

THE UNIVERSITY OF ARIZONA®

Procurement and Contracting Services

Request for Proposals to Provide Treatment Programs for Industrial Water at the three U of A Central Heating and Refrigeration Plants (CHRP's)

Addendum #1

Please mark all proposal submission envelopes with the following information

Sealed RFP # L051009

Closing on September 23, 2009 at 2:00 PM, MST



This addendum is issued to provide clarifications and answer questions received prior to the September 11th deadline.

Addendum 1

Due to complexity of the issues involved and legal constraints upon the University, treatment of the Chilled Water Closed Loop is being removed from this RFP and will be dealt with at a later time under a separate contract. Therefore, do not include the chilled water loop or the glycol loops in your proposals unless it is as line items that can be separated from each other and from the remainder of the proposal.

Some Clarifications

In the Pre-proposal Conference we made the statement that we are only interested in proven technology. Questions came up concerning what we meant by the phrase “proven technology”. Our definition of proven technology follows:

It must be proven to perform as specified at a facility of similar size and complexity.

The facility must be one in which the facility owner is actively and independently involved in the day-to-day plant operations and monitoring of system performance. Performance monitoring must include **water use** (e.g. tower make-up, tower blow-down, boiler make-up, boiler blow-down) **electrical consumption** (e.g. chiller power consumption, tower power consumption, loop pumping power consumption) , **thermal performance** (e.g. chiller approach temperatures, tower temperatures, boiler gas to steam efficiency), **scale prevention** (at least annual inspection of chiller tubes, tower fill, boiler drums and tubes) and **corrosion** (e.g. regular inspection of chiller and boiler internals). The monitoring equipment must be owned and controlled by the facility owner or under contract to a contractor wholly independent of the industrial water treatment contractor.

Does this mean the University is not interested in new technology? Not at all. We are always on the lookout for new and better ways to do things. However, such experimentation does not fall under the scope of this RFP. We would entertain separate proposals representing new technologies to be tested on a limited scale, under carefully controlled conditions, with close monitoring that limits the University’s exposure to risk of damage to our equipment, infrastructure or ability to provide the services we supply to our customers. Such experimentation would be at the risk of the party wishing to convince the University of the applicability of its products or services. In most cases we would require involvement of a University-chosen independent consultant to evaluate the efficacy, applicability, return-on-investment, and safety of the experimental product or program.

Any such proposals shall be stand-alone projects whether proposed by the successful contractor under this RFP, or by some other contractor.

The University's and specifically UMS's priority in this and most utility-related RFPs is to maximize operational flexibility, so that we have as many options open as possible to provide the best utility services at the lowest possible cost to our customers. In keeping with that, wherever possible we require non-proprietary equipment and products and the freedom to secure such products from other sources independent of the service contractor. We generally avoid contracts that lock us into long-term commitments to a specific program or specific suppliers. While we may delegate procurement responsibilities to a service contractor, it will be because they can demonstrate superior value to the University.

We want to emphasize the provisions of this RFP pertaining to proprietary information submitted with your proposal. Specifically, we will not treat any information as proprietary unless specifically identified as such as per section **2.8.7** of this RFP. We recognize the highly competitive nature of the Industrial Water Treatment field, and wish to respect the intellectual properties represented, but can only do that if the information is clearly identified as proprietary. It is because of such considerations with regard to our current contractor, that we have limited sampling to source water supplies, and excluded tower water, chilled water loop, or boiler water from sampling.

We are, and intend to remain involved with the day-to-day operation of our plants, including water treatment. Our operators perform daily water quality analyses and adjust feed rates to remain within optimum criteria. UMS Staff Technicians and the Plant Supervisor will remain actively involved in the ongoing evaluation of water treatment efficacy and costs. We are not interested in "outsourcing" any aspect of our plant operations. We are accountable for plant performance, and as such, expect to be an active participant in any industrial water treatment program. We will continue to actively monitor the Industrial Water Treatment Program and challenge decisions we don't understand or feel are not in the University's best interests.

Other questions:

The attached Excel workbook contains data that addresses several of the other questions brought up during the Pre-proposal Conference and Walk-through. These include tower makeup and blow-down, boiler makeup and blow-down, Chiller, tower and boiler sizes, water supply temperatures and water quality, and how much disinfectant (Purobrom) is used.

Written Questions:

The questions on the following pages were compiled from those submitted by email and do not identify the requestor. Our answers are indented below each one and printed in blue font.

