist maintains qualitative analysis for all incoming and outgoing chemicals. The Customer Support Specialist reports directly to the Director of Administration and the Quality Control Specialist reports directly to the Director of Operations. The Sale Technicians remain in the field at all times and do not typically spend much time in the office. There are four technicians that remain in the field at all times (Don Kueneke, 17 years of service, Carol Douglas, 10 years of service, Dennis Geer 5 years of Service, and David Dreyer 2 years of service). They essentially are the eyes and ears of WLFT and are dedicated to the task of customer service in all aspects.

Walter Louis Fluid Technologies belongs to the Association of Water Technologies (AWT), National Association of Corrosion Engineers (NACE), and the Cooling Tower Institute (CTI). Walter Louis has obtained ISO 9001 certification. WLFT does not have a Board of Directors, nor any partners or affiliations with any parent/subsidiary companies or firms.

EXHIBIT B**CURRENT/PRIOR EXPERIENCE**

WLFT should copy and complete this form documenting WLFT and WLFT sub's current/prior experience considered relevant to the services required herein. In addition, WLFT is advised that if the contact person listed for verification of services is unable to be reached during the evaluation, the listed experience may not be considered.

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	Illinois State Water Survey
Address of Reference Company ✓ Street Address ✓ City, State, Zip	2204 Griffith Drive Champaign, IL 61820
Reference Contact Person Information: ✓ Name ✓ Phone # ✓ E-mail Address	Chuck Curtiss Ph. 217-244-7391 curtiss@illinois.edu
Dates of Services:	Approx. start of year of 1980 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$75,000- \$100,000
Description of Services Performed	Boiler Compound, Water Treatment, Waste Treatment & Testing kits, reagents.

EXHIBIT B

CURRENT/PRIOR EXPERIENCE

WLFT should copy and complete this form documenting WLFT and WLFT sub's current/prior experience considered relevant to the services required herein. In addition, WLFT is advised that if the contact person listed for verification of services is unable to be reached during the evaluation, the listed experience may not be considered.

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	Lifeline Foods, LLC
Address of Reference Company <input checked="" type="checkbox"/> Street Address <input checked="" type="checkbox"/> City, State, Zip	2811 S. 11 th Street St. Joseph, MO 64503
Reference Contact Person Information: <input checked="" type="checkbox"/> Name <input checked="" type="checkbox"/> Phone # <input checked="" type="checkbox"/> E-mail Address	Fred Maier Ph. 816.901.3135 Cell 816.261.4215 fred.maier@icmbiofuels.com
Dates of Services:	9/14/04 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$200,000/year
Description of Services Performed	Boiler Treatment Chemicals, Cooling Tower Chemicals, Chemical Feed System, Reverse Osmosis Maintenance

EXHIBIT B**CURRENT/PRIOR EXPERIENCE**

WLFT should copy and complete this form documenting WLFT and WLFT sub's current/prior experience considered relevant to the services required herein. In addition, WLFT is advised that if the contact person listed for verification of services is unable to be reached during the evaluation, the listed experience may not be considered.

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	Titan Wheel Corporation of Illinois
Address of Reference Company ✓ Street Address ✓ City, State, Zip	2701 Spruce Quincy, IL 62301
Reference Contact Person Information: ✓ Name ✓ Phone # ✓ E-mail Address	Alan Moore Ph. 217-221-4337 Ken Allensworth Ph. 217-221-4353
Dates of Services:	1985 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$200,000/year
Description of Services Performed	Installed and serviced water softeners and Reverse Osmosis equipment Maintain all boilers, softeners, and associated equipment Establish and maintain chemical water treatment program for facility Installed and maintain process deionizers.

EXHIBIT B

CURRENT/PRIOR EXPERIENCE

WLFT should copy and complete this form documenting WLFT and WLFT sub's current/prior experience considered relevant to the services required herein. In addition, WLFT is advised that if the contact person listed for verification of services is unable to be reached during the evaluation, the listed experience may not be considered.

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	Illinois State University
Address of Reference Company <input checked="" type="checkbox"/> Street Address <input checked="" type="checkbox"/> City, State, Zip	100 North University Street, Normal, IL 61761
Reference Contact Person Information: <input checked="" type="checkbox"/> Name <input checked="" type="checkbox"/> Phone # <input checked="" type="checkbox"/> E-mail Address	Julie Stanley Ph. 309-530-4072 Stanley, Julie [jaadcoc@ilstu.edu]
Dates of Services:	1997 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$60,000/year
Description of Services Performed	DI bottles, Reverse Osmosis, water treatment chemicals, modernization and support of water systems.

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	ADM (Archer Daniels Midland Corporation)
Address of Reference Company ✓ Street Address ✓ City, State, Zip	1900 Gardner Expressway Quincy, IL 62306
Reference Contact Person Information: ✓ Name ✓ Phone # ✓ E-mail Address	Tom Emerick Ph. 217-221-0353 Tom.emerick@adm.com
Dates of Services:	1966 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$85,000/year
Description of Services Performed	Pre-treatment plant wastewater effluent for NPDES compliance Lab reagents and equipment for boiler water testing

Reference Information (Current/Prior Services Performed For:)	
Name of Reference Company:	Kingsford Manufacturing Company
Address of Reference Company <input checked="" type="checkbox"/> Street Address <input checked="" type="checkbox"/> City, State, Zip	Highway 28 Belle, MO 65013
Reference Contact Person Information: <input checked="" type="checkbox"/> Name <input checked="" type="checkbox"/> Phone # <input checked="" type="checkbox"/> E-mail Address	Justin Dent Ph. 573-859-5514 Justin.dent@clorox.com
Dates of Services:	2008 to present
If service/contract has terminated, specify reason:	n/a
Dollar Value of Services	\$13,500
Description of Services Performed	Provide a full service comprehensive water treatment program for equipment and systems including a 400 HP steam boiler and condensate lines.

EXHIBIT C

EXPERTISE OF FIELD REPRESENTATIVE

(Copy and complete this table for each key person proposed)

Title of Position: Field Representative	
Name of Person:	Dennis Gier
Educational Degree (s): include college or university, major, and dates	University of Missouri-St. Louis, 1974. BA, Psychology, minor in Business Administration
License(s)/Certification(s), #(s), expiration date(s), if applicable:	n/a
Specialized Training Completed. Include dates and documentation of completion:	AWT Trained water treatment
# of years experience in area of service proposed to provide:	37 years
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	5 years with WLFT, Regional Manager
Describe this person's responsibilities over the past 12 months.	Dennis has remained one of our best service reps in the St. Louis region.
Previous employer(s), positions, and dates	25 years with Calgon, 7 years with Nalco. Sales Manager.
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	
✓ Chemical Analysis	
✓ Chemical Safety	

EXHIBIT C

EXPERTISE OF FIELD REPRESENTATIVE

(Copy and complete this table for each key person proposed)

Title of Position: Field Representative	
Name of Person:	Roger Smith
Educational Degree (s): include college or university, major, and dates	Some college
License(s)/Certification(s), #(s), expiration date(s), if applicable:	AWT CWT (Certified Water Technologist)
Specialized Training Completed. Include dates and documentation of completion:	Trained in electrical, plumbing, all areas of water treatment
# of years experience in area of service proposed to provide:	34 years
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	Roger has been with the company all 34 years and has been the backbone of all operations in his tenure.
Describe this person's responsibilities over the past 12 months.	Roger services and supervises nearly every client that WLFT has.
Previous employer(s), positions, and dates	none
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	AWT CWT
✓ Chemical Analysis	
✓ Chemical Safety	

Title of Position: Field Representative	
Name of Person:	Walter Louis Giesing
Educational Degree (s): include college or university, major, and dates	BS, Chemistry. Saint Louis University, 1972.
License(s)/Certification(s), #(s), expiration date(s), if applicable:	n/a
Specialized Training Completed. Include dates and documentation of completion:	Consummate Water Treatment Professional. Knowledge in every area of water treatment including boilers, cooling towers, and all energy systems.
# of years experience in area of service proposed to provide:	40 years
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	President of company, 40 years
Describe this person's responsibilities over the past 12 months.	President of company
Previous employer(s), positions, and dates	n/a
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	
✓ Chemical Analysis	
✓ Chemical Safety	

EXHIBIT C

EXPERTISE OF FIELD REPRESENTATIVE

(Copy and complete this table for each key person proposed)

Title of Position: Field Representative	
Name of Person:	David Dreyer
Educational Degree (s): include college or university, major, and dates	Some college
License(s)/Certification(s), #(s), expiration date(s), if applicable:	Garrett-Callahan Water Treatment Certification
Specialized Training Completed. Include dates and documentation of completion:	General Microprocessor Training
# of years experience in area of service proposed to provide:	15
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	Regional Service Manager, 2 years with WLFT.
Describe this person's responsibilities over the past 12 months.	David has been the consummate professional taking care of the entire western portion of MO, and parts of IA and KS. Full Service Water treatment.
Previous employer(s), positions, and dates	Chem Aqua – 9 years, Garrett Callahan – 2 years, American Water Treatment -2 years.
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	Expert Troubleshooter, proficient in technology overall
✓ Chemical Analysis	
✓ Chemical Safety	

EXHIBIT C**EXPERTISE OF FIELD REPRESENTATIVE**

(Copy and complete this table for each key person proposed)

Title of Position: Field Representative	
Name of Person:	Don Kueneke
Educational Degree (s): include college or university, major, and dates	BS, Environmental Systems, Southern Illinois University, 1981. MS, Environmental Science, Southern Illinois University, 1985.
License(s)/Certification(s), #(s), expiration date(s), if applicable:	n/a
Specialized Training Completed. Include dates and documentation of completion:	AWT training completion
# of years experience in area of service proposed to provide:	27 years
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	Don has been working with WLFT for 18 years approx. as Regional Manager. He is one the most talented service reps in the industry.
Describe this person's responsibilities over the past 12 months.	Don's responsibilities include all service visits, equipment openings, liaison with assigned customers, seminar trainer, and all aspects of communications, both written and oral.
Previous employer(s), positions, and dates	Calgon, 1986. Service Manager
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	Comprehensive knowledge in all areas of water treatment.
✓ Chemical Analysis	
✓ Chemical Safety	

EXHIBIT C

EXPERTISE OF FIELD REPRESENTATIVE

(Copy and complete this table for each key person proposed)

Title of Position: Field Representative	
Name of Person:	Carole Douglas
Educational Degree (s): include college or university, major, and dates	Business Degree, Meramec Community College, 1970.
License(s)/Certification(s), #(s), expiration date(s), if applicable:	n/a
Specialized Training Completed. Include dates and documentation of completion:	AWT Training Certs, Boiler Water, Cooling Tower certified
# of years experience in area of service proposed to provide:	25 years experience in water treatment
Describe person's relationship to WLFT. If employee, # of years. If WLFT sub, describe other/past working relationships	Carole has been an employee of WLFT for 14 years. She has excelled as one of our best Regional Managers ever. Her customer service skills are unparalleled.
Describe this person's responsibilities over the past 12 months.	Maintains, services, and operates much of the current OA-MO contract. In addition, she has dozens of her own accounts that she services as well.
Previous employer(s), positions, and dates	Calgon, American Water, Garrett Callahan, service technician's at all companies
Identify specific information about experience in:	Clearly identify the experience, provide dates, describe the person's role and extent of involvement in the experience
✓ Institutional Water Treatment	25 years experience in all facets of water treatment.
✓ Chemical Analysis	
✓ Chemical Safety	

EXHIBIT D**PERSONNEL EXPERTISE SUMMARY**

(Complete this Exhibit for any additional personnel not included on previous Exhibit. Resumes may also be provided)

Personnel	Background and Expertise of Personnel and Planned Duties
1. Frank Murphy (Name) Director of Operations (Title) Contact for OA-MO (Proposed Role/Function)	Mr. Murphy comes to WLFT from a background of IT and industrial management. His duties involve quality control of products and services and customer liaison, ensuring safe and expeditious delivery of all products, maintaining positive relationships between WLFT and our customers and overseeing all areas of communication between our company and the State of Missouri.
2. Dave Coultas (Name) Plant Manager (Title) Chemical Production (Proposed Role/Function)	Mr. Coultas oversees all chemical production in the Plant. He has been trained in the ISO process and the Quality process. He is responsible for all liquid and dry assemblies.
3. Christy Emerick (Name) Director of Administration (Title) Manages all administrative duties (Proposed Role/Function)	Mrs. Emerick has been with the company for 35 years. She is the backbone of the administrative structure that WLFT has in place. Her duties include everything from organizing orders, human resources, buyer, accounts receivable/payable, and managing customer feedback.
4. Chris Huckstep (Name) Operations Manger (Title) Manages all deliveries and service (Proposed Role/Function)	Mr. Huckstep has been with the company for 7 years. He's the jack of all trades guy in the company. There is no limit on his functionality. He is the liaison between the Director of Operations and the rest of the staff.
5. Tina Darnell (Name) Quality Assurance (Title) Manages all issues of quality (Proposed Role/Function)	Ms. Darnell has a degree in laboratory science and has been in the quality business for 20 years. She is a recent acquisition of WLFT and is currently managing all issues of quality including chemical production and the ISO process.
6. Kathy Martin (Name) Customer Support Specialist (Title) Front line management of all customers (Proposed Role/Function)	Mrs. Martin takes the brunt of incoming phone calls no matter what. It's a tough job. She has access to every client we have and communicates with them every day. When calling into the office, you will most likely be reaching her first.

Water Treatment Program State of Missouri Office of Administration

Walter Louis fluid Technology is uniquely prepared to provide the most complete water treatment program for the Facilities of the State of Missouri. Walter Louis a major regional supplier of full service water products and services possess a unique skill set that can be invaluable in the implementation of this contract. All of the individual site recommendations are found in Exhibit E that follows. I have prepared a brief overview of some of the specific capabilities that will be applied to this contract.

Chemical Field Service: Walter Louis field service personnel, bring years of individual experience to our customers. In addition, WLFT has developed an ongoing training program to continue to improve their ability to serve our customers. Walter Louis field reps have achieved the prestigious CWT Certified Water Technologist from the Association of Water Technology, or are in the final stages of the process. All future Walter Louis Reps no matter their previous experience will begin the CWT process.

Regulatory Training: As a basic manufacturer of water treatment chemicals WLFT is regulated by OSHA the EPA Department of Home Security and the DEA. You, the end user has less oversight but is still affected by many of the same regulations. Walter Louis is engaged in Packaging these internal training programs and modifying them to use in our customers technical training programs. Cooling Tower Hygiene programs to limit biofilm problems and health liabilities are a regular portion of every water treatment program.

Product Distribution: Walter Louis owns and operates its own delivery trucks. All Drivers carry a CDL with Hazmat Certification. Over 18 Years ago Walter Louis began *Mini Bulk* service to the Missouri Department of corrections. This has allowed DOC personnel to avoid any contact with chemicals. WLFT delivery specialists pump directly from our trucks to the double wall storage tanks. In areas that are not close enough for truck access the chemicals are wheeled in stainless steel containers to the tank for off loading... Our site surveys show that there are numerous facilities covered by this contract that could be converted to this type of program. Unlike some companies there is no additional charge for this program. In facilities that will continue to use Drums our ISO 9000 driven quality program will track all drum deliveries as well as assure that empty containers are picked up cleaned and disposed of.

ISO 9001 Certification: There are many reasons why WLFT has been so successful in exceeding the expectations of the State of Missouri's Office of Administration the past few years. One reason is the fact that we have fully implemented the ISO 9001:2008 certification. We have manipulated all of our internal operations to reflect a high level of quality management. From the time we receive an order to the time the product or service is delivered, we engage in a detailed order of operations. This international standard of quality has helped to achieve a level of proficiency in the assembling of goods, the quality control environment, and the safety of both our employees and our customers. We measure our success daily and this is done through customer surveys and feedback opportunities. This certification has helped us diligently pursue a level of achievement that many companies have tried to copy. Whether it be a sales call, new research endeavors, picking new vendors, appropriating staff to projects, and making decisions, the ISO 9001:2008 standard has been instrumental in allowing WLFT to execute it's job beyond the expectations of the State of Missouri.

Remote Water Quality Monitoring: The current solicitation has specifications for new and upgraded *microprocessor control systems*. One of the options for these controllers offers direct communications to off-site locations. The Microprocessors that are used in the water treatment industry today are used to maintain water, chemical, and control ranges. The microprocessor enables users to monitor the water usage, chemical usage, conductivity variances, as well as any problems that may arise on a daily, even hourly basis by **continually monitoring the controller on a secure, (one way traffic) web site.**

Rather than relying only on testing that is run monthly by WLFT representatives, or even daily by facility staff, These new Micro Processor is capable of providing *minute by minute, hour by hour monitoring* of water towers or boilers. Chemical is added when needed as it is needed as opposed to someone testing and trying to determine the necessary amount of chemical to add to a system after testing. If the conductivity drifts up or down beyond the set points, the controller will send out an **e-mail, or text alerting the engineer, and or your water treatment professional** of a potential problem. This is done through a CAT-5 connection or via wireless connection.

Many times an engineer has gone into his or her work place to find the system has drained because the *blow down didn't shut off. A chemical drum has emptied* because the water usage was too high. A line was turned off which caused the system conductivity to go beyond the set point and caused scaling issues. All these issues can be dealt with as the incident occurs to avoid a crisis by using a Micro-Processor and connecting it to our web page for 24 hour monitoring. This allows for better control, fewer problems, fewer chemical losses, and better all-around control. Saving Money and reducing Down Time.

Mechanical Field Services: Walter Louis does not just sell chemical water treatment programs. We are a basic manufacturer of Pretreatment equipment, including Water softeners, Dealkalizers, and Reverse Osmosis systems. In addition we have the mechanical service representatives to trouble shoot, repair and upgrade existing systems. Our first response is how we can utilize the facilities existing systems, to reduce capital expense in a tight economic environment. For example , the Reverse osmosis system installed at WRDCC had excess capacity that was not needed to provide boiler feed water for the facility. Fulton State Hospital is a large facility with extensive steam and condensate distributions. WLFT offered a proposal to remove the excess capacity at St. Joe. Walter Louis built a new control package, moved and installed the RO systems excess capacity to Fulton State Hospital, as a turnkey project.

Energy Efficiency: All Water Treatment Companies preach the importance of clean heat transfer surfaces. Walter Louis has a proven track record of achievement in this area. However there is more that Walter Louis can bring to the table to increase efficiency. Sometimes the best interests of the customer are at odds with chemical sales. Walter Louis Installed and maintained responsibility for the operation of a Reverse Osmosis system at the Western Reception Center in St. Joe. By improving the water quality, boiler chemical usage was reduced to the point that the RO was more then paid for by chemical saving alone. In addition the reduction in blow down and the inherent heat loss produced an additional \$80,000 yearly fuel savings. As an additional benefit Steamline Treatment distribution was improved over the sprawling facility greatly reducing corrosion and iron return. In addition WLFT has extended the RO program to Fulton State Hospital. The results have been equally impressive. Boiler chemical consumption as well as fuel usage have dropped considerably. Corrosion rates throughout the condensate return system have improved considerably WLFT has done preliminary cost benefit analysis and determined the JCCC and Farmington Correctional Center would be prime candidates for improved efficiency and rapid payback by installing RO systems

Mechanical Testing and Inspection Equipment:

Boroscopes: Which are used for visual inspection and recording conditions of boiler tubes and condenser tube bundles.

Acoustic Analyzer: Used for Steam trap, tests analyze bearing wear as well as checking for steam and air leaks.

Ultrasonic micrometer: Used to measure tube sheets, pipe and pressure vessel wall thickness.

Corrators: Portable Corrators with probes installed in Cooling Water can be used for instantaneous corrosion rate determinations.

Ultra Sonic Flow Meters; One of the most useful tools we have available is an external clamp-on Ultra Sonic Flow meter. This equipment is a non invasive way to quickly determine flow rates inside any size pipe. A real world problem is erosion corrosion of Domestic hot water lines. This is often due to excessive flow rates in the hot water returns. The flow meter can quickly determine if the velocity limits are being exceeded.

Real World Solutions: Domestic Hot Water Systems even though not specifically covered by the current RFP has been a problem for many facilities. Soft water is usually used to prevent scale and energy loss. Erosion corrosion in copper pipe is often a problem. At WRDCC flows were reduced to proper velocities using the Ultrasonic flow meter. However corrosion while reduced was still a problem. Walter Louis used our computer water modeling software to determine the level of Hardness that could be blended into the soft water to eliminate the corrosion without forming scale. WLFT then designed a flow based blending system to maintain the optimum ratio. Corrosion in the piping was completely eliminated. Recently JCCC installed a similar system to address significant corrosion in their domestic hot water distribution piping. Reports from a recent quarterly meeting have indicated that virtually all pipe corrosion issues has stopped. In addition dry wall damage repair costs have also been eliminated. ERDCC has also purchased a new blending system, that will be installed soon.

Technical Data Bulletin

TEST KIT COMPONENTS

GLYCOL

REFRACTO-1 Refractometer

CLOSED LOOP SYSTEM

437 Nitrite Test Kit

COOLING TOWER

EP10 Myron L Conductivity Meter and Benchtop pH/MV Meter
Or

Myron L TPH1 Meter

5055	10 ml Autoburet (2)
5001	Hardness Titrating Solution
5002	Hardness Buffer
5003	Hardness Indicator Powder
5054	Squeeze Bottle
727	Scoop for Hardness Indicator Powder
5052	Casserole
5053-A	Stirring Rod
5050	Graduated Cylinder, 25 ml
5005	Sulfuric Acid
5031	Mixed Indicator
5054	Bottle with 1 oz Pipette (2)
942-505	Mini Analyst
PAHA-1	
PAHY-2	

Technical Data Bulletin

STEAM SYSTEM

EP10 Myron L Conductivity Meter or Benchtop pH/MV Meter

Or

Myron L TPH1 Meter

5055 10 ml Autoburet (3)
5052 Casserole
5053-A Stirring Rod
5050 Graduated Cylinder, 50 ml
5018 Dual Purpose Sulfite Indicator Powder
5016 Potassium Iodide-Iodate Solution
5005 Sulfuric Acid
5007 Phenolphthalein
5031 Mixed Indicator
5002 Hardness Buffer
5003 Hardness Indicator Powder
5001 Hardness Titrating Solution
6057 Neutralizing Solution
IR-18 Iron Test Kit
224800 Ortho Phosphate Kit
Or
942-505 Mini Analyst
5054 Bottle with 1 oz Pipette (2)
PAHA-1
PAHY-2

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
ALGOA CORRECTIONAL CENTER
SystemName: COOLING TOWER

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	50 ppm/CaCO3	0	50
M-ALK	1000 ppm/CaCO3	400	900
POLYMER	6 ppm	4	8

SystemName: RAW WATER SUPPLY

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	182 ppm/CaCO3	N/A	N/A
CHLORIDES	5 ppm	N/A	N/A
CONDUCTIVITY	470 uS	N/A	N/A
HARDNESS	272 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.125 ppm	N/A	N/A
Magnesium(Mg)	90 ppm/CaCO3	N/A	N/A
M-ALK	288 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.75 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.7 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SILICA(SiO2)	4 ppm	N/A	N/A
SULFATE(SO4)	15 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Future cooling water treatment endeavors should include a methodology designed with enhancement of cycles of concentration and water optimization in mind.

System I.D.: Cooling Tower/Ice Machine

Make-Up Water: Soft Water (0 – 50 ppm)

Recommendations:

- (1) Recent Inconsistencies associated with erratic soft water supply
- (2) If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: Algoa Correctional Center		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351 CWT	0.4 gallons	30 gallons
WLFT 2225 microbiocide	0.8 gallons	10 gallons
WLFT 714	1.5 gallons	10 gallons
Equipment (include make, model, and quantity)		
1- WLFT PCS cooling water controller w/ conductivity and/or ORP/pH monitoring capabilities.		
2- LMI A-151-92 chemical pumps		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
BOONVILLE CORRECTIONAL CTR.

SystemName: BOILER 1

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	800 ppm/CaCO3	400	800
OH-ALK	680 ppm/CaCO3	200	400
P-ALK	740 ppm/CaCO3	400	800
PHOSPHATE	30 ppm	20	40
SULFITE(SO3)	40 ppm	30	60
CONDUCTIVITY	2500 uS	2000	3000

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	50 ppm/CaCO3	30	50
pH	8.3 unit	8.2	9.5
CONDUCTIVITY	60 uS	20	80

SystemName: CLOSED LOOPS (Note: Cooling Tower Offline)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
15 HOUSE NITRITE	900 ppm	900	2000
CHAPEL NITRITE	900 ppm	900	2000

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	50 ppm/CaCO3	5	100
Softener Hardness	0 ppm/CaCO3	0	0
CONDUCTIVITY	150 uS	100	200

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	178 ppm/CaCO3	N/A	N/A
CHLORIDE	6.1 ppm	N/A	N/A
CONDUCTIVITY	811 uS	N/A	N/A
HARDNESS	285 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.208 ppm	N/A	N/A
Magnesium(Mg)	170 ppm/CaCO3	N/A	N/A
M-ALK	260 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.65 unit	N/A	N/A
PHOSPHATE	0.4 ppm	N/A	N/A
SILICA(SiO2)	4.9 ppm	N/A	N/A
SULFATE(SO4)	198 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Boonville Correctional Center (BCC)

System I.D.: Steam Boilers (3 Cleaver Brooks)

Make-Up Water: 100% Softened

Recommendations:

(1) Maintain existing chemical treatment parameters. BCC chemical program demonstrates consistent program management, record-keeping, follow-up and equipment maintenance.

System I.D.: Cooling Tower (15 House)

Make-Up Water: 100% softened water

Recommendations:

- (3) Recommend a partially blended hard/softened make-up water supply to the cooling tower. Ideal make-up to be in the range of 40-60 ppm total hardness. Purpose: reduce potential for corrosivity.
- (4) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: BCC Boonville		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	4.32 gallons (2 tanks @ 12,000 each)
Equipment N/A		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	125 gallons
Equipment:		
LMI Chemical Pump P141-352SI		
Drumless, bulk storage _____ x _____		

Facility: BCC Boonville		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067	30 gallons
Equipment (include make, model, and quantity)		
LMI Chemical Pump P141-352SI		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: BCC Boonville		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	150 gallons
Equipment (include make, model, and quantity)		
LMI Chemical Pump P141-352SI		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: BCC Boonville		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.6 gallons	30 gallons
WLFT Verox-8	.5 gal	5 gallons
WLFT 206	.5 Gal	5 gallons
Equipment (include make, model, and quantity)		
N/A		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: BCC Boonville		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Chemical is fed manually, through existing 2 Gallon Bypass feeder.		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: BCC Boonville		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT #839	40 gallons	
Equipment (include make, model, and quantity)		
*This system is fed by same equipment that feeds the hot loop, as this is a 2-pipe system.		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Central Missouri Correctional Center

This facility excluded from contract

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

CHILLICOTHE CORRECTIONAL CENTER

SystemName: Hot Water Boiler

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2900 uS	2200	3000
NITRITE	700 ppm	600	1200
pH	11.0 unit	10.0	11.0

SystemName: Chilled Water

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2741 uS	2200	3000
NITRITE	700 ppm	600	1200
pH	10.9 unit	10.0	11.0

SystemName: Domestic Softener

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	0 ppm/CaCO3	N/A	N/A
CONDUCTIVITY	383 uS	N/A	N/A
pH	8.5 unit	N/A	N/A

SystemName: Domestic Hot water Loop Softener
Off Line

SystemName: Cooling Tower Water

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	273 ppm/CaCO3	40	300
CONDUCTIVITY	1377 uS	1000	1400
pH	8.3 unit	N/A	N/A
M-ALK	450 ppm/CaCO3	350	400
Polymer	6 ppm	4	8

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	42 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	380 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	63 ppm/CaCO3	N/A	N/A
M-ALK	112 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	8.1 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	24.25 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Facility: Chillicothe Correctional Center (CCC)
Proposed Water Treatment Program(s)

System I.D.: Nine Aerco gas fired Modular Boilers for Hot water heating

Make-Up Water: 100% Softened

Recommendations: System is within current chemical limits and has a history of being well maintained

System I.D.: Closed systems Chilled Water)

Make-Up Water: 100% Softened

Recommendations: System is within current chemical limits and has a history of being well maintained

System I.D.: Cooling tower Water: three Carrier XRV Chillers. Cooling water treatment control consists of Mdl LCF B-2 Advantage Controller. A contacting Head water meter feeds CTT proportionally to the Make up water. With an Advantage 1.25gph pump. A Biocide and Biodispersant is fed alternately on time.

