EAST BAY
MUNICIPAL UTILITY DISTRICT

May 29, 2015

ADDENDUM NO. 2

TO PROSPECTIVE BIDDERS UNDER RFQ NO. 1512, "CAMANCHE RECREATION AREA ULTRAFILTRATION MEMBRANE SKIDS"

Notice is hereby given that Proposal No. 1512 of the East Bay Municipal Utility District has been revised as set forth below.

The following questions were submitted by vendors. The Districts responses are in bold:

1. Has there been any prior pilot testing or performance testing completed? Can we receive such a data?

    No prior pilot testing or performance testing has been completed.

2. Who has proposed design of this system – District staff or outside consultants? Is there a publicly available report that can be supplied?

    The design was completed by District staff. There is no publically available report.

3. Why are CIP, pretreatment, and coagulation/neutralization not included in the scope of the supplies?

    CIP is to be included in the scope of work per article 2.1.F.5 of Exhibit C. The District design provides pretreatment and neutralization; if additional equipment is required, it should be included in the proposal.

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4. We normally supply the entire treatment train and controls, as in our view they must work together and should not be separated. Also, sizing of these and their performance will impact the UF system performance. Since you require performance guarantees, we need to assure that these other elements are working together and with the UF system, so we would recommend they will be part of full scope or we be allowed to bid the entire treatment train under the scope of this bid. Can this be a consideration?

    The entire treatment train can be bid under the scope of this RFQ including additional equipment as necessary.

5. Our main question on the electrical and controls portion is just trying to make sure we understand the extent of control required specifically by the membrane system. On page 4, under Supplier's Qualifications, the specification indicates:

    A. Sole Responsibility: The Supplier is responsible for the system integration of the entire membrane system, including design, construction, and fabrication of the entire control system panel. The Supplier shall warrant all products provided. The Supplier shall provide a 'letter of compliance' on Company letterhead certifying compliance with the sole responsibility requirement.

    This statement reflects how we typically do business. We typically supply a control system panel complete with PLC system and perform all design and integration of the provided equipment. Our concern is that elsewhere in the specification it is stated that other components including various instruments, level controls, and chemical feeds are to be controlled via the Plant PLC. What is the extent of the control required by the membrane system supplier?

    Supplier shall provide the control required for the membrane skids; if additional equipment is required, it should be included in the proposal.

6. On section 3.2.A.2 Testing (page 21 of Exhibit C), the specification indicates:

B. The Supplier representative shall work with the District to ensure that the membrane skid control system works properly with the District-provided control system.

On every project we work closely with the owner to ensure that our control system works smoothly with their control system, but the phrase above is quite open ended in the level of onsite support that may be needed if the majority of the signals go to the District PLC. Can you clarify the level of integration support intended?

The District is responsible for the equipment controlled and provided by the District. The Supplier is responsible for equipment they provide as part of this bid. Because both parties will be part of the startup and testing, if there is a problem, an initial assessment will be completed to determine the cause of the problem.

7. Can you also clarify how these points relate to data logging requirements (page 15 of Exhibit C)? If the instrumentation signals and/or chemical feed signals go directly to a District PLC, there aren't signals for us to data log.

   Any instrumentation or chemical feed signals that are provided by the District can be communicated to the skid control system through Modbus, Ethernet, or hard-wired signals for data logging.

8. Do you have any comments on a potential system offering that incorporates much of the equipment currently intended to be provided by the District? If this is of interest, we would supply a control system that would incorporate the signals necessary for optimal membrane system performance, simplifying the above questions. If we were to offer a more basic bid matching the specification and an optional all-inclusive system, would that be of interest? Would scope difference be factored into an overall evaluation?

   Please refer to "BRAND NAMES, APPROVED EQUIVALENTS, DEVIATIONS, AND EXCEPTIONS" on page 6 of the RFQ.

9. On Page 6 of the Exhibit A, Item 3., evidence of qualification testing, and Item 4., certificate of proper installation form, maintenance summary form and O&M manual review checklist, are required to be submitted with RFQ response Exhibit A. Is the evidence of qualification testing referring to

the membrane module or the UF system as a whole? Are these documents really required with the RFQ response or after award?

