CNE Water Treatment Scope
Central Plant/HVAC
Water Treatment

West Siloam Central Plant

- Heating Hot Water Hydronic Loop – estimated 16,000 GAL
- Chilled Water Hydronic Loop – estimated 21,000 GAL
- Cooling Tower and Condenser Loop – estimated 5,500 Gal Tower Capacity plus Condenser Piping
  (3) 800 Ton Trane R-123 Chillers with Evapco Cooling Towers

Roland Central Plant

- Heating Hot Water Hydronic Loop – estimated 6,700 GAL
- Chilled Water Hydronic Loop – estimated 17,000 GAL
- Cooling Tower and Condenser Loop – estimated 6,400 GAL (both systems combined. Estimated 3,200 gallons each)
  (2) 700 ton Daikin R-134 Chillers with Marley Cooling Towers

Hard Rock South Central Plant

- Hot Water Hydronic Primary Loop – estimated 6,600 GAL
- Chilled Water Hydronic Primary Loop – estimated 10,000 GAL
- Cooling Tower and Condenser Loop – estimated 5,500 GAL Tower Capacity plus Condenser Piping
  (3) 800 Ton Trane R-123 Chillers with Evapco Cooling Towers
- Hot Water Hydronic Secondary Loop – estimated 1,400 GAL
- Chilled Water Hydronic Secondary Loop - estimated 2,200 GAL

Hard Rock North Central Plant

- Hot Water Hydronic Loop – estimated 9,000 GAL
- Chilled Water Hydronic Loop – estimated 22,500 GAL
- Cooling Tower and Condenser Loop (3 Sets)

Hard Rock HVAC

- Cherokee Tower Hotel Fluid Cooler (open side) (BAC) – estimated 250 GAL
- Cherokee Tower Hotel Closed Loop (Two Pipe System) – estimated 900 GAL

- Aaon Units with Water Cooled Condensers (RTU 4, 7, 11, 19) Wash, clean, sanitize condensers as needed.

Fort Gibson

- Chilled Water Loop – estimated 1000 GAL
- Heating Hot Water Loop – estimated 300 GAL

Ramona

- Chilled Water Loop – estimated 1,500 GAL
- Heating Hot Water Loop – estimated 400 GAL

CNE Water Treatment Schedule

- Hard Rock – Every other week
- WSS – Every other week
- Roland – Every other week
- FG – Once per month
- Ramona – Once per Month

Scope

- Provide Price Breakdown for each of the four categories.
- Provide two checks per month (Bi-weekly is same as bi-monthly in descriptions and notes) for each location.
- Must keep a record log in each location to keep track of chemicals used, repairs, etc.
- Provide detailed service report for each site visit of what was done, material used, time expended.
- Provide detailed water report for each visit. Each water report should be sent via email as an attachment. Attachment should be labeled for which site and plant or area along with date of inspection. Date being first part of attachment name so can be filed in order.
- Responsible for handling own Chemicals and Materials. If storage is needed, you will need to clarify this on bids so we can see if warehouse space available. No outside storage of chemicals anymore.
- Must clarify if will be providing hard piping on outside water treatment lines or will be using plastic tubing. Tubing/Piping should be replaced as needed.
- If not using current Advantage Controllers on each system, must provide details if contract provides new controllers or CNE would need to purchase different controllers.
- Responsible for all control wiring to each injection or monitoring point (towers, condensers, etc)
- Required to check in and out with security on each visit.

- Provide and update SDS sheets as needed.
- Provide Line Item quote for Advantage closed loop Board Controllers for water treatment injection and monitoring. See attachment.
- Provide web base access for communication with controller and monitoring.

Services

Requirements:

- **Start-up Service and Training Seminars**
- **Program Administration Manual including MSDS and Program Implementation and Troubleshooting Guidelines**
- **On-site Chemical Testing and Recommendations**
- **Certified Lab Testing (water and solid samples) and Reports as Required**
- **Annual (minimum) Certified Lab Testing (bacteria and chemical analyses) and Reporting on Tower and Various Closed Loops**
- **Corrosion Coupon Studies and Lab Analyses as Required**
- **Bacteria Control Management Program Including Frequent Dip Slide, SRB and Swab Testing**
- **Equipment Expertise and Support**
- **Equipment Inspections**
- **Computer Generated Service Reports**
- **On-going Training for all necessary personnel (our call)**
- **Weekly service calls & additional visits as needed**
- **Mechanical and Chemical Engineering Consulting**
- **Overall Water and Energy Management for Optimum Efficiency and Cost Control**
- **Hands Free Chemical Delivery and Delivery package System**
- **Real-Time Tower Inhibitor Control and Monitoring System**
- **Flow alarms capabilities from Controller**
- **Ability to monitor all parameters listed above 24x7x365 and notify CNE personal via email, phone, and text message if anything is out of spec.**

Cooling Towers/Fluid Coolers

Requirements:

