

FAYETTEVILLE

**WATER TREATMENT BID**

**SPECIFICATIONS**

**REQUEST FOR PROPOSAL**

 **R634413**

**(SCOPE OF WORK)**

**MARCH 8, 2017**

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1. **PROPOSED SCHEDULE**

**March 8, 2017 – BID DOCUMENT (RFP) RELEASE TO PUBLIC**

**March 14, 2017 – MANADATORY SITE WALKTHROUGH at 9:30 A.M. (CST). VENDORS NOT IN ATTENDANCE SHALL BE DEEMED NON-RESPONSIVE AND SHALL NOT BE ALLOWED TO BID.**

**March 21, 2017 – CLOSING DATE FOR ALL QUESTIONS – 4:30 P.M. (CST)**

 **ALL VENDOR QUESTIONS SHALL BE SUBMITTED IN WRITING VIA EMAIL TO**

 **ANDY FLETCHER at** **andyf@uark.edu** **PRIOR TO THE CLOSING DATE**

 **LISTED ABOVE, MARCH 21, 2017. 4:30 P.M. (CST).**

**March 27, 2017 – ANSWERS TO VENDOR QUESTIONS SHALL BE POSTED ON THE UNIVERSITY OF ARKANSAS -FAYETTEVILLE PROCUREMENT DEPARTMENT’S HOGBID WEBSITE, BY MARCH 27, 2017 4:30 P.M. (CST) AND SHALL BE FINAL.**

**March 30, 2017 – BID OPENING DATE: PROPOSAL SHALL BE SUBMITTED BY 2:30 P.M. (CST). LATE PROPOSALS/BIDS SHALL NOT BE ACCEPTED FOR REVIEW.**

1. **OVERVIEW**

**UNIVERSITY OF ARKANSAS (“U of A”) is considering an agreement for the services of a firm that can provide a comprehensive, service-oriented water treatment program. The proposal shall be *best* and *final*.**

**The agreement shall be awarded to the vendor who best satisfies all of U of A’s water treatment needs at optimum cost performance. The cost shall not be the sole criteria for determining the agreement award; however, it shall be weighed heavily. The proposal’s technical content and service/training offering shall be a critical piece of the final evaluation by the reviewing committee. PRICING SHALL NOT BE CONSIDERED PRIOPRIETARY AND IS AVAILABLE FOR PUBLIC REVIEW.**