Recommendations: Hardness and Alkalinity are currently at their upper limits. History indicates that we can maintain at these limits with very little to no scale buildup in the chillers. These levels while very good at reducing chemical costs require due diligence in operation to avoid spikes. The operators at CCC have shown that they can maintain tight control .

Corrosion and scale control will be achieved using 4707 CTT. This blend of polymers and organic corrosion inhibitors will provide excellent results in Chillicothe's water. Microbiological control will use Verox 8 stabilized Chlorine Dioxide for primary bacterial control. This will be supplemented with 206 Biodispersant. The combination will achieve very clean towers with low levels of biological activity.

If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D. Domestic Hot Water

We are currently in the considering the viability of a Soft water blending system to reduce corrosion.

WATER TREATMENT PROGRAM

Facility: Chillicothe Correctional Center		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	0.18 gallons	0.5 gallons (20000 gallon contained volume in one tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Chillicothe Correctional Center		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
4704	0.4gallons	200 gallons
206 Biodispersant	0.5 gallons	20 gallons
Verox 8	.5 gallons	30 gallons
Equipment (include make, model, and quantity)		
Advantage Mdl LCF B-2 Cooling Tower Controler 3 Advantage 1.25 gph @ 110psi Chemical pumps Contacting Head Water Meter on Cooling Water Make up		
		<input checked="" type="checkbox"/> Conventional Drum

Facility: Chillicothe Correctional Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 gallon Neptune Bypass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

Facility: Chillicothe Correctional Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839		
Equipment (include make, model, and quantity)		
Neptune 5 gallon By pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

CROSSROADS CORRECTIONAL CENTER

SystemName: Chilled Water

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3000 uS	2800	3800
Iron (Fe)	0.0 ppm	0	0.5
M-ALK	880 ppm\CaCO3	500	800
NITRITE	1100 ppm	600	1000
pH	10.5 unit	9	11

SystemName: Cooling Tower

CaHardness(Ca)	225 ppm\CaCO3	40	300
CONDUCTIVITY	990 uS	1000	1400
pH	8.9 unit	N/A	N/A
M-ALK	450 ppm\CaCO3	350	400
Polymer	6 ppm	4	8

SystemName: Hot Water Boiler

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2800 uS	2800	3800
Iron (Fe)	0.0 ppm	0	0.5
M-ALK	800 ppm\CaCO3	500	800
NITRITE	900 ppm	600	1000
Softener Conductivity	370 uS	280	400
Softener Hardness	0 ppm\CaCO3	0	10

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	109 ppm\CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	288 uS	N/A	N/A
HARDNESS	144 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	33.5 ppm\CaCO3	N/A	N/A
M-ALK	131 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.025 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.47 unit	N/A	N/A
PHOSPHATE	0.170 ppm	N/A	N/A
SILICA(SiO2)	0.5 ppm	N/A	N/A
SULFATE(SO4)	20 ppm	N/A	N/A

Facility: Crossroads Correctional Center (CCC)

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

Corrosion and scale control will be achieved using 4707 CTT. This blend of polymers and organic corrosion inhibitors will provide excellent results in Cameron's water. Microbiological control will use Verox 8 stabilized Chlorine Dioxide for primary bacterial control. This will be supplemented with 206 Biodispersant. The combination will achieve very clean towers with low levels of biological activity.

Note: New towers installed. Very good level of control by on-site personnel.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid passivation of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Closed system (Non-Potable Hot)

Recommendations:

Maintain existing chemical treatment parameters, 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. System has operated without any major incidents during last contract period.

Crossroads and Western Missouri's Hot loop are connected and Maintained by Crossroads

System I.D.: Closed system (Non-Potable Chilled water)

Recommendations:

Maintain existing chemical treatment parameters, 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. System has operated without any major incidents during last contract period.

WATER TREATMENT PROGRAM

Facility: Crossroads Correctional Center		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	0.18 gallons	0.36 gallons (20000 gallons contained volume in one tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Crossroads Correctional Center		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	200 gallons
WLFT AM-2225 Biocide	0.8 gallons	20 gallons
WLFT Verox Biocide	0.4 gallons	30 gallons
Equipment (include make, model, and quantity)		
3 LMI Chemical Pumps, P141-352SI and WLFT PCS Control		
150 Gallon _____ Drumless, Bulk Storage	_____ x _____ Conventional Drum	

Facility: Crossroads Correctional Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
LMI P051-352SI Chemical Pump		
_____ 150 Gal _____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility: Crossroads Correctional Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
LMI P051-352SI Chemical Pump		
_____ x _____ Drumless, Bulk Storage	_____ Conventional Drum	

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

EASTERN RECEPTION DIAGNOSTIC CENTER

SystemName: BOILER 4

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	410 ppm\CaCO3	250	500
OH-ALK	350 ppm\CaCO3	200	400
P-ALK	380 ppm\CaCO3	250	400
POLYMER	0.40 ABS	0.3	0.6
SULFITE(SO3)	48 ppm	30	60
CONDUCTIVITY	2300 uS	2000	3000

SystemName: CLOSED LOOPS

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CHILLED LOOP NITRITE	1200 ppm	900	3000

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	20 ppm\CaCO3	30	50
pH	8.4 unit	8.2	9.5

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	10	40
M-ALK	1200 ppm\CaCO3	1100	1600
POLYMER	9.75 ppm	4	10
CONDUCTIVITY	2100 uS	1800	2200

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0
M-ALK	28 ppm\CaCO3	20	60

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	168 ppm\CaCO3	N/A	N/A
CHLORIDES	6 ppm	N/A	N/A
CONDUCTIVITY	772 uS	N/A	N/A
HARDNESS	347 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	178 ppm\CaCO3	N/A	N/A
M-ALK	260 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.48 unit	N/A	N/A
PHOSPHATE	0.125 ppm	N/A	N/A
SILICA(SiO2)	7.48 ppm	N/A	N/A
SULFATE(SO4)	55.6 ppm	N/A	N/A

Proposed Water Treatment Program(s)

530 South 5th St * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

Facility: Eastern Reception, Diagnostic and Correctional Center (ERDCC)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened

Recommendations:

- (2) Maintain existing chemical treatment parameters. ERDCCC chemical program demonstrates consistent program management, record-keeping, follow-up and equipment maintenance.
- (3) Train all ERDCC power plant personnel on WLFT computer based software (E-Service).

System I.D.: Cooling Tower

Make-Up Water: 100% Softened water

Recommendations:

- (5) Fully softened cooling tower make-up water requires excessive chemical treatment in order to compensate for natural corrosivity. Reductions in chemical requirements can be achieved by utilizing a soft/hard water blend as make-up. Ideal make-up to be in the range of 40-60 ppm total hardness. Blending a small amount of hard water into the current fully softened make-up water supply will provide an added level of corrosion protection, reduced chemical consumption, and no significant increase in water usage.
- (6) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

Soft water Blending is in the installation phase

WATER TREATMENT PROGRAM

Facility ERDCC Bonne Terre		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.36 gallons (20000 gallons contained volume total in tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: ERDCC Bonne Terre		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1495	0.3 gallons	200 gallons
Equipment (include make, model, and quantity)		
4 each Neptune Model 515 Chemical Feed Pumps		
1 each Snyder Industries Model 200 Dual Containment Tank System (200 gal cap)		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: ERDCC Bonne Terre		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	110 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump (caustic)		
1 each LMI Series A151 Chemical Feed Pump (sulfite)		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: ERDCC Bonne Terre		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	150 gallons
Equipment (include make, model, and quantity)		
1 each "Advantage" Model SLT (amine feed/direct from drum)		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: ERDCC Bonne Terre		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gallons	400 gallons
Verox-8	0.5 gallons	100 gallons
WLFT AM-66 Biocide	1.0 lbs	300 lbs
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump [Inhibitor]		
2 each Snyder Industries Series 65 Dual Containment System (65 gal cap) [Inhibitor]		
1 each LMI Series A171 Chemical Feed Pump [Biocide]		
1 each Snyder Industries Model 65 Dual Containment System (65 gal cap) [Biocide]		
1 each LMI Series A171 Chemical Feed Pump [Biocide]		
1 each Snyder Industries Model 65 Dual Containment System (65 gal cap) [Biocide]		
1 each "Brominator", 50 lb. capacity		
1 each Great Lakes/WLFT Conductivity Controller		
1 each WLFT Model "PLC-ORP" Controller [Bromine Feed Control System]		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: ERDCC Bonne Terre		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump		
1 each Snyder Industries Model 200 Dual Containment System (200 gal cap)		
[Note: 200 gallon tank will serve to supply both closed loops, hot/chilled]		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: ERDCC Bonne Terre		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Model A171 Series Chemical Feed Pump		
[Reference note under "Closed Loop Heat", Equipment: 200 gallon tank will serve to supply both closed loops, hot/chilled]		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

Farmington Community Supervision Center (OA-FMDC-DOC)
 1430 Doubet Road Farmington, MO 63640

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3050 uS	500	1000
NITRITE	1600 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
M-ALK	1080 ppm\CaCO3	N/A	N/A
pH	10.8 unit	6.5	8.5

SystemName:Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	130 ppm/CaCO3	N/A	N/A
CHLORIDES	14 ppm	N/A	N/A
CONDUCTIVITY	590 uS	N/A	N/A
HARDNESS	280 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.20 ppm	N/A	N/A
Magnesium(Mg)	168 ppm\CaCO3	N/A	N/A
M-ALK	270 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	10.5 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.1 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	10 ppm	N/A	N/A
SULFATE(SO4)	7.4 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Farmington Community Supervision Center, 1430 Doubet Rd., Farmington, MO 63640

System I.D: Three Lochinvar Hot Water Boilers rated at 399,900 BTU each

Make-Up Water: Soft

Recommendations: WLFT Closed System Treatment #893 is currently in place. Nitrite residual is well within range. Newer system well maintained; five gallon by-pass feeder functional.

WATER TREATMENT PROGRAM

Facility: Farmington Community Supervision Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	5 gallons
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____X_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

FARMINGTON CORRECTIONAL CENTER

SystemName: BOILER 2

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	560 ppm\CaCO3	250	400
OH-ALK	136 ppm\CaCO3	200	400
P-ALK	348 ppm\CaCO3	250	400
PHOSPHATE	45 ppm	20	40
SULFITE(SO3)	48 ppm	30	60
CONDUCTIVITY	4500 uS	4000	5000

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
M-ALK	24 ppm\CaCO3	5	25
CONDUCTIVITY	285 uS	100	200

SystemName: CONDENSATE North/South

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0/0 ppm/CaCO3	0	0
Iron (Fe)	0.1/0.15 ppm	0	0.5
M-ALK	28/36 ppm\CaCO3	30	50
pH	9.1/9.0 unit	8.2	9.5
CONDUCTIVITY	45/57 uS	20	80

SystemName: COOLING TOWER

HARDNESS	300 ppm/CaCO3	200	500
Iron (Fe)	0.1/0.15 ppm	0	0.5
M-ALK	360 ppm\CaCO3	300	500
pH	9.1/9.0 unit	8.2	9.5
CONDUCTIVITY	1300 uS	1000	1600

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	130 ppm/CaCO3	N/A	N/A
CHLORIDES	14 ppm	N/A	N/A
CONDUCTIVITY	590 uS	N/A	N/A
HARDNESS	280 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.20 ppm	N/A	N/A
Magnesium(Mg)	168 ppm\CaCO3	N/A	N/A
M-ALK	270 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	10.5 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.1 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	10 ppm	N/A	N/A
SULFATE(SO4)	7.4 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Farmington Correctional Center (FCC)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened/Dealkalized

Recommendations:

- (1) Maintain existing chemical treatment parameters. FCC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.

Installation of a Reverse Osmosis unit to supply boiler feedwater will dramatically reduce fuel and chemical consumption while improving steam quality.

System I.D.: Cooling Tower (25 House)

Make-Up Water: 100% hard water

Recommendations:

- (1) Maintain existing chemical treatment parameters. FCC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.
- (2) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: FCC Farmington		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	0.18 gallons	0.81 gallons (45000 gallons contained volume in three tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum



Facility: FCC Farmington		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT LC25	0.45 gallons	3500 gallons
WLFT 1450	0.3 gallons	650 gallons
Equipment (include make, model, and quantity)		
Qty 2 LMI Chemical Pumps P141-352SI		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: FCC Farmington		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	200 gallons
Equipment		
LMI P131-392SI Chemical Feed Pump, Qty = 1		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: FCC Farmington		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	150 gallons
Equipment		
LMI P131-392SI Chemical Feed Pump, Qty = 1		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: FCC Farmington		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	400 gallons
WLFT Verox-8	0.8 gallons	50 gallons
WLFT-206	1.5 gallons	20 gallons
Equipment (include make, model, and quantity)		
Pulsatrol MVS1PF-XXX Control 3- PulaFeeder 1 GPH pumps		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: FCC Farmington		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839		
Equipment: Wingert Model 2HD By Pass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: FCC Farmington		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839		
Equipment		
Wingert Model 2HD By Pass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: FCC Farmington		
DEALKALIZER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT LC25	0.45 gallons	500 gallons
Equipment		
LMI P131 Chemical Feed Pump, Qty = 1		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
FULTON RECEPTION DIAGNOSTIC CENTER – FRDC

SystemName: Hot Water Boiler

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1232 uS	2200	3000
Iron (Fe)	0.0 ppm	0	0.5
NITRITE	1000 ppm	800	1200
pH	10.7 unit	10.0	11.0
P-ALK	600 ppm\CaCO3	200	500
M-ALK	1000 ppm\CaCO3	500	1000

SystemName: Chilled Water – 20 house

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2800 uS	2200	3000
Iron (Fe)	0.0 ppm	0	0.5
NITRITE	1150 ppm	800	1200
pH	10.9 unit	10.0	11.0
P-ALK	350 ppm\CaCO3	200	500
M-ALK	890 ppm\CaCO3	500	1000

SystemName: Softener System

PROCEDURE	Result:	LoLimit:	HiLimit:
#1 Hardness	0 ppm\CaCO3	N/A	N/A
#2 Hardness	0 ppm\CaCO3		
#3 Hardness	0 ppm\CaCO3		
#4 Hardness	0 ppm\CaCO3		

SystemName: Cooling Tower Water – chillers offline during site visit.

SystemName: Chilled Water

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2000 uS	2800	3800
Iron (Fe)	0.0 ppm	0	0.5
M-ALK	880 ppm\CaCO3	500	800
NITRITE	1800 ppm	600	1200
pH	11 unit	9	11

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Section 3.7.3 – Proposed Water Treatment Program(s)

Facility: Fulton Receiving & Diagnostic Center (FRDC)

System I.D.: Cooling Tower

Make-Up Water: Soft/Hard water blend (100-130 ppm range)

- (1) Recommendations: Cooling tower/chiller/closed loop – all well maintained by FRDC personnel. Recommend maintaining existing parameters for chemical protection. Frequent cleaning (power-washing) of exterior Delta Cooling tower recommended as per influx of airborne contaminants.
- (2) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I. D.: Hot Water Boilers

1. Hot water boilers are well maintained by FRDC personnel. Recommend maintaining existing parameters for chemical protection (nitrite program).
2. Maintain frequent (scheduled) dosage of AM-50 microbiocide to closed loops to offset periodic biological growth.

WATER TREATMENT PROGRAM

Facility: FRDC Fulton		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	1.8 gallons	3.6 gallons (20000 gallons contained volume in three tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

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Facility: FRDC Fulton		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	50 gallons
WLFT AM-66	1.0 lb	100 lbs
WLFT AM-714	1.5 gallons	25 gallons
Equipment (include make, model, and quantity)		
1 each WLFT PCS Cooling Tower Controller 3 each LMI Series A151 Chemical Feed Pumps 1 each "Brominator", 50 lb. capacity		
_____ Drumless, Bulk Storage	_____ x	_____ Conventional Drum

Facility: FRDC Fulton		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
AM50 Microbiocide	Periodic as scheduled Typical: 1 pint/3 weeks	30 gallons
Equipment (include make, model, and quantity)		
1 each Snyder Model 200 Dual Containment System (200 gal cap) 1 each LMI Series A171 Chemical Feed pump		
X Drumless, Bulk Storage	_____ x	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

HANNIBAL COMMUNITY SUPERVISORY CENTER

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2700 uS	2200	3000
Iron (Fe)	0.1 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	90 ppm/CaCO3	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
M-ALK	160 ppm\CaCO3	N/A	N/A
pH	8.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
Ca Hardness(Ca)	192 ppm\CaCO3	N/A	N/A
CHLORIDES	24 ppm	N/A	N/A
CONDUCTIVITY	585 uS	N/A	N/A
HARDNESS	278 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	82 ppm\CaCO3	N/A	N/A
M-ALK	176 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.8 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	24.25 ppm	N/A	N/A
SULFATE(SO4)	97.2 ppm	N/A	N/A
SODIUM	10 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Hannibal Community supervisory Center

System I.D.: Three RayPak 300,000BTU Hot Water Boilers. Boiler are tied together and staged as load requires. Hot water temperature is approximately 150 degrees F

Make-Up Water: 100% Softened. Twin Marlow Parallel operation

Recommendations:

- (1) Nitrite residual of 1000 ppm is adequately maintained via WLFT #839.

WATER TREATMENT PROGRAM

Facility: Hannibal Community Supervisory Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

JEFFERSON CITY CORRECTIONAL CENTER

SystemName: BOILER 4

PROCEDURE	Result:	LoLimit:	HiLimit:
M-ALK	740 ppm\CaCO3	500	700
OH-ALK	660 ppm\CaCO3300	700	
P-ALK	700 ppm\CaCO3	400	600
ABS	.287 ppm	.180	.350
SULFITE(SO3)	38 ppm	20	40
CONDUCTIVITY	2800 uS	1800	3000

SystemName: CLOSED LOOPS

PROCEDURE	Result:	LoLimit:	HiLimit:
CHILLED LOOP NITRITE	900 ppm	800	1200

SystemName: CONDENSATE

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	20 ppm\CaCO3	30	50
pH	8.8 unit	8.2	9.5

SystemName: COOLING TOWER

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	900 ppm\CaCO3	900	1050
M-ALK	280 ppm\CaCO3	200	300
POLYMER	0.30 abs	0.26	0.55
CONDUCTIVITY	1760 uS	1700	2000

SystemName: FEEDWATER

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0
M-ALK	28 ppm\CaCO3	20	60

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	67 ppm\CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm\CaCO3	N/A	N/A
M-ALK	49 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SiO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)
Facility: Jefferson City Correctional Center (JCCC)
System I.D.: Steam Boilers
Make-Up Water: 100% Softened
Recommendations:

- (2) Maintain existing chemical treatment parameters, as per instructions by DOC staff. JCCC chemical program will be developed by DOC, by original startup requirements.
- (3) Train all JCCC power plant personnel on WLFT computer based software.

Considering the size and length of runs encompassed in this steam system (Algoa and Ameresco) removal of the carbonates from the feed water would be a big step in reducing corrosion in the steam system. Installation of a Reverse Osmosis unit to supply boiler feedwater will dramatically reduce fuel and chemical consumption while eliminating carbonates thus improving steam quality. WLFT representatives will be happy to discuss the specifics of this option at the facility's convenience.

System I.D.: Cooling Tower
Make-Up Water: In the process of converting the make up water to 50% hard, 50% soft
Recommendations:

Maintain original chemical treatment parameters, as per instructions by DOC staff. Tower water program will be developed by DOC staff during original start-up. 50/50 hard/soft cooling tower make-up water requires excessive chemical treatment in order to compensate for natural corrosiveness. Reduction in chemical requirements will be achieved by utilizing the soft/hard water blend as make-up. Blending a small amount of hard water into the current fully softened make-up water supply will provide an added level of corrosion protection, reduced chemical consumption, and no significant increase in water usage.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Water Softeners: Domestic, Boiler, Kitchen/Laundry
Make-Up Water: Raw water from city

- Recommendations:
- (1) Establish softener runs and monitor for maximum gallons before leak-through.

WATER TREATMENT PROGRAM

Facility: JCCC		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer (35000 gallons contained)	0.18 gallons volume total in two tanks	0.63 gallons
Equipment No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		

Facility: JCCC		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1495	0.3 gallons	300 gallons
Equipment (include make, model, and quantity)		
1 each – Snyder polyethylene 200 gallon dual containment bulk tank		
1 each – Neptune #515 chemical feed system		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: JCCC		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	150 gallons
Equipment (include make, model, and quantity)		
1 each Snyder polyethylene 200 gallon dual containment bulk tank		
1 each Neptune #515 chemical feed system		

Facility: JCCC		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	500 gallons
Equipment (include make, model, and quantity)		
1 each Snyder polyethylene 200 gallon dual containment bulk tank		
1 each Neptune #515 chemical feed system		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: JCCC		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gallons	400 gallons
WLFT 206	0.5 gallons	30 gallons
WLFT AM-66 Biocide	1.0 lbs	200 lbs
Equipment (include make, model, and quantity)		
1 each Advantage Nano Conductivity Controllers		
3 each LMI A-151-192-T chemical pump for inhibitor & biocide feeds (from drum due to space limitations)		
1 each "Brominator", 50 lb. capacity		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum
Facility: JCCC		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI chemical feed pump A171		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Model A171 Series Chemical Feed Pump		
[Reference note under "Closed Loop Heat", Equipment: 200 gallon tank will serve to supply both closed loops, hot/chilled]		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Kansas City Community Release Center

No systems to treat

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

CSC – Kennett Community Supervision Center

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1800 uS	500	6000
NITRITE	950 ppm	900	3000
M-ALK	920 ppm\CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2500 uS	2200	3000
NITRITE	1000 ppm	900	3000
M-ALK	720 ppm\CaCO3	N/A	N/A
pH	9.2 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	280 ppm\CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	550 uS	N/A	N/A
HARDNESS	200 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	40 ppm\CaCO3	N/A	N/A
M-ALK	288 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	26 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	9 ppm	N/A	N/A
SULFATE(SO4)	0 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: CSC, Community Supervision Center, Kennett

System I.D.: 3 – Knight hot water heaters, 20 hp each.

Make-Up Water: City water Make up Soft

Recommendations: Maintain chemical treatment parameters at 900+ ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System I.D.: Chilled Water Closed Loop

Make-up Water: City water, make-up is soft

Recommendations:

Chilled water currently within proper nitrite range .

WATER TREATMENT PROGRAM

Facility: CSC – Kennett Community Supervision Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
By-Pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

Facility: CSC – Kennett Community Supervision Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment A by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
MARYVILLE TREATMENT CENTER

SystemName: Bldg 2 Closed Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2700 uS	2500	3800
NITRITE	1350 ppm	900	1000
Glycol	14 %		

SystemName: Building 4 Boiler

PROCEDURE	Result:	LoLimit:	HiLimit:
Buffered Conductivity	2600 uS	2000	3000
East Condensate Conductivity	50 uS	8	100
East Condensate pH	8.2 unit	8.2	9
Feedwater Conductivity	72 uS	10	100
Feedwater Iron	0.1 mg/l	0	0.5
Feedwater pH	8.64 unit	8	9
Iron (Fe)	0.2 ppm	0	1.5
M-ALK	600 ppm\CaCO3	500	800
P-ALK	450 ppm\CaCO3	500	700
OH-ALK	300 ppm\CaCO3	500	700
Phosphate	44 ppm	20	60
Sulfite	42 ppm	20	60

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	80 ppm\CaCO3	N/A	N/A
CHLORIDES	1 ppm	N/A	N/A
CONDUCTIVITY	330 uS	N/A	N/A
HARDNESS	110 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.20 ppm	N/A	N/A
Magnesium(Mg)	46 ppm\CaCO3	N/A	N/A
M-ALK	125 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	20.25 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	8.3 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	1.6 ppm	N/A	N/A
SULFATE(SO4)	20.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Maryville Treatment Center (MTC)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened

Recommendations:

- Maintain existing chemical treatment parameters. MTC chemical program demonstrates consistent program management, record-keeping, follow-up and equipment maintenance.

System I.D.: Closed systems (Non-Potable Hot)

Make-Up Water: 100% Softened

Recommendations:

- Maintain existing chemical treatment parameters, 800-1000 mg/l as nitrite (NO₃) to provide maximum corrosion inhibition and protection against metal loss.

WATER TREATMENT PROGRAM

Facility: Maryville Treatment Center		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.52 gallons
		(2860 gallons contained volume total in five tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Maryville Treatment Center (Building 4)		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 592L	0.033 gallon	200 gallons
WLFT 1460	0.4 gallon	15
WLFT 1535	0.4 gallon	15
WLFT LC-25	0.4 gallon	5
Equipment (include make, model, and quantity)		
3 LMI P141-352SI Chemical Pumps /Manual Control		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Maryville Treatment Center (Building #2)		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT # 839	40 gallons	
Equipment (include make, model, and quantity) None—Fed by 2 Gallon Generic Bypass feeders		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

MISSOURI EASTERN CORRECTIONAL CENTER

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	264 ppm/CaCO3	N/A	N/A
CHLORIDES	18 ppm	N/A	N/A
CONDUCTIVITY	580 uS	N/A	N/A
HARDNESS	296 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	32 ppm/CaCO3	N/A	N/A
M-ALK	300 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	14.25 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	6.9 unit	N/A	N/A
PHOSPHATE	0.15 ppm	N/A	N/A
SILICA(SiO2)	8.25 ppm	N/A	N/A
SULFATE(SO4)	10 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Eastern Correctional Center (MECC)

System I.D.: Domestic Water Supply - Chlorination

Recommendations:

1. Maintain existing chemical treatment parameters. Sodium hypochlorite chemical injection in place; chorine residual 1-2 ppm.

