City of Arlington
Utilities Department

Memo

To: Chris Kelsey

From: James Kelly, David Randolph

cc: Menglou Wang, Dick Warren

Date: February 11, 2008

Re: WWTP/BCF Upgrade & Expansion - RFI 03, Response #1

BCF Issues:

1. **BCF Work Products**. In lieu of the stop work directive officially issued by the City at the 25% WWTP/60% BCF design review workshop, we have re-allocated the design staff for that facility to other projects. We remain interested in re-initiating design work at a future date, with a scope and direction that the City is comfortable with. We will await any request by the City to transmit desired design documentation through the current 60% development level.

   Requested Response: *K/J will respond upon receipt of any City requests.*

   COA Response: Thank you.

WWTP Issues:

1. **South Side Access to the Water Treatment Plant**. Design complexity for the headworks expansion is minimized if the expansion of the channels occurs to the east. An approximate 15-foot width between the WTP building and a retaining wall (necessary for grading in order to keep road access down the hill to the rest of the WWTP portion of the site) can be offered past the WTP entrance door to the control room, with a similar clearance to existing offered in front of the WTP filter roll-up door locations. Please review the current existing and proposed construction site plans that are a part of the 25% design package with WTP staff to determine if this space is adequate, or if relocation of the access road down the hill is necessary to increase this clearance (this latter approach would likely necessitate a higher level of site grading and fill material).

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: If a portion of the WTP access road must be reduced into in order for the headworks building to be upgraded, it should be minimized to the greatest extent possible. The proposed 15-foot minimum clearances are acceptable.

2. **Grit System Improvements**. The City has forwarded some general information to K/J on quotes received for the necessary improvements to the PistaGrit system at the headworks. Please forward all descriptive information received from the vendor, particularly any drawings that have been furnished, so that K/J can accurately incorporate the improvement details into design documents. Also please include contact information for the vendor that the City has been communicating with.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: The information we provided earlier is all that we have. During our regular maintenance of the PistaGrit we had John Womack, ADS Equipment, come out and inspect the equipment so that he could prepare cost estimates for repair or replacement. Contact information is as follows:

Contact:	John Womack
Job Title:	Field service
Company:	ADS Equipment
Address:	PO Box 18286
	Seattle, WA 98118
Business:	(206) 763-3600
Mobile:	(425) 260-4802
E-mail:	jwomack@adseq.com

3. **Aeration Blower Motors**. Please offer final confirmation that the 100 HP motors for all the existing blowers are rated for inverter duty, such that they can be retrofitted with adjustable frequency drives and incorporated into the plant expansion.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: These blowers are all rated for inverter duty; the last blower was verified on February 6, 2008.

4. **Permeate Pumping Redundancy**. Currently, design plans call for one spare permeate pump to be installed for backup purposes. Interties between adjacent train piping (such that one pump could draw simultaneously from two MBR tanks) are also currently incorporated into the design. Please verify that both features are desired.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: Redundancy on the permeate pumping is only needed by one method. What does Enviroquip suggest as a cost effective means for redundancy.

5. **Alum Dosing Pump.** Unless more stringent NPDES phosphorus limits than anticipated are indicated to be necessary by Ecology during design development, installation of an alum dosing pump will not be included within this construction contract. Space provisions will be accommodated in design. Please confirm.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: We agree; installation of an alum dosing pump is currently not necessary. Please proceed with the design providing adequate space for the dosing equipment, storage, and the ability to readily connect the equipment when (if) needed. Please make sure the ladder logic for a future (possible) Alum Dosing Pump is included with the project along with any necessary dosing variables.

6. **Lab/Office Building.** Provide K/J with desired space allocation and layout information for the lab/office building.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: Open Issue. A preliminary sketch of the lab layout was provided, however there are other issues involved with this item (*see item 8*).

7. **Equipment Building.** The 25% design review workshop included interest expressed by the City in specifying the equipment building as a pre-engineered metal building type of construction. Other design criteria discussed included a suggested overall building dimension of 60' x 40', consisting of four 15' by 40' bays. Three of the four bays would be open and provide parking and storage for City-owned vehicular equipment. The fourth bay would be enclosed and serve as a shop area. Single phase 120V supply would be offered to each of the open bays, and 3-phase, 480V would be supplied to the shop area. Please confirm this design criteria.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: Design criteria is correct as stated

8. **Locations for the MBR Tanks and Support Building.** If the City has concluded that the property currently labeled on the site plan as "Reserved for Future Administration Building" will not be purchased by the City in the short term, then code issues might complicate the current design layout of the MBR support/office/lab locations shown. Under this scenario, shifting the MBR tanks and support building to the north might be a logical way to accommodate the space needed for the lab/office. However, shifting these facilities north would also diminish the "mirroring" capacity that could be achieved at some future date beyond year 2025. Please provide an update of the property acquisition status, and willingness to make these suggested building location modifications, if necessary to do so.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: Open Issue. We are in receipt of the K-J email (*Feb 1, 2008 - Follow-Up Information on Building Material*), and there are other issues involved with this item (*see item 6*). Also, please provide specifics on spacing limitations and concerns.

