



QUARTZ HILL WATER DISTRICT

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REQUEST FOR TREATMENT VENDOR PROPOSAL

WELL 6A ARSENIC REMOVAL SYSTEM



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1. INTRODUCTION

Quartz Hill Water District (QHWD) has reached a decision to proceed with treatment of arsenic for water supply Well 6A. Based on previous evaluations, QHWD is interested in formal request for proposals (RFP) to obtain water treatment manufactures (i.e. Vendors) for a packaged arsenic removal system for Well 6a that use USEPA recognized methods.

This RFP includes information for Vendors to prepare a proposal. A description of the QHWD water is provided in section 2. Design basis information including Well 6A water quality data is discussed in Section 3. Required information to be included in the Vendor proposals is described in the Section 4. The proposal received in response to this RFP will be evaluated by QHWD staff and Directors.

Treatment system Procurement

QHWD anticipates that the Well 6A arsenic treatment system will be selected, procured and installed in the following sequence of events:

1. Vendors will provide proposals for Well 6A arsenic treatment system in response to this RFP.
2. QHWD staff will evaluate Vendor proposals and make a recommendation to the QHWD Board of Directors, based upon the criteria set forth in this RFP.
3. QHWD will engage a Vendor to establish a purchase agreement based on a written Performance Guarantee and an agreed upon Purchase Cost of the system and the Vendor's services. If necessary, one or more Vendor(s) will be selected to conduct pilot testing to refine the treatment system design, purchase cost, and Performance Guarantee.
4. Once a Vendor purchase agreement is established, QHWD will review site designs that incorporate the selected treatment system and all necessary ancillary components, pre- or post-treatment, waste residual management, and electrical controls. Vendor will obtain all necessary regulatory approvals and permitting approvals.
5. The General Contractor/QHWD who is awarded the work will coordinate purchase, procurement, shipping, installation, commissioning, and testing of the treatment system with the Vendor. The Vendor will oversee startup and commissioning of the installed system.
6. Vendor will train QHWD staff on the operations of the treatment system.

1.1 Contact information for Questions

Please Direct all correspondence or inquiries to:

Chad J. Reed (General Manager)
 Quartz Hill Water District
 5034 West Avenue L
 Lancaster CA 93536
 (661) 943-3170

1.2 Schedule for RFP submissions

QHWD Issues RFP	July 10, 2018
Vendor Question Due No Later Than	Aug 07, 2018
QHWD Response to Question By	Aug 08, 2018
Vendor Proposals Due	Aug 09, 2018
Selection of Vendor	Aug 17, 2018

1.3 Submission Due Date and Location

QHWD will accept proposals received before 4:00 PM Thursday August 9th, 2018. Proposals received after that time will not be considered

Email electronic (PDF) proposals to CREED@QHWD.ORG and put the Subject heading "QHWD Well 6A Arsenic Treatment System Proposal".

1.4 Evaluation Criteria

QHWD will evaluate Vendor proposals based on the key factors listed below. QHWD will consider cost and maintenance implications for ancillary components required to operate the system but are not included in the Vendor system, such as pre-treatment, post-treatment and waste residual solid management systems. If necessary during the review of Vendor proposals, QHWD may contact Vendors to obtain clarification of the proposed treatment system components, operation, cost, performance, etc.

Evaluation Criteria:

- Purchase cost of Vendor system and required ancillary components.
- O&M cost for the arsenic removal system and required ancillary components.
- Performance characteristics of the system in terms of Arsenic removal capability and effluent concentration.
- Providing a system that meets the design criteria specified in this RFP.
- Ability of Vendor to provide a Performance Guarantee.
- The need for and cost of pilot testing.
- Completeness of proposal that provides all the information requested in this RFP.

