RFP ORNL-2019-1007
ATTACHMENT A
STATEMENT OF WORK
August 14, 2019

Representative requirements

- Technical degree
  - Engineering or chemistry preferred
- Minimum of 5 years of industrial water treatment experience
- Able to respond and be on site within 2 hours of call

Services required

- Ability to formulate custom treatment programs for boilers, cooling towers, waste water, chilled/cold water loop, and hot water loops based on system requirements and environmental concerns
- Ability to perform on-site testing to verify treatment parameters
- Required off-site testing capabilities:
  - Complete analysis of boiler feed water, boiler water, steam condensate, cooling tower water, chilled water, cold and hot water
  - Deposit analysis (organic and inorganic)
  - Metallurgical analysis (failure analysis)
  - Corrosion coupon studies
  - Toxicant evaluations of biocides
  - Aquatic toxicity studies to support Environmental Protection
  - Boroscope inspections

Program expectations (as required by system parameters)

- Boiler
  - Deposit control
  - Oxygen control in boiler water
  - General corrosion control

- Cooling
    - Corrosion rate limits
        - Mild steel <2.0 mls/year
        - Copper <0.1 mls/year
    - Biological control
        - Critical cooling systems, <100 colonies/ml
        - Non-critical cooling systems, <1000 colonies/ml
        - Sulfate reducing bacteria, <1 colony/ml
    - Chilled water, cold water, hot water loops
        - Corrosion rates
            - Mild steel, <1 ml/year
            - Copper, <0.1 ml/year
            - Stainless steel, <0.1 ml/year
            - Aluminum, < 1 ml/year
            - Biological control: <100 colonies/ml (aerobic); <1 colony/ml (SRB)
    - Compliance with local NPDES permit and Waste Acceptance Criteria if discharged to Sanitary Sewer

- Waste Water
    - Ability to perform jar tests to optimize polymer feed rate/performance
    - Ability to trouble-shoot Waste Water issues based on biological viability and test results