City of Post Falls, Water Reclamation Facility:
Kootenai County, Idaho

Membrane Filtration Pilot Study and Selection Project
Request for Qualifications

The City of Post Falls (City) is accepting responses to a Request for Qualifications (RFQ) from interested suppliers of microfiltration (MF) or ultrafiltration (UF) membrane modules for participation in a six-month pilot testing program being conducted by the City for their Water Reclamation Facility (WRF).

Separate sealed Responses for the City of Post Falls - Membrane Filtration Pilot Study and Selection Project project will be received by the City of Post Falls in Kootenai County, Idaho until 4:00 PM local time Monday November 14, 2016.

Responses shall be delivered to the City Clerk’s Office, City of Post Falls, 408 N Spokane St., Post Falls, ID 83854 and clearly marked “RFQ Response Enclosed – City of Post Falls - Membrane Filtration Pilot Study and Selection Project”.

Project Summary:
The pilot study will evaluate tertiary chemical addition with filtration for phosphorus removal in order to achieve the WRF’s long-term needs with regards to regulatory compliance for discharge to the Spokane River and future recycled water projects. Principal objectives of this pilot study will be to evaluate tertiary membrane filtration for ultra-low phosphorus removal and to qualify specific membrane products for consideration in the proposed full-scale WRF tertiary treatment system. Only membrane products which meet the City’s acceptance criteria through performance in the pilot testing may be qualified to be supplied as part of the full-scale membrane system. The capacity of the initial phase of the full-scale tertiary treatment facility is anticipated to be 4 mgd with a peak day flow of 7 mgd.

The Request for Qualifications Documents may be examined at the following locations:
- J-U-B ENGINEERS, Inc.; 7825 Meadowlark Way; Coeur d’Alene, Idaho 83815
- SPI; 3156 Lionshead Avenue Suite 2, Carlsbad, CA 92010

Requests for copies of the Request for Qualifications Documents and any questions during the RFQ Response period shall be directed to:
Mr. Charles Cruz of SPI
SPI; 3156 Lionshead Avenue Suite 2, Carlsbad, CA 92010
Email: ccruz@spi-engineering.com,

Date ____________________________

Russ Connole, Public Services Director

Dates Advertised: ____________________________
The City of Post Falls (City) is accepting responses to a Request for Qualifications (RFQ) from interested suppliers of microfiltration (MF) or ultrafiltration (UF) membranes for participation in a six month pilot testing program being conducted by the City for their Water Reclamation Facility (WRF). The pilot study will evaluate tertiary chemical addition with filtration for phosphorus removal in order to achieve the WRF’s long-term needs with regards to regulatory compliance for discharge to the Spokane River and future recycled water projects. Principal objectives of this pilot study will be to evaluate tertiary membrane filtration for ultra-low phosphorus removal and to qualify specific membrane products for consideration in the proposed full-scale WRF tertiary treatment system. Only membrane products which meet the City’s acceptance criteria through performance in the pilot testing may be qualified to be supplied as part of the full-scale membrane system. The capacity of the initial phase of the full-scale tertiary treatment facility is anticipated to be 4 mgd with a peak day flow of 7 mgd.

This document identifies the minimum qualifications required for participation in the pilot study. Only three (3) membrane modules will be qualified to participate in the pilot study. The modules will be installed in a single membrane pilot unit designed to simultaneously test 3 modules. The membrane pilot unit will be provided by the City. Only information provided by the respondents in their response to the Request for Qualifications (RFQ) will be considered in the acceptance processes. The respondents shall complete and include the three forms (Request for Qualification Check List, Qualifications Statement Form, and Request for Qualifications Questionnaire) provided at the end of this RFQ and any supporting documentation with their RFQ response. Suppliers accepted for participation in the pilot study will be notified by the City and required to provide membrane modules for use in the study. The membrane modules will be required at the City’s test site per the schedule below.

**Schedule**
The overall project schedule requirements are as follows:

- Advertise RFQ, October 29, 2016 and November 5, 2016
- Responses to RFQ due, November 14, 2016
- Notification of Suppliers Selected for Pilot Study, December 6, 2016
- Qualified membrane modules must be delivered to the site by January 13, 2017 but not earlier than January 6, 2017. Pilot-testing will be conducted for at least 6 months.
- Piloted membrane modules meeting the City’s performance criteria will be qualified for the full-scale procurement process in 2018.
• The full-scale facility start-up goal is November 2022.