9. **Gas Service.** If building heating or other gas supplied features are desired with this construction project by bring a new gas service to the site, please indicate preference to do so.

   Requested Response: On or before *Friday, 8 February 2008*.

   COA Response: We currently do not use natural gas and do not foresee its use in the near future.

10. **Building Materials.** After K/J furnishes the City with some conceptual cost savings information that might be offered by implementing methods of lighter construction in comparison to the full CMU course construction of other existing WWTP facilities, City to decide desired construction methods and materials to be used for the lab/office and MBR support buildings.

    Requested Response: On or before *Friday, 15 February 2008*.

    COA Response: Correct.

11. **Emergency Power Generator**. Please discuss potential shared costs and/or ownership with Snohomish County PUD for the new emergency generator to be installed with plant expansion. Provide K/J with City preferred method for procurement and degree of ownership. Also indicate City's willingness to consider phasing of backup power facilities by initially installing a unit with less capacity than would ultimately be required for full load projections associated with 2025 peak demands. Would the City also wish to consider using the existing 250 kW generator to help offset the initial unit size?

    Requested Response: On or before *Friday, 15 February 2008*.

    COA Response: We are still trying to connect with our PUD representative; we have not had any luck yet. The use of the existing generator to help offset the initial unit size is acceptable; providing it is feasible. Knowing that the plant will need Class 1 power when it goes on line, how much power is required for Class 1 at start-up? How much when Phase 2 goes on line? Can two (or more) generators be operated from a single transfer switch?

12. **Coliform Monitoring Data.** K/J would like to evaluate necessary pathogen reduction levels that would be required to achieve Class B biosolids standards at the WWTP. The ability to design the facility such that these reductions are substantially achieved through the plant or digestion processes would serve to minimize capital improvements which would be necessary through lime stabilization. Any plant data that the City has acquired on total or fecal coliform measurements in the WAS or dewatered sludge prior to lime addition, or within the plant influent or mixed liquor, would be helpful in facilitating this evaluation.

    Requested Response: On or before *Friday, 15 February 2008*.

    COA Response: We do not have any of the data requested. Achieving pathogen reduction levels for Class B biosolids standards utilizing the plant or digestion processes is intriguing. However, it would be nice to be able to lime stabilize in the event of system upset. Also, isn't the lime system also going to be utilized at the headworks for alkalinity?

    Our review of the new WAC 173-308-170 regulations indicates that there are three methods to meet Class B Pathogen Reduction.

    Alternative 1 – Seven samples of the biosolids at time of use with a geometric mean less than 2,000,000 MPN per gram dry weight. This is used for cleaning of lagoons and similar; it would be impractical for the continual hauling of dewatered sludge.

    Alternative 2 – (a) (b) or (e) Process to Significantly Reduce Pathogens, in our case method (a) or (d). We will not have the aerobic digestion for 40-days at 20-deg celsius or 60-days at 15-deg Celsius; if we compost we will meet class A EQ. This leaves (e) lime stabilization.

    Alternative 3 – equivalent Process to Significantly Reduce Pathogen. The only process that appears to meet the criteria would be aerobic digestion, but we will not have the time in aeration basin, MBR and digester to meet alternative two (a).

13. **Plant Water Uses**. Please confirm/add to the following list of current and desired plant water uses: screen washing, foam/scum spray in aeration basin aerobic zones, foam/scum spray in MBR tanks, digester foam spray, membrane chemical cleaning solution makeup, sludge dewatering equipment wash-down, polymer makeup, lime slurry makeup, and hose bibs throughout the site for general wash-down. Any other uses to add or items above that are not needed? Any of the uses listed above to be supplied with potable water (e.g., polymer makeup)?

    Requested Response: On or before *Friday, 15 February 2008*.

    COA Response: We would like to have Potable Water for the polymer make-up water and the chemical make-up water; all other needs can be satisfied with plant water. Also, can you provide information on DOH requirements for air gap on potable water to a WWTP.

14. **Dewatering Equipment.** In order to optimize design and establish required space for the solids handling building expansion, please indicate any information on City-preferred technology (screw versus fan) or manufacturer (FKC, Fournier, Prime Solutions, etc.) that could be utilized to design around.

    Requested Response: On or before *Friday, 15 February 2008, or after completion of final unit pilot testing*

    COA Response: Wastewater staff feels the fan press would be the preferred dewatering equipment. We will provide a written response to this question, and address issues contained in the Kennedy-Jenks November 16, 2007 Technical Memorandum - Evaluation of Solids Handling Improvements (*K/J 0597002.02*) after completion of final unit pilot testing.