WATER TREATMENT PROGRAM

Facility: MECC Pacific		
DOMESTIC WATER SYSTEM		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
IMCA-10		
_____	Drumless, Bulk Storage	_____
_____	Conventional Drum	_____

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
MOBERLY CORRECTIONAL CENTER

SystemName: COOLING TOWER-ADMIN BLDG

HARDNESS	360	ppm\CaCO3	300	600
M-ALK	300	ppm\CaCO3	300	600
POLYMER	6	ppm	4	8
CONDUCTIVITY	1430	uS	1000	1200

SystemName: COOLING TOWER "POWERPLANT"

<i>PROCEDURE</i>	<i>Result:</i>		<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	240	ppm\CaCO3	300	600
M-ALK	320	ppm\CaCO3	300	600
POLYMER	7	ppm	4	8
CONDUCTIVITY	1380	uS	1000	1200

SystemName: COOLING TOWER "ICE MACHINE"

<i>PROCEDURE</i>	<i>Result:</i>		<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	300	ppm\CaCO3	300	600
M-ALK	320	ppm\CaCO3	300	600
POLYMER	4	ppm	4	8
CONDUCTIVITY	1100	uS	1000	1200

SystemName: HWB SYSTEM

<i>PROCEDURE</i>	<i>Result:</i>		<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0	ppm\CaCO3	0	0
HWS NITRITE	920	ppm	900	3000
M-ALK	800	ppm\CaCO3	500	1000
Softener Hardness	0	ppm\CaCO3	0	0
STORAGE NITRITE	850	ppm	750	1000

SystemName: LAUNDRY BOILER 1

Note: Boiler 2 in "standby" (sulfite 300 ppm, M alk900 ppm)

<i>PROCEDURE</i>	<i>Result:</i>		<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	720	ppm\CaCO3	500	800
OH-ALK	280	ppm\CaCO3	200	400
P-ALK	500	ppm\CaCO3	400	800
PHOSPHATE	40	ppm	20	40
SULFITE(SO3)	48	ppm	30	60
CONDUCTIVITY	2250	uS	2000	2500

CONDENSATE
HARDNESS = 0.00 PPM
CONDUCTIVITY = 40 MICROMHOS
M-ALKALINITY = 30 PPM
PH = 8.6
FE = 0.00 PPM

SystemName: FEEDWATER – LAUNDRY

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm/CaCO3	0	0
CONDUCTIVITY	140 ppm	50	200
M-ALK	50 ppm\CaCO3	20	200
IRON	0 ppm\CaCO3	0	0

SystemName: CLOSED LOOPS – MISC

LOCATION	NITRITE	TDS	H
HOUSING #1	950	2120	0
HOUSING #2	980	2440	0
HOUSING #3	1100	2080	0
HOUSING #4	980	2100	0
SCHOOL	1000	2208	0
ACTIVITIES	900	2050	0
SIGN SHOP	11000	2140	0
METAL PLANT	1050	2020	0

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	122 ppm/CaCO3	N/A	N/A
CHLORIDES	42 ppm	N/A	N/A
CONDUCTIVITY	410 uS	N/A	N/A
HARDNESS	148 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.020 ppm	N/A	N/A
Magnesium(Mg)	25 ppm/CaCO3	N/A	N/A
M-ALK	124 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.05 ppm	N/A	N/A
SILICA(SiO2)	3 ppm	N/A	N/A
SULFATE(SO4)	10 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Moberly Correctional Center (MCC)

System I.D.: Steam Boiler/Laundry

Make-Up Water: 100% Softened

Recommendations:

1. Maintain existing chemical treatment parameters. MCC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.

System I.D.: Cooling Towers (Power Plant/Administration Bldg/Ice Production)

Make-Up Water: Power plant (Hard/Soft Blend); All others - 100% hard water.

Recommendations:

1. Recommend duplicating the Power Plant hard/soft blended make-up water supply for Administration and Ice Production cooling towers. Ideal make-up to be in the range of 40-60 ppm total hardness as make-up. Reduction in make-up water total hardness will allow for significant water savings, reduced chemical consumption, and adequate scale/corrosion protection.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Power Plant Hot Water Boilers

Make-Up Water: 100% Softened

Recommendations:

- (1) Maintain existing treatment parameters. MCC chemical program demonstrates consistent program management, recordkeeping, follow-up, and equipment maintenance.

WATER TREATMENT PROGRAM

Facility: MCC Moberly		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.72 gallons (40000 gallons contained volume total in two tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MCC Moberly		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	110 gallons
Equipment		
LMI P131 Series Chemical Feed Pump, Qty = 1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MCC Moberly		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	110 gallons
Equipment		
LMI P131 Chemical Feed Pump, Qty = 1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MCC Moberly		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	110 gallons
Equipment		
LMI P131 Chemical Feed Pump, Qty = 1		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: MCC Moberly Powerplant		
COOLING TOWERS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4714	0.6 gallons	100 gallons
WLFT Verox-8	0.8 gallons	15 gallons
WLFT 206	1.5 gallons	10 gallons
Equipment		
WLFT PLC Series Controller		
Advantage Microton B130 Chemical Feed Pump, Qty = 3		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: MCC Moberly		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment		
LMI P131 Chemical Feed Pump, Qty = 1		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: MCC Moberly – Administration Building		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment		
Wingert Model 2HD By Pass Feeder		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

NORTH EAST CORRECTIONAL CENTER

SystemName: DOMESTIC SOFTENER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0

SystemName: HOT WATER BOILER (before suspension of treatment)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
HWS NITRITE	550 ppm	500	600
M-ALK	650 ppm/CaCO3	500	2000
TDS	1500 uS	1000	2000

SystemName: HOT WATER BOILER (after suspension of treatment)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
HWS NITRITE	0 ppm	500	600
M-ALK	350 ppm/CaCO3	500	2000
TDS	900 uS	1000	2000

SystemName: HWB SOFTENER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	92 ppm/CaCO3	N/A	N/A
CHLORIDES	10 ppm	N/A	N/A
CONDUCTIVITY	300 uS	N/A	N/A
HARDNESS	120 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.025 ppm	N/A	N/A
Magnesium(Mg)	28 ppm/CaCO3	N/A	N/A
M-ALK	90 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	14.8 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.4 unit	N/A	N/A
PHOSPHATE	0.4 ppm	N/A	N/A
SILICA(SiO2)	7 ppm	N/A	N/A
SULFATE(SO4)	27.5 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D.: Hot Water Boilers

Make-Up Water: 100% Softened

Recommendations:

- (1) Water losses occurring in this system have resulted in the state deeming that chemical treatment for the system is cost prohibitive at this point
- (2) Published results above are from an earlier service report when treatment program was active

WATER TREATMENT PROGRAM

Facility: NECC Bowling Green		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump		
1 each Snyder Industries Model 200 Dual Containment System (200 gal cap)		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
OZARK CORRECTIONAL CENTER

SystemName: BOILER 1

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	800 ppm\CaCO3	400	800
OH-ALK	340 ppm\CaCO3	200	400
P-ALK	660 ppm\CaCO3	400	800
PHOSPHATE	32 ppm	20	40
SULFITE(SO3)	36 ppm	30	60
TDS	2100 uS	2000	3000

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0.1 ppm	0	0.5
M-ALK	60 ppm\CaCO3	30	50
pH	8.8 unit	8.2	9.5
TDS	180 uS	20	80

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
M-ALK	80 ppm\CaCO3	5	25
TDS	120 uS	100	200

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	110 ppm/CaCO3	N/A	N/A
CHLORIDES	3.73 ppm	N/A	N/A
CONDUCTIVITY	420 uS	N/A	N/A
HARDNESS	194 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.0025 ppm	N/A	N/A
Magnesium(Mg)	31.2 ppm/CaCO3	N/A	N/A
M-ALK	220 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0.85 ppm	N/A	N/A
pH	7.62 unit	N/A	N/A
PHOSPHATE	0.125 ppm	N/A	N/A
SILICA(SiO2)	7.75 ppm	N/A	N/A
SULFATE(SO4)	11.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Ozark Correctional Center (OCC)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened

Recommendations:

1. Maintain existing treatment parameters. OCC chemical program demonstrates consistent program management, recordkeeping, follow-up, and equipment maintenance. This facility has had significant condensate loss in the past. However staff has made great strides in identifying and addressing the problem areas.

2. Replacing underground steam system with above ground one will improve system efficiency and reduce chemical costs

WATER TREATMENT PROGRAM

Facility: OCC Fordland		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	1.8 gallons	0.36 gallons
		(20000 gallons contained volume total in two tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: OCC Fordland		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1460	0.4 gallons	110 gallons
Equipment (include make, model, and quantity)		
1 each Snyder Model 165 Dual Containment System (165 gal cap ea) [Inhibitor]		
1 each LMI Series A151 Chemical Feed Pump		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: OCC Fordland		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	110 gallons
Equipment (include make, model, and quantity)		
1 each Snyder Model 165 Dual Containment System (165 gal cap) [sulfite]		
1 each LMI Series A171 Chemical Feed Pump		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: OCC Fordland		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	110 gallons
Equipment (include make, model, and quantity)		
1 each Snyder Model 165 Dual Containment System (165 gal cap ea)		
1 each LMI Series A171 Chemical Feed Pump		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

CSC – Poplar Bluff Community Supervision Center

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1930 uS	500	6000
NITRITE	900 ppm	800	1200
HARDNESS	100 ppm\CaCO3	N/A	N/A
M-ALK	650 ppm\CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2300 uS	2200	3000
NITRITE	1200 ppm	800	1200
M-ALK	600 ppm\CaCO3	N/A	N/A
pH	9.9 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	280 ppm\CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	550 uS	N/A	N/A
HARDNESS	200 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	40 ppm\CaCO3	N/A	N/A
M-ALK	288 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	26 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	9 ppm	N/A	N/A
SULFATE(SO4)	0 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: CSC, Community Supervision Center, Poplar Bluff

System I.D.: 3 – Knight hot water heaters, 20 hp each.

Make-Up Water: City water Make up Soft

Recommendations: Maintain chemical treatment parameters at 900+ ppm of Nitrite.

System I.D.: Chilled Water Closed Loop

Make-Up Water: City water Make up Soft

Recommendations:

Chilled water is well maintained using nitrite corrosion inhibitor WLFT #839.

WATER TREATMENT PROGRAM

Facility: CSC – Poplar Bluff Community Supervision Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 gal Generic by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: CSC – Poplar Bluff Community Supervision Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 gal Generic by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
POTOSI CORRECTIONAL CENTER

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	20 ppm\CaCO3	50	100
M-ALK	320 ppm\CaCO3	300	600
POLYMER	5 ppm	4	8
CONDUCTIVITY	1600 uS	1200	1800

SystemName: CLOSED CHILLED LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	1050 ppm\CaCO3	60	2000
NITRITE	1200 ppm\CaCO3	800	1200
CONDUCTIVITY	1000 u mhos	500	

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0.05
M-ALK	76 ppm\CaCO3	40	80
CONDUCTIVITY	120 uS	50	150

SystemName: STEAM BOILER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	780 ppm\CaCO3	400	800
OH-ALK	500 ppm\CaCO3	200	400
P-ALK	640 ppm\CaCO3	400	800
PHOSPHATE	32 ppm	20	40
SULFITE(SO3)	40 ppm	30	60
CONDUCTIVITY	2200 uS	2000	2500

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	0	0
CONDUCTIVITY	60 ppm	50	200
M-ALK	50 ppm\CaCO3	20	200
IRON	0 ppm\CaCO3	0	0
Ph	8.6 pH	8.0	9.2

SystemName: CLOSED HEATING LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	900 ppm\CaCO3	60	2000
NITRITE	1050 ppm\CaCO3	900	1500
CONDUCTIVITY	980 u mhos	500	

SystemName: RAW WATER SUPPLY

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	104 ppm/CaCO3	N/A	N/A
CHLORIDES	10 ppm	N/A	N/A
CONDUCTIVITY	440 uS	N/A	N/A
HARDNESS	220 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.075 ppm	N/A	N/A
Magnesium(Mg)	116 ppm/CaCO3	N/A	N/A
M-ALK	202 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	16.75 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SILICA(SiO2)	80 ppm	N/A	N/A
SULFATE(SO4)	15 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Potosi Correctional Center (PCC)

System I.D.: Steam Boiler

Make-Up Water: 100% Softened

Recommendations:

1. Maintain existing chemical treatment parameters. PCC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.

System I.D.: Cooling Tower

Make-Up Water: 100% Softened water

Recommendations:

1. Long term: introduce a hard/soft water blend as cooling tower make-up. Ideal make-up to be in the range of 40-60 ppm total hardness. Blending a small amount of hard water into the current fully softened make-up water supply will provide an added level of corrosion protection, reduced chemical consumption, and no significant increase in water usage.
2. If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: PCC Potosi		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	1.8 gallons	0.54 gallons (30000 gallons contained volume total in two tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: PCC Potosi		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1460	0.4 gallons	100 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump		
1 each Snyder Industries Model 125 Dual Containment Tank System (125 gal cap)		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: PCC Potosi		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	50 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump		
1 each Snyder Industries Model 125 Dual Tank Containment System (125 gal cap)		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: PCC Potosi		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1565	0.4 gallons	150 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump		
1 each Snyder Industries Model 125 Dual Containment System (125 gal cap).		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: PCC Potosi		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gallons	125 gallons
AM-66	1.0 lbs	150 lbs
WLFT 206	.5 gallon	15 gallon
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump (Inhibitor)		
1 each LMI Series A171 Chemical Feed Pump (Biocide)		
1 each LMI Series DC4500 Conductivity Controller		
1 each Snyder Model 165 Dual Containment System (165 gal cap)		
1 each Bromine feed system, 50 lb capacity		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: PCC Potosi		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 gallon Generic Bypass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: PCC Potosi		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 gallon Generic Bypass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

SOUTH CENTRAL CORRECTIONAL CENTER

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
Iron (Fe)	0 ppm	0	0
M-ALK	200 ppm\CaCO3	50	100
pH	8.8 unit	8.2	9.5
CONDUCTIVITY	200 uS	50	100

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
BROMINE	5 mg/l	1	2
CHILLED LOOP NITRITE	1200 ppm	800	1200
HARDNESS	10 ppm\CaCO3	20	50
HW& NITRITE	1200 ppm	800	1200
M-ALK	1200 ppm\CaCO3	500	1200
POLYMER	10 ppm	4	8
CONDUCTIVITY	2200 uS	2100	2300

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm\CaCO3	0	0
Iron (Fe)	0 ppm	0	0
M-ALK	240 ppm\CaCO3	100	250
SOFTENER HARDNESS	0 ppm\CaCO3	0	0
CONDUCTIVITY	265 uS	200	300

SystemName: LAUNDRY BOILER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	950 ppm\CaCO3	500	900
OH-ALK	550 ppm\CaCO3	200	400
P-ALK	750 ppm\CaCO3	400	800
PHOSPHATE	26 ppm	20	40
SULFITE(SO3)	60 ppm	30	60
CONDUCTIVITY	1250 uS	1400	1600

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	127 ppm\CaCO3	N/A	N/A
CHLORIDES	2 ppm	N/A	N/A
CONDUCTIVITY	409 uS	N/A	N/A
HARDNESS	242 ppm\CaCO3	N/A	N/A
Iron (Fe)	16 ppm	N/A	N/A
Magnesium(Mg)	115 ppm\CaCO3	N/A	N/A
M-ALK	237 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.56 ppm	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.15 ppm	N/A	N/A
SILICA(SiO2)	7.1 ppm	N/A	N/A
SULFATE(SO4)	0 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: South Central Correctional Center (SCCC)

System I.D.: Steam Boiler (Laundry)

Make-Up Water: 100% Softened

Recommendations:

- (1) Maintain existing chemical treatment parameters. SCCC chemical program demonstrates consistent program management, record-keeping, follow-up and equipment maintenance.
- (2) Investigate steam /condensate system for potential contamination. Possible heat exchanger and/or steam trap failure producing contaminants in condensate water.
- (3) Train all SCCC power plant personnel on WLFT computer based software (WLFT E-Service).
- (4) Bulk tank application not recommended for this system due to accessibility and space issues.

System I.D.: Cooling Tower

Make-Up Water: 100% Softened water

Recommendations:

- (5) Provide a partial blend of hard/softened water as cooling tower make-up. Ideal make-up to be in the range of 40-60 ppm total hardness. Blending a small amount of hard water into the current fully softened make-up water supply will provide an added level of corrosion protection, reduced chemical consumption, and no significant increase in water usage.
- (6) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: SCCC Licking		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	0.18 gallons	0.4 gallons (20500 gallons contained volume in two tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: SCCC Licking		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	15 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SCCC Licking		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	30 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SCCC Licking		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	30 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SCCC Licking		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gallons	250 gallons
WLFT AM-66 biocide	1.0 lb	200 lbs
WLFT 206	.5 Gallon	15 gslon
Equipment (include make, model, and quantity)		
1each LMI Series A171 Chemical Feed Pump (Inhibitor)		
1each LMI Series A171 Chemical Feed Pump (Biocide/direct from drum)		
1each WLFT PCS Conductivity Controller		
1 each "Brominator", 50 lb. capacity		
1 each Snyder Model 200 Dual Containment System (200 gal cap)		
_____ x _____	Drumless, Bulk Storage	_____ x _____
		Conventional Drum

Facility: SCCC Licking		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 Gallon Generic By-pass feeder		
_____ x _____	Drumless, Bulk Storage	_____ x _____
		Conventional Drum

Facility: SCCC Licking		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 Gallon Generic By-pass feeder		
_____ x _____	Drumless, Bulk Storage	_____ x _____
		Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
SOUTH EAST CORRECTIONAL
SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
BROMINE	1.5 mg/l	1	2
CHILLED LOOP NITRITE	1100 ppm	900	3000
HARDNESS	5 ppm/CaCO3	10	50
M-ALK	850 ppm/CaCO3	400	1000
POLYMER	8 ppm	4	8
CONDUCTIVITY	1500 uS	1400	1600

SystemName: CLOSED CHILLED LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	850 ppm/CaCO3	60	2000
NITRITE	1300 ppm/CaCO3	800	1200
CONDUCTIVITY	1000 u mhos	500	

SystemName: CLOSED HEATING LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	800 ppm/CaCO3	60	2000
NITRITE	950 ppm/CaCO3	800	1200
CONDUCTIVITY	1080 u mhos	500	

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	64 ppm/CaCO3	N/A	N/A
CHLORIDES	8 ppm	N/A	N/A
CONDUCTIVITY	210 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	36 ppm/CaCO3	N/A	N/A
M-ALK	106 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	9.25 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.2 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	15.25 ppm	N/A	N/A
SULFATE(SO4)	0 ppm	N/A	N/A

Proposed Water Treatment Program (s)

Facility: South East Correctional Center (SECC)

System I.D.: Cooling Tower/Condenser Water

Make-up Water: 100% Softened.

Major Recommendations:

Provide a "blended" hard/softened make-up water supply. Maintain a total hardness (H) concentration of no less than 30ppm and no greater than 100 ppm in the cooling tower water. Existing make-up water (softened) requires an increase in chemical treatment to compensate for the corrosive nature of fully softened make-up water.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D. Closed Water Systems

Make-up Water: 100% Softened

Major Recommendations:

- (1) Chilled & hot water loops: No recommended changes in service, maintenance procedures, or chemical program.

WATER TREATMENT PROGRAM

Facility: SECC Charleston		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/ Stabilizer	1.8 gallons	0.5 gallons (20000 gallon contained volume in one tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SECC Charleston		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351 Cooling Trtmt.	0.4 gallons	200 gallons
WLFT AM-66 Biocide	1.0 lbs	300 lbs
WLFT 206 Biodispersant	0.125	15 gallons
Equipment (include make, model, and quantity)		
1 each Snyder Model 200 Dual Containment System (200 gal cap)		
1 each LMI Series A171 Chemical Feed Pump (inhibitor)		
1 each LMI Series A171 Chemical Feed Pump (biocide/direct from drum)		
_____ x _____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SECC Charleston		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump		
1 each Snyder Industries Model 125 Dual Containment System (125 gal cap)		
[Note: 125 gallon bulk tank to be used for hot and chilled loop chemical storage]		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: SECC Charleston		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
* See note below		
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump		
[Note: See note under "Closed Loop Heat" – Equipment: 1 each Snyder Industries Model 125 Dual Containment System (125 gal cap) – utilized for both hot and chilled closed loops]		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

ST. LOUIS COMMUNITY SUPERVISION CENTER

SystemName: CLOSED LOOPS

PROCEDURE

	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CHILLED LOOP NITRITE	1200 ppm	800	1200
HWS NITRITE	1000 ppm	800	1200

*SystemName:*Raw Water Supply

PROCEDURE

	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

Water Analysis, Systems & Make-up (raw water).

Proposed Water Treatment Program(s)

System I. D.: Hot Water Boilers/Closed Loops

Make-Up Water: City of St. Louis

Recommendations:

- (1) All closed loops are well maintained by SLCRC personnel. Recommend maintaining existing parameters for chemical protection (nitrite program).

WATER TREATMENT PROGRAM

Facility: SLCRC St. Louis		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT #839	10 gallons	
Equipment (include make, model, and quantity)		
2 gallon Generic Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: SLCRC St. Louis		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	10 gallons	
Equipment (include make, model, and quantity)		
2 gallon Generic Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

St. Joseph Community Supervision Center

System Name: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3400 uS	2200	3000
NITRITE	960 ppm	800	1000
M-ALK	490 ppm\CaCO3	N/A	N/A
pH	10.6 unit	N/A	N/A

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm\CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm\CaCO3	N/A	N/A
M-ALK	150 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D: Two Hot Water Boilers. Boiler are tied together and staged as load requires.

Hot water temperature is approximately 150 degrees F

Make-Up Water: City Water

Recommendations: The chemical levels in the system are within range. Continue Current Levels of treatment

WATER TREATMENT PROGRAM

Facility: St. Joseph Community Supervision Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
TIPTON CORRECTIONAL CENTER

SystemName: BOILER #2

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	600 ppm/CaCO3	500	900
P-ALK	450	400	800
OH ALK	450 ppm/CaCO3	400	800
PHOSPHATE	34 ppm	20	40
Softener Hardness	0 ppm/CaCO3	0	0
SULFITE(SO3)	60 ppm	30	60
CONDUCTIVITY	2000 uS	1800	2200

SystemName: BOILER #3

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	800 ppm/CaCO3	500	900
OH-ALK	320 ppm/CaCO3	200	400
P-ALK	560 ppm/CaCO3	400	800
PHOSPHATE	28 ppm	20	40
SOFTENER HARDNESS	0 ppm/CaCO3	0	0
SULFITE(SO3)	55 ppm	30	60
CONDUCTIVITY	2145 uS	1800	2200

SystemName: Condensate

COND IRON	0 ppm	0	0
COND M ALKALINITY	36 ppm/CaCO3	20	100
COND PH	9 unit	8.2	9.5
COND CONDUCTIVITY	68 uS	30	100

SystemName: Feedwater

FEED HARDNESS	0 ppm/CaCO3	0	0
FEED IRON	0.2 ppm	0	0
FEED CONDUCTIVITY	120 uS	100	250

System Name: Closed Loop - Cold

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2600 uS	2800	3800
pH	8.91 ppm/CaCO3	500	800
NITRITE	1300 ppm	800	1200
M_ALK	900 ppm	800	2000

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	58.3 ppm/CaCO3	N/A	N/A
CHLORIDES	2 ppm	N/A	N/A
CONDUCTIVITY	534 uS	N/A	N/A
HARDNESS	274 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	31.2 ppm/CaCO3	N/A	N/A
M-ALK	279 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.01 ppm	N/A	N/A
pH	7.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.5 ppm	N/A	N/A
SULFATE(SO4)	15.6 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Tipton Correctional Center (TCC)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened

Recommendations:

I. Maintain existing chemical treatment parameters. TTC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.

WATER TREATMENT PROGRAM

Facility: TTC Tipton		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.3 gallons (16000 gallons contained volume total in one tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: TTC Tipton		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	100 gallons
Equipment (include make, model, and quantity)		
2 each- Neptune "Day Tank" (poly tank system). 2 each- Neptune Chemical Feed Pump/Mixer. Model # A-515-N-1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: TTC Tipton		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	100 gallons
Equipment (include make, model, and quantity)		
2 each- Neptune "Day Tank" (poly tank system). 2 each- Neptune Chemical Feed Pump/Mixer. Model # A-515-N-1		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum
Facility: TTC Tipton		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	125 gallons
Equipment (include make, model, and quantity)		
2 each- Neptune "Day Tank" (poly tank system). 2 each- Neptune Chemical Feed Pump/Mixer. Model # A-515-N-1		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum
Facility: TTC Tipton		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
N/A (Pot feeder installed)		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

WESTERN MISSOURI CORRECTIONAL CENTER

*SystemName:*Hot Water Softener

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
Softener Conductivity	370 uS	300	400
Softener Hardness	0 ppm\CaCO3	0	8

*SystemName:*Laundry Boiler System

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
Feedwater Hardness	0 mg/l	0	10
M-ALK	600 ppm\CaCO3	400	600
OH-ALK	136 ppm\CaCO3	200	400
P-ALK	368 ppm\CaCO3	300	500
PHOSPHATE	9 ppm	20	40
SULFITE(SO3)	120 ppm	20	40
Softener	0 ppm		

*SystemName:*Laundry Condensate

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	48 uS	20	80
pH	9.5 unit	8.5	9.5

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	109 ppm\CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	288 uS	N/A	N/A
HARDNESS	144 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	33.5 ppm\CaCO3	N/A	N/A
M-ALK	131 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.025 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.47 unit	N/A	N/A
PHOSPHATE	0.170 ppm	N/A	N/A
SILICA(SiO2)	0.5 ppm	N/A	N/A
SULFATE(SO4)	20 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened

Recommendations:

1. Maintain existing chemical treatment parameters. WMCC chemical program demonstrates consistent program management, record keeping, follow-up and equipment maintenance. Current operation of this boiler includes shutting it off at night. WLFT would recommend that this policy be changed.

System I.D.: Closed systems (Non-Potable Hot)

Make-Up Water: 100% Softened

530 South 5th St * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

Recommendations: Refer to Crossroads Correctional Center

WATER TREATMENT PROGRAM

Facility: Western Missouri Correctional Center		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Antibacterial/Stabilizer	0.18 gallons	12 gallons
		(66000 gallons contained volume total in four tanks)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Western Missouri Correctional Center		
LAUNDRY BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1460 Boiler Treatment	0.4 gallons	30 gallons
WLFT 595 Oxygen Scav.	0.067 gallons	40 gallons
Equipment (include make, model, and quantity)		
1 each- Snyder Model 50 Polyethylene Make-down Tank		
1 each- LMI Model A151-92SI chemical pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Western Missouri Correctional Center		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	40 gallons
Equipment (include make, model, and quantity)		
*Fed with boiler treatment into batch tank		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

WESTERN RECEPTION DIAGNOSTIC CENTER

System Name: Boiler #1 (Not Running)

PROCEDURE	Result:	LoLimit:	HiLimit:
Buffered Conductivity	uS	2000	2500
M-ALK	ppm\CaCO3	500	700
OH-ALK	ppm\CaCO3	200	400
P-ALK	ppm\CaCO3	400	600
PHOSPHATE	ppm	20	40
SULFITE(SO3)	ppm	20	50

System Name: Boiler #4

PROCEDURE	Result:	LoLimit:	HiLimit:
Buffered Conductivity	1522 uS	2000	2500
M-ALK	ppm\CaCO3	500	700
OH-ALK	204 ppm\CaCO3	200	400
P-ALK	ppm\CaCO3	400	600
PHOSPHATE	68 ppm	20	40
SULFITE (SO3)	23 ppm	20	50

RFP B3Z14153

Section 3.7.2 Water Analysis, Systems & Make-up(raw water)

WESTERN RECEPTION DIAGNOSTIC CENTER

System Name: Condensate & Feedwater Systems

PROCEDURE	Result:	LoLimit:	HiLimit:
Boiler Room Condensate	9 uS	0	120
Boiler Room Condensate Hardness	0 mg/l	0	0.2
Boiler Room Condensate Iron	0.0 mg/l	0	0.5
Boiler Room Condensate pH	7.74 unit	8.2	9
East Condensate Conductivity	9.6 uS	5	120
East Condensate Hardness	0 mg/l	0	0.2
East Condensate Iron	0.0 mg/l	0	0.5
East Condensate Ph	8.67 unit	8.2	9
Feedwater Conductivity	12.39 uS	15	120
Feedwater Hardness	0 mg/l	0	2
Feedwater Iron	0.1 mg/l	0	0.5
Feedwater pH	8.19 unit	8.2	9
Makeup Conductivity	24.64 uS	15	120
Makeup Hardness	0 mg/l	0	2
South Condensate Conductivity	9.28 uS	15	120
South Condensate Hardness	0 mg/l	0	0.2
South Condensate Iron	0.03 mg/l	0	0.5
South Condensate Ph	8.06 unit	8.2	9
West Condensate Conductivity	~ uS	15	120
West Condensate Hardness	~ mg/l	0	0.2
West Condensate Iron	~ m/gl	0	0.5
West Condensate Ph	~ unit	8.2	9

System Name: Tower Power House #1 Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	92 ppm/CaCO3	50	100
CHLORIDES	28 ppm	N/A	<600
CONDUCTIVITY	2059 uS	1500	1800
HARDNESS	113 ppm/CaCO3	30	100
M-ALK	134 ppm\CaCO3	100	600
pH	8.86 unit	N/A	N/A
POLYMER	7 ppm	4	8

System Name: Tower Power House #2 Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	12 ppm/CaCO3	50	100
CHLORIDES	33 ppm	N/A	<600
CONDUCTIVITY	2070 uS	1500	1800
HARDNESS	22 ppm/CaCO3	30	100
M-ALK	187 ppm\CaCO3	100	600
pH	8.86 unit	N/A	N/A
POLYMER	6 ppm	4	8

System Name: Tower Power House #3 Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	27 ppm/CaCO3	50	100
CHLORIDES	53 ppm	N/A	<600
CONDUCTIVITY	2737 uS	1500	1800
HARDNESS	54 ppm/CaCO3	30	100
M-ALK	257 ppm\CaCO3	100	600
pH	8.93 unit	N/A	N/A
POLYMER	8 ppm	4	8

System Name: Tower 11 Power House #1 Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	86 ppm/CaCO3	50	100
CHLORIDES	36 ppm	N/A	<600
CONDUCTIVITY	2369 uS	1500	1800
HARDNESS	241 ppm/CaCO3	300	600
M-ALK	209 ppm\CaCO3	100	600
pH	8.72 unit	N/A	N/A
POLYMER	8 ppm	4	8

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Facility: Western Reception, Diagnostic and Correctional Center (WRDCC)
Proposed Water Treatment Program(s)

System I.D.: Steam Boilers

Make-Up Water: 100% Softened/R.O.