Q.) Item G in the Performance Specification notes the University wishes to substitute reclaimed water for the cooling towers. During the meetings on 9/9/09 my representatives report they asked about the water supply sources and specifically about the reclaimed water source and percentage. It was relayed to me that the University currently uses no reclaimed water in the towers though the plants are piped for it. We were apprised of a mix of 70% well and 30% municipal and told that the University wishes to go to 100% well water. Does the University still wish to operate the towers on 100% reclaimed water if it will not compromise the equipment life or efficiency?

A.) For the past couple of years, we have discontinued using reclaimed water due to the high (up to 12 mg/l) phosphate concentrations limiting us to 1.5 to 2 COC. Until Tucson Water is able to consistently deliver reclaimed water with much lower phosphate levels, we will not use it in the towers.

Currently, we are averaging about 70% well water and 30% purchased city water. As demand decreases in the cooler months, we may see days or even weeks at a time where we use 100% well water (We did for three days in late December, 2008). I anticipate our average for the next 12 months will be about 80% well water.

Though we would like to achieve 100% well water, we do not currently have sufficient well capacity for peak use times, and we have no storage capacity on the system, except the hydropneumatic tanks at 6 of the 8 wells.

Q.) Have the cycles of concentration (COC) been determined with a test that accurately assesses COC such as silica concentration in the make up water vs. silica concentration in the tower water as opposed to tests (such as comparisons of TDS or conductivity) that, due to chemical additives, can yield sometimes skewed and potentially unreliable results?

A.) The COC I mentioned during the walkthrough was derived from the ratio of make-up to blow-down. The blow-down and make-up figures are in the attached Excel Workbook.

Q.) If the answer to question #2 is no, will the University provide COC data from tests deemed to be accurate and reliable (such as using silica for the comparison irrelevant of chemical additives in the water ?

Q.) Would it be acceptable to have another bulk tank set up near each of the cooling towers? Instead of having just one main scale and corrosion inhibitor, can we have 2 separate tanks or do you wish to have the main inhibitor in 1 tank only? The second tank would be slightly smaller than the existing tank.

A.) It would be alright to use a second tank

Q.) Please send makeup water meter numbers for all systems. Please send blowdown water meter numbers for all systems.

A.) See attached Excel Workbook

Q.) The demand for BCDMH (bromine tablets) varies significantly depending on the organic loading of the towers. The usage will depend on the cleanliness of the tower, the location and how much dust or debris is collected. Could you please provide us with usage rates for BCDMH for each of the cooling towers (ie annually CRB plant uses 25 pails of BCDMH, etc.).

A.) As shown in the attached Excel Workbook, over the period July 1, 2008 to present (Sep 11, 2009, we ordered 22,000 lbs of Purobrom tablets to serve all three plants. We derived that from the purchase invoiced, so we do not have a breakdown by plant or time period.

Q.) Please provide annual steam production for each of the sites.

A.) See attached Excel Workbook

Q.) Also, please provide estimated % condensate return for each of the plants.

A.) We have wrestled with how to derive those numbers and have not come up with a satisfactory method. Most of our buildings are not steam consumptive by design, but we know we have considerable steam loss due to loss from leaks, flash tanks and evaporation from the condensate holding tanks in the plants and condensate sumps in the buildings.

Q.) Please provide boiler make, model, HP and type (fire tube or water tube) for each of the boilers.

A.) See attached Excel Workbook. All of our boilers are water-tube types. I don't know the HP of the boilers, but I assume you can derive the same information from the kph values.

Q.) In order to properly overlay our recommended program for the chilled water system, we will need to know some basic information to ensure that our chemistries will be compatible. The following parameters are requested: pH, Conductivity, Hardness, Alkalinity, Nitrite, TTZ, Sulfite, Total Phosphate, Molybdenum, Polymer, TOC, Turbidity, Total Aerobic Bacteria, Total anaerobic bacteria, Total Iron and Total Copper. All of these parameters are NON-PROPRIETARY and should be easily attained.

A.) As mentioned in the beginning of this addendum, we are removing treatment of the chilled water closed loop, and the two glycol loops from this RFP and will deal with them as separate issues in the future.

Q.) Please send the manufacturer's water recommendations for the electric boiler.

A.) See attached E-Boiler O&M Manual, especially pages 40-43 but also notes on p 31 ("Caution" box, paragraph 3.2.1), p 32 (paragraph 3.2.1.1.11), 33 (no foaming chemicals or anti-foaming chemicals, paragraph 3.2.1.1.11, conductivity sensor calibration, paragraph 3.2.1.1.13).

Q.) What is used for pH control of the condensate return?