* 1. **Goals – In no order of preference, the primary goals of the service-oriented, water treatment program are as follows:**
		1. General Program Requirements
			1. U of A is seeking a turnkey water treatment program such that no supplemental support is required from U of A staff or personnel other than the administration and oversight of the program.   The contractor shall provide technicians and resources as needed to be self-sufficient and maintain the treated systems within programs goals and guidelines.
			2. The contractor shall provide orientation training for U of A’s program administrator or “HVAC Maintenance Coordinator” in the use of program monitoring elements, such as the “web-based” reporting system and quarterly reports.
			3. With regard to training of U of A Operations staff, the water treatment contractor shall have the resources and technical qualification to train U of A maintenance technicians.   This shall be a standby service, which can be accessed by U of A if in the future U of A determines to engage in the day-to-day monitoring of systems.  The primary resource for all services shall be the water treatment contractor at the onset of the program.
			4. It is U of A’s intention that the water systems treated under this contract comply with the ASHRAE 188 ANSI/ASHRAE Standard 188-2015 Legionellosis: Risk Management for Building Water Systems.  Automated monitoring and web-based reporting shall be implemented by the contractor with the explicit intent to maintain compliance with this standard.
			5. Web-based records/reporting shall be provided by the water treatment contractor to allow U of A complete access to all elements of the program, including, but not limited to, site visit reports, test results, key performance indicators, complete up-to-date program contact information, and remote system monitoring results.
			6. The Web-based records / reporting shall have the ability to export data to a data interchange format (excel, or CSV).
		2. Minimize or eliminate chemical handling by, and safety hazards to, U of A personnel.
		3. Provide professional, knowledgeable, and involved service personnel.
		4. Accurately monitor program results and communicate appropriate recommendations with quantifiable, business-oriented justifications. Reports shall provide required daily data to indicate U of A’s compliance with all applicable water discharge limits per U of A’s requirements.
		5. Thoroughly train U of A personnel on the implementation and control of the programs.
		6. Reduce the overall energy/utility consumption through improved heat transfer efficiency and improved water quality. This is accomplished by improving the make-up quality, reducing system contamination, and minimizing scale, corrosion, fouling, and microbiological growth, which create deposits on heat transfer surfaces.
		7. Minimize the repair and maintenance costs associated with the replacement and cleaning of equipment due to scale, corrosion, fouling, or microbiological activity.
		8. Provide competitive water treatment program costs.
		9. This contract shall be managed in accordance with the purchasing practices dictated by the State or Arkansas.  The State of Arkansas requires that the contractor’s performance be measured against specific deliverables on a quarterly basis.  The key performance Indicators associated with this program shall be as follows:
			1. In response to service “trouble calls,” the contractors will be expected to have a qualified technician arrive on-site at the location of the “upset condition” within two hours of the call being placed by U of A’s authorized representative.  The water treatment contractor shall maintain a 24-hour, seven-day-per-week call number, which shall be used to initiate these service calls.
			2. The contractor’s proposal shall stipulate the anticipated quarterly chemical cost necessary to maintain correct water treatment conditions in the specific systems under this contract.   Variances from the projected quarterly cost for services within the scope of the basic contract shall be reported on a quarterly basis.   Cost variances in excess of the projected cost shall receive a negative score against the contractor’s performance.  Cost savings compared to the projected quarterly amounts shall receive a positive score.
			3. The contractor shall provide a thorough report for each site visit.  A sample of the contractors proposed report shall be provided for bid evaluation.  The site visit report shall, as a minimum, list the systems inspected, results of tests and/or inspections, and corrective actions recommended.  Reports shall be provided to the system administrator via e-mail and posting to the web-based site within 24 hours of the visit.  The timeliness and thoroughness of the reports shall be evaluated as part of the quarterly performance report.
			4. The timely correction of system deficiencies is critical to the success of the program.  The contractor shall propose a ranking system for deficiencies and establish maximum corrective times for each level of deficiency.  The contractor’s execution of corrective actions with respect to the times proposed shall be included in the quarterly performance evaluation.
			5. The contractor shall provide a quarterly summary report of all site visits, inspections, and recommendations, which includes records of corrective actions, response times, and deficiency corrections.  U of A reserves the right to audit the contents of this report periodically for both the technical merit and accuracy of the report.
			6. The contractor shall provide continuous improvement recommendations, as well as written turnkey implementation plans for these improvements when requested by the program administrator.
			7. In the event that the correction of deficiencies requires third-party contractor services for implementation, the water treatment contractor shall propose an execution plan (the plan shall be in writing if requested by the program administrator), obtain prequalification approval for any proposed sub-contractors, schedule and supervise subcontractor activities, and obtain one-week advance approval for on-site construction or disruptive system changes outside of the routine testing, inspection, and treatment services.  Thorough adherence to these expectations will be considered in the quarterly evaluation.
			8. The contractor shall be expected to maintain all treatment and testing equipment without assistance from U of A staff.  This shall include the design and maintenance of corrosion coupon racks.

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| **Service Performance Standards 3.0**  |  |
| **Service Criteria** | **Acceptable Performance**  | **Damages for Insufficient Performanc**e |
|  **Scope of service:** **Ongoing maintenance** **of system treatment in** **accordance with** **established goals.** | **Work performed to the satisfaction of on-site University departmental representative.****1) Maintains chemical delivery and monitoring systems in good working order. 2) Maintains sufficient on-site reserves of chemicals to provide continuous, uninterrupted system treatment (does not run out of system chemicals). 3) Maintains continuous operation of monitoring sensors and data acquisition functions.** | **The vendor may be penalized up to 10% of the monthly****contract amount for each month they fail to maintain****continuous operation of chemical treatment systems or****run out of chemicals. The penalty amount shall be****prorated based on the number of days the system is****inoperational or there is a shortage of system chemicals.****(Penalty amount = (days non-compliant / days in a month)****x 10% monthly contract amount).****Administration of penalties to be determined at the sole****discretion of the University of Arkansas – Fayetteville.** |
|  **Scope of service:**  **Maintain orderly, clean** **and safe work site.** | **Work performed to satisfaction****of the University of Arkansas****departmental representative.****1) Contractor shall keep all work****areas organized and safe.****2) Removes all waste and used****chemical containers on a daily****basis. 3) Schedules access and****activities in advance with****University departmental****representative. 4) Adheres to****University work site standards.** | **The vendor may be penalized up to 10% of the monthly** **contract amount for each month they fail to maintain an****orderly, clean and safe work site. The penalty amount shall****be prorated based on the number of days the work site is out****of compliance.****(Penalty amount = (days non-compliant / days in a month)****x 10% monthly contract amount).****Administration of penalties to be determined at the sole****discretion of the University of Arkansas – Fayetteville.** |
|  **Scope of service:** **Proper system closure** **to maintain** **containment of** **chemicals and treated** **water.** | **Work performed to satisfaction****of the University of Arkansas****departmental representative.****At any time the systems or****components are opened for****activities such as changing filters,****it is the sole responsibility of the****treatment contractor to assure****that the system is closed properly****and secured to prevent the loss****of treated water or chemicals****before leaving the site.** | **Termination of contract: termination clause 4.2.7 (page 9)****of RFP will apply for insufficient performance of services by****vendor at the sole discretion of the University of Arkansas –****Fayetteville. Additionally, in the event that the failure to****properly close the system results in equipment damage****and/or loss of fluid, the contractor shall be liable for all clean****up and repair services required to clean up the loss of fluid/****chemicals and restore the system to its previous operating****condition.** |

