



BIRCH BAY WATER & SEWER DISTRICT
BIRCH BAY, WASHINGTON
Q001-2017

REQUEST FOR QUOTES
SLUDGE DENSITY METER

QUOTE DATA

QUOTE NUMBER: **Q001-2017**
TITLE: **Sludge Density Meter**

MANAGER: Mike Sowers
ALT CONTACT: Mike Trueblood
TELEPHONE: (360) 371-7100

ISSUE DATE: **September 29, 2017**

DEADLINES

Quotes may be mailed, emailed, and/or hand-delivered. They must be *received* at the Birch Bay Water & Sewer District Offices by the closing date and time noted below. Faxed quotes are not acceptable. Requests for *pre-approval* are due one week prior to the closing deadline and may sent by email/attachment to Mike@bbwsd.com

CLOSING DAY/DATE: **Friday, Oct 27, 2017**
CLOSING TIME: **2:00 pm**
LOCATION: District Office
MAIL ADDRESS: Attn: Quote Q001-2017
Birch Bay Water and Sewer District
7096 Point Whitehorn Rd
Birch Bay, WA 98230
EMAIL: mike@bbwsd.com
PHONE: (360) 371-7100
FAX: (360) 371-2806

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Section 1

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Minimum Specifications for Sludge Density Meter

It is the intent of these specifications to describe the *minimum* requirements for one new microwave density meter. Material, tax, and shipping ONLY: installation costs shall be the District's responsibility. The density meter will be installed in a 3" Ductile Iron Pipe between a gravity sludge thickener and an aerobic digester. The density will be used to monitor the real-time concentration of municipal sludge solids (typically 1-6%) that is pumped to the digester. The solids concentration will also be used, along with an existing flow meter and PLC, to determine the total amount of dry solids that are pumped to the digester. As the density and mass flow totals will be used for mass balancing and process control, it is important that the unit is as accurate and reliable as possible.

A. MEASUREMENT

The solids analyzer shall measure the concentration of the solids pumped through the thickened sludge process pipeline with typical solids content of 2-5%. Each analyzer shall utilize a flow-through style in-line sensor, transmitter display (TCU), and 33-ft interconnecting cable.

The analyzer shall use microwave "time of flight" measurement, utilizing microwave propagation time to calculate the concentration of the solids flowing in the pipeline independent of flow velocity.

B. FLOWMETER DETAIL

The flow-through, in-line sensor body shall be 316 stainless steel. The pipeline sensor shall be a three (3) inch wafer-style, flangeless body and have a minimum working pressure rating of 200 psig. The wafer style internals shall be glass lined coated. The sensor housing class shall meet IP 65 (NEMA type 4). The in-line pipeline sensor shall also meet as a minimum the following additional criteria:

1. The in-line transmitter shall have a measuring range of 0-25% total solids (or greater).
2. The in-line transmitter shall have a repeatability of +/- 0.01% TS, and sensitivity of +/- .001%TS over the entire range.
3. Measurement Cycle: Internally averages 100 measurements (30 every 300 milliseconds), 4-20 mA output (minimum) 1 second interval.
4. The transmitter shall have no moving parts.
5. The transmitter shall include both internal process and ambient temperature compensation sensors.
6. The transmitter shall have internal conductivity compensation - no external conductivity probe required.
7. The transmitter shall be an in-the-field Single Point Calibration type device.
8. No periodic field recalibration or zeroing in the field required.
9. No interlocks to pumps or clean water valves shall be required or recommended.
10. Process temperature ranges from 32° F - 122° F.
11. Both Manufacturer and Supplier of equipment under this section must have a minimum of five (5) years of verifiable experience with Microwave Wastewater Solids Measurement Technology.
 - a. Verifiable experience shall be determined by contacting and verifying satisfactory references and experiences.

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- b. At least 5 installation references with units installed for a period of greater than two (2) years shall be provided. (More references are welcome).
12. Sensor to be ATEX Zone 2 Rated for Hazardous Location.
13. Pipe line sensor internals to be glass lined to a thickness of 15 mils. Glass lining should hold a consistent color with minimum defects.
14. Meter accessories shall include sample valve (and/or additional piping) suitable for drawing sludge samples with the unit and sludge line in service
15. Quote to include start-up and training services by factory technician.

