ADDENDUM NO. 1

MEMBRANE FILTRATION SYSTEM
REQUEST FOR PROPOSALS

CITY OF OAK RIDGE, TENNESSEE

Clarifications
The following clarifications are hereby made part of the above referenced project.

General
If Audited Financial Statements are not available, prospective bidders may submit letters from two separate Financial Institutions, such as a surety and their primary bank, outlining their bonding capacity and confirming that the bidder is in good standing.

Powdered activated carbon (PAC) references in Appendices F, G, and J are only intended to cover a future installation should it become necessary due to changes in Raw Water quality. There are no current plans to add PAC as part of this project.

Request for Proposals

Sections 4.05/4.06 - The experience requirements apply to both polymeric and ceramic membrane system proposals. Membrane manufacturer experience should not be included, unless the manufacturer is also the system supplier.

Section 4.10 - Item 5. Flux Rate – The design flux rates given on page 11 of 12 are instantaneous values at a design temperature of 10 deg C.

Appendix B – Price Proposal - The cost of the manufacturer services required in Appendix L, Section 01 43 33 shall be included in Item 1.e. - Cost of Manufacturer Field Services.

Appendix E – Table 3, Item 1b. – Annual chemical costs for cleaning should include both cleaning and neutralization chemicals.

Appendix F – 2nd Paragraph – The firm peak day finished water capacity of the plant shall be 12.0 MGD with N-1 membrane trains in service.

Appendix G –

Pretreatment – The coagulant doses provided in the 3rd sentence are reflective of the existing conventional treatment plant operation. It is anticipated that these values will be refined during the Pilot Testing to concentrations more appropriate for the membrane filtration system.

System Configuration and Other Requirements –
Valves to isolate individual membrane modules are not required as part of this proposal.

Item 2. - Ancillary Equipment includes the Membrane Control System. The membrane system supplier should include a wired spare Membrane System PLC. Spare instrumentation is not required to meet this requirement. The Water Treatment Plant HMI will be supplied as part of the construction contract by others.

Item 8 – Membrane Cleaning System – The Owner does not anticipate the need for an additional mineral acid for pH adjustment or pretreatment at this time.

Appendix L – Specifications

Section 01 45 29 – Testing Laboratory Services

The testing listed in this section will be provided by the Contractor, not the Membrane System Supplier.

Section 40 90 00 – Instrumentation and Controls

This is a standard specification intended for use by a System Integrator. The project will have a System Integrator as part of the general construction contract for supply and installation of the Plant HMI and installation of all devices supplied by the Membrane System Supplier.

Section 40 91 00 – Instrumentation Devices

The instruments listed in this specification are a standard list and may not include all of the instrumentation. The membrane system supplier shall provide all instrumentation necessary to properly operate and monitor the membrane system.

Stainless steel tags for instrumentation will be provided by the Contractor during the construction project.

Section 43 00 00 – Minimum Process Equipment Requirements

Paragraph 1.02.B.2.a. Pumps that come into contact with chemicals shall have stainless steel casings and impellers. Process water pumps for permeate and backwash shall be cast iron.

Paragraph 1.02.C. Remote I/O Panels shall be rated NEMA 4X SS. The Membrane System Supplier Control panel will be located in a dedicated electrical room and shall be rated NEMA 12. Control panels shall include surge suppression for outside signals.

Paragraph 1.03.C.1. – If the functions of the blower local control panel are provided as part of the Membrane System Control Panel, then the local blower panels may be omitted.

Appendix N – The forms required to be submitted with the proposal are noted on page 1 of Appendix N.

Revisions

The following revisions are hereby made a part of the above referenced project Request for Proposals:

General

Add the attached cover to the Request for Proposals.

Appendix B – Delete the last paragraph in its entirety and replace it with the following:

Note: If the Owner decides not to construct the project, the Owner will terminate the contract for convenience, and compensate the proposer for the work performed at the time of the notice of termination in accordance with Article 11 of the General Conditions.

Appendix E – Table 1 – Row 9 – Number of Spare Modules – Revise the reference to Appendix G System Configuration to Item **1**.

Table 3 – Capital and Life Cycle Cost Estimate Summary – Revise the description of Item 1 to the following:

Annual Operating Costs at 8.0 MGD Average Flow and at **19** degrees C Approximate Average Temperature (includes Items 1a. through **1c.** below)

Appendix F – System Manufacturer Equipment Scope of Supply, 2nd Paragraph, 2nd Sentence - Delete "electrical equipment". Motor control centers (MCCs) and variable frequency drives (VFDs) will be provided as part of the construction project scope by others.

Appendix G –

Melton Hill Raw Water Quality Data and Basis of Design Table - Revise the Maximum Raw Water Manganese value to **1.5 mg/L**.

The maximum raw water manganese value reported in the raw water quality table of 4.2 mg/L was a one-time event. The 95% percentile value of the 107 samples in the dataset is 1.4 mg/L.