**Evaluation of RFQs**
In evaluating each of the RFQ responses, the City will consider all of the information provided by the suppliers and the responsiveness of the RFQ responses. The City may conduct such investigations as they deem necessary to assist in the evaluation of a potential supplier.

The City reserves the right to reject any RFQ responses, including without limitation of the rights to reject any or all non-conforming or non-responsive RFQ responses. The City further reserves the right to reject the RFQ response of any supplier whom it finds, after reasonable inquiry and evaluation, to be non-responsive. The City may also reject the RFQ response of any supplier if the City believes that it would not be in the best interest of the Project. The City also reserves the right to waive any and all informalities in selection of the suppliers for participation in this pilot study.

**Submission of RFQ Response**
Four (4) copies of the completed RFQ response must be received at the time and place indicated below. Each supplier shall assume full responsibility for timely delivery at the designated location. Any RFQ responses received after this time will not receive consideration. Oral, telephone, or facsimile copies will not receive consideration. The RFQ responses shall be enclosed in an opaque, sealed envelope or wrapping and received at the following address by November 14, 2016 at 4:00 PM, P.S.T.

City Clerk's Office  
City of Post Falls  
408 N Spokane St.  
Post Falls, ID 83854  
Attn: Shannon Howard, City Clerk

Written questions regarding this notice should be sent to Mr. Charles Cruz of SPI by electronic mail at ccruz@spi-engineering.com.

**Project Background**
The City owns and operates a WRF to treat municipal wastewater generated within its boundaries. It also treats the wastewater pumped through an 8-mile-long force main from the City of Rathdrum, Idaho. Reclaimed water from the Post Falls WRF is discharged year-round to the Spokane River under a National Pollutant Discharge Elimination System (NPDES) Permit issued by the U.S. Environmental Protection Agency (EPA).

The Post Falls WRF is a secondary extended aeration activated sludge wastewater treatment plant. Wastewater flow is measured, screened and de-gritted during preliminary treatment in
the headworks portion of the plant. Flow is then split between two portions of the plant—one half is currently capable of biological phosphorus reduction (BPR) and the second is designed for biological nutrient reduction (BNR). Secondary treatment is performed through oxidation ditches and circular clarifiers. Flows from each side of the plant are then re-combined and disinfected with intense ultraviolet light. Reclaimed water currently discharges to the Spokane River downstream of the Post Falls Dam. Settled solids from the secondary clarifiers are either recycled to the BPR and BNR processes or removed as biosolids. Biosolids wasted from the secondary processes are dewatered utilizing belt filter presses and are trucked off site for composting by a licensed third party contractor.

The headworks is currently being relocated to accommodate flow equalization and future upgrades. Influent flow equalization is being constructed to attenuate peak influent flows and supplement off-peak low flows. The current $14.8 million construction project is the first in a phased approach and targeted for completion by the end of 2016.

The primary impetus of facility planning and the subsequent financing, design, and construction efforts is to meet the increasingly stringent NPDES discharge limits in the Spokane River. The NPDES limits and schedule of compliance are being driven by a concern for diminished dissolved oxygen. The Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load (DO TMDL) was prepared by the Washington Department of Ecology (WDOE) and approved by the EPA in July 2010. The TMDL was developed to address water quality concerns in Lake Spokane (Long Lake), the upstream impoundment behind the Long Lake Dam. The TMDL restricts discharge of oxygen-demanding substances to among the lowest levels in the United States, including ammonia-nitrogen, total phosphorus, and CBOD5. According to EPA, as a matter of equity, Idaho permits cannot cause the violation of a downstream water quality standard. NPDES Permits issued in 2014 were consistent with those issued by WDOE in 2010 and 2011. Concentration limits will decrease proportionally to increasing flows in the future. The permit included a Compliance Schedule of up to ten years to fully meet the new requirements for total phosphorus and CBOD5.

The most stringent part of the final limits require discharging no more than 255 lb/day of CBOD5 and 3.19 lbs/day of total phosphorus as a seasonal average from February 1 through October 31. Concentration limits for CBOD5 are also listed year-round at secondary treatment levels, but do not require a schedule of compliance. The seasonal average approach was specifically negotiated between dischargers and regulatory agencies to provide necessary flexibility to meet final permit limits that are arguably some of the most stringent in the nation. Seasonal limits allow Post Falls to manage internal processes and discharge options to protect the environment and ratepayers through the most effective approaches available to the City at any given time.