The certificate of proper installation form, maintenance summary form and the O&M manual review checklist are not required to be submitted with the bid. These items are to be submitted during or after installation and startup per the submittal requirements in Exhibit C.

10. Is there an existing building that will house the UF equipment or is a new building being built?

    A new building has been designed and is being built

    a. Are pictures or a floor plan drawing available that shows the UF process area (16'x20'x8.5') and CIP area (8'x10'x8.5') with the 6'x6' 8" door locations and other infrastructure locations (feed & backwash pumps, feed & backwash supply surge tanks, effluent clearwell, backwash waste tank, chemical tanks, etc.)?

    See drawings included in this addendum as Exhibit G.

11. Exhibit C 2.1 F.1.a requires 2" feed, backwash, filtrate and drain lines. 2" is likely undersized for some or all of these connections. Are larger connections acceptable to reduce flow velocity, pressure loss, and water hammer potential?

    The District design includes 2" lines. If additional equipment or different sizes are required, it should be included in the proposal.

12. Exhibit C 2.1 F.1.e. indicates plant air is not available. Is the intent for each skid to have a separate air compressor or is a single common air compressor acceptable? Must the air compressor and receiver tank be installed within the UF process area (16'x20'x8.5') or is another space available to install the air compressor?

    A single air compressor is acceptable. There is a separate 8'x8' space available for the installation of an air compressor.

13. Exhibit C 2.1 F.2.a.1) lists a production flow rate of 250,000 gpd and 252 gpm in parenthesizes. It is understood that the net 24 hour filtrate production to distribution must be 250,000 gpd, however must each UF train also produce an instantaneous flow of 252 gpm?

    Instantaneous flow rate should be 174 gpm instead of 252 gpm.

14. Exhibit C 2.1 F.3.a. allows PES or PVDF membranes, however 3.i. requires inside-out filtrate flow. Only PES membranes are commercially available in inside-out configuration. Please confirm that outside-in membranes are not acceptable.

    Outside-in membranes are not acceptable.

15. What is the manufacturer and model of the District-provided master PLC?

    Allen-Bradley ControlLogix PLC, RSLogix 5000 software version 16

16. No PLC manufacturer or model is listed for the UF train PLCs. Is any PLC manufacturer acceptable? Does the District have a preferred PLC manufacturer?

    Preferred PLC manufacturer is Allen-Bradley.

17. Exhibit C 2.1 F.4.h. requires operator notification of failed DIT either through the District's integrated SCADA system or other means. What software does the district use for SCADA and remote alerting?

    All alarms and other signals required per article 2.1.F.8.d of Exhibit C

18. Exhibit C 3.2 D.4.a. lists a performance test duration of 120 hours with the system operating as designed in automatic mode. Is the intent for the test to be 120 consecutive hours (5 days) whether the trains are continuously running or if intermittently running based on tank level as described in Exhibit C 2.1 F.7.h.?

    It is a consecutive test

a. Is the Exhibit C 3.2 D.4.b. peak performance test included as part of the Exhibit C 3.2 D.4.a. 120 hour test or in addition to?

The peak performance test is in addition to the 120 hour test.

19. Is the intent to have a supplier representative onsite during the Performance Acceptance Tests listed in Exhibit C 3.2 E.?
    a. Can the 20 day Performance Acceptance Test immediately follow the Performance Test required in Exhibit C 3.2 D.4.? \

    Only if the testing falls in late spring to fall per article 3.2.E.2.a.1 of Exhibit C.

20. Is it the intent for the District to provide the necessary CEB chemical day tanks and CEB chemical pumps or for the Supplier?

    The District will provide the CEB chemical day tanks, the pumps shall be provided by the Supplier. If the supplier wants to provide the day tanks, include additional equipment in the proposal.

21. Are two separate UF trains on a common frame acceptable or preferred over two separate UF trains on two separate skids? Two trains on a common skid may reduce the footprint size.

    Two separate UF trains on separate skids are preferred.

22. 1.1.B.2 – The piping and control valves listed do not indicate the need for block and bleed valves for any solutions that have cleaning chemical injected into them. Are these blocking systems required for the Influent, Backwash feed and Product water connections on each train? According to the EPA Filtration guidance manual, these need to be automated if cleaning systems are automated, which is required by the specifications. Please indicate if automated block and bleed valves are required.