1. **GENERAL INSTRUCTIONS**
	1. **Propose a program as a one-year, *“full-contract-pricing,”* with a break-out for all control and feed equipment, and a renewable term. Include the following:**
		1. All chemicals
		2. All testing reagents, supplies, test procedures, and disposal procedures
		3. All log sheets, a fully-functional water chemistry tracking and trending software, and at least two days of *in-depth* training
		4. All necessary equipment – Propose full containerization and a bulk chemical delivery and control system. Submit drawing schematics and specify container types (e.g., tank, tote, drum), materials (e.g., plastic, FRP, stainless steel), sizes, footprints, and power requirements.
		5. Propose according to the indicated programs for each system; however, feel free to offer alternatives *in addition* to the requested information.
		6. Weekly service for all towers and steam boilers, and a minimum of once every three months for closed loops
		7. On-site service cannot be less than one hour for each $300.00 spent for chemicals.
		8. Service must be interpreted as the *testing* of all treated systems, the review of any written and computerized log sheets, inventory review, the inspection of chemical feed equipment, and general equipment inspections.
		9. Inspect each chemical feed station prior to proposing and offer solutions to chemical feed, blowdown, storage, and distribution system deficiencies.
		10. Propose a low-maintenance solution without jeopardizing the chemical regime effectiveness.
	2. **Required Information**
		1. Include the name and resume of the single service representative who shall service the site, as well as their backup. Also include the name and background of their immediate supervisor. *Include office, home, and cell phone numbers, as well as e-mail addresses.* All references must be those serviced by the proposed service representative, who shall be a fulltime, fully-trained employee of the water treatment supplier.
		2. Removal and/or replacement of any service representative must be approved in advance by U of A.
		3. Include a statement that you have completed the Mandatory Site Walkthrough and that the proposal submitted is based on the information given combined with your own in-depth survey. Do not consider only the information given; however, please indicate any deviations as such in your proposal. No warranty is given as to the accuracy of this information. This statement must include a *Statement of Compliance* or echo full text of all items in the *General Instructions*. The vendor may propose a section titled “Exceptions and Clarifications to Specifications.” This section must include a numbered list of all exceptions and clarifications. Except for items explicitly addressed in this section, the vendor is assumed to be in full agreement with these specifications.
		4. The vendor must submit Safety Data Sheets and technical guidance with recommended practices for the storage and handling of all chemicals to be supplied upon award. These files must be kept up to date for the entirety of the contract (both hard and electronic files).
		5. U of A reserves the right to reject any or all proposals for any reason and will not necessarily accept the low bidder.
		6. Include contract renewals, for up to six additional years.
		7. The University of Arkansas may terminate this Agreement without cause, and for any reason during the Term (including any renewal periods), upon giving the other party thirty (30) days advance written notice of termination. Additionally, in the event of non-appropriation of funds necessary to fulfill the terms and conditions of this Agreement during any biennium period of the Term (including any renewal periods), the parties agree that the Agreement shall automatically