Membrane filtration was selected as the preferred tertiary treatment system in the City’s Water Reclamation Facility Master Plan. The proposed tertiary treatment system will meet the
compliance schedule and NPDES permit limitations through a phased implementation of the necessary improvements. Later phases of improvements will expand the system as additional capacity is needed beyond the compliance schedule. Tertiary filtration of the existing secondary BNR/BPR system effluent will be utilized as the primary tool for meeting effluent total phosphorus and CBODS. The current system already provides fully nitrified effluent to meet the ammonia-nitrogen requirement and will be expanded as necessary to meet capacity requirements.

It is currently the City’s intent to request proposals for the full-scale membrane system after the completion of the pilot testing. The full-scale system scope of supply is expected to include membrane modules, support racks, headers, valves, actuators, and controls and interfaces, as well as ancillary equipment to most efficiently consolidate membrane system supply, including select pumps to be controlled by the membrane system supplier’s control system, blowers, compressors, chemical feed equipment for membrane operation, and other appurtenant equipment as deemed appropriate by the City.

At this time, it is anticipated that procurement of the full-scale membrane system will incorporate, in addition to operational parameters as demonstrated during the piloting, additional criteria which may include capital cost proposals by membrane system suppliers, experience in providing similar systems to facilities of comparable size and complexity, and experience in providing similar systems facing similar water quality and treatment challenges, with emphasis on tertiary wastewater treatment for phosphorus removal experience.

The City also anticipates full-scale procurement evaluation criteria will include contacting references of proposing system suppliers with the intent of assessing supplier’s record of supporting installation operations, start-up, commissioning, and troubleshooting.

**Pilot Project Description**

The pilot study will include a pilot test duration of 6 months, with an overall effort of about 10 months. Major objectives of pilot program include:

- Evaluate the clarification-membrane filtration treatment process for meeting water quality objectives including ultra-low phosphorus removal.
- Determine the maximum sustainable operating design flux for the membrane modules using the membrane supplier’s recommended backwashing and chemical cleaning procedures for this specific application.
- Qualify potential membrane suppliers for participation in the full scale procurement process.
- Determine optimum operating parameters for up to three qualified membrane modules at the pilot scale. The data may form the basis for equipment procurement, selection and bids for the full-scale facilities.
A Work Plan and Quality Assurance Project Plant (QAPP) will be prepared for the pilot study and made available to the membrane suppliers that are selected to participate in the pilot study. The Pilot Work Plan will include details on the testing protocol, schedule, bench-scale evaluations, chemical dosing, sampling protocols and analytical methods, data analyses, storage and delivery methods, chain of custody documentation, quality assurance, and health and safety plan.

The membrane filtration component of the pilot study will consist of the following major phases:

- **Commissioning Phase** – approximately 120 hours: Install, commission and startup the MF/UF pilot system.
- **Phase 1**
  - Optimization Phase 1 – approximately 336 hours: Determine optimum operating parameters (flux, chemical consumption, recovery, recycle flow, etc.) to be employed during Operations Phase 1 for each membrane module provided by the membrane supplier and on the City-supplied universal mounting rack. These operating parameters may be used in the evaluation of bids during the procurement process.
  - Operations Phase 1 – approximately 1,500 hours: Steady state operation of the MF/UF pilot system.
    - Performance Evaluation Test No. 1 – 720 hours: Steady-state operation of the MF/UF pilot system at the conditions selected during Optimization Phase 1.
    - Performance Evaluation Test No. 2 – 720 hours: Confirmatory steady-state operation of the MF/UF pilot system at the conditions selected during the Optimization Phase 1.
  - Optimization Phase 2 – approximately 336 hours: Determine optimum operating parameters (flux, chemical consumption, recovery, recycle flow, etc.) to be employed during Operations Phase 2 for each membrane module provided by the membrane supplier and on the City-supplied universal mounting rack. These operating parameters may be used in the evaluation of bids during the procurement process.
  - Operations Phase 2 – approximately 1,500 hours: Steady state operation of the MF/UF pilot system.
    - Performance Evaluation Test No. 3 – 720 hours: Steady-state operation of the MF/UF pilot system at the conditions selected during Optimization Phase 2.
    - Performance Evaluation Test No. 4 – 720 hours: Confirmatory steady-state operation of the MF/UF pilot system at the conditions selected during Optimization Phase 2.
• Decommissioning Phase – approximately 120 hours: shutdown, decommission and ship MF/UF pilot system from the pilot project site.