Recommendations:

- a. Maintain existing chemical treatment parameters. The addition of the RO system has shown significant reduction in chemical usage as well as energy savings. The reduction of bicarbonate alkalinity has reduced steam line treatment usage as well as improved the performance of the condensate corrosion control program. This program should be continued. WRDCC chemical program demonstrates consistent program management, record keeping, follow-up and equipment maintenance.

System I.D.: Cooling Towers

Make-Up Water: 100% Softened water, Power House #1 ,#2 & #3
100% Hard Water 11 House

Recommendations:

- b. Fully maintain existing chemical treatment parameters. WRDCC chemical program demonstrates consistent program management, record keeping, follow-up and equipment maintenance.

If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: Western Reception Diagnostic Correctional Center		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.36 gallons
		(20000 gallons contained volume total in one tank)
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1460	0.4 gallons	70 gallons
Equipment (include make, model, and quantity)		
1 each- Snyder Model 150 Polyethylene Dual Containment Bulk Tank (150 gal. capacity)		
(3) - LMI # P141- (2) Palsa Feed Chemical pump LB02SA		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 592-L	0.124 gallons	100 gallons
Equipment (include make, model, and quantity)		
1 each- Snyder Model 150 Polyethylene Dual Containment Bulk Tank (150 gal. capacity)		
1 each- LMI # 171-C101-297 chemical pump		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	100 gallons
Equipment (include make, model, and quantity)		
1 each- Snyder Model 150 Polyethylene Dual Containment Bulk Tank (150 gal. capacity)		
1 each- LMI # 171-C101-297 chemical pump		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	240 gallons
WLFT #206	.5	50 Gallon
WLFT Verox	0.4 gallons	90 gallons
WLFT 7221	.5 gallons	150 gallons
Equipment (include make, model, and quantity)		
1 each- WLFT PCS Triplex Tower Control		
2 each- LMI # P121-3562ST chemical pump (2) LMI #A141-812		
(3) Water Meters		
1 each- WLFT PLC conductivity controllers (11 House)		
2 each- LMI # P051-392SI chemical pumps for inhibitor and biocide feed (11 House)*		
*Fed from drum due to space and accessibility limitations		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Small generic pump to inject		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Small generic pump to inject		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

WOMENS EASTERN RECEPTION DIAGNOSTIC CENTER

SystemName: CONDENSATE

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0
M-ALK	36 ppm\CaCO3	30	100
pH	8.4 unit	8.2	9.5
CONDUCTIVITY	40 uS	30	100

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
BROMINE	2 mg/l	1	2
HARDNESS	520 ppm/CaCO3	300	600
M-ALK	600 ppm\CaCO3	300	600
POLYMER	8 ppm	4	8
CONDUCTIVITY	1200 uS	1000	1200

SystemName: FEEDWATER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	0	0
M-ALK	180 ppm\CaCO3	50	250

SystemName: STEAM BOILER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HWB NITRITE	1100 ppm	900	3000
HWB SOFTENER	0	0	0
M-ALK	720 ppm\CaCO3	500	900
OH-ALK	400 ppm\CaCO3	200	400
P-ALK	560 ppm\CaCO3	400	800
PHOSPHATE	40 ppm	20	40
SULFITE(SO3)	40 ppm	30	60

SystemName: CLOSED CHILLED LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	820 ppm\CaCO3	60	2000
NITRITE	1000 ppm\CaCO3	800	1200
CONDUCTIVITY	900 u mhos	500	

SystemName: CLOSED HEATING LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	780 ppm\CaCO3	60	2000
NITRITE	1150 ppm\CaCO3	800	1200
CONDUCTIVITY	1280 u mhos	500	

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	128 ppm/CaCO3	N/A	N/A
CHLORIDES	96 ppm	N/A	N/A
CONDUCTIVITY	430 uS	N/A	N/A
HARDNESS	172 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.025 ppm	N/A	N/A
Magnesium(Mg)	44 ppm/CaCO3	N/A	N/A
M-ALK	116 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	11.5 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SILICA(SiO2)	3.5 ppm	N/A	N/A
SULFATE(SO4)	2.5 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Women's Eastern Reception & Diagnostic Correctional Center (WERDCC)

System I.D.: Steam Boilers/Closed Loops

Make-Up Water: 100% Softened

Recommendations:

- (1) Maintain existing chemical treatment parameters. WERDCC chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.
- (2) Train all WERDCC power plant personnel on WLFT web based software

System I.D.: Cooling Tower

Make-Up Water: 100% hard water

Recommendations:

- (3) Existing bleed-off controller has been inconsistent in controlling cooling water conductivity .New conductivity controller and chemical feed pump installation will alleviate future problems.
- (4) Train WERDCC maintenance personnel on WLFT computer web software .Bulk tank installation not practical for this application per limited space.

If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: WERDCC Vandalia		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	0.18 gallons	0.2 gallons <i>(11000 gallons contained volume total in one tank)</i>
Equipment (include make, model, and quantity)		
No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: WERDCC Vandalia		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1460	0.4 gallons	120 gallons
Equipment (include make, model, and quantity)		
1 each- Neptune "Day Tank" (poly tank system). 1 each- Neptune Chemical Feed Pump/Mixer. Model # A-515-N-1		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: WERDCC Vandalia		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	60 gallons
Equipment		

1 each Neptune "Day Tank" (poly tank system).	
1 each Neptune Chemical Feed Pump/Mixer Model # A-515-N-1	
_____ Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: WERDCC Vandalia		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	100 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series A151 Chemical Feed Pump/Direct from Drum.		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: WERDCC Vandalia		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	150 gallons
WLFT 206	0.5 gallons	20 gallons
WLFT AM-66	1.0 lbs	300 lbs
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump (Inhibitor)		
2 each LMI Series A171 Chemical Feed Pump (Biocides)		
1 each WLFT PLC Conductivity Controller		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: WERDCC Vandalia		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each Snyder Model 200 Dual Containment System (200 gal cap)		
1 each LMI Series A171 Chemical Feed Pump		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: WERDCC Vandalia		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
1 each LMI Series A171 Chemical Feed Pump		
Note: Cold loop to share bulk tank with "Closed Loop Heat " system as defined above.		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
MVE PLANT MAINTENANCE

SystemName: COOLING TOWER

PROCEDURE	Result:	LoLimit:	HiLimit:
CHILLED LOOP NITRITE	3000 ppm	900	3000
HARDNESS	390 ppm/CaCO3	300	600
HWS NITRITE	900 ppm	800	1200
M-ALK	360 ppm/CaCO3	300	600
POLYMER	5 ppm	4	8
TDS	1100 uS	1000	1200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	67 ppm/CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm/CaCO3	N/A	N/A
M-ALK	49 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SiO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Vocational Enterprises (MVE)

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

- (1) Maintain existing chemical treatment parameters. MVE chemical program demonstrates consistent program management, recordkeeping, follow-up and equipment maintenance.
- (2) Train all MVE maintenance personnel on WLFT computer based software (WLFT E -Service).
- (3) Bulk tank system not feasible for MVE per space initiations.

System I.D.: Hot Water Boiler & Chilled Loops

Make-Up Water: 100% Softened water

Recommendations:

- (5) All chemical parameters are within recommended range. No major changes required for these systems.
- (6) If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: MVE		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) Per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	30 gallons
WLFT Verox-8	0.5 gallons	10 gallons
WLFT 206	0.8 gallons	5 gallons
Equipment (include make, model, and quantity)		
1 each WLFT PLC Conductivity Controller		
2 each LMI Series A151 Chemical Feed Pumps		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MVE		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) Per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 Gallon Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MVE		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) Per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 Gallon Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

RFP B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
FLETCHER DANIELS Bid.

SystemName: Tower Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	88 ppm/CaCO3	N/A	N/A
CHLORIDES	24 ppm	N/A	N/A
CONDUCTIVITY	572 uS	N/A	N/A
HARDNESS	107 ppm/CaCO3	N/A	N/A
Iron (Fe)	.01 ppm	N/A	N/A
Magnesium(Mg)	19.27 ppm/CaCO3	N/A	N/A
M-ALK	30 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.99 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	.65 ppm	N/A	N/A
SILICA(SiO2)	3.69 ppm	N/A	N/A
SULFATE(SO4)	192 ppm	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Fletcher Daniels Bld.

System I.D.: Closed system (Non-Potable Chilled)

Recommendations:

System is running, the chillers were replaced this past winter. There is a high amount of free Iron in the closed loop. A filtration system should be added to the closed loop system to help clean the water and maintain the system integrity. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Condensate System

Recommendations:

Steam is purchased from an outside source. Condensate has a pH monitor and treatment is fed as needed.

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

Estimated Contained Volume 3500 Gallon

Reported as 500 ton max summer load

System is currently Operating.
Conductivity Control and chemical pumps reported as functional

Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: Fletcher Daniels Bld.		
STEAM LINE/CONDENSATE SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
1535	0.4 gallons	60 gallons
Existing Equipment (include make, model, and quantity)		
Pulsafeeder pH Control and chemical pump		

Facility Fletcher Daniels Bld.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#4707	0.4 gallons	200 gallons
Verox-8	0.5 gallons	20 gallons
#206	1.0 gallons	20 gallons
Existing Equipment (include make, model, and quantity)		
New Advantage Control w/Makeup Meter (SSCF3E)		
(2) 30gpd chemical pumps LB64SA1 LMI and 1 Advantage		
(1) 100GPH LMI P151		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Fletcher Daniels Bld.		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment		
5 gallon pot feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Fletcher Daniels Bld.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide		
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
5 gallon (Non-filter) pot feeder.		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	Conventional Drum

RFP B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

Kansas City DOLIR

SystemName: Closed Loop (Glycol, Chilled)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1104 uS	2800	3800
M-ALK	424 ppm\CaCO3	500	800
NITRITE	840 ppm	800	1200
GLYCOL	15 %	40	45

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Kansas City DOLIR

System I.D.: Closed system (Non-Potable Chilled, Glycol)

Recommendations:

Glycol levels AT 15% this is below the set point to maintain freeze protection to 10°F.(reported as propylene) Glycol levels should be boosted to at least 26%. NO₃ chemical treatment parameters, 800-1200 mg/l as NO₃, to provide maximum corrosion inhibition and protection against metal loss. The level is at 840 currently. The automatic feed is not keeping up with water usage. Addition of biocide will reduce the possibility of bio-fouling.

WATER TREATMENT PROGRAM

Facility: Kansas City DOLIR		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.25 Gallons	
#839	40 Gallons	
HT1-P	4500 Gallons	
Existing Equipment Advantage Microtron chemical controller – DAGF-1		
55 Gallon Mix tank, Baldor 1.3 GPM CHEMICAL PUMP		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

RFP B3Z09010

Section 3.7.2 Water Analysis, Systems & Make-up(raw water)

Prince Hall State Office Building

4411 N. Newstead Ave. St. Louis Mo.

SystemName: Chilled Water Hot Water Combined Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2306 uS	2200	3000
NITRITE	1000 ppm	800	1000
HARDNESS	0 ppm/CaCO3	0	500
M-ALK	360 ppm/CaCO3	200	500
pH	10.4 unit	8.5	11.0

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

SystemName: Cooling Tower

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2500 uS	2000	2500
HARDNESS	172 ppm/CaCO3	200	800
M-ALK	260 ppm/CaCO3	200	500
Polymer	5 ppm	4	8

SystemName: Steam Boilers

Offline , drained at time of Visit

Proposed Water Treatment Program(s)

Facility: Prince Hall State Office Building

System I.D.: Combined Hot and Chilled water Loop. Hot water for heating is generated by steam heat exchangers.

Make-Up Water: City Water

Recommendations: Chemical levels are in line in the closed loops and the tower.

System I.D.: COOLING TOWER: 500 ton Marley tower. The estimated system volume is 3000 gallons. Chemical treatment uses an Advantage Control. Chemical feed is based

on percent of time of bleed. A 1gpd Neptune chemical injection pump was available for scale and corrosion inhibitor feed.

Make-Up Water: Untreated St. Louis City water

System I.D. Two 250 HP Cleaver Brooks low pressure steam boilers. The burners have been de-rated to approximately 80 HP. The boilers operate on an alternating basis. Steam is fed to heat exchangers to provide a heat source for the Hot water heating system. At the time of inspection the boilers were drained.. Chemical is being fed by a 1 gpd Neptune chemical pump. The boiler feed water pump initiates a timer which runs the chemical pump. Make-up water is provided by a twin alternating Fleck water softener.

Recommendations: WLFT 157-L is a multifunctional blend of Scale inhibitors, oxygen scavengers, steamline treatment and antifoam. This product is designed to provide complete control of all Boiler water treatment requirements in a single drum product.

WATER TREATMENT PROGRAM

Facility: Prince Hall State Office Building		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
157-L	3 gallons	60 gallons
Equipment)		
Twin Fleck 300,000 grain twin water softener.		
1 Neptune 1 gallon per hour Pumps with Timer		
_____ Drumless, Bulk Storage		_____X_____ Conventional Drum

Facility: Prince Hall State Office Building		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Treatment by Boiler Compound		

Facility: Prince Hall State Office Building		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#4707	0.4 gallons	45gallons
Verox 8	0.5 gallons	10 gallons
AM714	0.5 gallons	10 gallons
Equipment (include make, model, and quantity)		
LMI Conductivity based Cooling Tower Controller		
3 Neptune 1 gallon per hour Pumps		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Prince Hall State Office Building		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	30 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Prince Hall State Office Building		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	30 gallons	
Equipment Gallon Neptune By Pass Feeder		

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
St. Joseph Career Center St. Joseph Mo.
System Name: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	6161 uS	2200	3000
Iron (Fe)	.36 ppm	0	0.5
NITRITE	960 ppm	800	1000
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	60 ppm/CaCO3	N/A	N/A
M-ALK	490 ppm/CaCO3	N/A	N/A
pH	10.6 unit	N/A	N/A
Nitrite	960 ppm	600	100

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: St. Joseph Career Center

System I.D.: Two H.B Smith 450,00 BTU Water Boilers. Boiler are tied together and staged as load requires. Hot water temperature is approximately 150 degrees F

Make-Up Water: City Water

Recommendations: The chemical levels in the system are within range. There appears to be a lot of entrained air in the system. This should be investigated and resolved to maintain the integrity of the system. Pressure release valves may not be working.

This loop has a bypass feeder that will facilitate chemical addition.

This facility has a Nitrite test kit to monitor and maintain the Hot Water Heating system. Maintenance personnel from the St. Joseph Office Building are responsible for this facility

WATER TREATMENT PROGRAM

Facility: St. Joseph Career Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

530 South 5th St. * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

RFP NO: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
St. Joseph Office Bldg.

System Name: Closed Loop - Hot

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2624 uS	2800	3800
pH	10.6 ppm\CaCO3	500	800
NITRITE	1160 ppm	800	1200

System Name: Closed Loop - Cold

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4448 uS	2800	3800
pH	10.0 ppm\CaCO3	500	800
NITRITE	1190 ppm	800	1200

System Name: Raw Water Supply - City

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm\CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm\CaCO3	N/A	N/A
M-ALK	150 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SIO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

System Name: Tower Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	80 ppm	N/A	N/A
CHLORIDES	22 ppm	N/A	N/A
Conductivity	1171 uS	N/A	N/A
HARDNESS	165 ppm\CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
M-ALK	164 ppm\CaCO3	N/A	N/A
pH	8.5 unit	N/A	N/A
PHOSPHATE	4 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: St. Joseph Office Bldg.

System I.D.: Closed system - Hot

Recommendations:

The Hot loop has the proper chemical treatment parameters at 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Closed system - Cold

Recommendations:

The Cold loop has the proper chemical treatment parameters at 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Tower

Recommendations:

The Tower has chemical to protect against corrosion, Algae, and Sludge. The water softener is not on line to avoid additional corrosion. The tower did not receive proper pacification treatment to avoid white rust. The tower has white rust and has corrosion issues that will require repair. We changed the chemical program to help deal with the lack of softened water until the tower repairs are completed.

WATER TREATMENT PROGRAM

Facility: St. Joseph Office Bldg.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707		55 Gallon
Verox-8	0.5 Gallons	25 Gallon
WLFT 206	0.5 gallons	10 Gallon
Existing Equipment (1)Advantage controller-Model-SSF3E, (1)PulsaFeeder Chemical Pump Model LBO3SA, (1)LMI Chemical Pump Model A171-155 (1)Advantage Pump Model B130X1, Water Softener (Not on line)		
_____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility: St. Joseph Office Bldg.		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Same as Closed Loop Cooling		
Existing Equipment (include make, model, and quantity)		
_____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility: St. Joseph Office Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
2 gallon pot feeder		
_____ Drumless, Bulk Storage	___X___ Conventional Drum	

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

WAINWRIGHT OFFICE BUILDING
111 N 7TH ST. LOUIS, MO

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2306 uS	2200	5000
NITRITE	950 ppm	800	1000
M-ALK	360 ppm/CaCO3	200	500
pH	10.4 unit	8.5	11.0

SystemName: Hot Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2200 uS	2200	5000
NITRITE	450 ppm	800	1000
M-ALK	360 ppm/CaCO3	200	500
pH	9.5 unit	8.5	11.0

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

SystemName: Cooling Tower

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2500 uS	2000	2500
HARDNESS	172 ppm/CaCO3	200	800
M-ALK	280 ppm/CaCO3	200	500
Polymer	3.5 ppm	4	8

Proposed Water Treatment Program(s)

System I.D.: Hot and Chilled water Loop.

Make-Up Water: City Water

Recommendations: Add 6 gallons of 839 to the hot loop.

System I.D.: COOLING TOWER: 3 300 ton chiller2

Make-Up Water: Untreated St. Louis City water

- Recommendations: System well maintained and controlled. LMI Controller with percentage timers/auto feed and bleed system. Alternating biocidal program in addition to corrosion/scale inhibitor. Inhibitor Feed needs a 20% Increase

WATER TREATMENT PROGRAM

Facility: Wainwright State Office Bld.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#4707	0.4 gallons	90 gallons
Verox 8	0.5 gallons	40 gallons
#206	.5 gallons	20 gallons
Equipment (include make, model, and quantity)		
LMI Conductivity based Cooling Tower Controller		
3 pulsatron 1 gallon per hour Pumps		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Wainwright State Office Bld.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	45 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Wainwright State Office Bld.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	45 gallons	
Equipment 5 Gallon Neptune By Pass Feeder		

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

DESE B.W. Robinson State School - Rolla

SystemName: Recirculating Closed Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3030 uS	500	6000
Glycol	0.5 %	25	40
NITRITE	850 ppm	800	1200
pH	8.9 unit	6.5	8.5

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	158 ppm/CaCO3	N/A	N/A
CHLORIDES	6 ppm	N/A	N/A
CONDUCTIVITY	550 uS	N/A	N/A
HARDNESS	328 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	169 ppm/CaCO3	N/A	N/A
M-ALK	260 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.7 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	4 ppm	N/A	N/A
SULFATE(SO4)	59.3 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE B. W. Robinson State School – Rolla, Mo.

System I.D.: 10 – Underground Heat Pumps / 10 – Wells

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit & refractometer and train on-site personnel in their use.

WATER TREATMENT PROGRAM

Facility: DESE – B.W. Robinson State School - Rolla		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Has a 30 gal. mixing tank		
_____ Drumless, Bulk Storage		_____X_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
DESE Boonslick State School
321 Knaust Rd., St. Peters MO

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2100 uS	2200	3000
NITRITE	900 ppm	800	1200
M-ALK	800 ppm\CaCO3	N/A	N/A
pH	10.8 unit	N/A	N/A

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2100 uS	2200	3000
NITRITE	1050 ppm	800	1200
M-ALK	800 ppm\CaCO3	N/A	N/A
pH	11.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	42 ppm\CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	380 uS	N/A	N/A
HARDNESS	100 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	63 ppm\CaCO3	N/A	N/A
M-ALK	112 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	8.1 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	9.00 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Boonslick State School

System I.D.: Bryan (2) Boilers, 90 hp each, by-pass feeder.

System ID: Chilled Water Closed Loop (McQuay Chiller, 100T)

Make-Up Water: City water Make up no softening

Recommendations:

Both Loops, Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit & refractometer and train on-site personnel in their use.

WATER TREATMENT PROGRAM

Facility: DESE Boonslick State School		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	5 gallons
Equipment (include make, model, and quantity)		
2 Gallon Wingert By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: DESE Boonslick State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	5 gallons
Equipment 2 Gallon Wingert By Pass Feeder		

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE – Cedar Ridge State School, Nevada

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3800 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	800 ppm	900	3000
HARDNESS	520 ppm/CaCO3	N/A	N/A
P-ALK	240 ppm\CaCO3	N/A	N/A
M-ALK	310 ppm\CaCO3	N/A	N/A
pH	8.7 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3800 uS	2200	3000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	800 ppm	900	3000
HARDNESS	520 ppm/CaCO3	N/A	N/A
P-ALK	240 ppm\CaCO3	N/A	N/A
M-ALK	310 ppm\CaCO3	N/A	N/A
pH	9.0 unit	N/A	N/A

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SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	55 ppm/CaCO3	N/A	N/A
CHLORIDES	161 ppm	N/A	N/A
CONDUCTIVITY	725 uS	N/A	N/A
HARDNESS	96 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.11 ppm	N/A	N/A
Magnesium(Mg)	40.8 ppm/CaCO3	N/A	N/A
M-ALK	270 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.012 ppm	N/A	N/A
pH	8.22 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	2.2 ppm	N/A	N/A
SULFATE(SO4)	72.8 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Cedar Ridge State School, Nevada

System I.D.: 1 Power Fin Hot Water Boiler, 40 hp.

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up Hard Water

Recommendations

Chilled water is using a typical Nitrite based inhibitor, this is to prevent corrosion. WLFT 839 should be added to obtain a Nitrite level between 800-1200 ppm.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE – Cedar Ridge State School, Nevada		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallons	5 Gallon
Equipment (include make, model, and quantity)		
Generic Bypass Feeder		

<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum
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Facility: DESE – Cedar Ridge State School, Nevada		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	5 Gallon
Generic Bypass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum	

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE – College View State School, Joplin

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4568 uS	2200	3000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	1000 ppm	900	3000
HARDNESS	310 ppm\CaCO3	N/A	N/A
P-ALK	140 ppm\CaCO3	N/A	N/A
M-ALK	220 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	58 ppm\CaCO3	N/A	N/A
CHLORIDES	161 ppm	N/A	N/A
CONDUCTIVITY	438 uS	N/A	N/A
HARDNESS	150 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	92 ppm\CaCO3	N/A	N/A
M-ALK	140 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.4 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.8 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	4 ppm	N/A	N/A
SULFATE(SO4)	25.1 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Recommendations: System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up Hard Water

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within range, this will prevent corrosion. WLFT 839 should be added to maintain a Nitrite level between 800 and 1200 ppm.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE – College View State School, Joplin		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	5 Gallons
Equipment Generic by-pass feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE Delmar Cobble State School – Columbia, Mo.

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	4885 uS	500	6000
NITRITE	1000 ppm	800	1200
HARDNESS	200 ppm/CaCO3	N/A	N/A
pH	8.2 unit	6.5	8.5

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2000 uS	2200	3000
NITRITE	900 ppm	800	1200
HARDNESS	180 ppm/CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	84 ppm/CaCO3	N/A	N/A
CHLORIDES	43.3 ppm	N/A	N/A
CONDUCTIVITY	504 uS	N/A	N/A
HARDNESS	158 ppm/CaCO3	N/A	N/A
Iron (Fe)	.07 ppm	N/A	N/A
Magnesium(Mg)	74 ppm/CaCO3	N/A	N/A
M-ALK	120 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.7 ppm	N/A	N/A
P-ALK	20 ppm/CaCO3	N/A	N/A
pH	8.79 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	21.4 ppm	N/A	N/A
SULFATE(SO4)	66.4 ppm	N/A	N/A

Facility: DESE Delmar Cobble State School – Columbia, Mo.

System I.D.: Hot Water Boiler, Thermal Solutions, 25 hp

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop, Trane air cooled unit

Make-Up Water: City water Make up Hard

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within range, this will prevent corrosion. WLFT 839 should be added to maintain a Nitrite level between 800 and 1200 ppm.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE Cobble State School – Columbia		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: DESE Cobble State School – Columbia		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE Gateway/Hubert Wheeler State School – St. Louis

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1500 uS	2200	3000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	650 ppm	800	1000
HARDNESS	120 ppm/CaCO3	N/A	N/A
P-ALK	450 ppm\CaCO3	N/A	N/A
M-ALK	850 ppm\CaCO3	N/A	N/A
pH	10.4 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Gateway/Hubert Wheeler State School – St. Louis

System ID: Fulton (2) Boilers, 80 hp each

Make-Up Water: City water Make-up, no softening

Recommendations: Gateway/Hubert Wheeler State School – St. Louis

Maintain proper nitrite levels (800+ ppm NO2) within closed water systems.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE Gateway/Hubert Wheeler State School – St. Louis		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	5 gallons
Equipment (include make, model, and quantity)		
2 Gallon Wingert By Pass Feeder		

_____ Drumless, Bulk Storage	_____ X _____ Conventional Drum
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RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE – Greene Valley State School - Springfield

SystemName: Chilled Water Loop

PROCEDURE	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1590 uS	2200	3000
GLYCOL	25 %	18	35
NITRITE	800 ppm	800	1200
pH	8.8 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	137 ppm/CaCO3	N/A	N/A
CHLORIDES	17.2 ppm	N/A	N/A
CONDUCTIVITY	377 uS	N/A	N/A
HARDNESS	168 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	31 ppm/CaCO3	N/A	N/A
M-ALK	144 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	1.2 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.7 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	3.1 ppm	N/A	N/A
SULFATE(SO4)	6.33 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE – Greene Valley State School - Springfield

System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up Hard Water

Recommendations

Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit & refractometer and train on-site personnel in their use.