4.2.8 U of A reserves the right to request performance review of a service representative for any reason at any time.

4.2.9 The vendor must provide a W-9 form.

4.2.10 The vendor must agree to the conditions of the following documents:

* + - * U of A insurance requirements
			* U of A standard service contract
			* U of A standard non-disclosure agreement
			* General Program Requirements (Section 2.1.1)
			* Key Performance Indicators (Section 2.1.9)
			* Deliverables (Section 3.3.11)
	1. **Performance**
		1. Acceptable performance shall be indicated by corrosion rates no greater than 1 mil/year (MPY) for mild steel and 0.5 MPY for galvanized steel in open systems, 0.5 MPY for mild steel in closed loops, and 0.1 MPY for copper and stainless steel in all systems; aerobic bacteria counts no greater than 10,000 cells/ml in towers and 1,000 cells/ml in chill loops; anaerobic bacteria counts no greater than 50 cells/ml in any system; *and* clean heat transfer surfaces with no pitting as determined byU of A’swater consultant.
		2. The successful bidder shall be responsible for removing all non-permanent chemical containers and their own unused chemicals (if so directed) at any time following the end of the contract period. Such requests to remove chemicals and their containers must occur within 120 days following the end of the contract period or any extensions to the contract period. Chemical containers must be heavy gauge, stainless steel or plastic, permanent storage containers, which can become the property of U of A at the expiration of the contract or any extensions at their option (the proposal must clearly show a buyout schedule, if applicable).
		3. Please provide three local references with systems of similar sizes and complexities relative to U of A. U of A and/or its agents reserve the right to contact or visit the references listed. Include the contact names, titles, mailing addresses, phone numbers, and e-mail addresses.
		4. All prices shall include delivery, chemical handling, removal of empty containers, and the maintenance and repair of all vendor-supplied equipment for the life of the agreement. Keep in mind that the vendor will be 100% responsible for delivering materials to the point of use and into the systems. Assistance by the U of A engineers is not to be expected.
		5. The vendor shall be responsible for cleaning scaled or fouled equipment that arises as a direct result of the poor implementation of the water treatment by the vendor.
		6. The vendor must maintain adequate chemical inventories at all times to avoid a shutdown.
		7. The vendor must submit a list of tests to be performed during each service visit, a calendar of services to be performed during the year, and a list of tests to be run by U of A personnel per day. Please submit an example U of A service report.
		8. Note the skin temperatures used in calculating saturation indices when building your cooling program.
		9. All chemical treatment must be contained. This includes 5-gallon pails.
		10. Deliverables:
* Treatment is to be maintained in the towers and loops at least 90% of the time, or corrective actions are to be taken and noted in writing. The inhibitor and bacteria levels should be within range.
* Testing of all tower and loops is to be completed weekly on towers and boilers, and quarterly on closed loops.
* ORP graphs on the halogen feed are to be provided monthly.
* Three sets of corrosion coupon tests are to be conducted on tower systems. The results are to be below the target maximum limits of 1 MPY for mild steel and 0.1 MPY for copper.
* All pumps and controllers are to be operational.
* A quarterly written action list is to be provided for all loops or towers that are in need of repair or out of control.
* All chemicals are to be contained, and empty containers are to be properly disposed of.
1. **SPECIFIC INSTRUCTIONS**
	1. The pricing for the chemical portion of this bid is an *estimated usage for proposal evaluation purposes.* If volumes and make-ups change in the future, the contract will be adjusted according to those changes. The cost per 1,000 gallons you provide will be used to calculate any changes. Fill out a complete set of Pricing Sheets per scenario. There will be a yearly true-up with a quarterly financial evaluation
	2. Required Tests – The following are the minimum required tests that must be performed during each scheduled visit:
* Raw Water
	+ pH
	+ Conductivity
	+ M-alkalinity
	+ Hardness
* Tower Water
	+ Conductivity
	+ Fluorescent tracer
	+ Phosphonate
	+ Copper
	+ Azole
	+ Turbidity
	+ Free halogen
	+ Biological count (by strip method inoculated 48 hours prior by U of A personnel and incubated at 35° C)
* Chill/Closed Water
	+ pH
	+ Conductivity
	+ Molybdenum
	+ Copper
	+ Iron
	+ Azole
	+ Turbidity
	+ Biological count (by strip method inoculated 48 hours prior by U of A personnel and incubated at 35° C)
* Hot Closed Loop Water
	+ pH
	+ Conductivity
	+ Nitrite
	+ Copper
	+ Iron
	+ Azole
	+ Turbidity
	1. Corrosion coupon testing must be conducted each quarter on the towers or evaporative condensers. Corrosion coupon racks must be capable of housing at least two coupons and include the following metallurgies:
* Mild steel
* Copper
	1. Closed loop filters must be replaced during each service visit.
	2. Include an equipment package (a complete list of the necessary equipment; detail if it is currently present, or if it will be provided – see Section 8 of these specifications) for the following:
		+ Containment for all chemicals
		+ Any necessary piping
		+ Feed and control equipment
			- Trace-equipped blowdown controllers with ORP and trending capabilities for all cooling towers, at minimum
		+ Communication features to be integrated into U of A’s system
		+ Any software and connections needed to provide a monthly summary of ORP and conductivity for all towers without U of A engineer involvement (Data must be collected and transmitted to U of A by the vendor or automation.)
		+ Two-position (minimum) corrosion coupon racks with rotameters for towers
		+ All pumps needed to deliver corrosion inhibitor and two liquid biocides to each tower.
	3. **Present a cleaning and sterilization proposal for corrosion and biologically-fouled closed loops, as well as a cost per 1,000 gallons).**
	4. **Present a new piping cleanout procedure, as well as a cost per 1,000 gallons).**
		1. We require a 48-hour alkaline/phosphate program, followed by a flush to within 1 PPM as that of the make-up water for both iron and ortho phosphate, followed by a sterilization utilizing 120 PPM of 45% glutaraldehyde.
	5. **The winning bidder will be required to perform volume studies on all systems within 180 days. This can be done with an inhibitor feed or trace compound.**
	6. **The winning bidder will be required to attend semiannual review meetings with U of A.**