2. BACKGROUND INFORMATION

2.1 Water System Description

QHWD is a community water system that serves a population of approximately 20,352, through 5755 metered connections, in northern Los Angeles County. QHWD owns and operators 10 wells along with several booster stations and approximately 13.5 million gallons of storage. All of the aforementioned sites and reservoirs are controlled with Supervisory Control and Data Acquisition (SCADA) system. Well 6A is the last well in series on the east pumping field comprised of Wells 8, 7A and 6A. All potable water distributed from the east well field contains chlorine residual for disinfection purposes originated at well 7A (Sodium Hypochlorite generation system). At a future time due to Well 8 Chromium-6 and air entrained air issues the arsenic treatment equipment will be relocated to Future Site 18 depicted below.

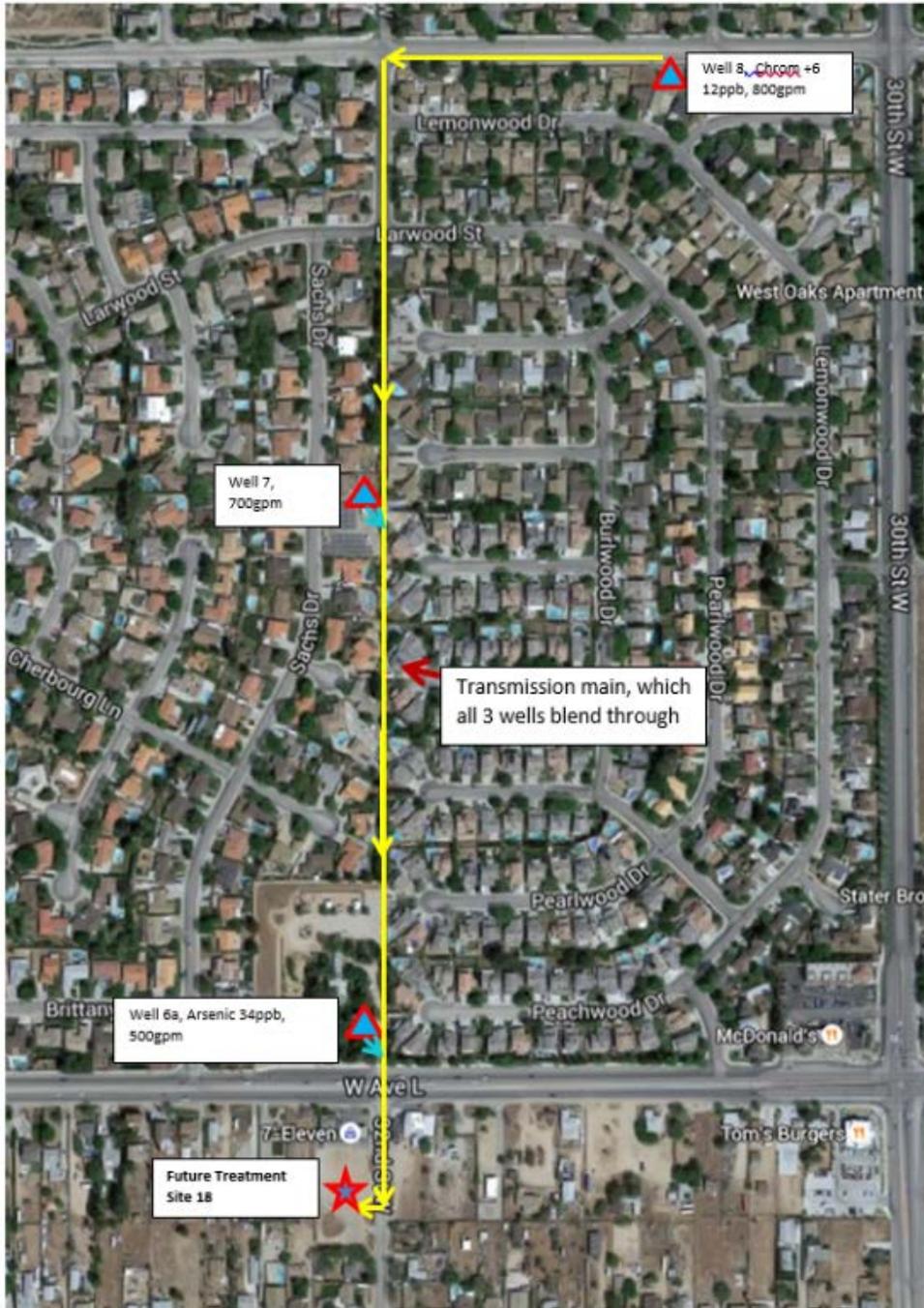


Figure 1 Future Site 18 and current map of East Well Field

2.2 Well 6A Construction Information

Well 6A was drilled and constructed in 2000. Since the well's construction, samples from Well 6A have had arsenic concentrations about 47 parts per billion (ppb). In 2000, the Well 6A water quality samples met the Department of Drinking Water (DDW) maximum contaminant level (MCL) standard of 50 ppb for arsenic; in 2008 the arsenic MCL standard was lowered to 10 ppb. The Well 6A water quality exceeds the current arsenic MCL standard. Water quality data is discussed further below, and laboratory reports from samples collected by QHWD and analyzed by Clinical Laboratory of San Bernardino, Inc. in 2016 and 2017 are in Appendix A.

Due to the water quality of Well 6A, the California Division of Drinking Water classifies Well 6A as a standby source, which restricts the use of the well for short-term emergencies only. For this reason, Well 6A requires treatment to remove the “standby” status and to provide a reliable source water to meet demands

The well is cased to 608 feet below ground surface, with 16-inch casing. The cement grout annular seal extends to 50 feet below ground surface. The wire wrapped stainless steel casing is perforated, from 390 to 608 feet below ground surface. The well is equipped with a 100-horsepower vertical turbine pump and has a capacity of 450 gpm. Completed Appendix B.

2.3 Well 6A Water Quality