The pilot testing will be conducted at the WRF in Post Falls, ID. Figure 1 shows a schematic of the pilot system.

Additional pilot study activities that are not part of the membrane pilot suppliers scope include:

• Jar testing to assist with optimization of the pretreatment process.
• Optimization of the pilot plate settler pretreatment system that will provide feed water to the membrane pilot.
• Conduct short duration (3 weeks to 1 month) pilot studies on up to three High Rate Clarification (HRC) technologies. It is not anticipated that effluent from the HRC pilot units will provide feed water to the membrane pilot.

Criteria for Participation
The membrane suppliers must meet the following criteria in order to be accepted for participation in the pilot study.

1. Microfiltration (MF) or Ultrafiltration (UF) membrane with a nominal pore size ≤0.1 micron.

2. The membrane module shall be configured for use in a pressurized system. Membrane modules design to be immersed or submerged in a tank will not be considered.

3. The proposed membrane module must be compatible with the use of clarification system effluent treated with alum or poly aluminum chloride.

4. The suppliers shall provide timely (24-hour response by phone, and if necessary 48-hour response with on-site representation) technical support to the pilot study.

5. Only up to three qualified membrane suppliers will be accepted for testing. Should RFQ responses be received from more than three qualified suppliers, the three most qualified suppliers with the greatest installed capacity of tertiary membrane filtration facilities in North America using the same module proposed will be accepted.

6. The supplier must meet the requirements set forth in the Qualifications Statement Form included in this RFQ.

Responsibilities of the Supplier
The membrane module suppliers must provide the following:

1. A membrane module for installation in a membrane pilot unit provided by the City. The membrane module(s) used in the pilot study must be identical to a module proposed for a full-scale system and must be operated under the same process conditions as a proposed module for a full-scale system. For example, testing of the proposed membrane fibers in a smaller diameter housing will not be acceptable, nor will the testing of shorter modules or modules with a different configuration (i.e. inside-to-outside verses outside-to-inside or horizontal verses vertical).

2. Only one membrane module per supplier can be qualified for the pilot study.
3. During the Optimization Phase, the supplier shall provide technical assistance by phone and electronic communication to determine optimum operating parameters (flux, chemical consumption, recovery, recycle flow, etc.) for their membrane module to be employed during the Operations Phase.

4. The supplier may be able to request a change in operating parameters once performance evaluations begin, including but not limited to flux, backwash sequence and frequency, chemical usage and recovery, but only with the written permission from the City or its consultants.

5. The membrane module shall be integrity tested on a weekly basis during the pilot test period.

6. The supplier is responsible for arranging delivering their membrane module to the site and coordinating installation with the City or its consultants. The City requests a minimum of one (1) working day notice of the anticipated delivery of the membrane to the project site.

7. The supplier is responsible for arranging packaging for the membrane module upon completion of the pilot evaluation and for coordinating the removal of the membrane module with the City or its consultants. The City shall return ownership of the module to the supplier at the completion of the pilot study.

8. The supplier shall be responsible for packaging and shipping costs for delivery and return of the membrane module.

**Responsibilities of the City**

1. The City will provide a membrane pilot unit designed to simultaneously test 3 modules. Each membrane module can be tested simultaneously under completely different operational parameters in the membrane pilot unit provided by the City.

2. The City will notify the qualified vendors of their selection for the Pilot Study by the date indicated in the Schedule section of this RFQ.

3. The City will develop a detailed test protocol, prior to initiation of the pilot testing. The participants in the study will be given the opportunity to comment on the test protocol.
4. The City or its consultants will provide operating labor for day-to-day operations, including data collection, recharge of chemical day tanks and normal adjustment of controls.

5. The City will provide pretreated feed water, power and disposal of filtrate, backwash water and neutralized spent cleaning solution.