    All chemical feed systems would need to have approved isolation and backflow prevention measure installed. If additional equipment is required, it should be included in the proposal.

23. 1.1.C.1 – Pumps. The Backwash pumps for the membranes are called out as 360 gpm. Projections for the membrane area specified require a

backwash flow of 488 gpm @ 40 PSI minimum for the system proposed. This is to backwash all modules in a train at once as is the typical practice. Please specify if you want all modules in a train to be backwashed simultaneously. Note that depending on the response to questions below regarding production and membrane surface area the required backwash flow may further change.

Water available for backwash is supplied at a maximum flow rate of 360 gpm due to existing infrastructure. Additional equipment may be required by some supplier's skids to provide additional flow. If additional equipment is required, it should be included in the proposal.

24. 1.1.C.2.a – The backwash tank is called out as 160 gal usable capacity. This tank should also hold the water needed to perform CEB cleans, which is a minimum of 1000 gallons for the system size and membranes specified. Please review and advise backwash tank capacity.

    The 160 gallon tank is designed to provide surge volume to help regulate backwash pressure. This water can be fed at 360 gpm. If additional equipment is required, it should be included in the proposal.

25. 1.1.C.2.b – The feed tank is called out as 68 gal usable capacity. This tank should be able to hold at least 2 minutes of feed water, which if both UF systems are operating will maximize at around 1000 gallons. This is to ensure enough contact time between the coagulant and the feed water, before contact with the membranes. Please review and advise feed tank capacity.

    The 68 gallon tank is designed to provide a surge volume to help regulate the raw water feed pressure. Raw water is supplied to the filter plant at greater than 500 gpm. If additional equipment is required, it should be included in the proposal.

26. 1.1.C.2.g – Currently the specs call for a 1500 gal neutralization tank. The CEB flow (chemical injection and flushing) will be directed to this neutralization tank, and if caustic then acid cleans need to be mixed for neutralization, that tank should be 2000 gallons in capacity. Please review and advise neutralization tank capacity.

Current equipment includes a 1,500 gallon waste backwash water receiving tank and two (2) 1,000 gallon spent CIP chemical holding/neutralization tanks. If additional equipment is required, it should be included in the proposal.

27. 2.1.F.1.a – 2" connections are not large enough for the flow rate of the system requested as the backwash flow required for the membranes is 488 GPM minimum for each train. The piping should be 6" for this flow rate. The feed flow rate specified of 252 GPM requires a piping diameter of 4" for the feed water to each train. Please amend specifications to reflect these larger connections.

    Current infrastructure includes 2" raw water feed lines to the filter skids. If additional equipment is required, it should be included in the proposal.

28. 2.1F.2.a.1) – 250,000 GPM and 252 GPM do not correlate, even when assuming a loss in production flow due to recovery losses during backwash, CEB and integrity tests. To make 250,000 GPD, the maximum instantaneous flow rate expected would be closer to only 200 GPM needed. Please review and clarify production requirements for the system.

    The system is to provide up to 252 gpm and up to 250,000 gpd as requested in the RFQ Specification.

29. 2.1F.2.a.2) – At a flow of 252 gpm, at the minimum membrane surface area of 3875 ft2, the flux will be 93.65 gfd, which is well in excess of the maximum specified flux of 60 gfd. At a flow of 200 gpm the flux will also be above the design maximum at 74.3 gfd for a membrane surface area of 3875 ft2. These fluxes are not only outside the specified flux limit but also too aggressive for the inside-out membrane configuration proposed for this project. Please revise specifications to ensure bidders include adequate membrane surface area to meet the maximum specified fluxes and increase the 3875 ft2 minimum requirement. Please also clarify if the system is to produce 252 gpm and meet the maximum flux requirement of 60 gfd or if this should be just 250,000 gpd. We recommend for this water quality that the maximum flux at the design production flow rate is 50 gfd. Please clarify if max. flux is based on average raw water temperature (13 deg C), if so please specify this to avoid any confusion.