Water quality parameters that may be important factors for selection and operation of an arsenic treatment system, are provided in the 2016 water quality laboratory reports from Clinical Laboratory of San Bernardino, Inc. for Well 6A, Well 7 and Well 8 (Appendix A).

Blending Well 6A source waters with well 7A is an option, however blending with well 8 will not be considered an option due to ancillary entrained air issues.

If other parameters are required for the design and selection of a treatment system but are not included in the water quality laboratory reports, the Vendors should clarify this in the formal questions prior to the proposal.

Available laboratory reports from QHWD water quality sampling are provided in Appendix A.

3. DESIGN BASIS INFORMATION

This section provides Design Basis information for the sizing of the treatment units and the operation and maintenance costs associated with the unit. Treatment systems meeting Non-Detect target and annual usage rate, should be described in the Vendor proposal.

3.1 Arsenic Treatment Design Requirements

Table 1 Treatment System Design Parameters

Parameters	Value
Treatment Design Capacity	450 GPM
Raw Water Arsenic	40 ppb
Raw Water-Other Parameters	Provided Appendix A
Effluent Treated Water-Arsenic Target	ND
Certification/Approval ¹	NSF 61 for Components NSF 60 for Chemicals ASME for pressure vessels

Notes:

1. Other applicable Certification/Approvals of the proposed treatment system shall also be included. Any exceptions to the Certifications/Approvals listed in Table 1 shall be disclosed by the Vendor.

3.2 Operation of Treatment System

The treatment system will be located at Well 6A site. The treatment system will “ride online” sending treated water directly to the distribution system. There is no storage tank or clearwell onsite. Operating pressures of the system are 125 psi. The design operating pressure is 150 psi for the treatment system.

The treatment system shall be capable of removing the maximum amount of arsenic presented in Appendix A. Any pre-treatment or post-treatment required for adequate removal or pH control shall be considered and presented as required components.

Other improvements to the treatment system that are required but not included shall be noted by the Vendor, such as backwash systems, chemical treatment systems, etc.

Existing site plans of Well 6A are provided in Exhibits D.