- **Maintain scale, corrosion, slime, and general contaminant free chiller tubes.**
- **Corrosion rates must be documented with 180 days corrosion coupon program and online 24x7 continuous corrosion probes.**
- **Maintenance of corrosion inhibitor in tower water at all times, Maintenance of polymer for tower system fouling and bacteria control**
- **Easy chemical testing and control program**

- **Hands free chemical delivery package system. Vendor must provide at no charge, chemical delivery tanks and containment basins. In addition, all chemical deliveries must be made to these tanks by a licensed and certified delivery specialist. No chemical is to be handled on-site by CNE employees or uncertified vendor personnel unless otherwised agreed upon.**

Control Equipment:

- **Vendor must provide a real-time inhibitor control & monitoring system. The cooling tower controller must have the ability to directly measure and control the amount of active/inhibitor in the water. More specifically, the controller must be able to detect the amount of active inhibitor in the system water and then automatically control the feed pump. Controller must also be able to provide the following features:**
- **Conductivity, pH, ORP, Turbidity, & temperature measurement. Controller must also be able to feed an oxidizing & non-oxidizing biocide.**
- **In-line online mild steel & copper corrosion probes, and be capable of sending those readings to the controller for instantaneous corrosion rate measurements.**
- **Online alarm capabilities. The controller must have the ability to communicate with the internet providing alarms & automated reports to CNE personnel.**
- **Controller must be connected via the internet with a 24x7x365 remote engineering lab where CNE towers can be monitored by degreed engineers. Engineering lab must be able to provide detailed reports & troubleshooting in less than 1 hour from when a problem is noticed and notify CNE personnel immediately by email or text when changes occur.**
    - **The controller must be equipped with a Data Management program, capable of storing measured values for a one year period, and be able to generate graphs and reports on any or all of the variables.**

Closed Loops

Requirements:

- **Actual proposed MINIMUM nitrite residuals must be given for each loop system.**
- **Mild steel corrosion rates must be held to less than 1.0 mpy and copper rates at less than 0.2 mpy.**
- **Corrosion rates must documented with 180 days corrosion coupon program and online 24x7 continuous corrosion probes.**

Control Equipment:

- **Mild Steel corrosion rates must be held to less than 1.0 mpy and copper rates at less than 0.2 mpy.**
- **Easy chemical testing and control program.**
- **Contactor shall provide corrosion racks and quarterly testing of steel and copper corrosion coupons for the closed loops.**
- **Provide monthly glycol testing and reading.**
- **Vendor must provide a real-time inhibitor control & monitoring system for the chilled loop system and a controller capable of measuring corrosion on the hot loop system. The chilled loop controller must have the ability to directly measure and control the amount of active/inhibitor in the water. More specifically, the controller must be able to detect the amount of active inhibitor in the system water and then automatically control the feed pump. Controller must also be able to provide the following features:**
    - **Conductivity, pH, ORP, Turbidity, & temperature measurement. Controller must also be able to feed an oxidizing & non-oxidizing biocide.**
    - **In-line online mild steel & copper corrosion probes, and be capable of sending those readings to the controller for instantaneous corrosion rate measurements.**
    - **Online alarm capabilities. The controller must have the ability to communicate with the internet providing alarms & automated reports to CNE personnel.**
    - **Controller must be connected via the internet with a 24x7x365 remote engineering lab where CNE towers can be monitored by degreed engineers. Engineering lab must be able to provide detailed reports & troubleshooting in less than 1 hour from when a problem is noticed. CNE personnel must be contacted immediately by phone, email or text when problems or changes occur.**
    - **The controller must be equipped with a Data Management program, capable of storing measured values and be able to generate graphs and reports on any or all of the variables.**

Microbial Control

The bacteria control programs for the tower and closed loops is listed in this section.

Requirements:

- **A dual biocide program for the tower system including both an oxidizing and non-oxidizing biocide.**
- **All biocides must be liquid.**
- **All tower biocides must be fed through use of automated feed systems.**
- **Biocide program must provide for total bacteria counts below 10,000 cfu/ml at all times.**
- **Sulfate reducing bacteria and denitrifying bacteria must be monitored and controlled at all times.**

CNE Representations

- **All aforementioned systems are in a "Good" condition. Contractor shall report to Owner any deficiencies prior to performing any service.**
- **Reasonable access to all systems shall be provided during normal operation. Monday thru Thursday 0800 – 1800 hours.**
- **Any equipment installation due by Owner affecting the scope of this work, shall be performed with Contractor oversight.**
- **Should Contractor recommend system repairs or upgrades to increase efficiency or minimize water loss, Owner shall effect said recommendations (if deemed warranted by Owner) at its expense.**
- **CNE will perform routine, annual cooling tower/fluid cooler cleaning under separate contract.**
- **CNE shall perform regular, scheduled preventive maintenance of all affected systems as recommended by the respective equipment manufacturers.**
- **Any equipment utilized under this scope of work as provided by Contractor shall be returned to Contractor within 30 days of the contract termination, unless said equipment has been purchased by CNE or the equipment is required to be included in the performance of the work.**