1. **Net production flow rate is 250,000 gpd per skid, which is 174 gpm. Delete 252 gpm.**
2. **Gross production flow rate is 250,000 gpd/0.95 or 263,160 gpd based on the specified recovery factor or 95%.**
3. **Flow flux rate shall not exceed 60 gfd - confirmed for a net production of 250,000 gpd. It is up to each potential membrane skid supplier to determine whether a lower flux rate is recommended and to explain the basis for that recommended rate.**
4. **Average water temperature is 13° C, so the design flux rate should be based on this temperature, not 20° C.**
5. **At a gross production rate of 263,160 gpd, and a not to exceed flux rate of 60 gfd, the minimum membrane surface area is 4,386 sq ft. Delete 3,875 sq ft.**

30. 2.1.F.7.g – This sections seems to indicate that both the CEB and CIP systems need to be manually initiated, but then performed with minimal operator intervention. Does this mean that the CIP system as well as the CEB system need to have automated valves for directing flow from the batch tank, through the membranes and then to the Neutralization tank, along with automated chemical injection into the batch tank? This is not implied anywhere else in the specifications, and would add to the cost for the cleaning system.

    1. **The RFQ states: "The system must be able to perform CIPs and CEBWs in intervals as requested by the operator with minimal operator attention."**
    2. **It is up to each potential membrane skid supplier to determine how best to accomplish that objective and to explain how their proposed design will achieve this.**

31. 3.2.C.1 – Please review requirement for membrane to be tested to 150 psi. This is outside the range of all inside-out hollow fiber membranes. This pressure test should only be performed on the piping and not on the membrane modules otherwise damage to the membranes will occur.

    1. **The RFQ states: "3. Test Pressure: 150 psig on all piping and appurtenances."**

2. **This procurement <u>does not</u> include the membrane modules.**

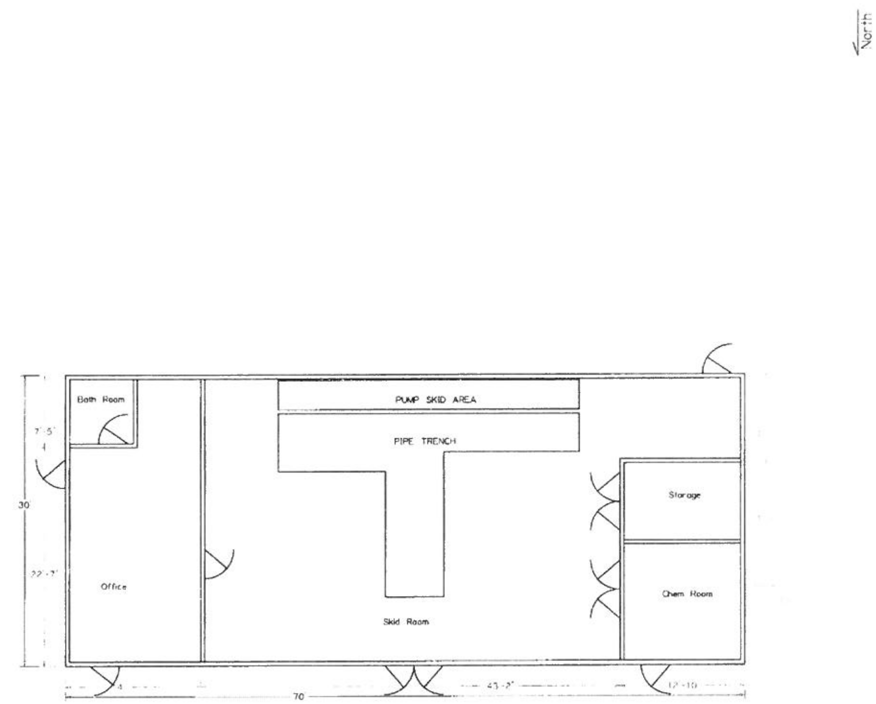
Bid due date is <u>Wednesday, June 10, 2015</u> and the time-stamp deadline is <u>1:30PM</u>.

THIS ADDENDUM MUST BE SUBMITIED WITH THE BID.