6. The City will share pilot test data with each supplier for only their membrane module.

**Minimum Requirements for Full-Scale Qualification**

A membrane module must demonstrate successful operation during the pilot study in order to qualify as an acceptable membrane module for the full-scale membrane system. “Successful operation” shall consist of the following performance during the four 720 hour steady-state Performance Evaluation Tests:

1. Stable operation without frequent shutdowns.

2. Greater than 90% on-line factor as determined by calculating downtime excluding backwash and chemical cleaning.

3. Greater than 90% recovery.

4. Membrane recovery cleans (Clean in Place (CIP)) will be performed before the start of the first 720 hour steady-state Performance Evaluation Test and after each of the subsequent three 720 hour Performance Evaluation Tests.

5. Specific flux value (20 deg C), immediately following the final CIP after the final 720 hour steady-state Performance Evaluation Test, is not less than 90% of the initial specific flux value as monitored at the start of the first 720 hour steady-state Performance Evaluation Test. Specific flux values are averaged for the first 24 hours following the CIP for this determination. Temperature compensation for Specific Flux calculation shall be based on water viscosity/temperature relationship.

6. Filtrate turbidity does not exceed any of the following: 0.2 NTU more than 5% of the time within a 24-hour period and 0.5 NTU at any time.

7. Membrane must perform to “City’s satisfaction” for removal of phosphorus precipitates. “City’s satisfaction” is defined as the membrane performs comparable to the other membranes tested with respect to removal of phosphorus precipitates.
8. During the pilot testing program including the two 336 hour Optimization Phase and the two 1,500 hour Operation Phase, only two (2) unintentional Integrity Failure events may occur. An integrity Failure event includes a failure of the membrane fiber (break, crack or hole), potting or module, which results in integrity test failure, turbidity failure, or requires repair (e.g. fiber pinning).

Parameters of operation during the two 1,500 hour Operation Phases will be used for evaluation purposes at the procurement of the full scale system. (e.g. energy and chemical consumption, flux, etc.).

**Secondary Effluent Characteristics**
Table 1 provides data on the expected secondary effluent quality from the WRF.

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<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Secondary Effluent *</th>
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<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Min</td>
</tr>
<tr>
<td>Water Temperature °C</td>
<td>°C</td>
<td>16.6</td>
</tr>
<tr>
<td>pH</td>
<td>pH Units</td>
<td>7.49</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td>mg/L as CaCO3</td>
<td>131</td>
</tr>
<tr>
<td>Hardness**</td>
<td>mg/L as CaCO3</td>
<td>166</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>6.73</td>
</tr>
<tr>
<td>Chemical Oxygen Demand</td>
<td>mg/L</td>
<td>24.7</td>
</tr>
<tr>
<td>BOD5</td>
<td>mg/L</td>
<td>6.3</td>
</tr>
<tr>
<td>TKN</td>
<td>mg/L</td>
<td>1.73</td>
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<tr>
<td>Non-Ionized Ammonia plus Ammonia</td>
<td>mg/L as N</td>
<td>0.15</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>0.36</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/L</td>
<td>4.78</td>
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</table>
Clarified Water Characteristics

The feed water for the membrane pilot system during the pilot testing period will be WRF secondary effluent pretreated by a pilot plate settler system. Secondary effluent will be dosed with coagulant (alum) and sodium hydroxide ahead of the plate settler to assist with removal of phosphorus. It is anticipated that some parameters in the membrane feed water may be lower after pretreatment than the secondary effluent including: Total Alkalinity, Hardness, Total Suspended Solids, and Phosphorus.

The effluent from the plate settler unit may also have additional coagulant (alum) and sodium hydroxide added ahead of the membrane pilot unit, effectively adding chemical addition at two distinct stages. It is not anticipated that the chemical addition immediately upstream of the membranes would result in total suspended solids in the membrane feed exceeding 40 mg/l.

The City may also elect to perform additional pilot tests that feed secondary effluent that has been dosed with coagulant (alum) and flocculated (not clarified), directly to the membrane pilot unit in order to assess the effects of solids loading on flux for a range of chemical doses. It is not anticipated that the chemical addition immediately upstream of the membranes would result in total suspended solids in the membrane feed exceeding 40 mg/l.
REQUEST FOR QUALIFICATIONS CHECK LIST

CITY OF POST FALLS WRF MEMBRANE FILTRATION PILOT STUDY AND SELECTION PROJECT

Did You:

_________ Include with your submittal properly completed, accurate copies of the following documents in the following order using the applicable forms included in the Request for Qualifications Documents:

_________ Request for Qualifications Check List.

_________ The completed Qualifications Statement Form (including supporting documentation).

_________ The completed Request for Qualifications Questionnaire (including requested reference list).

_________ Arrange to have the submittal delivered to the City of Post Falls City Clerk’s Office at 408 N Spokane St., Post Falls, ID 83854 on or before the date and time designated in this Notice of Request for Qualifications.