WATER TREATMENT PROGRAM

Facility: DESE – Greene Valley State School - Springfield		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment No by-pass feeder		

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_____ Drumless, Bulk Storage	_____ X _____ Conventional Drum
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RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Lakeview Woods State School

System Name: Closed Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3299 uS	2800	3800
pH	11.6 unit	9.5	10.5
M-ALK	990 ppm/CaCO3	500	800
NITRITE	880 ppm	800	1200

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	38 ppm/CaCO3	N/A	N/A
CHLORIDES	N/A ppm	N/A	N/A
CONDUCTIVITY	461 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	.03 ppm	N/A	N/A
Magnesium(Mg)	62 ppm/CaCO3	N/A	N/A
M-ALK	48 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	N/A ppm	N/A	N/A
P-ALK	40 ppm/CaCO3	N/A	N/A
pH	9.5 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A
SILICA(SiO2)	10.3 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Proposed Water Treatment Program(s)
Facility: Lakeview Woods State School
System I.D.: Closed system (Non-Potable Chilled)
Recommendations:

System not circulating at time of sample

The closed loop system has the proper amount of WLFT chemical to control corrosion.
 The water in the loop is dirty and in need of cleaning. Filtration would help clean the water in this system.
 It is recommended that the system be drained and cleaned with a closed loop cleaner and then filtration be added.

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Lakeview Woods State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15Biocide	1.5 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		

Generic 2 gallon Bypass Feeder	
_____ Drumless, Bulk Storage	___X___ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

Maple Valley State School

SystemName: Closed Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2200 uS	2800	3800
pH	11 unit	9.5	10.5
NITRITE	2100 ppm	800	1200

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	N/A ppm/CaCO3	N/A	N/A
CHLORIDES	N/A ppm	N/A	N/A
CONDUCTIVITY	461 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
Magnesium(Mg)	N/A ppm/CaCO3	N/A	N/A
M-ALK	80 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	N/A ppm	N/A	N/A
P-ALK	40 ppm/CaCO3	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A
SILICA(SiO2)	N/A ppm	N/A	N/A
SULFATE(SO4)	N/A ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Maple Valley State School

System I.D.: Closed system (Non-Potable Chilled)

Recommendations:

Facility recently had a New Chiller Installed WLFT cleaned and flushed system. 839 was then added to restore Chemical treatment levels. Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Maple Valley State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.25 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		

5 gallon pot feeder	
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE MISSOURI SCHOOL FOR THE BLIND – St. Louis

SystemName: COOLING TOWER- MAIN BLDG

HARDNESS	300 ppm\CaCO3	200	500
M-ALK	360 ppm\CaCO3	300	500
Polymer	6 ppm	4	8
TDS	1300 uS	1000	1600

SystemName: COOLING TOWER - WEST ANNEX

HARDNESS	360 ppm\CaCO3	200	500
M-ALK	400 ppm\CaCO3	300	500
Polymer	6 ppm	4	8
TDS	1300 uS	1000	1600

SystemName: HEAT PUMP – CLOSED LOOPS

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	150 ppm\CaCO3	n/a	n/a
NITRITE	300 ppm	800	1200
M-ALK	600 ppm\CaCO3	500	1000

SystemName: MAIN BOILER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	500 ppm\CaCO3	500	800
OH-ALK	200 ppm\CaCO3	200	400
P-ALK	350 ppm\CaCO3	400	800
PHOSPHATE	18 ppm	20	40
SULFITE(SO3)	12 ppm	30	60
TDS	1560 uS	2000	2500
<i>CONDENSATE</i>			
HARDNESS	0 ppm\CaCO3	0	1
M-ALK	50 ppm\CaCO3	10	100
TDS	76 uS	5	100
pH	7.8 unit	8.2	9.2
Iron (Fe)	0.9 ppm	0	0.5
<i>FEEDWATER</i>			
HARDNESS	0 ppm\CaCO3	0	1
M-ALK	90 ppm\CaCO3	50	200
TDS	140 uS	20	200
Iron (Fe)	0.5 ppm	0	0.5

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	58 ppm/CaCO3	N/A	N/A
CHLORIDES	28 ppm	N/A	N/A
CONDUCTIVITY	530 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	72 ppm/CaCO3	N/A	N/A
M-ALK	70 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	17.5 ppm	N/A	N/A
P-ALK	20 ppm/CaCO3	N/A	N/A
pH	8.6 unit	N/A	N/A
PHOSPHATE	0.225 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	150 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Missouri School for the Blind – St. Louis

System I.D.: Steam Boiler

Make-Up Water: 100% Softened

Recommendations:

1. Significant improvements in boiler program, injection techniques, and record keeping have resulted in excellent water quality.
- 2.

System I.D.: Cooling Towers

Recommendations:

1. Well maintained and managed.
2. Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Heat Pump Closed Loop

Make-Up Water: 100% Softened

Recommendations:

- (1) Maintain existing treatment parameters. Owner purchases an inhibited propylene glycol. Current freeze point set at -45 degrees F.

WATER TREATMENT PROGRAM

Facility: Missouri School for the Blind – St. Louis		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 157-L	0.3 gallons	120 gallons
Equipment (include make, model, and quantity)		
LMI Model PO51 Chemical Feed Pump, Qty = 1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Missouri School for the Blind – St. Louis		
BOILER STEAM SYSTEM		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1565	0.4 gallons	15 gallons
Equipment (include make, model, and quantity)		
LMI Model PO51 Chemical Feed Pump, Qty = 1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Missouri School for the Blind – St. Louis		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	40 gallons
Equipment (include make, model, and quantity)		
LMI Model PO51 Chemical Feed Pump, Qty = 1		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: Missouri School for the Blind – St. Louis		
COOLING TOWERS (2)		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.6 gallons	65 gallons
WLFT Verox-8	0.5 gallons	20 gallons
WLFT 206	0.5 gallons	10 gallons
Advantage Controller, Model Nanotron; Qty = 1		
Pulsafeeder Chemical Feed Pump(s); Model LC54, Qty = 3		

<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum
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Facility: Missouri School for the Blind – St. Louis		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	
Pot Feeder – Wingert 2.5 gallon cap		
<input checked="" type="checkbox"/> Drumless, Bulk Storage	<input type="checkbox"/> Conventional Drum	

Facility: Missouri School for the Blind – St. Louis		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	
Equipment (Pot Feeder – Wingert 2.5 gallon cap)		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum	

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – (Kerr)

SystemName: Hot Water Heating Loop

PROCEDURE	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2600 uS	500	6000
NITRITE	1000 ppm	800	1200
pH	8.3 unit	6.5	8.5

SystemName: Chilled Water Loop

PROCEDURE	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1550 uS	500	6000
NITRITE	750 ppm	800	1200
pH	8.3 unit	6.5	8.5

SystemName: Raw Water Supply

PROCEDURE	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A

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P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Kerr

System I.D.: Closed Loops

No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

WATER TREATMENT PROGRAM

Facility: DESE Mo. School for the Deaf – Kerr		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	Conventional Drum

Facility: DESE Mo. School for the Deaf – Kerr		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Resource Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3660 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	400 ppm/CaCO3	N/A	N/A
M-ALK	480 ppm/CaCO3	N/A	N/A
pH	9.6 unit	6.5	8.5

MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3600 uS	2200	3000
Iron (Fe)	0.7 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	380 ppm\CaCO3	N/A	N/A
M-ALK	420 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Resource Bldg.

System I.D: No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters, Nitrite levels are within the parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up is soft.

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Nitrite WLFT 839 is added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

WATER TREATMENT PROGRAM

Facility: DESE Missouri School for the Deaf – Resource Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: DESE Missouri School for the Deaf – Resource Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Rice Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2200 uS	500	6000
Iron (Fe)	0.9 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	190 ppm/CaCO3	N/A	N/A
P-ALK	740 ppm\CaCO3	N/A	N/A
M-ALK	880 ppm\CaCO3	N/A	N/A
pH	9.6 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVIT		2000	

Iron (Fe)	ppm	0	0.5
NITRITE	ppm	800	1200
HARDNESS	ppm/CaCO3	N/A	N/A
P-ALK	ppm\CaCO3	N/A	N/A
M-ALK	ppm\CaCO3	N/A	N/A
pH	unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Rice Bldg.

System I.D: Closed Loops

American Standard Hot Water Boiler – 40 hp

Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WATER TREATMENT PROGRAM

Facility: DESE Missouri School for the Deaf – Rice Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: DESE Missouri School for the Deaf – Rice Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.)	Annual Quantity

	per 10,000 Gallons Treated	
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Stark Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4300 uS	500	6000
Iron (Fe)	0.3 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	490 ppm\CaCO3	N/A	N/A
M-ALK	580 ppm\CaCO3	N/A	N/A
pH	9.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4000 uS	2200	3000
Iron (Fe)	0.7 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	380 ppm\CaCO3	N/A	N/A
M-ALK	420 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Cooling Tower
 Offline at time of visit

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Stark Bldg.

System I.D: No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters, Nitrite levels are within the proper range. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up is soft.

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within the proper range and will prevent corrosion. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

System ID Cooling Tower – 80 Ton Aaon – Operates 8 months.

Make-Up Water: soft water

Recommendations:

Maintain a chemical program which demonstrates consistent program management, record keeping, follow-up and equipment maintenance.

Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: DESE – Missouri School for the Deaf – Stark Bldg.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gal.	15 gallons
WLFT Verox-8	0.5 gal.	5 gallons
WLFT 206	0.5 gal.	5 gallons
Equipment (include make, model, and quantity)		
Qty 3 LMI P121-352SI Chemical Pumps		
LMI DC4500 Controller		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: DESE Missouri School for the Deaf – Stark Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ <input checked="" type="checkbox"/> _____	Conventional Drum

Facility: DESE Missouri School for the Deaf – Stark Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ <input checked="" type="checkbox"/> _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Tate Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	6270 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	600 ppm\CaCO3	N/A	N/A
M-ALK	920 ppm\CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2950 uS	2200	3000
Iron (Fe)	0.7 ppm	0	0.5
NITRITE	450 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	530 ppm\CaCO3	N/A	N/A
M-ALK	580 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Cooling Tower
Offline at time of visit

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Tate Bldg.

System I.D.: No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

Make-Up Water: City water Make up softening

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are too low to prevent corrosion and will actually increase the corrosion rate. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility should obtain a Nitrite test kit to monitor and maintain the Chilled Water system.

System ID: BAC Cooling Tower – 30 Ton – Operates 8 months.

Make-Up Water: City water, soft water

Recommendations:

Maintain a chemical program which demonstrates consistent program management, record keeping, follow-up and equipment maintenance.

This tower is located on the ground, which needs thorough cleaning before start-up.

Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent

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corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: DESE – Missouri School for the Deaf – Tate		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gal.	30 gallons
WLFT 545	0.5 gal.	15 gallons
WLFT 206	0.5 gal.	15 gallons
Equipment (include make, model, and quantity)		
Qty 3 LD03SA-PTC1-500 Pulsatron Pump Pulsafeeder Vision Controller		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: DESE Missouri School for the Deaf – Tate Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: DESE Missouri School for the Deaf – Tate Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Vocational Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3000 uS	500	6000
Iron (Fe)	0.9 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	780 ppm\CaCO3	N/A	N/A
M-ALK	880 ppm\CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2950 uS	2200	3000
Iron (Fe)	0.7 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	530 ppm\CaCO3	N/A	N/A
M-ALK	580 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Vocational Bldg.

System I.D.: No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

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Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up is soft.

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within the proper control range to prevent corrosion and will actually increase the corrosion rate. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

WATER TREATMENT PROGRAM

Facility: DESE Missouri School for the Deaf – Vocational Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: DESE Missouri School for the Deaf – Vocational Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE Missouri School for the Deaf – Wheeler Bldg.

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4700 uS	500	6000
Iron (Fe)	0.3 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A

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pH 9.5 unit 6.5 8.5

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2000 uS	2200	3000
Iron (Fe)	0.7 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	380 ppm/CaCO3	N/A	N/A
M-ALK	420 ppm/CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Cooling Tower
Offline at time of visit

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Mo. School for the Deaf – Wheeler Bldg.

System I.D.: No hot water boiler, has a steam bundle, steam comes from the Fulton State Hospital.

Make-Up Water: City water Make up is soft.

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up is soft.

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within the parameters, this will prevent corrosion and will actually increase the corrosion rate. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

System ID: Imeco Cooling Tower – 200 Ton – Operates 8 months.

Make-Up Water: City water, soft water

Recommendations:

Maintain a chemical program which demonstrates consistent program management, record keeping, follow-up and equipment maintenance.

This tower is located on the ground, which needs thorough cleaning before start-up.

Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: DESE – Missouri School for the Deaf – Wheeler Bldg.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 7351	0.4 gal.	30 gallons
WLFT Verox-8	0.5 gal.	10 gallons
WLFT 206	0.5 gal.	10 gallons
Equipment (include make, model, and quantity)		
Qty 3 LMI P121-352SI Chemical Pumps		
LMI DC4500 Controller		
<input type="checkbox"/> Drumless, Bulk Storage <input checked="" type="checkbox"/> Conventional Drum		

Facility: DESE Missouri School for the Deaf – Wheeler Bldg.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage <input checked="" type="checkbox"/> Conventional Drum		

Facility: DESE Missouri School for the Deaf – Wheeler Bldg.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		

_____ Drumless, Bulk Storage	_____ X _____ Conventional Drum
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RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

DESE – Oakview State School, Monett

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3800 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	800 ppm	900	3000
HARDNESS	520 ppm/CaCO3	N/A	N/A
P-ALK	240 ppm/CaCO3	N/A	N/A
M-ALK	310 ppm/CaCO3	N/A	N/A
pH	8.7 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3800 uS	2200	3000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	800 ppm	900	3000
HARDNESS	520 ppm/CaCO3	N/A	N/A
P-ALK	240 ppm/CaCO3	N/A	N/A
M-ALK	310 ppm/CaCO3	N/A	N/A
pH	9.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	176 ppm/CaCO3	N/A	N/A
CHLORIDES	12.6 ppm	N/A	N/A
CONDUCTIVITY	407 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	1.93 ppm	N/A	N/A
Magnesium(Mg)	96 ppm/CaCO3	N/A	N/A
M-ALK	188 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.79 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.92 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	2.2 ppm	N/A	N/A
SULFATE(SO4)	72.8 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D.: 1 Power Fin Hot Water Boiler, 40 hp.

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance. Bypass feeder was installed with PVC piping This needs to be carbon steel

System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up Hard Water

Recommendations

Chilled water is using a typical Nitrite based inhibitor, this is to prevent corrosion. WLFT 839 should be added to obtain a Nitrite level between 800-1200 ppm.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE – Cedar Ridge State School, Nevada		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment Generic 2 Gallon by-pass feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: DESE – Cedar Ridge State School, Nevada		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment Generic 2 Gallon By-pass feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

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Water Analysis, Systems & Make-up(raw water)

Prairie View State School

SystemName: Closed Loop (Hot and Chilled)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2436 uS	2800	3800
M-ALK	46 ppm\CaCO3	500	800
NITRITE	960 ppm	800	1200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	63.5 ppm\CaCO3	N/A	N/A
CHLORIDES	79 ppm	N/A	N/A
CONDUCTIVITY	481 uS	N/A	N/A
HARDNESS	136 ppm\CaCO3	N/A	N/A
Iron	0 ppm	N/A	N/A
MAGNESIUM	72 ppm\CaCO3	N/A	N/A
M-ALK	172 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
pH	7.64 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	23.6 ppm	N/A	N/A
SULFATE(SO4)	5 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Prairie View State School

System I.D.: Closed system (Non-Potable Hot & Chilled)

Recommendations:

Maintain chemical treatment parameters, 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Prairie View State School		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment 2 Generic Gallon Pot Feeder		
_____ Drumless, Bulk Storage		_____ Conventional Drum
Facility: Prairie View State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
Generic 2 gallon pot feeder		

_____ Drumless, Bulk Storage	___X___ Conventional Drum
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RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Rolling Meadows State School

SystemName: Closed Loop (Hot and Chilled)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3095 uS	2800	3800
M-ALK	710 ppm/CaCO3	500	800
NITRITE	600 ppm	800	1200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	36.6 ppm	N/A	N/A
CHLORIDES	21.9 ppm	N/A	N/A
TDS	223 ppm	N/A	N/A
HARDNESS	136 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
Magnesium(Mg)	10.8 ppm/CaCO3	N/A	N/A
M-ALK	N/A ppm/CaCO3	N/A	N/A
NITRATE(NO3)	10 ppm	N/A	N/A
P-ALK	N/A ppm/CaCO3	N/A	N/A
pH	7.44 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A
SILICA(SiO2)	N/A ppm	N/A	N/A
SULFATE(SO4)	47.1 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Rolling Meadows State School

System I.D.: Closed system (Non-Potable Hot & Chilled)

Recommendations:

Maintain chemical treatment parameters, 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Rolling Meadows State School		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Same as Closed Loop Cooling		
Existing Equipment Generic 2 gallon pot feeder		
_____ Drumless, Bulk Storage ___X___ Conventional Drum		

Facility: Rolling Meadows State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
Generic 2 gallon pot feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

DESE – Shady Grove State School, Poplar Bluff

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	360 ppm/CaCO3	300	600
M-ALK	320 ppm/CaCO3	300	600
POLYMER	5 ppm	4	8
TDS	1600 uS	1200	1800

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3200 uS	500	6000
NITRITE	1100 ppm	800	1200
HARDNESS	440 ppm/CaCO3	N/A	N/A
M-ALK	500 ppm/CaCO3	N/A	N/A
pH	8.6 unit	6.5	8.5

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2800 uS	2200	3000
NITRITE	1000 ppm	800	1200
M-ALK	510 ppm/CaCO3	N/A	N/A
pH	9.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	180 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	475 uS	N/A	N/A
HARDNESS	260 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	40 ppm/CaCO3	N/A	N/A
M-ALK	288 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.7 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.7 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	4 ppm	N/A	N/A

SULFATE(SO4) 15 ppm N/A N/A

Proposed Water Treatment Program(s)

Facility: DESE Shady Grove State School, Poplar Bluff

System I.D.: 1 Thermal Solutions Hot Water Boiler, 20 hp.

Make-Up Water: City water Make up - Hard Water

Recommendations: Maintain chemical treatment parameters at 900 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

System ID Chilled Water Closed Loop.

Make-Up Water: City water Make up - Hard Water

Recommendations

Chilled water is using WLFT 839 Nitrite based corrosion inhibitor.

System ID Cooling Tower: Thermal Pak, 70 Ton

Make-Up Water: City water, make-up hard

Recommendations:

- 1 Replace recirculation pump used for providing condenser water to the conductivity control (i.e conductivity probe).
- 2 Recommend that the system be maintained with a scale removing treatment. Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: DESE – Shady Grove State School, Poplar Bluff		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4714	0.6 gallons	75 gallons
Verox 8	0.5 gallons	20 gallons
AM 714	0.5 gallons	20 gallons
Equipment American Analog Conductivity Controller, QTY = 1		

Pulsafeeder Model LC54 Chemical Feed Pump, Qty = 3

Facility: DESE – Shady Grove State School, Poplar Bluff		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839		
Equipment (include make, model, and quantity)		
By-Pass Feeder, Wingert Model 2HD		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: DESE – Shady Grove State School, Poplar Bluff		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839		
Equipment A by-pass feeder; Wingert Model 2HD		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Trails West State School

SystemName: Cooling Tower

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	720 uS	1000	1200
HARDNESS	77 ppm/CaCO3	400	600
M-ALK	25 ppm/CaCO3	400	600
pH	8.57 unit	8.8	9.2
POLYMER	4 ppm	4	8

SystemName: Closed Loop Hot/Cold

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3704 uS	2800	3800
pH	11.29 ppm	0	0.5
M-ALK	N/A ppm/CaCO3	500	800
NITRITE	880 ppm	800	1200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	51 ppm/CaCO3	N/A	N/A
CHLORIDES	21 ppm	N/A	N/A
CONDUCTIVITY	644 uS	N/A	N/A

HARDNESS	71	ppm/CaCO3	N/A	N/A
Iron (Fe)		ppm	N/A	N/A
Magnesium(Mg)		ppm/CaCO3	N/A	N/A
M-ALK	21	ppm	N/A	N/A
P-ALK		ppm/CaCO3	N/A	N/A
pH	8.5	unit	N/A	N/A
PHOSPHATE		ppm	N/A	N/A
SILICA(SiO2)		ppm	N/A	N/A
SULFATE(SO4)		ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Trails West State School

System I.D.: Closed system (Non-Potable Hot and Chilled)

Recommendations:

Closed system should be filtered to help clean and maintain treatment.

- 1) Systems have functional pump and 200-gallon bulk tank in place.

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

The water tower is scheduled to be replaced. If this is done a pacification program will need to be run for 60 to 90 days. The tower has not cycled up to date.

Recommend that the system be maintained with a scale removing treatment. Installing a Contacting head water meter is most efficient way to feed the treatment. Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. *Plugging of screens, strainers, and distribution decks by these deposits is eliminated.*

WATER TREATMENT PROGRAM

Facility: Trails West State School		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 Gallons	30 Gallon
Verox-8	0.5 Gallons	5 Gallon
AM-714 Biocide	1.5 Gallons	5 Gallon
Existing Equipment (include make, model, and quantity)		
Advantage Cooling Tower Control SSCPOF3E-H1		
(1) LMI J021 Chemical Pump		
(1) Pulsafeed CB03SA Chemical Pump		
(1) Belimo Motorized Ball Valve		

<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum
---	---

Facility: Trails West State School		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
5 gallon pot feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum	

Facility: Trails West State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Same as Closed Loop, Hot		
Existing Equipment (include make, model, and quantity)		
<input type="checkbox"/> Drumless, Bulk Storage	<input type="checkbox"/> Conventional Drum	

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)

DESE Verelle Peniston State School
 SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	5500 uS	2200	3000
NITRITE	1600 ppm	800	1000
pH	11.7 unit	N/A	N/A

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1900 uS	2200	3000
NITRITE	500 ppm	800	1000
HARDNESS	10 ppm/CaCO3	N/A	N/A
pH	11.8 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	42 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	380 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A

530 South 5th St. * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

Magnesium(Mg)	63 ppm/CaCO3	N/A	N/A
M-ALK	112 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	8.1 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	24.25 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: DESE Verelle Peniston State School

System I.D: Power Fin Lockinvar 220,000 BTU Hot Water Boiler

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up no softening

Recommendations: Both Loops have high suspended solids. Arrangements have been made with Nick Kern to Drain and Flush both systems this summer (2014)

WLFT will provide a Nitrite Test Kit train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: DESE Verelle Peniston State School		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	Conventional Drum

Facility: DESE Verelle Peniston State School		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Albany Regional Center

SystemName: Closed Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	6600 uS	2800	3800
pH	9.71 unit	8.4	10.1
NITRITE	1200 ppm	800	1200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	N/A ppm/CaCO3	N/A	N/A
CHLORIDES	N/A ppm	N/A	N/A
CONDUCTIVITY	515 uS	N/A	N/A
HARDNESS	320 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
Magnesium(Mg)	N/A ppm/CaCO3	N/A	N/A
M-ALK	270 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	N/A ppm	N/A	N/A
P-ALK	N/A ppm\CaCO3	N/A	N/A
pH	7.8 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A
SILICA(SiO2)	N/A ppm	N/A	N/A
SULFATE(SO4)	N/A ppm	N/A	N/A

Proposed Water Treatment Program(s)
Facility: Albany Regional Center
System I.D.: Closed system (Non-Potable)
Recommendations

System needs to be drained and flushed with #96 Cleaner. After Cleaning NO₃ should be boosted to chemical treatment parameters, 800-1200 mg/l as NO₃, to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

WATER TREATMENT PROGRAM

Facility: Albany Regional Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 gallons	
#839	40 Gallons	
# 96 Cleaner	1 Gallon	
Existing Equipment (include make, model, and quantity)		
5 gallon pot feeder		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

MH BELLEFONTAINE HABILITATION CENTER

10695 Bellefontaine Road, St. Louis, MO 63137

SystemName: COOLING TOWER- MULTIPURPOSE BLDG

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	210 ppm\CaCO3	200	800
M-ALK	200 ppm\CaCO3	200	500
POLYMER	5 ppm	4	10
CONDUCTIVITY	1500 uS	1800	2200

SystemName: Closed Loop- MULTIPURPOSE BLDG

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1400 uS	500	6000
NITRITE	800 ppm	800	1200
pH	9.8 unit	6.5	8.5

SystemName: Pool

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	300 ppm\CaCO3	250	500
OH-ALK	100 ppm\CaCO3	200	400
P-ALK	100 ppm\CaCO3	250	400
POLYMER	0.3 ABS	0.3	0.6
SULFITE(SO3)	10 ppm	30	60
CONDUCTIVITY	2300 uS	2000	3000

SystemName: Unit #1 (wet layup)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	690 ppm\CaCO3	250	500
OH-ALK	290 ppm\CaCO3	200	400
P-ALK	200 ppm\CaCO3	250	400
POLYMER	0. ABS	0.3	0.6
SULFITE(SO3)	80 ppm	30	60
CONDUCTIVITY	4170 uS	2000	3000

SystemName: Warehouse

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	900 ppm\CaCO3	250	500
OH-ALK	400 ppm\CaCO3	200	400
P-ALK	250 ppm\CaCO3	250	400
POLYMER	0.05 ABS	0.3	0.6
SULFITE(SO3)	120 ppm	30	60
CONDUCTIVITY	3150 uS	2000	3000

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Bellefontaine Habilitation Center, St. Louis

System I.D.: Fulton Steam boilers.

Pool: 3 x 30 hp with hard water make-up.

Unit #1: 2 x 15 hp with hard water make-up.

Warehouse: 3 x 30 hp with hard water make-up.

Load: HVAC comfort heating, approximate six month usage.

There is currently in place a project to acid clean these boilers. It was originally scheduled to be done in May, postponed till August by the facility

Chemical Program: Walter Louis 157L (phosphate/sulfite/amine).

Method for injection: Pulsatrol pump – directly into feedwater tank.

Blowdown: Manually per operator per TDS test.

System I.D.: Cooling Towers (Multipurpose Building

Make-Up Water: 100% hard water.

Recommendations:

1. Multipurpose Building: 120 Tons, Trane Chillers, BAC Cooling Tower.
2. Needs a conductivity controller. Operator has to manually feed and bleed

WATER TREATMENT PROGRAM

Facility: MH Bellefontaine Habilitation Center- St. Louis		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 157L	3 Gallon	200 gallons
Note: WLFT 157L "Multifunctional" liquid boiler compound – treats boiler, deaerator/feedwater, and steam system. 180 gallons required in total for all three steam boiler systems.		
Equipment: 3 LMI P041-151 pumps		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: MH Bellefontaine Habilitation Center- St. Louis		
COOLING TOWERS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.6 gallons	30 gallons
WLFT Verox 8	0.5 gallons	30 gallons
WLFT 714	.5 gallons	30 gallons
Equipment : LMI P121 pumps (2) in place		
Moor Control Model SYS-A-S Tower Control (Does not work)		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: MH Bellefontaine Habilitation Center- St. Louis		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallon	
Equipment 2 gallon Generic Bypass Feeders		
_____ x _____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

Facility: MH Bellefontaine Habilitation Center- St. Louis		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	
Equipment 2 gallon Generic Bypass Feeders		
_____ Drumless, Bulk Storage	_____ x _____	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
FULTON STATE HOSPITAL
600 East 5th Street, Fulton, MO 65251

SystemName: COOLING TOWER- HEARNES BLDG
Two x 400 Ton chillers off line – no condenser testing available; chilled loop nitrite at 580 ppm.