***Please note that there is an ongoing project designed to remove the steam boiler within one year.***

***There is no plan for a new loop to replace it.***

**6.0 GUARANTEED SERVICE REQUIREMENT**

***This section of the proposal is important, and should be given considerable attention.***

* 1. **As stated earlier in the bid document, service cannot be less than one hour for every $300.00 of chemicals spent by U of A.**
	2. **Please clearly outline a section in your proposal as “Guaranteed Service Requirement.”**
	3. **Prepare a list of the services that will be provided periodically (e.g., particle size distribution studies, biological profiles, system volume/leak tests, system audits, elution studies, dissolved oxygen studies, borescoping, deposit analyses, corrosion studies, etc.). Please state the periodicities for each.**
	4. **Provide a “footprint” (elevation and plan view, including volume) of the chemical containers for each system. Keep in mind the space limitations you observed during your survey. Note power requirements.**
	5. **Describe what types of services shall be available during routine equipment inspections at no expense to U of A.**
	6. **The successful bidder shall be available for quarterly reviews scheduled at the discretion of U of A.**
	7. **All waterside equipment must be inspected and photographed annually when available for inspection; a full written report is required. Condensers must be borescoped once per year to evaluate the treatment and cleaning effectiveness if requested by U of A. All inspection reports must be submitted in writing within 30 days of each inspection.**

**7.0 WATER TREATMENT BID ASSUMPTIONS**

***Please see Appendix A for a complete list of the systems to be treated. The values listed below are totals to be used for pricing.***

* 1. **Tower Water Systems 3**
* Volume 21,000 Gallons
* Make-Up 19,500,000 Gallons
	1. **Chill/Closed Loop Water Systems**
* Volume 84,000 Gallons
* Make-Up 26,000 Gallons
	1. **Hot Loop** **Water Systems**
* Volume 83,000 Gallons
* Make-Up 21,000 Gallons

**8.0 MINIMUM EQUIPMENT REQUIREMENTS**

* 1. **Tower Water Systems**
* Tanks or pails
* Containment systems (state your plan; simple containment is acceptable)
* Feed and control equipment (sized to provide the required feeds within the necessary timeframes)
	+ Trace-equipped controllers with ORP and trending capabilities
	+ Communication features to be integrated into U of A’s system
* Any necessary piping
* Any necessary corrosion coupon racks (two-position, at minimum, with a rotameter)
* Any required pumps (estimated at 8x3=24) – 20 used pumps are available; however, you are required to rebuild or provide replacements.
	1. **Chill/Hot/Closed Loop Water Systems**
* Tanks or pails, if needed (inventory at all sites is not required)
* Containment systems
* Filter feeders are provided by U of A; however, please quote an off-bid price for 5-gallon filter feeders, as 11 may be needed.
	1. **Testing Equipment (*not required to be supplied to U of A; however, for the vendor’s use*)**
* All glassware
* All reagents
* All dip slides
* Incubator (must remain on-site)
* DR890 or equal
* Myron L 6P

**9.0 TOWER WATER SYSTEM TREATMENT**

* 1. **Inhibitor (Fluorescent Tracer/PBTC Phosphonate/Zinc/Azole/Polymer-Based)**
		1. Provide the treatment levels, recommended feed points, LSI limitations, and container sizes, materials, and types.
		2. Fluorescent-traced technology is required.
		3. The formulation must be in proportion to the following for a feedrate of 100 PPM: greater than 6% phosphonate as PBTC, greater than 10% polymer (minimum of 5% ter or quad polymer, greater than 3-5% PAA), greater than 3% of azole as tolyltriazole (TTA). A more dilute program can be used; however, it must be quoted at a feedrate to meet or exceed these minimums. Quote the formulation and recommended feedrate to meet this parameter.
	2. **Dispersant (Liquid)**
		1. You may propose a one-drum treatment approach.
	3. **Biocide #1 (Liquid Bromine)**
		1. Feed three times per week to achieve a free halogen residual of 1 PPM at the end of a four-hour feed. Use 90 PPM per day for calculation purposes.
		2. Provide the minimum/maximum levels in PPM; active ingredients; container sizes, materials, and types; and recommended dosage schedules in days.
		3. Sodium hypochlorite, two-product bromine, or Justeq07 are not acceptable substitutes. For smaller systems, solid bromine (hydantoin) may be substituted at a 1/6 pound 93% hydantoin (or better) product per 1,000 gallons, which must achieve the identical residuals as compared to the specified product technology. A brominator must be included. Floaters are not permitted. Again, sufficient material must be fed to meet the biological goals. If you choose this approach, an automatic brominator must be utilized and included as part of the equipment package, and plan to fill it weekly. Site personnel are not responsible for filling the brominator.
	4. **Biocide #2 (Glutaraldehyde)**
		1. Use 45% fed at 120 PPM once per week.
		2. The full dose must be fed within a one-hour timeframe.
	5. **Documentation – Provide a chart listing control limits for the above, including, but not limited to, the following:**
	+ Measurable treatment levels
	+ Guaranteed levels of phosphonate (1-5 PPM as the specific phosphonate or 4-8 PPM as ortho phosphate), azole (3-5 PPM), tracer, and zinc (1 PPM)
	+ Raw water cycles
	+ pH
	+ Free halogen levels
	+ All tests to be performed (describe)
	1. **Note – Acceptable performance shall be indicated by total biological counts no greater than 10,000 cells/ml as aerobic and 50 cells/ml as anaerobic, and corrosion rates no greater than 1 MPY for mild steel, 0.5 MPY for galvanized steel, and 0.1 MPY for copper and stainless steel.**