3.3 Treatment System Sizing and Use Scenarios

- A. Blending (Sizing Scenario): The vendors shall propose a treatment system and purchase cost for the blending scenarios below so that LSCE can assess a cost-effective sizing of the treatment system. If the same size treatment unit will be required with or without blending, the Vendors shall state so.
 - a. Sizing Scenario 1 – No Blending: Full flow treatment from Well 6A to achieve the lowest arsenic concentration possible. Vendors to specify the expected effluent arsenic concentration with full flow treatment of 450 gpm.
 - b. Sizing Scenario 2 – Blending for Half the MCL: Blending of treated and untreated flow from Well 6A and Well 7A to achieve the water quality effluent target of 5 ppb, equal to half the MCL. This scenario requires the Vendor to determine the size of the unit and flow proportionality of treated/untreated based on the Raw Water Arsenic.
- B. Annual Production (O&M Scenario): The vendors shall evaluate operation and maintenance costs of the system based on two treatment amounts of annual production from the treatment system. Predominately, this relates with the exchange rate of media replacements for an adsorptive media system; however, Vendors shall inform us of any other O&M costs factors based on production from their system.
 - a. O&M Scenario 1: Well 6A annual production is 127 acft. If blending, then the treatment production is reduced according to the proportional blending rate.

4. PROPOSAL REQUIREMENTS

Vendors are advised to adhere to the submittal requirements of this RFP. By submitting a response to this RFP, Vendors acknowledge that if its Proposal is accepted by the District, its proposal and related submittal may become part of the agreement.

The proposal must include the following information:

4.1 Company Overview

Provide an executive summary or cover letter that addresses the following information.

1. Number of years your company has been in business and identify the Company's name and headquarters address. Include affiliated companies that may be involved in the contracting and procurement of the system.
2. Indicate the name, mailing address, email address, and telephone number(s) of the principal contact.
3. Briefly explain its understanding of the Districts intent and objectives and their approach to achieve those objectives as described in this RFP.
4. Provide a brief description of the qualification, experience and background of the key personnel. Indicate proposed person's areas of expertise and prime responsibilities for various aspects of the project. Any subcontractors who will be performing services on this project shall be listed with the discussion of their roles and responsibilities.

4.2 References

Provide at least three projects of similar scope and complexity with contact information. Projects should be limited to arsenic treatment systems of similar size completed in the past five (5) years. Discuss O&M replacements costs where information is available. Discuss any unique challenges in the design and how they were addressed by the treatment system.

4.3 Proposed Treatment System for Well 6A

The proposal must provide for the two scenarios presented in 3.3.A with a brief description on:

1. Proposed treatment system technology.
2. System operation, controls and regular backwash or regeneration requirements. Disclose any components that are optional or are not included in the treatment system.
3. Pre-treatment or post-treatment requirements. Disclose any components that are optional or are not included in the treatment system.
4. System component layouts, dimensions, volumes of media, footprint area, and whether it is on a skid or no skid.
5. Provide listing of the certifications and approvals.

4.4 System Parameters

At a minimum, provide the following technical information for the proposed system:

1. Design flow rate;
2. Surface loading rate;
3. Flow controls;
4. Service run-time between backwash or regeneration;
5. Backwash or regeneration flow rates, duration and waste volume produced;
6. Arsenic solid concentration of backwash waste;
7. Anticipated media replacement cycles and cost (for both adsorptive or coagulation/filtration);
8. Pre- or post-chemical system dosing requirements and sizing of chemical pumps and storage;
9. Anticipated effluent water quality included arsenic;
10. Startup and seasonal operation protocols.
11. Expected service life for system.
12. All the above shall be provided for each of the Scenarios in Section 3.3.A

4.5 Purchase Cost Estimate

Vendor shall provide a cost estimate for the purchase of the arsenic treatment system. Cost shall be all inclusive for the treatment system, Vendor services, submittals and O&M manuals, shipping costs, AutoCAD drawings, services during startup and commissioning, and assistance to the District Engineering for design and permitting.