SystemName: COOLING TOWER - BIGGS BLDG
Two x 325 Ton chillers off line – no condenser testing available; chilled loop nitrite at 650 ppm.

SystemName: COOLING TOWER – GOULMANN BLDG
Two x 400 Ton chillers off line – no condenser testing available; chilled loop nitrite at 620 ppm.

SystemName: CLOSED LOOPS (HOT/CHILLED)

<u>BUILDING</u>	<u>TDS</u>	<u>Nitrite(ppm)</u>
HOPE CTR	2100	520
HEARNES	1700	580
GOULMANN 1-4	1800	620
BVE BLDG	1700	480
BIGGS	2000	650
Low Range-	1000	800
High Range	4000	1200

SystemName: STEAM BOILER SYSTEM
SystemName: BOILER 6

<u>PROCEDURE</u>	<u>Result:</u>	<u>LoLimit:</u>	<u>HiLimit:</u>
M-ALK	1120 ppm/CaCO3	400	800
OH-ALK	880 ppm/CaCO3	200	400
P-ALK	1000 ppm/CaCO3	400	80
POLYMER	0.27 abs	0.3	0.6
SULFITE(SO3)	40 ppm	30	60
TDS	2500 uS	2000	3000

SystemName: CONDENSATE (Square Tank)

<u>PROCEDURE</u>	<u>Result:</u>	<u>LoLimit:</u>	<u>HiLimit:</u>
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	44 ppm/CaCO3	30	50
pH	8.9 unit	8.2	9.5
TDS	60 uS	20	80

SystemName: FEEDWATER

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	50 ppm\CaCO3	5	100
Softener Hardness	0 ppm\CaCO3	0	0
TDS	110 uS	100	200

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm\CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Fulton State Hospital – Fulton, MO

System I.D.: Steam System

1. Three Cleaver Brooks Firetube Boilers [140MMlbs/yr]
2. 100% Soft Water Make-up
3. Approximately 75% Condensate Return
4. RO system has been installed .

Recommendations:

- (1) Maintain existing chemical treatment parameters. FSH chemical program demonstrates consistent program management, record-keeping, follow-up and equipment maintenance.
- (2) Train all FSH power plant personnel on WLFT computer based software (E-Service).

System I.D.: Cooling Towers (Biggs/Hearnes/Goulmann)

1. Hearnes bldg. is on soft make-up water and servicing the Cremer building.
2. All chemical injections controlled by the WLFT controller and water meter.

Recommendations:

- (1) Conversions to Softwater make-up from acid feed is in progress This should increase the safety and efficiency of the program
- (2) Train all FSH HVAC personnel on WLFT computer based software (E-Service).

(3) If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

Closed Loop System:

1. Closed loop chemical is WLFT 839 corrosion inhibitor.
2. All chemical is injected thru a by-pass feeder.

WATER TREATMENT PROGRAM

Facility: Fulton State Hospital		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel Save-Stabilizer	0.18 Gallons	0.288 Gallons
STORAGE VOLUME #2 DIESEL = 16,000 GAL		
Equipment (include make, model, and quantity)		
_____ Drumless, Bulk Storage _____ x _____ Conventional Drum		

Facility: MH Fulton State Hospital		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
1495		110 gallons
LC-25		40 gallon
Equipment Neptune 515 Pump		
_____ x _____ Drumless, Bulk Storage _____ Conventional Drum		

Facility: MH Fulton State Hospital		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595		75 Gallons
Equipment Neptune 515 Pump		
r/a		
_____ x _____ Drumless, Bulk Storage _____ Conventional Drum		

Facility: MH Fulton State Hospital		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535		90 gallons
Equipment Neptune 515 Pump		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: MH Fulton State Hospital		
COOLING TOWERS (Hearnes/Biggs/Goulmann)		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.6 gallons	300 gallons
WLFT Verox-8	0.8 gallons	200 gallons
WLFT 206	1.5 gallons	200 gallons
WLFT 7351	.6 gallon	150
Sulfuric acid	N/A	100
Equipment : Conductivity Controller and pumps in place		
Conductivity Controller Biggs WLFT PCS Dual tower Control with pH		
Conductivity Controller Goulmann WLFT PCS Single tower Control with pH		
Conductivity Controller Hearns WLFT Advantage SS		
Qty 10 LMI P051 GPH Pumps		
Qty 4 Pulsafeeder 1 GPH Pumps		
Qty 1 Advantage 1GPH Pump		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: MH Fulton State Hospital		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	25 gallons
Equipment (include make, model, and quantity) None		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: MH Fulton State Hospital		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	25 gallons
Equipment (include make, model, and quantity) None		

RFP B3Z014153

Section 3.7.2 Water Analysis, Systems & Make-up(raw water)

MH HAWTHORN PSYCHIATRIC CENTER

1901 PENNSYLVANIA ST. LOUIS, MO 63133

SystemName: HOT WATER BOILER

Boiler drained for repairs

2 45 horsepower Burnham boilers with 5 gallon pot feeder

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D.: Hot Water Boiler

Make-Up Water: City Water

Recommendations: Sufficient WLFT 839 should be added to achieve a Nitrite level of 800 to 1200 ppm when system is repaired

Facility: HAWTHORN PSYCHIATRIC CENTER		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Higginsville Habilitation Center

System Name: Dietary Laundry Building
Steam Boiler 1 (Online)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4463 uS	2800	3800
P-ALK	ppm	0	0.5
M-ALK	37 ppm\CaCO3	500	800
Sulfite	83 ppm	900	1000
pH	7.38 unit	9	11
POLYMER	6 ppm	4	8
PHOSPHATE	17 ppm	N/A	N

System Name: Dietary Laundry Building
Steam Boiler 2 (Offline) (DRAINED)

Dietary Laundry Building
Water Softener Make Up

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	0 ppm\CaCO3	N/A	N/A
CHLORIDES	31 ppm	N/A	N/A
CONDUCTIVITY	500 uS	N/A	N/A
HARDNESS	0 ppm\CaCO3	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	8.17 unit	N/A	N/A

Dietary Laundry Building
Feed Water

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	17.42 uS	N/A	N/A
HARDNESS	0 ppm\CaCO3	N/A	N/A
M-ALK	0 ppm\CaCO3	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	10.88 unit	8.0	8.5

System Name: Ed. Building
Steam Boiler

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3847 uS	2800	3800
P-ALK	ppm	0	0.5
OH-ALK	160 ppm\CaCO3	500	800
Sulfite	137 ppm	900	1000
pH	10.41 unit	9	11
POLYMER	6 ppm	4	8
PHOSPHATE	17 ppm	N/A	N

System Name: Ed. Building
Condensate

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	20.81 uS	N/A	N/A
HARDNESS	0 ppm/CaCO3	N/A	N/A
M-ALK	0 ppm/CaCO3	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	8.17 unit	8.0	8.5

Chilled Water
System Name:
D Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2458 uS	2800	3800
M-ALK	ppm/CaCO3	500	800
NITRITE	1320 ppm	900	1000
P-ALK	ppm/CaCO3	N/A	N/A
Glycol	15 %	25%	30%
pH	10.63 unit	9.5	10.5

F Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3928 uS	2800	3800
M-ALK	ppm/CaCO3	500	800
NITRITE	1640 ppm	900	1000
P-ALK	ppm/CaCO3	N/A	N/A
Glycol	10 %	25%	30%
pH	9.8 unit	9.5	10.5

C Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3628 ppm/CaCO3	500	800
NITRITE	1200 ppm	900	1000
P-ALK	ppm/CaCO3	N/A	N/A
Glycol	15 %	25%	30%
pH	9.58 unit	9.5	10.5

B Building West

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	620 uS	2800	3800
M-ALK	ppm/CaCO3	500	800
NITRITE	160 ppm	900	1000
P-ALK	0 ppm/CaCO3	N/A	N/A
Glycol	0 %	25%	30%
pH	9.94 unit	9.5	10.5

B Building East

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	11'809 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	2800 ppm	900	1000
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	11.2 unit	9.5	10.5
Glycol	0 %	25%	30%

E Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3441 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	1240 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
Glycol	15 %	25%	30%
pH	9.87 unit	9.5	10.5

Hot Water Heating Loops

D Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3590 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	1160 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	10.39 unit	9.5	10.5

F Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3051 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	920 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	11.04 unit	9.5	10.5

C Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	4046 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	1120 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	10.39 unit	9.5	10.5

B Building

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1767 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	240 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	11.4 unit	9.5	10.5

Ed. Building common Hot and Chilled (Ragland)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	958 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	40 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	8.3 unit	9.5	10.5

E Cottage

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	4171 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	1680 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	9.76 unit	9.5	10.5

A. Building

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2605 uS	2800	3800
M-ALK	ppm\CaCO3	500	800
NITRITE	560 ppm	900	1000
P-ALK	ppm\CaCO3	N/A	N/A
pH	11.8 unit	9.5	10.5

System Name: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	137.25 ppm\CaCO3	N/A	N/A
CHLORIDES	14.6 ppm	N/A	N/A
CONDUCTIVITY	388 uS	N/A	N/A
HARDNESS	205 ppm\CaCO3	N/A	N/A
Iron	.00237 ppm	N/A	N/A
MAGNESIUM	67.65 ppm\CaCO3	N/A	N/A
M-ALK	153 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.42 ppm	N/A	N/A
pH	8.46 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	2.1 ppm	N/A	N/A

SULFATE(SO4) 119 ppm N/A N/A
Proposed Water Treatment Program(s)

Facility: Higginsville Habilitation center

System I.D.: Dietary Laundry Steam Boilers

Make-Up Water: Soft Water

Recommendations:

Boiler #1 was online. The system has proper protection against corrosion, pitting, and sludge. We adjusted the levels and conductivity to decrease water usage and chemical consumption. The load on the boilers is minimal.

System I.D.: Ed Building Steam Boiler

Make-Up Water: Soft Water

Recommendations:

Test residuals looked good. The system has proper protection against corrosion, pitting, and sludge. We adjusted the levels and conductivity to decrease water usage and chemical consumption. The load on the boilers is minimal.

Recommendations:

Maintain existing chemical treatment parameters, 800-1000 mg/l as NO₃, to provide maximum corrosion inhibition and protection against metal loss. System has operated without any major incidents during last contract period.

Closed systems (Non-Potable Chilled water)

Most of the individual Buildings chilled water contains Glycol

System I.D: E Cottage

Recommendations: The system contains glycol with a Nitrite supplement. Chemical is added through a 5gallon Pot feeder. Glycol concentration is 15% which is not optimum. The Glycol levels should be increase to maximize protection. Chemical levels are good.

System I.D: F Cottage

Recommendations: The system contains glycol with a Nitrite supplement. Chemical is added through a 5gallon Pot feeder. Glycol concentration is 10% which is not optimum. The Glycol levels should be increase to maximize protection. Chemical levels are good.

System I.D: D Cottage

Recommendations: The system contains glycol with a Nitrite supplement. Chemical is added through a 5gallon Pot feeder. Glycol concentration is 15% which is not optimum. The Glycol levels should be increase to maximize protection. Chemical levels are good.

System I.D: Ed Building

Recommendations: The system is a common Hot and Chilled loop. Chemical is added through a 5 gallon Pot feeder. The system contains no glycol Nitrite at 40 ppm is very low. Additional WLFT 839 should be added to increase the nitrite to 600 to 1000ppm.

System I.D: B building West

Recommendations: The system contains no glycol chemical is fed through a 5 gallon Pot feeder. Nitrite level of 160 ppm is too low . Additional WLFT 839 should be added to increase the nitrite to 600 to 1000ppm.

System I.D: B building East

Recommendations: The system contains no glycol chemical is fed through a 2 gallon Pot feeder. Nitrite level of 2800 ppm is very high . No additional chemical need be added at this time.

Closed systems (Hot Water Heating Boilers)

All Building use identical "RITE" 450,000 BTU Hot water recirculating Boilers

System I.D: E Cottage This system contains a Nitrite based inhibitor. There is no Pot feeder to add additional chemical. This should be installed to facilitate chemical addition. Nitrite level is only 1680 ppm which is good for protection. No additional chemical need be added at this time.

System I.D: F Cottage This system contains a Nitrite based inhibitor. There is a 2 gallon Pot feeder to add additional chemical.. Nitrite level is only 920 ppm which is good for protection.. No additional chemical need be added at this time.

System I.D: D Cottage This system contains a Nitrite based inhibitor. There is a 2 gallon Pot feeder to add additional chemical.. Nitrite level is only 1160 ppm which is good for protection. No additional chemical need be added at this time.

System I.D: C Cottage This system contains a Nitrite based inhibitor. There is no Pot feeder to add additional chemical.. Nitrite level is only 1120 ppm which is good for protection. No additional chemical need be added at this time.

System I.D: A Building This system contains a Nitrite based inhibitor. There is a 2 gallon Pot feeder to add additional chemical.. Nitrite level is only 560 ppm which is too low for protection. Additional WLFT 839 should be added to increase the nitrite to 600 to 1000ppm..

WATER TREATMENT PROGRAM

Facility Higginsville Habilitation Center		
STEAM BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
157 L	3 gallons	50 gallons
592-L	.124 Gallons	30 gallons
55 gallon Mix tank		
Advantage Igph @ 110psi Chemical Injection Pump		
(1) LMI P121 Chemical Pump		
_____	Drumless, Bulk Storage	_____ X _____
		Conventional Drum

Facility: Higginsville Habilitation Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
2 gallon and 5 gallon pot feeders for most systems		
_____ x _____	Drumless, Bulk Storage	_____
		Conventional Drum

Facility: Higginsville Habilitation Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Thermal Guard HT1	2500 gal	
Equipment 2 gallon and 5 gallon pot feeders for most systems. Some need to be purchased		
*Inhibitor for cooling loop fed from same tank as hot loop.		
_____	Drumless, Bulk Storage	_____ X _____
		Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Joplin Regional Office

System Name: Closed Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3641 uS	2800	3800
pH	9.9 unit	9.5	10.5
NITRITE	1820 ppm	900	1000

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	58 ppm/CaCO3	N/A	N/A
CHLORIDES	33.4 ppm	N/A	N/A
CONDUCTIVITY	438 uS	N/A	N/A
HARDNESS	150 ppm/CaCO3	N/A	N/A
Iron	0 ppm	N/A	N/A
MAGNESIUM	92 ppm/CaCO3	N/A	N/A
M-ALK	140 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.4 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.8 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	N/A ppm	N/A	N/A
SULFATE(SO4)	25.1 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Joplin Regional Office

Maintain chemical treatment parameters, 800-1200 mg/l as NO₃ to provide maximum corrosion inhibition and protection against metal loss. The system was taken off line after the last testing was completed.

WATER TREATMENT PROGRAM

Facility: Joplin Regional Office		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
839		
Existing Equipment LMI Chemical Pump Model P121		
NONE		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

RFP NO.: B3Z14153 Exhibit E

530 South 5th St * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

Water Analysis, Systems & Make-up(raw water)

Marshall Habilitation Center – Automotive Building

System Name: Hot Water Heating Loop (DRAINED UNABLE TO TEST)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	uS	500	6000
Iron (Fe)	ppm	0	0.5
NITRITE	ppm	800	1200
HARDNESS	ppm\CaCO3	N/A	N/A
P-ALK	ppm\CaCO3	N/A	N/A
M-ALK	ppm\CaCO3	N/A	N/A
pH	unit	6.5	8.5
MOLYBDATE	ppm	N/A	N/A
SILICA(SiO2)		30	60

Proposed Water Treatment Program(s)

Facility: Marshall Habilitation Center – Automotive Building

System I.D: Hot Water Boiler, McNeil McCann, 30 hp, Hot Water Closed Loop

Make-Up Water: City water Make up Soft

Recommendations: Maintain chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

Marshall Habilitation Center – Power Plant

System Name: BOILER 1

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1910 uS	2000	3000
M-ALK	ppm\CaCO3	400	800
OH-ALK	189 ppm\CaCO3	200	400
P-ALK	ppm\CaCO3	400	800
PHOSPHATE	44 ppm	20	40
SULFITE(SO3)	72 ppm	30	60

System Name: BOILER 2

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1827 uS	2000	3000
M-ALK	ppm\CaCO3	400	800
OH-ALK	111 ppm\CaCO3	200	400
P-ALK	ppm\CaCO3	400	800
PHOSPHATE	47 ppm	20	40
SULFITE(SO3)	43 ppm	30	60

System Name: CONDENSATE

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	59.66 uS	20	80
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	.01 ppm	0	0.5
M-ALK	ppm\CaCO3	30	50
pH	8.67 unit	8.2	9.5

System Name: FEEDWATER

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUNTIVITY	249 uS	100	200
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	0 ppm	0	0.5
M-ALK	0 ppm\CaCO3	5	100
Softener Hardness	0 ppm\CaCO3	0	0

System Name: Soft Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	0 ppm/CaCO3	N/A	N/A
CHLORIDES	ppm	N/A	N/A
CONDUCTIVITY	518 uS	N/A	N/A
HARDNESS	0 ppm/CaCO3	N/A	N/A
pH	7.7 unit	N/A	N/A

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	63.5 ppm/CaCO3	N/A	N/A
CHLORIDES	79 ppm	N/A	N/A
CONDUCTIVITY	481 uS	N/A	N/A
HARDNESS	136 ppm/CaCO3	N/A	N/A
Iron	0 ppm	N/A	N/A
MAGNESIUM	72 ppm\CaCO3	N/A	N/A
M-ALK	172 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
pH	7.64 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	23.6 ppm	N/A	N/A
SULFATE(SO4)	5.19 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Marshall Habilitation Center – Power Plant (Boiler Building)

System I.D.: 2 - Steam Boilers / 250 hp, 300 hp / Monthly alternate / 85% Condensate return

Make-Up Water: 100% Softened

Recommendations:

The boilers are opened for inspection. The numbers reflect the testing ran before the boilers were opened. Maintain necessary chemical treatment in the boilers. Testing is done on a daily basis to maintain chemical levels.

NOTE: Rick said Wilson and Jamison systems have been shut down. The only boilers that have been and will be used are Automotive and the Power Plant/Boiler Building.

WATER TREATMENT PROGRAM

Facility: Marshall Habilitation Center – Power Plant		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 157-L	3 gallons	60 gallon
Equipment (include make, model, and quantity)		
1 each LMI Series P151 Chemical Feed Pump		
Stainless Steel Mix Tank 100GPH		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: Marshall Habilitation Center – Power Plant		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067	15 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series P151 Chemical Feed Pump		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: Marshall Habilitation Center – Power Plant		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) Per 10,000 Gallons Treated	Annual Quantity

WLFT 1545	0.4 gallons	15 gallons
Equipment (include make, model, and quantity)		
1 each LMI Series P151 Chemical Feed Pump		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: Marshall Habilitation Center – Power Plant		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Chemical is fed manually, through existing pot feeder.		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: Marshall Habilitation Center – Power Plant		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT #839	40 gallons	
Equipment (include make, model, and quantity)		
*This system is fed by same equipment that feeds the hot loop, as this is a 2-pipe system.		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
MH METROPOLITAN ST. LOUIS PSYCHIATRIC CENTER
5351 Delmar, St. Louis, MO 63112

SystemName: Cooling Tower

CaHardness(Ca)	40	ppm/CaCO3	40	300
CONDUCTIVITY	2400	uS	1000	1400
pH	8.9	unit	N/A	N/A
M-ALK	280	ppm/CaCO3	350	400
Polymer	5	ppm	4	8

SystemName: Closed Loop, Chilled

PROCEDURE	Result:		LoLimit:	HiLimit:
HARDNESS	0	ppm/CaCO3	0	0
HWS NITRITE	1000	ppm	800	1200
M-ALK	1200	ppm/CaCO3	500	1000
CONDUCTIVITY	2600	micromhos	1000	3500

SystemName: Hot Water Boiler System

PROCEDURE	Result:		LoLimit:	HiLimit:
HARDNESS	0	ppm/CaCO3	0	0
HWS NITRITE	920	ppm	800	1200
M-ALK	1200	ppm/CaCO3	500	1000
CONDUCTIVITY	2600	micromhos	1000	3500

SystemName: Raw Water Supply

PROCEDURE	Result:		LoLimit:	HiLimit:
CaHardness(Ca)	47.5	ppm/CaCO3	N/A	N/A
CHLORIDES	29	ppm	N/A	N/A
CONDUCTIVITY	350	uS	N/A	N/A
HARDNESS	140	ppm/CaCO3	N/A	N/A
Iron (Fe)	0	ppm	N/A	N/A
Magnesium(Mg)	73.8	ppm/CaCO3	N/A	N/A
M-ALK	85	ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.6	ppm	N/A	N/A
pH	9.7	unit	N/A	N/A
PHOSPHATE	0.47	ppm	N/A	N/A
SILICA(SiO2)	6.00	ppm	N/A	N/A
SULFATE(SO4)	19.2	ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: MH Metropolitan St. Louis Psychiatric Center

System I.D.: Chiller/Cooling Tower (HVAC comfort cooling/seasonal only)

Make-Up Water: 100% softened water

Recommendations

1. 2 York ,450 Ton each
2. Chemical pumps (3), tanks (55 gallon polyethylene), and Advantage conductivity controller system all relatively new and fully operational. By-pass feeder on closed (chilled) loop fully functional. No changes required
3. If tower use is seasonal , addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Hot Water Boilers

Make-Up Water: 100% Softened

Recommendations:

- (1) Three Cleaver Brooks hot water boilers, rated at 80 horsepower each. One (1) Cleaver Brooks hot water boiler rated at 20 horsepower. By-pass feeder installed on common header
- (2) Nitrite level normal in all closed loops.

WATER TREATMENT PROGRAM

Facility: MH Metropolitan St. Louis Psych Center		
COOLING TOWERS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707		75 gallons
VEROX 8		10 gallons
WLFT AM-714		12 gallons
Equipment (include make, model, and quantity) 3 Pulsatron pumps model YTHIJIE2-CRG		
30 GPD 100PSI Conductivity controller Model GCT210BCFS2		
_____ Drumless, Bulk Storage	_____ x	_____ Conventional Drum

Facility: MH Metropolitan St. Louis Psych Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	30 gallons
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x	_____ Conventional Drum

Facility: MH Metropolitan St. Louis Psych Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	10 gallons
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x	_____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
MH MISSOURI SEXUAL OFFENDER TREATMENT CENTER –
1016 West Columbia, Farmington, MO 63640

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2800 uS	2200	3000
NITRITE	950 ppm	800	1200
M-ALK	850 ppm\CaCO3	N/A	N/A
pH	10.8 unit	N/A	N/A

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2700 uS	2200	3000
NITRITE	1050 ppm	800	1200
HARDNESS	40 ppm\CaCO3	N/A	N/A
M-ALK	650 ppm\CaCO3	N/A	N/A
pH	10.5 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	130 ppm\CaCO3	N/A	N/A
CHLORIDES	14 ppm	N/A	N/A
CONDUCTIVITY	590 uS	N/A	N/A
HARDNESS	280 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.20 ppm	N/A	N/A
Magnesium(Mg)	168 ppm\CaCO3	N/A	N/A
M-ALK	270 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	10.5 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.1 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	10 ppm	N/A	N/A
SULFATE(SO4)	7.4 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Closed loops, water recirculating HVAC comfort heating/cooling. One pot feeder (Wingert 5 gal each) per system..

System I.D: Heat. Shell and tube heat exchanger. Steam is supplied by Farmington Correctional Center.

System ID: Chilled Water Closed Loop (all rooftop air cooled condensers less than 40 ton each).

Make-Up Water: City water Make up no softening
Recommendations:

- (1) Chemical Level (nitrite) in both loops - adequate. Recommend nitrite be maintained at 800-1200 ppm.

WATER TREATMENT PROGRAM

Facility: MH MO Sexual Offender Treatment Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	2.5 gallons
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: MH MO Sexual Offender Treatment Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	2.5 gallons
Equipment		
Generic 2 Gal Bypass Feeder		

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Nevada Mental Health Habilitation

System Name: BOILER 1

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4078 uS	2000	3000
M-ALK	231 ppm/CaCO3	400	800
OH-ALK	110 ppm/CaCO3	200	400
P-ALK	ppm/CaCO3	400	800
PHOSPHATE	17 ppm	20	40
SULFITE(SO3)	32 ppm	30	60

System Name: CONDENSATE

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	183 uS	20	80
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	.18 ppm	0	0.5
M-ALK	ppm/CaCO3	30	50
pH	8.33 unit	8.2	9.5

System Name: FEEDWATER

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUNTIVITY	698 uS	100	200
HARDNESS	0 ppm/CaCO3	0	0
Iron (Fe)	3.1 ppm	0	0.5
pH	9.22 ppm/CaCO3	5	100
Softener Hardness	0 ppm/CaCO3	0	0

System Name: Soft Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	0 ppm/CaCO3	N/A	N/A
CHLORIDES	ppm	N/A	N/A
CONDUCTIVITY	773 uS	N/A	N/A
HARDNESS	0 ppm/CaCO3	N/A	N/A
pH	8.7 unit	N/A	N/A

System Name: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	720 uS	2200	3000
NITRITE	80 ppm	800	1200
HARDNESS	ppm/CaCO3	N/A	N/A
pH	9.38 unit	N/A	N/A

System Name: Tower Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	80 ppm/CaCO3	N/A	N/A
CHLORIDES	111 ppm	N/A	N/A
CONDUCTIVITY	1172 uS	N/A	N/A
HARDNESS	111 ppm/CaCO3	N/A	N/A
M-ALK	51 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.7 ppm	N/A	N/A
pH	8.27 unit	N/A	N/A
PHOSPHATE	3 ppm	N/A	N/A

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	55 ppm/CaCO3	N/A	N/A
CHLORIDES	161 ppm	N/A	N/A
CONDUCTIVITY	725 uS	N/A	N/A
HARDNESS	96 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.11 ppm	N/A	N/A
Magnesium(Mg)	40.8 ppm/CaCO3	N/A	N/A
M-ALK	270 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.012 ppm	N/A	N/A
pH	8.22 unit	N/A	N/A
PHOSPHATE	0.10 ppm	N/A	N/A
SILICA(SiO2)	2.2 ppm	N/A	N/A
SULFATE(SO4)	72.8 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Nevada Mental Health Habilitation

System I.D.: 2 – Cleaver Brooks Steam Boilers (200 hp each), PSI: 70 (winter), PSI: 40 (summer)

Make-Up Water: City water Make up Soft Water

Recommendations: Condensate return system produces frequent “slugs” of iron sediment. Source of iron is due to age of condensate return piping. Iron sediment can cause damage to feedwater pumps and eventual redeposition in boiler internals. Recommend the installation of a by-pass type iron filter on main condensate return line. The underground steam lines leading to the other buildings all leak. Also recommend a more efficient distribution of chemicals into the boiler and DA tank.

System ID: Chilled Water Closed Loop,

Make-Up Water: City water Make up Hard Water

Recommendations

Chilled water has no chemical. The water is at city water levels.

WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility should obtain a Nitrite test kit to monitor and maintain the Chilled and Hot Water systems.

System ID: 3 – Marley Cooling Towers (Total Tonnage: 300 Tons)

Make-up Water: City water make up, hard water

Recommendations:

Recommend a partially softened make-up water supply to the cooling tower.