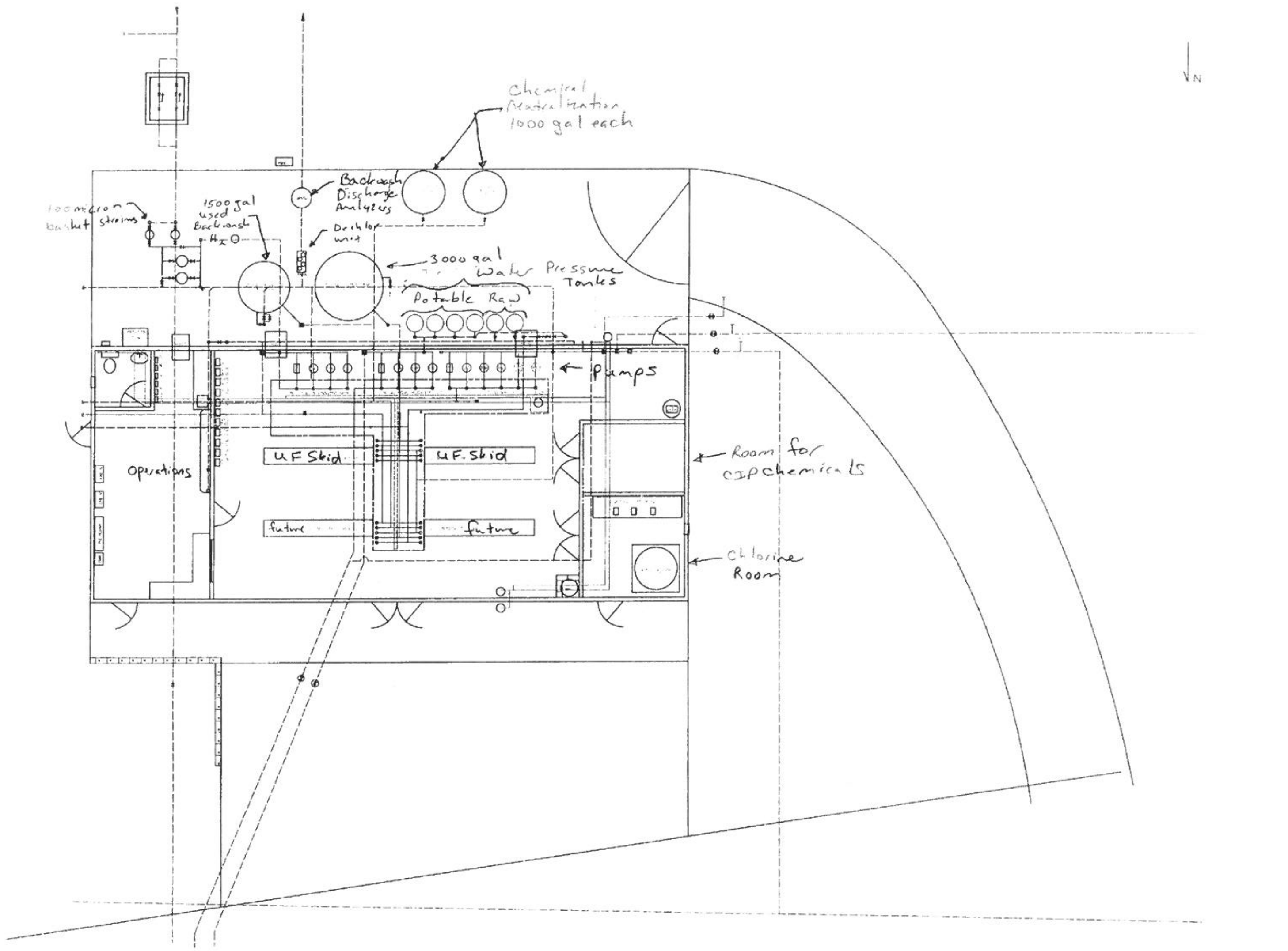
Andy Akelman

Andy Akelman
Manager of Purchasing

RFQ 1512 -EXHIBIT G



Design By: BS Drawn By: BS Date: Scale:	East Bay MUD Camanche South Shore Water Treatment Plant
C-005 Rev: 0	Floor Plan



Design By: BS Drawn By: BS Date: Scale:	East Bay MUD Camanche South Shore Water Treatment Plant
M-001 Rev: 0	Mechanical Overview