**10.0 CHILL / CLOSED LOOP WATER SYSTEM TREATMENT**

* 1. **Inhibitor (Molybdenum/Azole-Based Treatment)**
		1. Provide the treatment levels for molybdenum and azole. The formulation must provide at least 80-100 PPM of molybdenum, at least 5 PPM of azole as TTA, and a pH within the range of 8.0-10.3 at the quoted feedrate. Quote the formulation and recommended feedrate to meet this parameter.
		2. Provide the container sizes, materials, and types.
		3. Be sure that the product quoted is free of all glycols.
	2. **Biological Treatment Program (Isothiazoline and Glutaraldehyde-Based):**
		1. Isothiazoline (240 PPM) and 45% glutaraldehyde (120 PPM) will be alternately fed every six months (one isothiazoline and one glutaraldehyde feeds per year).
		2. The full dose must be fed within a one-hour timeframe.
		3. Provide any pricing options.
	3. **Documentation – Provide a chart listing the control limits for the above, including, but not limited to, the following:**
		+ - Measurable treatment levels (80-100 PPM of molybdenum, 10 PPM of azole)
			- pH range (8.0-10.3)
			- Conductivity range
			- All tests to be performed (describe)
	4. **Note – Acceptable performance shall be indicated by total biological counts no greater than 1,000 cells/ml as aerobic and 50 cells/ml as anaerobic, and corrosion rates no greater than 0.5 MPY for mild and galvanized steel, and 0.1 MPY for stainless steel and copper.**

**11.0 HOT LOOP WATER SYSTEM TREATMENT**

* 1. **Inhibitor (Nitrite/Azole-Based Treatment)**
		1. Provide the treatment levels for nitrite and azole. The formulation must be fed to provide at least 400-600 PPM of nitrite, at least 5 PPM of azole as TTA, and a pH within the range of 8.0-10.3 at the quoted feedrate. Quote the formulation and recommended feedrate to meet this parameter.
		2. Provide the container sizes, materials, and types.
	2. **Biological Treatment Program (Isothiazoline):**
		1. This is required for the four hot loops that return to ambient temperatures during the off-season.
		2. Feed isothiazoline (240 PPM) fed once per year when system is at ambient temperature.
		3. The full dose must be fed within a one-hour timeframe.
		4. Provide any pricing options.
	3. **Documentation – Provide a chart listing the control limits for the above, including, but not limited to, the following:**
		+ - Measurable treatment levels (400-600 PPM of nitrite, 10 PPM of azole)
			- pH range (8.0-10.3)
			- Conductivity range
			- All tests to be performed (describe)
	4. **Note – Acceptable performance shall be indicated by total biological counts no greater than 1,000 cells/ml as aerobic and 50 cells/ml as anaerobic, and corrosion rates no greater than 0.5 MPY for mild and galvanized steel, and 0.1 MPY for stainless steel and copper.**

**12.0 PRE-BOILER / STEAM BOILER WATER SYSTEM TREATMENT**

* 1. **Internal Corrosion and Deposition Control (Polymer/Phosphate/Sulfite/Caustic/Amine-Based)**
		1. Provide the treatment levels for all components. Include the application point and method of application. The current feedpoint is the condensate-style feedwater tank.
		2. List the exact product blowdown concentration in PPM used to calculate the costs and the exact control parameter concentration in PPM developed at the calculated quantity.
		3. Provide the container size, material, and type.
	2. **Documentation:**
		1. Provide a chart listing the control limits for the above, including, but not limited to measurable treatment levels in the boiler (30-50 PPM of sulfite, 30-60 PPM of phosphate, at least 300 PPM of p-alkalinity)**.**
	3. **Notes:**
		1. The proposed program should be in agreement with the ASME guidelines for boiler water treatment.
		2. Low-pressure layup requires a minimum sulfite level of 100 PPM.
		3. Caustic must also be provided if it is needed for alkalinity control. Provide the treatment levels and application point.
		4. Please note that the chemical program you select must maintain the feedwater tank pH above 8.3.