+ + END OF SECTION + +
QUALIFICATIONS STATEMENT FORM

PART 1: BACKGROUND INFORMATION

SUBMITTED TO:

Shannon Howard
City Clerk
City of Post Falls
408 N Spokane St.
Post Falls, ID 83854
Tel: (208) 777-9857

SUBMITTED FOR: CITY OF POST WRF MEMBRANE FILTRATION PILOT STUDY AND SELECTION PROJECT REQUEST FOR QUALIFICATIONS

SUBMITTED BY: ________________________________________________
(Print or Type Name)

Name of Organization:
_______________________________________________________
(Print or Type Name)

Name of Representative

Individual: __________________________________________________________

Title: ______________________________________________________________

Business Address: ______________________________________________________

Telephone No.: _______________________________________________________

Fax No.: _____________________________________________________________
Check if:

☐ Corporation  ☐ Partnership  ☐ Joint Venture  ☐ Sole Proprietorship

If Corporation:

A. Date and State of Incorporation:
   ___________________________________________________________________
   ___________________________________________________________________

B. List of Executive Officers:

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<tr>
<th>Title</th>
<th>Name</th>
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If Partnership:

A. Date and State of Organization:
   ___________________________________________________________________
   ___________________________________________________________________

B. Names of Current General Partners:
   ___________________________________________________________________

C. Type of Partnership
   ☐ General   ☐ Publicly Traded
   ☐ Limited   ☐ Other (described): _________________________

If Joint Venture:

A. Date and State of Organization:
   ___________________________________________________________________
   ___________________________________________________________________
B. Name, Address, and Form of Organization of Joint Venture Partners (Indicate managing partner by an asterisk *):

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If Sole Proprietorship:

A. Date and State of Organization:

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B. Name and Address of Owner or Owners:

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City of Post Falls  Request For Qualifications
WRF Membrane Filtration Pilot Study and Selection Project  October 28, 2016
PART 2: MEMBRANE DESCRIPTION

The Supplier shall provide the following basic information about the membrane submitted for consideration in this Request for Qualifications as indicated below:

1.0 What is the product name of the membrane submitted for consideration (indicate Microfiltration or Ultrafiltration Membrane Material)?

________________________________________________________________________

2.0 Indicate approximately how long the product has been manufactured:

________________________________________________________________________

3.0 Indicate the membrane module product name and membrane material (polymer):

________________________________________________________________________

4.0 Indicate how the Polyvinylidene Fluoride (PVDF) membrane is manufactured (TIPS/NIPS/Other):

________________________________________________________________________

5.0 Indicate the membrane surface area per individual membrane module, ft$^2$:

________________________________________________________________________

PART 3: QUALIFICATION CRITERIA

Membrane modules submitted for consideration shall meet qualification criteria as described below. A “yes” answer shall be provided for at least four (4) of the questions below to satisfy the qualification criteria for consideration to participation in pilot study.

1.0 Membrane has California Title 22 Approval or Idaho Department of Environmental Quality (IDEQ) Class A Filtration Technology Acceptance – The City needs a membrane system that can achieve IDEQ Class A approval. Membrane material shall be approved by the California State Water Resources Control Board (SWRCB) for Title 22 filtration or have IDEQ Class A Filtration Technology Acceptance.
The Supplier hereby certifies that the identified membrane material submitted for consideration is currently approved for use by the SWRCB as an alternative filtration process for Title 22 recycled water or has IDEQ Class A Filtration Technology Acceptance.

Yes   ______
No    ______

The Supplier shall submit documentation to indicate approval or acceptance of the membrane material, date of approval or acceptance, membrane material, and maximum membrane flux. This documentation shall be included in the Statement of Qualifications.

2.0 Membrane fiber manufactured by the Thermally Induced Phase Separation (TIPS) Process – The City is interested in employing membranes constructed of Polyvinylidene Fluoride (PVDF) manufactured by the TIPS process due to the strength and integrity offered by this type of membrane.