System Configuration and Other Requirements –
Item 2 – Ancillary Equipment - Delete air receivers from the list of ancillary equipment requiring redundancy.

Item 8 – Membrane Cleaning System – Change the citric acid concentration to **(50%)**.

Membrane System Warranty - Revise the 1st Paragraph as follows:
The System Manufacturer shall provide **membrane and** equipment **warranties** for all components of the Membrane System. The **warranties** shall commence upon successful completion and certification of the Operational Test Period, or six (6) months from the date of delivery of equipment, whichever is earliest.

Revise the 6th Paragraph as follows:

1. Module replacement shall be required if more than **ten (10)** fibers in a module have been repaired, during the System Manufacturer's guaranteed membrane life.

Appendix H – Change the citric acid concentration to **(50%)**.

Appendix J – Delete all references to particle counters. Particle counters are not required for the pilot testing or as part of the membrane system instrumentation.

Section 8 – Responsibilities – Move the following responsibilities from the Membrane Manufacturer's list to the Owner's list:

- Providing a forklift or crane and operator for unloading the system from the shipping truck and the placement of the pilot unit and membranes near the associated utilities required for the pilot study.
- Maintaining fencing for security around the intake structure where the pilot plant will be located.
- Providing personnel to operate the pilot plant, including routine monitoring to verify that the pilot plant is operating, collecting water quality samples, maintaining chemical feed systems, and making adjustments to the pilot plant as necessary. Routine maintenance will be performed daily on the system. This includes checking the hoses, fittings, and valves for leaks. The water will be drained from the filter trap on the compressor on a daily basis especially in locations where high humidity is encountered.

- Collection, shipment, and laboratory analysis by a state certified laboratory of the raw, feed, and permeate water samples required for the pilot study. Laboratory tests will be paid for by the City.
- Reporting analytical results to the Engineer.
- Purchasing or supplying all pretreatment chemicals required for the pilot study. Recommendations on the type and concentration of chemicals will be the responsibility of the membrane manufacturer.
- Providing a shelter for the pilot plant equipment, instrumentation and controls.

Appendix L – Specifications

Section 00 40 00 – Procurement Bid Form - Delete this section in its entirety. The information requested by this section is covered by Appendices A and B.

Section 40 91 00 – Instrumentation Devices

Paragraph 2.16.E. Revise as follows: Spare Sensors: Provide one.
Paragraph 2.17.G. Revise as follows: Spare Sensors: Provide one of each.
Paragraph 2.17.I. Add Hach ORP sensor model RD2P5 and pH sensor PD2P1 (with sc 200 transmitter) to the list of Acceptable Manufacturers.
Paragraph 2.18.G. Revise as follows: Spare Sensors: Provide one.
Revise Paragraph 2.20 G Schedule as follows:

Tag	Service	Maximum Turbidity	Normal Turbidity	Location/Area Classification
AE/AIT-1	Combined Filter Effluent	1.0 NTU	< 0.1 NTU	Non-Classified
AE/AIT-2 thru xx	Permeate Line Effluent – 1 per train	1.0 NTU	< 0.1 NTU	Non-Classified

Paragraph 2.20 H. Revise as follows: Acceptable Manufacturer/Models: Hach TU5300sc or TU5400 and sc200.
Paragraph 2.26 – Delete this paragraph in its entirety. Pressure isolation rings are not required as part of the pressure gauge scope.

Section 40 94 43 – Programmable Logic Controllers

Paragraph 2.01. A. 1 – Change to Model 1756-L**72.**
Paragraph 2.03 - Allen Bradley Flex Logic I/O is acceptable.
Paragraph 2.03. A. 1. – Delete "and 115 VAC" from the first and second sentences.
Paragraph 2.05. A. – Change to Windows 7 or newer version.

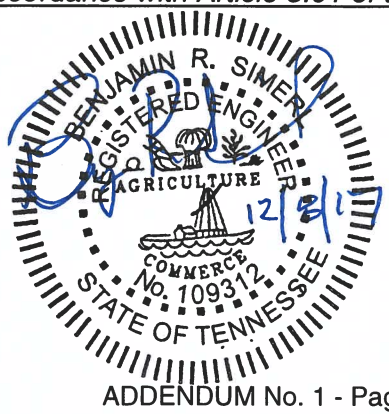
Section 43 00 00 – Minimum Process Equipment Requirements

E.1.c. – Add Sulzer to the list of acceptable manufacturers.

Bidder Must Acknowledge Receipt of this Addendum in accordance with Article 3.01 of the RFP.

Jacobs Engineering Group Inc.
9721 Cogdill Road, Suite 201
Knoxville, Tennessee 37932

December 8, 2017



Oak Ridge Water Treatment Plant

Membrane Filtration System

Request for Proposals

City of Oak Ridge

November 2017

JACOBS®