**13.0 PHILOSOPHY STATEMENT**

* 1. **The treatment representative should be familiar with each component of the treatment chemicals to be applied.**
	2. **Biological activity in cooling systems is the primary cause of system failures and should be monitored carefully.**
	3. **It is recommended that all systems be checked for biological activity at least once per operating week.**
	4. **Any size chemical container needs containment. A comprehensive Spill Prevention Control Countermeasure (SPCC) plan must be submitted.**
	5. **Metering pumps and control equipment must be periodically calibrated to the OEM Specifications and documented.**
	6. **Service call reports must be discussed with site personnel prior to leaving U of A during each service call visit. They should also be e-mailed to all parties before leaving U of A.**
	7. **All treatment representative or product changes must be approved by U of A in writing as an amendment to the contract.**
	8. **All non-oxidizing biocides should be completely fed into the system within a maximum timeframe of one hour.**
	9. **Intermittent halogen feeds to an open, recirculating system should be over four hours, reaching 1 PPM as free at the end of the fourth hour.**

**14.0 REQUIRED SUBMITTALS**

* 1. **Treatment Representative Information**
	2. **Completed Pricing Sheets**
	3. **Completed Monitoring Sheets**
	4. **Statement of Compliance**
	5. **Guaranteed Service Section**
	6. **Footprint and Quote for *Bulk* Chemical Handling, Storage, Delivery, and** **Control**
	7. **Equipment Section**
	8. **References**
	9. **Renewal Price Section**
	10. **Bid Summary Form**

**15.0 EVALUATION CRITERIA**

**Evaluation Criteria and Weights (Points)**

Pricing 50 points

Vendor History & Past Performance 30 points

References & Vendor Experience 20 points

TOTAL: 100 POINTS

Pricing: Comparison shall be based upon the numerical sum of cost for the first year of the program. Cost shall be inclusive of all materials, labor and fees. This contract is subject to annual review and renewal at the sole discretion of the University, for a total aggregate not to exceed 72 months after the first year.

Lowest grand total on cost will receive 50 points. Remaining bids shall receive points in accordance with the following formula:

 **(a / b)(c) = d**

 Where

 a = the lowest cost bid for year one

 b = the second (third, fourth, etc.) cost bid for year one

 c = 50 (the maximum number of points allowed for cost)

 d = number of points allocated to respective bid

**16.0 PRICING SHEETS**

**TOWER WATER SYSTEMS**

|  |
| --- |
| **Based On** |
|  |
| **Annual Make-Up (Gallons):** | 21,500,000 |
|  |  |
| **Cycles of Concentration:** | 8 |
|  |  |
| **Total Volume (Gallons):** | 21,000 |

|  |
| --- |
| ***INHIBITOR*** |
| **OPTIONS** | **BULK** | **DRUM** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Make-Up |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

|  |
| --- |
| ***ADJUNCT (If needed)*** |
| **OPTIONS** | **BULK** | **DRUM** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Make-Up |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |
| **Exact PPM of Polymer Desired in Tower** |  |

**TOWER WATER SYSTEMS**

***(continued)***

|  |
| --- |
| ***BIOCIDE #1*** |
| **OPTIONS** | **BULK** | **DRUM** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Volume |  |  |  |

|  |
| --- |
| ***BIOCIDE #2*** |
| **OPTIONS** | **BULK** | **DRUM** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Volume |  |  |  |

***Note:***

***This is an alternating biocide program.***

***Two biocides will be employed.***

**CHILL/CLOSED LOOP WATER SYSTEMS**

|  |
| --- |
| **Based On** |
|  |
| **Total Volume (Gallons):** | 84,000 |
|  |  |
| **Average Annual Make-Up (Gallons):** | 26,000 |

|  |
| --- |
| ***INHIBITOR*** |
| **OPTIONS** | **1** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Make-Up |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

**CHILL/CLOSED LOOP WATER SYSTEMS**

***(continued)***

|  |
| --- |
| ***BIOCIDE #1*** |
| **OPTIONS** | **1** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Volume |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

|  |
| --- |
| ***BIOCIDE #2*** |
| **OPTIONS** | **2** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Volume |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

***Note:***

***This is an alternating biocide program.***

***Two biocides will be employed.***

**HOT LOOP WATER SYSTEMS**

|  |
| --- |
| **Based On** |
|  |
| **Total Volume (Gallons):** | 83,000 |
|  |  |
| **Average Annual Make-Up (Gallons):** | 21,000 |
|  |  |
| **Hot Biocide Volume (Gallons):** | 22,000 |

|  |
| --- |
| ***INHIBITOR*** |
| **OPTIONS** | **1** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Make-Up |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

|  |
| --- |
| ***BIOCIDE*** |
| **OPTIONS** | **1** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Volume |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