The Supplier hereby certifies that the membrane submitted for consideration is constructed of PVDF and manufactured by the TIPS Process.

Yes   ______
No    ______

3.0 Membrane module is Universal compatible – The City is interested in pursuing a universal rack system for full-scale implementation at the WRF. The universal rack is assumed to accommodate vertically-mounted hollow fiber membrane modules contained in a pressure vessel up to 10 inches in diameter and 8 feet in length. Membrane modules for consideration on the project must have the physical and operational characteristics to be installed in a universal rack, and the supplier must confirm that they would participate in a full-scale procurement for a universal rack system.

The Supplier hereby certifies that the membrane submitted for consideration has physical and operational characteristics to be installed in a universal rack configuration, and that they would participate in a full-scale procurement for a universal rack system.

Yes   ______
No    ______
4.0 Membrane can operate in direct filtration with coagulant doses of 20-40 mg/l.
- During certain times of the year the City may consider operation of the tertiary membrane filtration system with coagulant dosed directly ahead of the membranes at a dose of 20-40 mg/l.

_The Supplier hereby certifies that their membrane can operate in direct filtration with coagulant doses of 20-40 mg/l directly upstream of the membrane system._

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<tr>
<th>Yes</th>
<th>No</th>
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List the facilities or pilot studies to satisfy the above criterion.

<table>
<thead>
<tr>
<th>Name of Facility or Study</th>
<th>Design Capacity (mgd)</th>
<th>Start Date of Continuous Operation</th>
<th>Contact Name</th>
<th>Contact Phone #</th>
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5.0 Direct Filtration Experience - The Supplier shall have membranes installed in at least two (2) operating direct filtration membrane installations in North America.

_The Supplier hereby certifies that their membrane is installed in at least two (2) operating membrane systems in North America that utilize membrane filtration processes with coagulant addition directly upstream of the membrane system._

<table>
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<tr>
<th>Yes</th>
<th>No</th>
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______________________________________________________
City of Post Falls Request For Qualifications
WRF Membrane Filtration Pilot Study and Selection Project
18 October 28, 2016
List the facilities used to satisfy the above criterion.

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<thead>
<tr>
<th>Name of Facility</th>
<th>Design Capacity (mgd)</th>
<th>Start Date of Continuous Operation</th>
<th>Contact Name</th>
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6.0 Membrane Experience - The Supplier shall have membranes installed in at least five (5) operating facilities in North America, each with a capacity of at least 0.5 mgd.

*The Supplier hereby certifies that their membrane is installed in at least five (5) operating membrane systems in North America, each with a capacity of at least 0.5 mgd.*

Yes

No

List the facilities used to satisfy the above criterion.

<table>
<thead>
<tr>
<th>Name of Facility</th>
<th>Design Capacity (mgd)</th>
<th>Start Date of Continuous Operation</th>
<th>Contact Name</th>
<th>Contact Phone #</th>
</tr>
</thead>
<tbody>
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</table>
ACKNOWLEDGMENTS

The undersigned certifies under oath the truth and accuracy of all statements and of all answers to questions made herein.

Dated at _____________________, this ____________ day of ________________.

Organization:  ______________________________

(Print or Type Name)

By:  ______________________________

__________________________________

Title:  ______________________________

(Seal, if corporation)

Sworn to before me this ____________ day of ________________, ____, in the County of ________________, State of ________________.

__________________________________

(Notary Public)

My commission expires ____________________

(Seal)

+ + END OF SECTION + +
City of Post Falls Public Services – Utility Division  
WRF Membrane Filtration Pilot Study and Selection Project  
Request for Qualifications  
Questionnaire

Instructions:

- The Membrane Supplier’s RFQ response must include the information requested herein, in the order shown. Failure to provide the requested information may result in disqualification.
- Leave no spaces blank. Indicate “no data” or “not applicable”, as appropriate.