The ideal make-up range is 40-60 ppm total hardness. Reduction in make-up water total hardness will allow for significant water savings, reduced chemical consumption, and adequate scale/corrosion protection.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: Nevada Mental Health Habilitation		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	150 gallons
Equipment (include make, model, and quantity)		
(BOILER) - (3) LMI P141 Chemical Pumps		
_____ x _____ Drumless, Bulk Storage		
_____ x _____ Conventional Drum		

Facility: Nevada Mental Health Habilitation		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	150 gallons
Equipment (include make, model, and quantity)		
_____ x _____ Drumless, Bulk Storage		
_____ x _____ Conventional Drum		

Facility: Nevada Mental Health Habilitation		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	155 gallons
Equipment (include make, model, and quantity)		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: Western Reception Diagnostic Correctional Center		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallon	120 gallons
WLFT AM-545	0.5 gallon	25 lbs
WLFT Verox 8	0.5 gallon	25 gallons
Equipment (include make, model, and quantity)		
- (2) LMI LB64SA, (1) LMI LB64SA Chemical Pumps		
Advantage Microtron Controller – Model LCFB-2E		
(1) 2" WATER METER		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: Nevada Mental Health Habilitation		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

Facility: Nevada Mental Health Habilitation		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Northwest Missouri Psych Rehab Center
St. Joseph Mo.

SystemName: Hot Water Boiler

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2500 uS	2200	4000
NITRITE	675 ppm	800	1200
pH	9.9 unit	10.0	11.0

SystemName: Chilled Water

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3600 uS	2200	4000
NITRITE	850 ppm	800	1200
pH	10.2 unit	10.0	11.0

SystemName: Domestic Hot water

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS)	35 ppm/CaCO3	N/A	N/A
CONDUCTIVITY	650 uS	N/A	N/A
pH	8.5 unit	N/A	N/A

SystemName: Domestic Hot water Softener Make up

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	0 ppm/CaCO3	N/A	N/A
CONDUCTIVITY	644 uS	N/A	N/A
pH	8.2 unit	N/A	N/A

SystemName: Cooling Tower Number 1
OFFLINE

SystemName: Cooling Tower Number 2

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	60 ppm/CaCO3	N/A	N/A
CONDUCTIVITY	1739 uS	1600	2000
pH	8.87 unit	N/A	N/A
HARDNESS	150 ppm/CaCO3	200	400
M-ALK	300 ppm/CaCO3	350	400
Polymer	8 ppm	4	8

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

System I.D.: Two 150 HP Cleaver Brooks Hot Water Boiler

Make-Up Water: 100% Softened

Recommendations: Only one boiler is online at a time.

System I.D.: Closed systems Chilled Water)

Make-Up Water: 100% Softened

Recommendations: Both Loops are well maintained with proper levels of chemical

System I.D.: Cooling tower Water:

Two McQuay WMC 250 Chillers. Each has a separate Plastic Marley Cooling Towers. The towers operate all season, and have heaters in the sump. Make up water is a blend of hard and soft water. The blend ratio is controlled by a manual mix valve. Cooling water treatment control consists of separate Advantage MDL LCF B-2 Controllers.

Recommendations: Tower Chemistry Levels are well maintained

Corrosion and scale control will be achieved using 7351 CTT. This blend of polymers and organic corrosion inhibitors will provide excellent results in the soft waters blend being used. Microbiological control will use Verox 8 stabilized Chlorine Dioxide for primary bacterial control. This will be supplemented with 206 Biodispersant. The combination will achieve very clean towers with low levels of biological activity.

If tower use is seasonal, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

System I.D.: Domestic Hot Water: Cold water tempering valves are causing erratic hardness levels. This should continue to be evaluated for scale build up.

Operator are actively maintaining records in the online database

WATER TREATMENT PROGRAM

Facility: Northwest Missouri Psych Rehab center St. Joe		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
7351	0.4gallons	75 gallons
206 Biodispersant	.5 gallons	25gallons
Verox 8	.5 gallons	30 gallons
Equipment (include make, model, and quantity)		
Two Advantage Mdl LCF B-2 Cooling Tower Controllers		
Four LMI P131-190s Chemical pumps for the Biocides		
Two Pulsatron A+LB 03SA 12 gpd for Cooling tower treatment		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Northwest Missouri Psych Rehab center St. Joe		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 gallon Neptune Bypass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Northwest Missouri Psych Rehab center St. Joe		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	
Equipment (include make, model, and quantity)		
Neptune 5 gallon By pass feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

**MH SIKESTON REGIONAL OFFICE 112 PLAZA DR., SIKESTON,
MO**

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2700 uS	2200	3000
Iron (Fe)	0.0 ppm	0	0.5
NITRITE	1150 ppm	800	1000
HARDNESS	140 ppm/CaCO3	N/A	N/A
P-ALK	550 ppm\CaCO3	N/A	N/A
M-ALK	750 ppm\CaCO3	N/A	N/A
pH	10.9 unit	N/A	N/A

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2200 uS	2200	3000
Iron (Fe)	0.0 ppm	0	0.5
NITRITE	1170 ppm	800	1000
HARDNESS	150 ppm/CaCO3	N/A	N/A
M-ALK	800 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	64 ppm/CaCO3	N/A	N/A
CHLORIDES	8 ppm	N/A	N/A
CONDUCTIVITY	210 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	36 ppm/CaCO3	N/A	N/A
M-ALK	106 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	9.25 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.2 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	15.25 ppm	N/A	N/A
SULFATE(SO4)	0 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Four pipe closed loop HVAC water based system. Two pot feeders (Wingert 5 gal each).

System I.D.: Bryan (3) Boilers at 50 hp each. Five gallon pot feeder. Vendor: WLFT. Closed System Treatment WLFT #893

System ID: Chilled Water Closed Loop (Trane Air Cooled Condenser, 100T). Five gallon pot feeder. Vendor WLFT. Closed System Treatment WLFT #893

Make-Up Water: City water Make up no softening

Recommendations:

- (1) Chemical Level in both loops - adequate.

WATER TREATMENT PROGRAM

Facility: MH Sikeston Regional Office		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	2.5 gallons
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

Facility: MH MH Sikeston Regional Office		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	2.5 gallons
Equipment		
Generic 2 Gal Bypass Feeder		

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

**MH : South County Habilitation Center,— 2312 Lemay Ferry Rd, St.
Louis**

NOTES:

- (1) NO WATER BASED SYSTEMS IN USE AT THIS FACILITY.
- (2) HVAC SYSTEM IS STANDARD FORCED AIR FURNACE (HEAT) AND
WALL AND/OR ROOF-TOP AIR COOLED CONDENSER/CHILLER.
- (3) NO WATER TREATMENT REQUIRED.

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

SOUTHEAST MO MENTAL HEALTH CENTER

1010 West Columbia Street, Farmington , MO

SystemName: COOLING TOWER- FORENSIC

HARDNESS	300	ppm/CaCO3	200	500
Iron (Fe)	0	ppm	0	0.5
M-ALK	360	ppm\CaCO3	300	500
Polymer	6	ppm	4	8
TDS	1300	uS	1000	1600

SystemName: COOLING TOWER –STAPLES BLDG

HARDNESS	300	ppm/CaCO3	200	500
Iron (Fe)	0	ppm	0	0.5
M-ALK	360	ppm\CaCO3	300	500
Polymer	6	ppm	4	8
TDS	1300	uS	1000	1600

SystemName: HOT WATER BOILER

PROCEDURE	Result:		LoLimit:	HiLimit:
HARDNESS	0	ppm/CaCO3	0	0
HWS NITRITE	950	ppm	900	3000
M-ALK	800	ppm\CaCO3	500	1000

SystemName: CHILLED LOOP –FORENSICS

PROCEDURE	Result:		LoLimit:	HiLimit:
HARDNESS	0	ppm/CaCO3	0	0
HWS NITRITE	1050	ppm	900	3000
M-ALK	750	ppm\CaCO3	500	1000

SystemName: CHILLED LOOP – STAPLES

PROCEDURE	Result:		LoLimit:	HiLimit:
HARDNESS	0	ppm/CaCO3	0	0
HWS NITRITE	980	ppm	900	3000
M-ALK	720	ppm\CaCO3	500	1000

*SystemName:*Raw Water Supply

PROCEDURE	Result:		LoLimit:	HiLimit:
CaHardness(Ca)	130	ppm/CaCO3	N/A	N/A
CHLORIDES	14	ppm	N/A	N/A
CONDUCTIVITY	590	uS	N/A	N/A
HARDNESS	280	ppm/CaCO3	N/A	N/A
Iron (Fe)	0.20	ppm	N/A	N/A
Magnesium(Mg)	168	ppm/CaCO3	N/A	N/A
M-ALK	270	ppm\CaCO3	N/A	N/A
NITRATE(NO3)	10.5	ppm	N/A	N/A
P-ALK	0	ppm\CaCO3	N/A	N/A
pH	7.1	unit	N/A	N/A
PHOSPHATE	0.10	ppm	N/A	N/A
SILICA(SiO2)	10	ppm	N/A	N/A
SULFATE(SO4)	7.4	ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Southeast MO Mental Health Center - Farmington

System I.D.: Hot & Chilled Closed Loops

Make-Up Water: 100% Softened

Recommendations:

1. Nitrite level very good in all closed loops.

System I.D.: Cooling Tower – Forensic

Make-Up Water: Well water supply.

Recommendations:

1. Record keeping and system management excellent.

System I.D.: Cooling Tower – Staples

Make-Up Water: Well water supply.

Recommendations:

1. Record keeping and system management excellent.

WATER TREATMENT PROGRAM

Facility: MH Southeast MO Mental Health Center - Farmington		
COOLING TOWERS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4714	0.6 gallons	120 gallons
WLFT Verox-8	0.8 gallons	55 gallons
WLFT AM-714	1.5 gallons	55 gallons
Equipment (include make, model, and quantity)		
Advantage Microton Controller, Qty = 1		
Advantage Microton B130 Chemical Feed Pumps, Qty = 3		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: MH Southeast MO Mental Health Center - Farmington		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	15 gallons
Generic 2 Gal Bypass Feeder		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: MH Southeast MO Mental Health Center - Farmington		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gal	15 gallons
Equipment Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

MH : St. Charles Habilitation Center- 22 Marr Lane, St. Charles, MO

SystemName: Hot/Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	1140 uS	2200	3000
Iron (Fe)	0.4 ppm	0	0.5
NITRITE	1100 ppm	800	1200
HARDNESS	300 ppm/CaCO3	N/A	N/A
P-ALK	150 ppm\CaCO3	N/A	N/A
M-ALK	640 ppm\CaCO3	N/A	N/A
pH	9.9 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	42 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	380 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	63 ppm/CaCO3	N/A	N/A
M-ALK	112 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	8.1 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	9.00 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: MH St. Charles Habilitation Center

System I.D.: Weil-McClain (2) Boilers, 40 hp each.

System ID: Chilled Water Closed Loop (Chiller-Trane, Air Cooled Condenser 100 Ton).

Make-Up Water: City water Make up no softening. Two pipe HVAC system (hot/chilled loop).

Recommendations:

(1). Maintain system parameters as is. WLFT corrosion inhibitor #839 in place.

WATER TREATMENT PROGRAM

Facility: MH St. Charles Habilitation Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	5 gallons
Equipment (include make, model, and quantity)		
2 Gallon Wingert By Pass Feeder		
_____ Drumless, Bulk Storage		_____ <input checked="" type="checkbox"/> _____ Conventional Drum

Facility: MH St. Charles Habilitation Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gal	5 gallons
Equipment 2 Gallon Wingert By Pass Feeder		

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

ST. LOUIS PSYCHIATRIC REHABILITATION CENTER

5300 ARSENAL, ST. LOUIS, MO 63139

SystemName: Cooling Tower C Mechanical Room

CaHardness(Ca)	185 ppm/CaCO3	40	300
CONDUCTIVITY	2400 uS	1000	1400
pH	8.9 unit	N/A	N/A
M-ALK	260 ppm\CaCO3	350	400
Polymer	1 ppm	4	8

SystemName: Chilled Loop "C" Mechanical Room

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm/CaCO3	0	0
HWS NITRITE	1200 ppm	800	1200
M-ALK	800 ppm\CaCO3	500	1000
Softener Hardness	0 ppm\CaCO3	0	0

SystemName: Cooling Tower Dome Bldg

CaHardness(Ca)	110 ppm/CaCO3	40	300
CONDUCTIVITY	990 uS	1000	1400
pH	8.9 unit	N/A	N/A
M-ALK	280 ppm\CaCO3	350	400
Polymer	5 ppm	4	8

SystemName: Chilled Loop Dome Bldg

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm/CaCO3	0	0
HWS NITRITE	1200 ppm	800	1200
M-ALK	800 ppm\CaCO3	500	1000
Softener Hardness	0 ppm\CaCO3	0	0

SystemName: Hot Water Boilers – "C" Mechanical Room

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	0 ppm/CaCO3	0	0
HWS NITRITE	1200 ppm	800	1200
M-ALK	800 ppm\CaCO3	500	1000
Softener Hardness	0 ppm\CaCO3	0	0

SystemName: Steam Boilers – Dome Bldg.

OFFLINE

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System I.D.: Cooling Tower Dome Bldg

System I.D.: Cooling Tower C Mechanical Room

Make-Up Water: 100% Hard water

Recommendations:

Corrosion and scale control will be achieved using 4707 CTT. This blend of polymers and organic corrosion inhibitors will provide excellent results in St.Louis's water. Microbiological control will use Verox 8 stabilized Chlorine Dioxide for primary bacterial control. This will be supplemented with WLFT # 206. The combination will achieve very clean towers with low levels of biological activity.

System I.D.: Closed system (Non-Potable Hot)

Recommendations:

Maintain existing chemical treatment parameters, 800-1200 mg/l as NO₃, to provide maximum corrosion inhibition and protection against metal loss. System has operated without any major incidents during last contract period.

WATER TREATMENT PROGRAM

Facility MH St. Louis Psychiatric Rehabilitation Center		
BOILER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1450	0.3 gallons	60 gallons
Equipment (include make, model, and quantity)		
LMI P141 Chemical Pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MH St. Louis Psychiatric Rehabilitation Center		
DEAERATOR		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 595	0.067 gallons	50 gallons
Equipment (include make, model, and quantity)		
LMI P141 Chemical Pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MH St. Louis Psychiatric Rehabilitation Center		
STEAM SYSTEMS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1535	0.4 gallons	30 gallons
Equipment (include make, model, and quantity)		
LMI P141 Chemical Pump		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MH St. Louis Psychiatric Rehabilitation Center		
COOLING TOWERS		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.6 gallons	180 gallons
WLFT Verox 8 Biocide	0.5 gallons	20 gallons
WLFT 206	.5 gallons	20 gallons
Equipment (include make, model, and quantity)		
Pulsatrol conductivity controller MVS1PA-XXX with three (3) Pulsatrol IGPH pumps		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MH St. Louis Psychiatric Rehabilitation Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT #839	10 gallons	
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MH St. Louis Psychiatric Rehabilitation Center		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	10 gallons	
Equipment (include make, model, and quantity)		
Generic 2 Gal Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

RFP B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
Western Mo Mental Health

SystemName: Closed Loop (Chilled)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	834 uS	2800	3800
M-ALK	73 ppm/CaCO3	500	800
NITRITE	240 ppm	900	1000
pH	10.73 unit	9.5	10.5

SystemName: Closed Loop (Hot)

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2786 uS	2800	3800
M-ALK	124 ppm/CaCO3	500	800
NITRITE	720 ppm	900	1000
pH	10.6 unit	9.5	10.5

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

SystemName: Tower Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2000 uS	1400	1800
HARDNESS	222 ppm/CaCO3	200	600
M-ALK	42 ppm/CaCO3	200	600
pH	8.28 unit	8.2	9.0
PHOSPHATE	9 ppm	4	8

Proposed Water Treatment Program(s)

Facility: Western MO Mental Health

System I.D.: Closed system (Non-Potable Chilled)

Recommendations:

The system was serviced and put back on line. The chemical levels have not returned to operating levels. The free Iron levels are high at 1.49ppm. It is recommended that filtration be used in this system to maintain the integrity of the chillers and help clean it up. It does not appear the system was flushed after service was completed.

System I.D.: Closed System (Hot)

Recommendations:

The hot loop has chemical treatment for necessary corrosion protection.

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

Estimated Contained Volume 2500 Gallon

The tower has chemical to protect against corrosion, algae, and bacteria.

Do to the seasonal use of the tower, addition of WLFT# 1248 Tower Lay-up Corrosion Inhibitor being used right before winter shutdown. This will result in rapid pacification of all metal surfaces to prevent corrosion. The tenacious inhibitor films protect metals immersed in the water as well as other wet, humid areas such as the air/water interface that exists in drained or partially drained systems. The use of #1248 prevents the formation and subsequent removal of loosened rust flakes and deposits on system start-up. Plugging of screens, strainers, and distribution decks by these deposits is eliminated.

WATER TREATMENT PROGRAM

Facility: Western MO Mental Health		
FUEL OIL TREATMENT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Fuel-Save Anti-bacterial/Stabilizer	.18 gallons	
Existing Equipment (include make, model, and quantity No equipment necessary, although it is desirable to circulate fuel oil if possible while fuel oil treatment is being added, to ensure good mixing.		
_____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility Western MO Mental Health		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#4707	0.4 gallons	120 gallons
Verox-8	.5 gallons	15 gallons
#206	0.5 gallons	15 gallons
Existing Equipment (include make, model, and quantity)		
Advantage SSCF-H1 Control w/Makeup Meter		
Qty 3 LMI A771-352SI Chemical Pump		
Side Stream Media Filter		
<input type="checkbox"/> Drumless, Bulk Storage		<input type="checkbox"/> Conventional Drum

Facility: Western MO Mental Health		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
5 gallon pot feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

Facility: Western MO Mental Health		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide		
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
5 gallon pot feeder		
<input type="checkbox"/> Drumless, Bulk Storage		<input checked="" type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water

Missouri Highway Patrol Crime Lab - Springfield

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3400 uS	2200	3000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	600 ppm/CaCO3	N/A	N/A
P-ALK	300 ppm\CaCO3	N/A	N/A
M-ALK	640 ppm\CaCO3	N/A	N/A
pH	9.9 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	137 ppm/CaCO3	N/A	N/A
CHLORIDES	17.2 ppm	N/A	N/A
CONDUCTIVITY	377 uS	N/A	N/A
HARDNESS	168 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	31 ppm/CaCO3	N/A	N/A
M-ALK	144 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	1.2 ppm	N/A	N/A
pH	7.7 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	3.1 ppm	N/A	N/A
SULFATE(SO4)	6.33 ppm	N/A	N/A

Proposed Water Treatment Program(s)

System ID: Chilled Water Closed Loop,

Make-Up Water: City water Make up is hard water.

Recommendations:

Chilled water has Nitrite based inhibitor.corrosion chemical in the system and within the proper parameters. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled water system. The chilled water loop is approximately 4000 gallons of water – a 4 floor building.

WATER TREATMENT PROGRAM

Facility: Mo. Highway Patrol Crime Lab – Springfield		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 5 gallon by-pass feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

Missouri Highway Patrol Academy

SystemName: Cooling Tower

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	510 ppm/CaCO3	300	600
M-ALK	490 ppm/CaCO3	300	600
POLYMER	8 ppm	4	8
CONDUCTIVITY	1500 uS	900	1500

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	6000 uS	500	6000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	160 ppm/CaCO3	N/A	N/A
P-ALK	730 ppm/CaCO3	N/A	N/A
M-ALK	860 ppm/CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2200 uS	2200	3000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	300 ppm	800	1200
HARDNESS	400 ppm/CaCO3	N/A	N/A
P-ALK	810 ppm/CaCO3	N/A	N/A
M-ALK	1230 ppm/CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	67 ppm/CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm/CaCO3	N/A	N/A
M-ALK	49 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SiO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Academy – Jefferson City, Mo.

System I.D.: Four Fulton Hot Water Boilers rated at 40 hp each

Make-Up Water: City water Make up no softening

Recommendations: Maintain existing chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up no softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are way too low to prevent corrosion and will actually increase the corrosion rate. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

System ID: Cooling Tower, 500 Ton Marley, York Chiller

Make-up Water: City water, Make up no softening

Recommendations:

Maintain chemical treatment parameters. Recommend that the facility test their cooling tower water on a daily basis, demonstrate a consistent program management, record keeping, follow up and equipment maintenance.

Bulk tank system not feasible per space initiations.

WATER TREATMENT PROGRAM

Facility: Missouri Highway Patrol Academy – Jefferson City, Mo.		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4714	40 gallons	180 gallons
Verox-8	.5gallons	30 gallons
WLFT AM 714	.5 gallon	18 gallons
Equipment (include make, model, and quantity)		
Advantage Tower Control		
3 LMI Chemical Pumps A141-352SI		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Missouri Highway Patrol Academy – Jefferson City, Mo.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Missouri Highway Patrol Academy – Jefferson City, Mo.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Missouri Highway Patrol ANNEX
SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	600 uS	500	6000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	800 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	730 ppm\CaCO3	N/A	N/A
M-ALK	860 ppm\CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	600 uS	2200	3000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	150 ppm	800	1200
HARDNESS	160 ppm/CaCO3	N/A	N/A
P-ALK	810 ppm\CaCO3	N/A	N/A
M-ALK	1230 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	67 ppm/CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm/CaCO3	N/A	N/A
M-ALK	49 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SiO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Annex – Jefferson City, Mo.

System I.D.: Two Fulton Hot Water Boilers rated at 40 hp each

Make-Up Water: City water Make up no softening

Recommendations: Maintain existing chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up no softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within the proper range. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

WATER TREATMENT PROGRAM

Facility: Missouri Highway Patrol Annex – Jefferson City, Mo.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

Facility: Missouri Highway Patrol Annex – Jefferson City, Mo.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

Missouri Highway Patrol GHQ

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	5800 uS	500	6000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	350 ppm	800	1200
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	730 ppm/CaCO3	N/A	N/A
M-ALK	860 ppm/CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	2900 uS	2200	3000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	150 ppm	800	1200
HARDNESS	160 ppm/CaCO3	N/A	N/A
P-ALK	810 ppm/CaCO3	N/A	N/A
M-ALK	1230 ppm/CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	67 ppm/CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm/CaCO3	N/A	N/A
M-ALK	49 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SiO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Headquarters – Jefferson City, Mo.

System I.D.: Two Fulton Hot Water Boilers rated at 40 hp each

Make-Up Water: City water Make up no softening

Recommendations: Maintain existing chemical treatment parameters. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up no softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are way too low to prevent corrosion and will actually increase the corrosion rate. WLFT 839 should be added to obtain a Nitrite level between 800 and 1200 ppm.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Missouri Highway Patrol Headquarters – Jefferson City, Mo.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Missouri Highway Patrol Headquarters – Jefferson City, Mo.		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Missouri Highway Patrol Troop A
System Name: Closed Loop (Glycol, Chilled)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	696 uS	2800	3800
M-ALK	720 ppm\CaCO3	500	800
NITRITE	1040 ppm	800	1200
GLYCOL	44 %	40	45

System Name: Closed Loop (Hot)

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	255 uS	2800	3800
M-ALK	70 ppm\CaCO3	500	800
NITRITE	30 ppm	800	1200

System Name: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	38 ppm\CaCO3	N/A	N/A
CHLORIDES	N/A ppm	N/A	N/A
CONDUCTIVITY	461 uS	N/A	N/A
HARDNESS	100 ppm\CaCO3	N/A	N/A
Iron (Fe)	.03 ppm	N/A	N/A
Magnesium(Mg)	62 ppm\CaCO3	N/A	N/A
M-ALK	48 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	N/A ppm	N/A	N/A
P-ALK	40 ppm\CaCO3	N/A	N/A
pH	9.5 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A
SILICA(SiO2)	10.3 ppm	N/A	N/A
SULFATE(SO4)	80 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Troop A Hqts

System I.D.: Closed system (Non-Potable Chilled, Glycol)

Recommendations:

System was not circulating at time of sample

Glycol levels sufficient to maintain freeze protection to -10°F.(reported as propylene) The closed loop system automatic feed maintains the necessary chemical levels between 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

WLFT will provide a Nitrite Test Kit & refractometer and train on-site personnel in their use.

System I.D.: Closed system (Hot)

Recommendations:

System has virtually no treatment. Add appropriate amount of #839 to achieve chemical treatment parameters, 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss.

Note: Facility has a non functioning water softener. Repair of this unit would decrease scaling and increase efficiency on potable water side of heat exchanger.

WATER TREATMENT PROGRAM

Facility: Missouri Highway Patrol Troop A Hqts		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment NONE		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

Facility: Missouri Highway Patrol Troop A Hqts		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.25 Gallons	
#839	40 Gallons	
HT1-P	4500 Gallons	
Existing Equipment (include make, model, and quantity)		
Neptune Glycol Feeder		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

Missouri Highway Patrol Troop B

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	4155 uS	500	5000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	0 ppm	0	0
HARDNESS	0 ppm/CaCO3	N/A	N/A
P-ALK	730 ppm/CaCO3	N/A	N/A
M-ALK	860 ppm/CaCO3	N/A	N/A
pH	10.5 unit	6.5	8.5
MOLYBDATE	1.3 ppm	N/A	N/A
SILICA(SiO2)	60	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3000 uS	2200	3000
Iron (Fe)	0.2 ppm	0	0.5
NITRITE	1150 ppm	800	1200
HARDNESS	10 ppm/CaCO3	N/A	N/A
P-ALK	810 ppm/CaCO3	N/A	N/A
M-ALK	1230 ppm/CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	59 ppm/CaCO3	N/A	N/A
CHLORIDES	14.4 ppm	N/A	N/A
CONDUCTIVITY	240 uS	N/A	N/A
HARDNESS	100 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.05 ppm	N/A	N/A
Magnesium(Mg)	17 ppm/CaCO3	N/A	N/A
M-ALK	103 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	7.5 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.8 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	10 ppm	N/A	N/A
SULFATE(SO4)	18 ppm	N/A	N/A

Proposed Water Treatment Program(s)

530 South 5th St * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

Facility: Missouri Highway Patrol Troop B Macon Mo.

System I.D.: Two Mach Aluminum Hot Water Boilers rated at 750,000 BTU each

Make-Up Water: City water Make up no softening

Recommendations: These two boiler are made of Aluminum and have very specific treatment requirements. The pH can not be exceed 8.5 without creating severe corrosion. WLFT 1193 is specifically buffered to maintain proper pH and corrosion inhibitors to prevent multi metal corrosion

This facility has a pH tester and Aluminum inhibitor test kit for the Hot water loop

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up no softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. WLFT 839 should is added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

WATER TREATMENT PROGRAM

Facility: Missouri Highway Patrol Troop B Macon Mo		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 1193	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Missouri Highway Patrol Troop B Macon Mo		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 893	40 gallons	
Equipment 2 Gallon Neptune By Pass Feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

Missouri Highway Patrol Troop C – Park Hills

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	5000 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	1000 ppm	800	1200
HARDNESS	120 ppm/CaCO3	N/A	N/A
P-ALK	700 ppm\CaCO3	N/A	N/A
M-ALK	1100 ppm\CaCO3	N/A	N/A
pH	9.4 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2500 uS	2200	1000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	900 ppm	800	1200
HARDNESS	130 ppm/CaCO3	N/A	N/A
P-ALK	600 ppm\CaCO3	N/A	N/A
M-ALK	740 ppm\CaCO3	N/A	N/A
pH	9.5 unit	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	350 ppm\CaCO3	N/A	N/A
CHLORIDES	145 ppm	N/A	N/A
CONDUCTIVITY	571 uS	N/A	N/A
HARDNESS	665 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.2 ppm	N/A	N/A
Magnesium(Mg)	315 ppm\CaCO3	N/A	N/A
M-ALK	304 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.23 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.69 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	8.1 ppm	N/A	N/A
SULFATE(SO4)	367 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Troop C – Park Hills

System I.D.: Hot Water Boiler, 30 hp

Make-Up Water: City water Make up is soft.