A.) Caustic soda

Q.) Do you have amine or ammonia feed to the system to increase the pH of the condensate?

A.) We add no amines or ammonia to our steam because of live steam loads in some buildings for sterilization, food preparation, dishwashing, and humidification.

Q.) Who's responsibility is it to calibrate probes and fix chemical pumps?

A.) The University

Q.) Are any of the chiller end bells coated?

A.) No.

Q.) What are the current approach temperatures on the condenser and evaporator for all chillers and what are the corresponding loads? This would give us a baseline of the current condition of the equipment.

A.) The approach temperatures (evaporator and condenser sides) for the chillers is monitored by the operators, is on the Trane Tracer-Summit system, and will be available to the successful contractor. We do not have it compiled at this time, and compilation of the data would delay issuance of this addendum.

Q.) Will we be able to perform an equipment inspection on all equipment in the first year to get a baseline of the condition of the equipment?

A.) Yes. We open up every chiller each year for tube cleaning, borescope inspection, and every three years, for eddy-current tests. We clean the tower basins each year and check the tower interiors.

Q.) What is the composition of the glycol loop water? What % and type of glycol used? What are the primary corrosion inhibitors in the glycol loop?

A.) The glycol is at 30%, but as stated above, **we are removing treatment of the chilled water closed loop, and the two glycol loops from this RFP and will deal with them as separate issues in the future.**

Q.) When we submit our pricing, do you want to have a fixed monthly billing amount or is the chemical purchased as needed (ie PO for each chemical order)?

A.) The chemicals will be purchased and invoiced as needed. There will be one blanket PO issued to cover all treatment chemicals purchased under this contract.

Q.) Fill in the information below:

CHRP #1 (CHRP)

TOWER OPERATION:

Design Capacity (tons)

12,000 @ 78°F Wet-bulb

Peak Load (tons) [See tonnage data in attached spreadsheet](#)
Average Load (tons) [See tonnage data in attached spreadsheet](#)
Cycles of Concentration (current) [4.3 CY2008 \(note this was with the old towers. Data on new towers not compiled at this time\)](#)
24/7/365 operation? (Y or N) [No](#) Other [_____](#) If other, how many months per year [See tonnage data in attached spreadsheet](#)

WATER SOURCE: (for well and reclaimed please provide current water analysis)

Municipal [30 %](#)
Well [70 %](#)
Reclaimed [0 %](#)

CHRP #2 (CRB)

TOWER OPERATION:

Design Capacity (tons) [13,000 @ 78°F Wet-bulb](#)
Peak Load (tons) [See tonnage data in attached spreadsheet](#)
Average Load (tons) [See tonnage data in attached spreadsheet](#)
Cycles of Concentration (current) [6.4 CY 2008](#)
24/7/365 operation? (Y or N) [N](#) Other [_____](#) If other, how many months per year [See tonnage data in attached spreadsheet. This plant base-loads the CW system.](#)

WATER SOURCE: (for well and reclaimed please provide current water analysis)

Municipal [30 %](#)
Well [70 %](#)
Reclaimed [0 %](#)

CHRP #3(AHSC)

TOWER OPERATION:

Design Capacity (tons) [6,600 @ 78°F Wet-bulb](#)
Peak Load (tons) [See tonnage data in attached spreadsheet](#)
Average Load (tons) [See tonnage data in attached spreadsheet](#)
Cycles of Concentration (current) [7.2 CY2008](#)
24/7/365 operation? (Y or N) [N](#) Other [_____](#) If other, how many months per year [See tonnage data in attached spreadsheet](#)

WATER SOURCE: (For well and reclaimed please provide current water analysis)

Municipal 30 %

Well 70 %

Reclaimed 0 %

WATER PRICING: (Water pricing from some sources are tiered and based upon a percentage over the winter consumption (per Tucson water supply). We are unaware of the University's consumption thus we request the University provide water cost for us to reply upon.

Municipal

\$ 1.93 base rate,

\$ 0.95 tier 1 summer surcharge (on volume >100% average winter usage),

\$0.25 tier 2 summer surcharge (on volume >140% average winter usage)

In FY08-09 this averaged out to \$ 2.414 per ccf

Well \$ 0.71 per ccf

Reclaimed \$ 1.83 per ccf

DISCHARGE FEE: (Water discharge fees are tiered and based upon a percentage over the winter consumption (per Pima County). We are unaware of the University's consumption thus we request the University provide water discharge fees for us to reply upon.

Discharge fee \$ 2.122 per ccf

All else remains the same.