Membrane Supplier’s Information

<table>
<thead>
<tr>
<th>Proposed Membrane Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Membrane Manufacturer</td>
</tr>
<tr>
<td>2. Membrane Module Model No.</td>
</tr>
<tr>
<td>3. Description of Membrane Module:</td>
</tr>
<tr>
<td>- Membrane material</td>
</tr>
<tr>
<td>- Membrane manufacturing process</td>
</tr>
<tr>
<td>(TIPS/NIPS/Other)</td>
</tr>
<tr>
<td>- No. of fibers per module (approx.)</td>
</tr>
<tr>
<td>- Dimensions of module</td>
</tr>
<tr>
<td>- Nominal area of active working surface, sq. ft (Note whether this is inside or outside surface)</td>
</tr>
<tr>
<td>- Flow pattern (In-out vs. Out-in)</td>
</tr>
<tr>
<td>- Configuration (Horizontal vs. Vertical)</td>
</tr>
<tr>
<td>- Nominal MWCO and/or Pore size, microns</td>
</tr>
<tr>
<td>- Tolerance to chlorine and other oxidants</td>
</tr>
</tbody>
</table>
(please list acceptable type, dosages, contact times, and other conditions)

<table>
<thead>
<tr>
<th>Proposed initial operating conditions (list all, even if not specified herein):</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Maximum Instantaneous Flux, gfd</td>
</tr>
<tr>
<td>- Average Daily Flux, gfd</td>
</tr>
<tr>
<td>- Backwash or Pulse Frequency, min.</td>
</tr>
<tr>
<td>- Backwash or Pulse Duration, sec</td>
</tr>
<tr>
<td>- Air scour Frequency, min</td>
</tr>
<tr>
<td>- Air scour Duration, sec</td>
</tr>
<tr>
<td>- Driving pressure type, positive or suction</td>
</tr>
<tr>
<td>- Clean membrane driving pressure, psig</td>
</tr>
<tr>
<td>- Typical driving pressure, psig</td>
</tr>
<tr>
<td>- Max. driving pressure (when cleaning required), psig</td>
</tr>
<tr>
<td>- Operating mode, dead-end vs. cross-flow.</td>
</tr>
<tr>
<td>- If cross-flow, describe cross-flow conditions.</td>
</tr>
<tr>
<td>- Cleaning chemicals required</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>- Cleaning chemical frequency</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>- Cleaning chemical doses</td>
</tr>
</tbody>
</table>

6. Module Physical Size (L x W x H), ft

7. Module Approx. Weight, lbs.

8. Module Piping Connections, size and type (list all, even if not specified herein):
   - Feed water
   - Backwash
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>- Filtrate</td>
<td></td>
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<tr>
<td>10. Module Liquid Flows at anticipated operating conditions (list all, even if not specified herein):</td>
<td></td>
</tr>
<tr>
<td>- Min &amp; Max. Feed Water, gpm</td>
<td></td>
</tr>
<tr>
<td>11. Is strainer required upstream of this process? If so, what size.</td>
<td></td>
</tr>
<tr>
<td>12. Backwashing pretreatment screen?</td>
<td></td>
</tr>
<tr>
<td>- Is one needed? (Yes or No)</td>
<td></td>
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<tr>
<td>13. Based on the proposed operating conditions, is any additional pretreatment equipment required? (If yes, please describe.)</td>
<td></td>
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<tr>
<td>14. Can the module be provided by the date indicated in the Schedule section of this RFQ?</td>
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<tr>
<td>15. Describe the integrity testing procedures (and related equipment that should be included on the pilot unit).</td>
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<tr>
<td>16. List and discuss pathogen removal credits (Giardia, Cryptosporidium, Virus, or other) granted by regulatory agencies:</td>
<td></td>
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<tr>
<td>- California?</td>
<td></td>
</tr>
<tr>
<td>- Other state?</td>
<td></td>
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<tr>
<td>17. Additional Information:</td>
<td></td>
</tr>
<tr>
<td>Please list any additional requirements, even if not specifically mentioned herein, and if the related materials or equipment will be provided.</td>
<td></td>
</tr>
<tr>
<td>18. North American Secondary Effluent Membrane Filtration Installations – provide a reference list for installations which use the proposed membrane for filtration of secondary effluent wastewater in North America. Identify if any of these installations are used for the purpose of removing</td>
<td></td>
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<tr>
<td>phosphorus.</td>
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<tr>
<td><strong>19. Contact Person</strong> <em>(Note: This will be our primary contact. Please assign someone who will be available and knowledgeable about the project)</em></td>
<td></td>
</tr>
<tr>
<td><strong>20. Supplier - Telephone</strong>&lt;br&gt;Email</td>
<td></td>
</tr>
</tbody>
</table>

++ END OF SECTION ++