This Cost Estimate shall be broken down into the individual system costs shown below, or similar. Vendors to disclose any materials or components that are "Optional" and provide the optional cost increase. Very clearly indicate any disclaimers, assumptions or caveats to the cost. If Pilot Testing is required to confirm the cost, then the Vendor shall provide a pilot testing proposal as described in Section 4.8. If other design information is required to determine the final cost, clearly indicate the assumptions that are made in preparing the Cost Estimate.

Example Cost Estimate Breakdown (Vendors to follow closely to this breakdown):

- A. Base price for packaged unit components (filter vessels, skid system).
- B. Accessories (piping, valves and controls).
- C. Filtration or Adsorptive Media, cost and volume.
- D. Submittals, O&M manuals.
- E. Onsite startup and commissioning services after installation.
- F. Training for SID and RNVWD staff.
- G. Post-Startup Technical Support (10 instances totaling 80 hours).
- H. (Optional) Programmable Logic Controller pre-programmed for automation of the unit. This item may be deducted and programmed separately.
- I. (Optional) Pre-packaged residual waste management systems for backwash storage and recovery and for solids drying and disposal.

4.6 Treatment System Schedule

Indicate the lead time for submittals, fabrication and delivery of the treatment system once a final selection is approved.

4.7 Performance Guarantee

QHWD requires a Performance Guarantee from the Vendor for ensuring the effluent arsenic concentration will meet the MCL for arsenic. This will be accomplished with a Performance Bond (example below) or another similar method agreed upon by the QHWD and the Vendor. The Performance Guarantee will cover a period of 2 years effective starting after installation and commissioning. Vendors to disclose whether Pilot Testing is required secure a Performance Guarantee. If pilot testing is required, provide a Pilot Testing proposal in Section 4.8.

The Vendor will also provide a warranty that covers failure of system components for at least 2 years. Provide specifics of the 2-year equipment warranty, indicating what components of the system, if any, are not warrantied, and what circumstances could void the warranty.

Example Language for the Performance Bond

A Performance Bond will be posted by the Vendor. The amount of this bond will be equal to the cost of replacing the system, prorated to the expected service life of the system as defined by the Vendor in the Proposal.

If the water treatment equipment fails to meet provisions of the Performance Guarantee, or equipment requires replacement under the 2-year warranty, the following remedies will be implemented:

- Vendor will repair water treatment equipment at Vendor's expense and repeat performance testing to verify correction of problem leading to noncompliance with requirements of Performance Guarantee. Vendor is responsible for all costs associated with repeat testing including those incurred by QHWD and miscellaneous expenses incurred due to the failure. This shall be accomplished within a two-week period.
- If repairs will not permit water treatment equipment to meet requirements of Performance Guarantee, Vendor will replace defective items or entire treatment plant, and repeat performance testing to satisfaction of QHWD. This shall take place within one month of written notification from QHWD.
- If repairs and equipment replacement made by Vendor fail to meet the requirements of the Performance Guarantee as substantiated by repeat performance testing, and in the opinion of QHWD the water treatment process is determined to be unable to meet Performance Guarantee standards, the Vendor will forfeit the amount of the Performance Bond.

4.8 Pilot Testing Program Requirements (If Required By Vendor)

Provide a scope and budget for Pilot Testing. Note that Well 6A is currently equipped with a well pump and a pilot trailer can readily be connected to Well 6A.

The Vendor's proposed pilot testing scope shall describe the following:

- Objectives of Pilot Testing (see list below);
- Connections and Waste Disposal Requirements;
- Test Duration Minimum and Expected;
- Samples to be collected by Vendor and by Owner;
- Owner responsibilities during testing;
- Pilot Test Costs.

The Pilot Testing study should be used to refine the design of the system and indicate the optimal operating parameters or system sizing.

Pilot Testing would be used to:

- 1) To determine whether and under what operating conditions the technology can remove arsenic to meet the Non-Detect target effluent requirement;
- 2) To determine residuals characteristics when the technology is operated to achieve sufficient arsenic removal;
- 3) To determine optimum operating parameters to remove sufficient arsenic while maintaining non-hazardous residual generation; and,
- 4) To establish a guaranteed treatment removal effectiveness (if required by Vendor).