C. TRANSMITTER

The transmitter package shall include a remote mounted LCD communication display for all communication and electrical connections. This Transmitter Central Unit (TCU) shall have:

1. The TCU shall meet IP 65 (NEMA Type 4) enclosure and suitable for operation in ambient temperatures from (-4° - 122° F).
2. The LCD will display solids in either (user defined) % percent solids or grams/liter along with process temperature in (user defined) °C or °F.
3. The TCU will provide dual passive (2) 4-20 mA output signals: Output #1 indicates % total solids (TS) or Grams/Liter (G/L) and Output #2 is user defined as either process temperature or conductivity.
4. The transmitter unit shall operate on 120 VAC power and have dual passive 4-20Ma output ports and four cable input connectors.
5. TCU shall have a RS-232 PC communication port along with Hart® communication ability on the 4-20 mA output.

D. METER MODEL

The analyzer shall be Valmet TS™, or pre-approved equal.

To become pre-approved, a competing manufacturer must provide this specification and reasonable proof and detail to show that they meet or exceed the specifications for each line item. Requests for pre-approval must be received at LEAST one week prior to the closing date. Requests for preapproval within 6 days or less of the closing date shall not be accepted.

E. WARRANTY and PERFORMANCE

WARRANTY

Manufacturer shall provide a minimum of a one year warranty for manufacturing defects. The warranty shall commence once the item(s) is (are) unpacked on site.

Performance Guarantee:

Manufacture must guarantee performance of properly-installed equipment for 120 days following installation, according to the Quote specification parameters included with this proposal. In the event that the meter cannot or does not meet the specifications and performance guidelines provided herein during the trial period, the meter may be removed, cleaned, and returned, at the discretion of District Personnel. Upon return, the entire purchase price shall be refunded. Labor and installation fees are not included and are not required to be refunded.

Section 2 – PRICE

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Sludge Density Meter

(Manufacturer may provide an alternate price/quote sheet, provided that it is signed and contains the below information as a minimum)

- 1. Provide 3” Sludge Density Meter and related accessories \$ _____
- 2. Sales Tax (____ %) \$ _____
- 3. Delivery/freight/handling \$ _____
- 4. Total \$ _____

Additional Items: Provide pricing. Standard or included options shall be noted as “\$0.00 – included”. Unavailable options shall be noted as “N/A”. The District reserves the right to include options within the overall evaluation and to selectively purchase any, all, or none of the items.

Item C.14	
Sludge Sampling Valve and/or additional accessories	\$ _____
Tax (____ %)	\$ _____
Total	\$ _____

Delivery Information: _____ calendar days after receipt of purchase order.

The undersigned declares that he/she carefully read the specifications, requirements and terms & conditions and that this quote is made with full knowledge of the kind, quality and quantity of services and equipment to be furnished, and this quote is as stated on documents submitted in response to the District’s Quote. The undersigned offers and agrees, if this quote is accepted within sixty (60) calendar days from date of closing (unless otherwise agreed or noted), to furnish any or all of the items upon which prices are offered at the price set opposite each item, delivered at the designated point(s) within the time specified.

COMPANY: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

SIGNATURE OF PERSON AUTHORIZED TO SIGN: _____

TYPED NAME OF SIGNER _____ TITLE _____

TELEPHONE #: _____ DATE: _____

FAX # _____ E-Mail: _____

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Section 3
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Exceptions to the Specifications

Exceptions to the specifications of any items shall be fully described and explained in writing by the contractor in the space provided below. (Descriptions, brochures, and technical information may also be attached to provide adequate detail and descriptive information)

Section 4
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Additional Information

1. Warranty: Please provide in the space below, or attach a copy of a complete description of the standard warranty terms and conditions. In all purchases made by the District, availability and accessibility of warranty service and service after warranty may be considered in determining the lowest responsible bidder.

2. Accessories: Include below a detailed list of accessories not otherwise specified or for which you are requesting special consideration.