Recommendations: Closed loop inhibitor is added to the loop in order to prevent severe corrosion, and maintains a proper pH level. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up is soft.

Recommendations

Chilled water is using a typical Nitrite based inhibitor. WLFT 839 is added to obtain a Nitrite level between 800 and 1200 ppm. Nitrite will prevent corrosion.

This facility has a Nitrite test kit to monitor and maintain the Chilled and Hot Water systems.

WATER TREATMENT PROGRAM

Facility: Mo. Highway Patrol Troop C – Park Hills		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
No by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Mo. Highway Patrol Troop C – Park Hills		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment No by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

Missouri Highway Patrol – Troop F

SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3000 uS	500	6000
NITRITE	1000 ppm	800	1200
M-ALK	900 ppm\CaCO3	N/A	N/A

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3000 uS	2200	3000
NITRITE	1000 ppm	800	1200
M-ALK	1230 ppm\CaCO3	N/A	N/A
pH	10.0 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	67 ppm\CaCO3	N/A	N/A
CHLORIDES	28.8 ppm	N/A	N/A
CONDUCTIVITY	610 uS	N/A	N/A
HARDNESS	116 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	49 ppm\CaCO3	N/A	N/A
M-ALK	49 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	1.4 ppm	N/A	N/A
P-ALK	14 ppm\CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.7 ppm	N/A	N/A
SILICA(SIO2)	0 ppm	N/A	N/A
SULFATE(SO4)	203 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Troop F – Jefferson City, Mo.

System I.D.: All Electric, one common closed loop

Make-Up Water: City water Make up softening

Recommendations: Maintain chemical treatment parameters, existing levels are low. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop

Make-Up Water: City water Make up softening

Recommendations

Chilled water is using a typical Nitrite based inhibitor. Current Nitrite levels are within the proper control ranges.

This facility has a Nitrite test kit to monitor and maintain the Chilled Water system.

Facility: Missouri Highway Patrol Troop F – Jefferson City, Mo.		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
2 Gallon Neptune By Pass Feeder		
_____ Drumless, Bulk Storage	_____ X _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Missouri Highway Patrol Troop I - Rolla
SystemName: Hot Water Heating Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	4400 uS	500	6000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	950 ppm	800	1200
HARDNESS	840 ppm/CaCO3	N/A	N/A
P-ALK	600 ppm\CaCO3	N/A	N/A
M-ALK	800 ppm\CaCO3	N/A	N/A
pH	8.4 unit	6.5	8.5
MOLYBDATE	0 ppm	N/A	N/A
SILICA(SiO2)	15	30	60

SystemName: Chilled Water Loop

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	4400 uS	2200	3000
Iron (Fe)	0.5 ppm	0	0.5
NITRITE	950 ppm	800	1200
HARDNESS	800 ppm/CaCO3	N/A	N/A
P-ALK	500 ppm\CaCO3	N/A	N/A
M-ALK	640 ppm\CaCO3	N/A	N/A
pH	8.5 unit	N/A	N/A

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	158 ppm/CaCO3	N/A	N/A
CHLORIDES	6.1 ppm	N/A	N/A
CONDUCTIVITY	475 uS	N/A	N/A
HARDNESS	328 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.208 ppm	N/A	N/A
Magnesium(Mg)	170 ppm/CaCO3	N/A	N/A
M-ALK	260 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.48 unit	N/A	N/A
PHOSPHATE	0.2 ppm	N/A	N/A
SILICA(SiO2)	4 ppm	N/A	N/A
SULFATE(SO4)	59.3 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Missouri Highway Patrol Troop I – Rolla, Mo.

System I.D: Hot Water Boiler, 30 hp

Make-Up Water: City water Make up is not softened.

Recommendations: Closed loop inhibitor is in the the loop in order to prevent severe corrosion, and maintain a proper pH level. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

System ID Chilled Water Closed Loop,

Make-Up Water: City water Make up is not softened.

Recommendations

Chilled water has Nitrite based inhibitor.corrosion chemical in the system. WLFT 839 is added to obtain a Nitrite level between 800 and 1200 ppm.

This facility has a Nitrite test kit to monitor and maintain the Chilled and Hot Water systems.

WATER TREATMENT PROGRAM

Facility: Mo. Highway Patrol Troop I - Rolla		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
No by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

Facility: Mo. Highway Patrol Troop I – Rolla		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment No by-pass feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> X	<input type="checkbox"/> Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
(Cameron) State of Missouri Veterans Home

System Name: Closed Loop - Hot

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3237 uS	2800	3800
pH	10.06 ppm\CaCO3	500	800
NITRITE	450 ppm	800	1200

System Name: Closed Loop - Cold

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2552 uS	2800	3800
pH	9.1 ppm\CaCO3	500	800
NITRITE	840 ppm	800	1200

System Name: Raw Water Supply - City

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	109 ppm\CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	288 uS	N/A	N/A
HARDNESS	144 ppm\CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	33.5 ppm\CaCO3	N/A	N/A
M-ALK	131 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.025 ppm	N/A	N/A
P-ALK	0 ppm\CaCO3	N/A	N/A
pH	7.47 unit	N/A	N/A
PHOSPHATE	0.170 ppm	N/A	N/A
SILICA(SiO2)	0.5 ppm	N/A	N/A
SULFATE(SO4)	20 ppm	N/A	N/A

System Name: Cooling Tower

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1500 uS	1500	1800
HARDNESS	400 ppm\CaCO3	30	100
M-ALK	134 ppm\CaCO3	100	600
pH	9.0 unit	N/A	N/A
POLYMER	7 ppm	4	8

Proposed Water Treatment Program(s)
Facility: (Cameron) State of Missouri Veterans Home

System I.D.: Closed system - Hot

Recommendations:

The Hot loop has a low level for the chemical treatment used for corrosion inhibitor WLFT839 should be added to bring system to the recommend levels between 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss.

System I.D.: Closed system - Cold

Recommendations:

The Cold loop has chemical treatment between the recommended levels of 800-1200 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Closed system - Tower

Recommendations:

The Tower has chemical to protect against corrosion, Algae, and Sludge. The tower has a "Dolphin" system in usage. WLFT recommends the "Dolphin" drain system be valved off and blow down be controlled with the WLFT controller. They have a controller to control chemical usage, water consumption, and over all water treatment. The "Dolphin" scaled up the towers. Current chemical program is designed to remove scale.

WATER TREATMENT PROGRAM

Facility: (Cameron) State of Missouri Veterans Home		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4709	0.4 gallon	150 gallons
WLFT Verox-8	0.5 gallon	20 gallon
WLFT 206	0.5 gallon	10 gallons
Equipment (include make, model, and quantity)		
- (2) LMI P141, (1) LMI LB64SA Chemical Pumps		
LMI Controller – Model DC4500		
(1) 2" WATER METER		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: (Cameron) State of Missouri Veterans Home		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Existing Equipment (include make, model, and quantity)		
2 gallon pot feeder		
<input type="checkbox"/> Drumless, Bulk Storage	<input type="checkbox"/> Conventional Drum	

Facility: (Cameron) State of Missouri Veterans Home		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
2 gallon pot feeder,		
<input type="checkbox"/> Drumless, Bulk Storage	<input checked="" type="checkbox"/> Conventional Drum	

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

Missouri Veterans Home – Cape Girardeau

SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	360 ppm/CaCO3	300	600
M-ALK	320 ppm/CaCO3	300	600
POLYMER	5 ppm	4	8
TDS	1600 uS	1200	1800

SystemName: CLOSED CHILLED LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	1050 ppm/CaCO3	60	2000
NITRITE	1200 ppm/CaCO3	900	1500
CONDUCTIVITY	1000 u mhos	500	

SystemName: CLOSED HEATING LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	850 ppm/CaCO3	60	2000
NITRITE	1100 ppm/CaCO3	900	1500
CONDUCTIVITY	1300 u mhos	500	

SystemName: RAW WATER SUPPLY

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	104 ppm/CaCO3	N/A	N/A
CHLORIDES	10 ppm	N/A	N/A
CONDUCTIVITY	440 uS	N/A	N/A
HARDNESS	220 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.075 ppm	N/A	N/A
Magnesium(Mg)	116 ppm/CaCO3	N/A	N/A
M-ALK	202 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	16.75 ppm	N/A	N/A
P-ALK	0 ppm/CaCO3	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SILICA(SiO2)	80 ppm	N/A	N/A
SULFATE(SO4)	15 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: MVH Cape Girardeau

System I.D.: Cooling Tower

Make-Up Water: City of Cape Girardeau

Recommendations:

1. System well maintained and controlled. Advantage Controller with percentage timers/auto feed and bleed system. Alternating biocidal program in addition to corrosion/scale inhibitor.

WATER TREATMENT PROGRAM

Facility: MVH Cape Girardeau		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4714	0.4 gallons	180 gallons
AM-66	1.0 lbs	150 lbs
WLFT 206	0.5 gallons	10 gallons
Equipment (include make, model, and quantity)		
1each Pulsatrol Chemical Feed Pump (Inhibitor)		
2each Pulsatrol A171 Chemical Feed Pump (Biocide)		
1each Advantage Conductivity Controller		
_____ x _____	Drumless, Bulk Storage	_____ Conventional Drum

Facility: MVH Cape Girardeau		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Wingert Model 2HD By Pass Feeder		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

Facility: MVH Cape Girardeau		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment Wingert Model 2HD By Pass feeder		
_____	Drumless, Bulk Storage	_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
(Mexico)Missouri Veterans Home
 SystemName: COOLING TOWER

PROCEDURE	Result:	LoLimit:	HiLimit:
HARDNESS	360 ppm/CaCO3	300	600
pH	8.5 ppm/CaCO3	300	600
POLYMER	5 ppm	4	8
TDS	1100 uS	1200	1800

SystemName: ` CLOSED CHILLED LOOP

PROCEDURE	Result:	LoLimit:	HiLimit:
M-ALK	1050 ppm/CaCO3	60	2000
NITRITE	1200 ppm/CaCO3	800	1200
CONDUCTIVITY	1000 u mhos	500	

SystemName: ` CLOSED HEATING LOOP

PROCEDURE	Result:	LoLimit:	HiLimit:
M-ALK	850 ppm/CaCO3	60	2000
NITRITE	1100 ppm/CaCO3	800	1200
CONDUCTIVITY	1300 u mhos	500	

SystemName: RAW WATER SUPPLY

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	93 ppm/CaCO3	N/A	N/A
CHLORIDES	42 ppm	N/A	N/A
CONDUCTIVITY	440 uS	N/A	N/A
HARDNESS	219 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.075 ppm	N/A	N/A
Magnesium(Mg)	82 ppm/CaCO3	N/A	N/A
M-ALK	245 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	0.3 ppm	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SULFATE(SO4)	66.5 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: MVH Mexico

System I.D.: Cooling Tower

I - BAC fluid cooler, Model: FXV-662-MM, Tonnage: 150 ton

530 South 5th St. * Quincy IL 62301-4896 * Phone: (217)223-2017 * Fax: (217)223-7734 * Email: sales@walterlouis.com

2 - McQuay Centrifugal Chillers, rated capacity: 200 ton
Make-Up Water: City of Mexico
Recommendations:

1. System well maintained and controlled. LMI Controller with percentage timers/auto feed and bleed system

WATER TREATMENT PROGRAM

Facility: MVH Mexico		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	180 gallons
AM-66	1.0 lbs	150 lbs
Equipment (include make, model, and quantity)		
1 - LMI tower controller		
1 - LMI chemical feed Dump - this is wired to a make-up water meter.		
Biocide: AM-66 is put in a small container with holes and hung in the cooling tower.		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: MVH Mexico		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon By-Pass Feeder		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: MVH Mexico		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 Gallon By-Pass Feeder		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

(Mt. Vernon) State of Missouri Veterans Home

System Name: Closed Loop - Hot

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	447 uS	2800	3800
pH	8.67 ppm/CaCO3	500	800
NITRITE	80 ppm	900	1000
HYDRAZINE	1 ppb	N/A	N/A

System Name: Closed Loop - Cold

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	284 uS	2800	3800
pH	8.91 ppm/CaCO3	500	800
NITRITE	80 ppm	900	1000
HYDRAZINE	1 ppb	N/A	N/A

System Name: Raw Water Supply - City

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	40 ppm	N/A	N/A
CHLORIDES	11 ppm	N/A	N/A
Conductivity	362 uS	N/A	N/A
HARDNESS	112 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
M-ALK	94 ppm/CaCO3	N/A	N/A
pH	7.75 unit	N/A	N/A

System Name: Tower Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	70 ppm	N/A	N/A
CHLORIDES	34 ppm	N/A	N/A
Conductivity	966 uS	N/A	N/A
HARDNESS	312 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
M-ALK	272 ppm/CaCO3	N/A	N/A
pH	8.88 unit	N/A	N/A
PHOSPHATE	1 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: **(Mt. Vernon)** State of Missouri Veterans Home

System I.D.: Closed system - Hot Loop

Recommendations:

The Hot loop has Hydrazine as treatment. This is not normally used for corrosion inhibitor in a hot loop. We recommend draining and cleaning the system then adding 839 at 800-1000 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss.

System I.D.: Closed system – Cold Loop

Recommendations:

The Cold loop has Hydrazine as treatment. This is not normally used for corrosion inhibitor in a cold loop. We recommend draining and cleaning the system then adding 839 at 800-1000 mg/l as NO₂ to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Cooling Tower

Recommendations:

The Tower has chemical to protect against corrosion, Algae, and Sludge. The tower water usage is pretty high. The LSI is limited to Alkalinity and Hardness. We are working with the facility engineer to control chemical usage and reduce water consumption. WLFT loaned the facility a controller to help expedite the process because the previous vender's controller had been failing.

WATER TREATMENT PROGRAM

Facility: (Mt. Vernon) State of Missouri Veterans Home		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4709	0.4 gallon	200 gallon
WLFT 206	0.5 Gallon	10 gallon
WLFT Verox-8	0.5 Gallon	20 gallon
Existing Equipment (1)Advantage controller-Model-SSCRF3E, (Loaner from WLFT)		
(2)PulsaFeeder Chemical Pump Model LBO4SA,		
(2)PulsaFeeder Chemical Pump Model LC54SA,		
_____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility: (Mt. Vernon) State of Missouri Veterans Home		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
#839	40 Gallons	
Existing Equipment Same as Closed Loop Cooling		
_____ Drumless, Bulk Storage	_____ Conventional Drum	

Facility: (Mt. Vernon) State of Missouri Veterans Home		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
2 gallon pot feeder, (1) 3/4" Water Meter (1) Cartridge filtration System		
_____ Drumless, Bulk Storage	___X___ Conventional Drum	

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
(St. James)Missouri Veterans Home
SystemName: COOLING TOWER

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
HARDNESS	360 ppm\CaCO3	300	600
pH	8.5 ppm\CaCO3	300	600
POLYMER	5 ppm	4	8
TDS	1100 uS	1200	1800

SystemName: CLOSED CHILLED LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	1050 ppm\CaCO3	60	2000
NITRITE	1200 ppm\CaCO3	800	1200
CONDUCTIVITY	1000 u mhos	500	

SystemName: CLOSED HEATING LOOP

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
M-ALK	850 ppm\CaCO3	60	2000
NITRITE	1100 ppm\CaCO3	800	1200
CONDUCTIVITY	1300 u mhos	500	

SystemName: RAW WATER SUPPLY

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	93 ppm\CaCO3	N/A	N/A
CHLORIDES	42 ppm	N/A	N/A
CONDUCTIVITY	440 uS	N/A	N/A
HARDNESS	219 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.075 ppm	N/A	N/A
Magnesium(Mg)	82 ppm\CaCO3	N/A	N/A
M-ALK	245 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0.3 ppm	N/A	N/A
pH	7.3 unit	N/A	N/A
PHOSPHATE	0.175 ppm	N/A	N/A
SULFATE(SO4)	66.5 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: MVH St. James

System I.D.: Closed Loop
 4 - 30 hp gas fired hot water boilers(2" lines)

Make-Up Water: City of St. James

Recommendations:

1. Maintain proper Nitrite levels in the cold and hot loops and check for any leaks.

System I.D.: Cooling Tower

2 - Marley Cooling Towers (145 ton each)
2 - McQuay Centrifugal Chillers Model C2009BLYYZA
Towers run 24/7 - during the winter approx. 50% load.

Make-Up Water: City of St. James

Recommendations:

1. Tower was acid cleaned 3 months ago and contractor recently acid cleaned both chillers. Maintain proper control values on the TDS, Polymer and Biocides and test daily.

WATER TREATMENT PROGRAM

Facility: MVH St. James		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	180 gallons
AM-66	0.5 gallons	150 gallons
WLFT 206	0.5 Gallons	10 gallons
Equipment (include make, model, and quantity)		
1 - LMI tower controller DC4500		
1 - LMI chemical feed Dump - this is wired to a make-up water meter.		
. Biocide: AM-66 is put in a small container with holes and hung in the cooling tower.		
_____ x _____ Drumless, Bulk Storage		_____ Conventional Drum

Facility: MVH St. James		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
3 - 5 gal. by-pass feeders with sock filters		
_____ Drumless, Bulk Storage		_____ x _____ Conventional Drum

Facility: MVH St. James		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
5 gal. by-pass feeder with sock filters		_____ x _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)

(St. Louis)MISSOURI VETERENS HOME
10660 LEWIS AND CLARK BELLEFONTAINE, MO

SystemName: Chilled Water

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CONDUCTIVITY	3000 uS	2800	3800
NITRITE	800 ppm	800	1200
pH	10.5 unit	9	11

SystemName: Cooling Tower

CaHardness(Ca)	225 ppm/CaCO3	40	300
CONDUCTIVITY	2300 uS	1000	1400
pH	8.9 unit	N/A	N/A
M-ALK	260 ppm\CaCO3	350	400
Polymer	4 ppm	4	8

SystemName: Hot Water Boiler

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
NITRITE	400 ppm	800	1200

SystemName: Raw Water Supply

<i>PROCEDURE</i>	<i>Result:</i>	<i>LoLimit:</i>	<i>HiLimit:</i>
CaHardness(Ca)	47.5 ppm/CaCO3	N/A	N/A
CHLORIDES	29 ppm	N/A	N/A
CONDUCTIVITY	350 uS	N/A	N/A
HARDNESS	140 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	73.8 ppm/CaCO3	N/A	N/A
M-ALK	85 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	0.6 ppm	N/A	N/A
pH	9.7 unit	N/A	N/A
PHOSPHATE	0.47 ppm	N/A	N/A
SILICA(SiO2)	6.00 ppm	N/A	N/A
SULFATE(SO4)	19.2 ppm	N/A	N/A

System I.D.: Cooling Tower

Make-Up Water: 100% Hard water

Recommendations:

Corrosion and scale control will be achieved using 4707 CTT. This blend of polymers and organic corrosion inhibitors will provide excellent results in Chillicothe's water. Microbiological control will use Verox 8 stabilized Chlorine Dioxide for primary bacterial control. This will be supplemented with 206 Biodispersant. The combination will achieve very clean towers with low levels of biological activity.

System I.D.: Closed system (Non-Potable Chilled water)

Recommendations:

Maintain existing chemical treatment parameters, 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss.

System I. D.: Hot Closed Loops

Make-Up Water: City of St. Louis

Maintain existing chemical treatment parameters, 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. We are currently waiting to get the defective Bypass Feeder replaced

WATER TREATMENT PROGRAM

Facility: MVH St. Louis		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4707	0.4 gallons	80 gallons
WLFT 206	0.5 gallons	10 gallons
WLFT Verox Biocide	0.5 gallons	20 gallons
Equipment (include make, model, and quantity)		
3 LMI P141 Chemical Pumps and WLFT PCS Control		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MVH St. Louis		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT #839	40 gallons	
Equipment (include make, model, and quantity)		
Bypass Feeder (needs replaced)		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

Facility: MVH St. Louis		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 gallons	
Equipment (include make, model, and quantity)		
Bypass Feeder		
_____ Drumless, Bulk Storage	_____ x _____	Conventional Drum

RFP NO.: B3Z14153 Exhibit E

Water Analysis, Systems & Make-up(raw water)

(Warrensburg) State of Missouri Veterans Home

System Name: Closed Loop - Hot

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3237 uS	2800	3800
pH	10.06 ppm/CaCO3	500	800
NITRITE	1330 ppm	800	1200

System Name: Closed Loop - Cold

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	2552 uS	2800	3800
pH	9.1 ppm/CaCO3	500	800
NITRITE	740 ppm	800	1200

System Name: Raw Water Supply - City

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	50 ppm	N/A	N/A
CHLORIDES	50 ppm	N/A	N/A
Conductivity	674 uS	N/A	N/A
HARDNESS	123 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
M-ALK	132 ppm/CaCO3	N/A	N/A
pH	7.54 unit	N/A	N/A
PHOSPHATE	N/A ppm	N/A	N/A

System Name: Tower Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	50 ppm	N/A	N/A
CHLORIDES	50 ppm	N/A	N/A
Conductivity	698 uS	N/A	N/A
HARDNESS	129 ppm/CaCO3	N/A	N/A
Iron (Fe)	N/A ppm	N/A	N/A
M-ALK	141 ppm/CaCO3	N/A	N/A
pH	8.13 unit	N/A	N/A
PHOSPHATE	4 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: (Warrensburg) State of Missouri Veterans Home

System I.D.: Closed system - Hot

Recommendations: The Hot loop has chemical treatment used for corrosion inhibitor at the recommend levels between 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss.

System I.D.: Closed system - Cold

Recommendations:

The Cold loop has chemical treatment between the recommended levels of 800-1200 mg/l as NO₂, to provide maximum corrosion inhibition and protection against metal loss. Addition of biocide will reduce the possibility of bio-fouling.

System I.D.: Closed system - Tower

Recommendations:

The Tower has chemical to protect against corrosion, Algae, and Sludge. The tower has a "Dolphin" system in usage. WLFT recommends the "Dolphin" drain system be valved off and blow down be controlled with the WLFT controller. WLFT loaned a controller to control chemical usage, water consumption, and over all water treatment. The "Dolphin" scaled up the towers which caused the maintenance staff clean and descale the towers before they could be used.

WATER TREATMENT PROGRAM

Facility: (Warrensburg) State of Missouri Veterans Home		
COOLING TOWER		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 4709	0.4 gallon	200 gallon
WLFT 206	0.5 Gallon	10 gallon
WLFT Verox-8	0.5 Gallon	20 gallon
Existing Equipment (1)Advantage controller-Model-SSCRF3E, (Loaner from WLFT)		
(2)PulsaFeeder Chemical Pump Model LBO4SA,		
(2)PulsaFeeder Chemical Pump Model LC54SA,		
_____ Drumless, Bulk Storage		_____ Conventional Drum
Facility: (Warrensburg) State of Missouri Veterans Home		
CLOSED LOOP HEATING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
Same as Closed Loop Cooling		
Existing Equipment (include make, model, and quantity)		
_____ Drumless, Bulk Storage		_____ Conventional Drum
Facility: (Warrensburg) State of Missouri Veterans Home		
CLOSED LOOP COOLING		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
ISO-15 Biocide	1.8 Gallons	
#839	40 Gallons	
Existing Equipment (include make, model, and quantity)		
2 gallon pot feeder,		
_____ Drumless, Bulk Storage		___X___ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Fulton Treatment Center
SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1200 uS	500	6000
NITRITE	800 ppm	800	1200
HARDNESS	390 ppm\CaCO3	N/A	N/A
M-ALK	600 ppm\CaCO3	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm\CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm\CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm\CaCO3	N/A	N/A
M-ALK	325 ppm\CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm\CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Fulton Treatment Center

System I.D.:

4 hot water boilers (15 hp each)

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Fulton Treatment Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallons	
Equipment (include make, model, and quantity)		
Generic 2 gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
HOGAN STREET YOUTH CENTER

SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	3600 uS	5500	6000
NITRITE	1200 ppm	800	1200
pH	10.5 unit	8.5	11.0

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	66 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	289 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	325 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Fulton Treatment Center

System I.D.:

4 hot water boilers (15 hp each)

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Fulton Treatment Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallons	
Equipment (include make, model, and quantity)		
Generic 2 gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
 Water Analysis, Systems & Make-up(raw water)
Montgomery City Treatment Center
 SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1995 uS	500	6000
NITRITE	800 ppm	800	1200
HARDNESS	470 ppm/CaCO3	N/A	N/A
M-ALK	590 ppm/CaCO3	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	69 ppm/CaCO3	N/A	N/A
CHLORIDES	20 ppm	N/A	N/A
CONDUCTIVITY	693 uS	N/A	N/A
HARDNESS	230 ppm/CaCO3	N/A	N/A
Iron (Fe)	0.02 ppm	N/A	N/A
Magnesium(Mg)	30 ppm/CaCO3	N/A	N/A
M-ALK	360 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.01 ppm	N/A	N/A
P-ALK	10 ppm/CaCO3	N/A	N/A
pH	7.5 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	7.0 ppm	N/A	N/A
SULFATE(SO4)	40 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Montgomery City Treatment Center

System I.D:

4 hot water boilers (15 hp each)

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Montgomery City Treatment Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallons	
Equipment (include make, model, and quantity)		
Generic 2 gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Mt Vernon Treatment Center
No Systems to Test

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
Riverbend Treatment Center
SystemName: Hot Water Heating Loop

PROCEDURE	Result:	LoLimit:	HiLimit:
CONDUCTIVITY	1995 uS	500	6000
NITRITE	2300 ppm	800	1200
HARDNESS	470 ppm/CaCO3	N/A	N/A

SystemName: Raw Water Supply

PROCEDURE	Result:	LoLimit:	HiLimit:
CaHardness(Ca)	120 ppm/CaCO3	N/A	N/A
CHLORIDES	25 ppm	N/A	N/A
CONDUCTIVITY	673 uS	N/A	N/A
HARDNESS	215 ppm/CaCO3	N/A	N/A
Iron (Fe)	0 ppm	N/A	N/A
Magnesium(Mg)	95 ppm/CaCO3	N/A	N/A
M-ALK	150 ppm/CaCO3	N/A	N/A
NITRATE(NO3)	.1 ppm	N/A	N/A
P-ALK	8.5 ppm/CaCO3	N/A	N/A
pH	9.4 unit	N/A	N/A
PHOSPHATE	0.3 ppm	N/A	N/A
SILICA(SiO2)	19 ppm	N/A	N/A
SULFATE(SO4)	160 ppm	N/A	N/A

Proposed Water Treatment Program(s)

Facility: Riverbend Treatment Center

System ID:

Hot water boilers

Make-Up Water: City water Make up Hard

Recommendations: Maintain chemical treatment parameters at 800-1200 ppm of Nitrite. The chemical program should demonstrate consistent program management, record keeping, follow-up and equipment maintenance.

WLFT will provide a Nitrite Test Kit and train on-site personnel in its use.

WATER TREATMENT PROGRAM

Facility: Riverbend Treatment Center		
CLOSED LOOP HEAT		
Chemical	Dosage (lbs. or gals.) per 10,000 Gallons Treated	Annual Quantity
WLFT 839	40 Gallons	
Equipment (include make, model, and quantity)		
Generic 5 gal Bypass Feeder		
_____ Drumless, Bulk Storage		_____ X _____ Conventional Drum



Industrial Water Treatment
Chemicals & Equipment

RFP NO.: B3Z14153 Exhibit E
Water Analysis, Systems & Make-up(raw water)
W.E. Sears Youth Center