**STEAM BOILER WATER SYSTEMS**

|  |
| --- |
| **Based On** |
|  |
| **Average Annual Feedwater (Gallons):** | 400,000 |

|  |
| --- |
| ***INHIBITOR*** |
| **OPTIONS** | **1** | **Alternate** |
| Generic Type  |  |  |  |
| Vendor Name/Number  |  |  |  |
| Desired Residual (PPM) |  |  |  |
| % Active Ingredients |  |  |  |
| Form (Wet or Dry) |  |  |  |
| Container Size/Weight |  |  |  |
| Unit Cost |  |  |  |
| $/1,000 Gallons of Make-Up |  |  |  |
| **Exact PPM Used to Calculate Costs** |  |

**17.0 MONITORING SHEETS**

**TOWER WATER SYSTEMS**

***Monitoring Tests – Use generic tests only.***

|  |  |  |
| --- | --- | --- |
| **Options** | **1** | **Alternate** |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |

**CHILL/CLOSED LOOP WATER SYSTEMS**

***Monitoring Tests – Use generic tests only.***

|  |  |  |
| --- | --- | --- |
| **Options** | **1** | **Alternate** |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |

**HOT LOOP WATER SYSTEMS**

***Monitoring Tests – Use generic tests only.***

|  |  |  |
| --- | --- | --- |
| **Options** | **1** | **Alternate** |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |

**STEAM BOILER WATER SYSTEMS**

***Monitoring Tests – Use generic tests only.***

|  |  |  |
| --- | --- | --- |
| **Options** | **1** | **Alternate** |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |
| Test For |  |  |  |
| Method |  |  |  |
| Control Range |  |  |  |
| Test Frequency |  |  |  |
|  |

**18.0 BID SUMMARY FORM**

***One-Year Price per Year***

|  |  |
| --- | --- |
| 1. **Price for All Chemicals and Services for Year (1) one.**
 | **$\_\_\_\_\_\_\_\_\_\_\_** |
|  |  |
| 1. **Price for All Equipment for Year (1) one.**

1. **Grand Total Cost of Chemicals, Services, Equipment and Software for Year (1) one: (shall be used in Pricing Evaluation Criteria).**

 | **$\_\_\_\_\_\_\_\_\_\_\_** |

 **(Grand Total) $\_\_\_\_\_\_\_\_\_\_\_**

I certify the above to be correct as an official representative and officer of the company.

|  |
| --- |
|  |
|  |
| **Company Name** |
|  |
|  |
| **Name and Title** |
|  |
|  |
| **Signature and Date** |

**19.0 BID SUMMARY FORM (add alternate)**

The University anticipates that in the future addition campus hydronic and steam systems may be added to this contract.  Each system shall be added using a “base rate” which covers services and administration.  Cost of chemicals for each added system shall be determined by the system size and treatment requirements, subject to annual contract review for renewal or termination.

Provide system Base Rate for services and administration for each of the following:

Description                                         Base Rate / Additional System

Tower Water                                      $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hot Water Loop                                $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chilled Water / Closed Loop       $ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Steam Boiler                                     $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I certify the above to be correct as an official representative and officer of the company.

|  |
| --- |
|  |
|  |
| **Company Name** |
|  |
|  |
| **Name and Title** |
|  |
|  |
| **Signature and Date** |

**APPENDIX A SYSTEM DESCRIPTIONS**

|  |
| --- |
| WATER TREATEMENT SYSTEMS BID BASIS |
|   | ***Site*** | ***Boiler/Converter*** | ***Tower/GEO*** | ***Chiller*** |
| 1 | ADMN | HHW Loop |  |  |
| 2 | ADSB | HHW Loop | CW Loop | CHW Loop |
| 3 | AFLS | HHW Loop |   |   |
| 4 | ALUM | HHW Loop | CW Loop |   |
| 5 | ARAS | HHW Loop |   | CHW Loop |
| 6 | ARKU | HHW Loop |   |   |
| 7 | BAND | HHW Loop |   |   |
| 8 | BELL | HHW Loop |   |   |
| 9 | BIOR | HHW Loop | CW Loop |   |
| 10 | CSRC | HHW Loop |   |   |
| 11 | DAVH | HHW Loop |   |   |
| 12 | ECEN | HHW Loop | CW Loop | CHW Loop |
| 13 | ENRC | HW Loop | CW Loop |   |
| 14 | FNAR | HHW Loop |   |   |
| 15 | FPAC | HHW Loop |   |   |
| 16 | GLBL | HW Loop | CW Loop |   |
| 17 | HLTH | HHW Loop |   |   |
| 18 | HPER | HHW Loop |   |   |
| 19 | HUNT | HHW Loop |   |   |
| 20 | JTCD | HHW Loop | GEO Loop | CHW Loop |
| 21 | POSC | HHW Loop |   |   |
| 22 | ROSE | HHW Loop |   |   |
| 23 | UNHS | HHW Loop |   |   |
| 24 | UPTC | HHW Loop |   | CHW Loop |
| 25 | WATR | HHW Loop |   |   |