

## **ADDENDUM No.1**

### **To Request for Proposals For Weber Basin Water Conservancy District**

#### **2017 WBWCD POTABLE WATER SYSTEM MODEL UPDATE PROJECT**

**16 June 2017**

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This Request for Proposals (RFP) and associated attachments are hereby revised to include the following changes and clarifications. Consultants submitting proposals for this project shall conform to these revisions.

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#### **Clarification 1 – Flow Data Collection**

The District has approximately 110 total customer meters in its potable water system. This number includes all primary and redundant meters, as well as those connected to the District's SCADA system. Approximately 10-15 meters are part of the District's SCADA system, for which 15-minute flow and pressure data will be provided to the chosen Consultant for use in the calibration of the model. Of the remaining meters, many are redundant, non-working, or see negligible flow.

The District has identified 50 meters (ideally) throughout its service area from which flow data would be collected during the period starting on July 14<sup>th</sup> and ending on July 28<sup>th</sup>. Proposers shall discuss their ability to achieve this goal through the use of flow recorders (as discussed below) or other means. If data collection at 50 sites is not practical based on flow recorder availability or the Consultant's resources, a discussion of the Consultant's abilities and proposed number of meters to collect data from should be provided. Table 1 on the next page shows a breakdown of the identified 50 meter manufacturers and sizes requiring data collection. It shall be noted that this list is preliminary, and that once a Consultant has been selected, the actual location, types, and quantity of meters requiring data collection will be more thoroughly planned and finalized.

It is anticipated that flow data collection will be accomplished through the use of Consultant provided data recorders that are compatible with the meter types specified in Table 1. One example of potential flow recording devices are the Master-Meter Model 100EL Flow Recorder by F.S. Brainard & Company (and associated software). These flow recorders can be rented from the F.S. Brainard & Company. Attachment A of this document provides information and specs on the Model 100EL Flow Recorder devices for reference.

Table 1. Meter Information

Meter Manufacturer	Meter Size	Quantity
Badger	6"	9
	8"	1
	10"	2
	12"	4
Fischer & Porter	8"	1
Hersey	6"	2
Neptune	6"	1
Octave	4"	1
Precision	6"	1
Rockwell	3"	1
	4"	3
	6"	10
	10"	3
Sparling	6"	1
	14"	1
Trident	4"	1
	6"	7
	8"	1
<b>Total</b>		<b>50</b>

**Clarification 2 – Pressure Data Collection**

For the purpose of preparing a proposal for this project, it shall be assumed that pressure data will be required to be collected at ten (10) strategic locations throughout the District’s service area during the period starting on July 14<sup>th</sup> and ending on July 28<sup>th</sup>. It is anticipated that this will be achieved through the use of Consultant provided pressure data recorders installed on existing hose bibbs throughout the system. The actual locations and quantity of the pressure collection sites will be discussed and planned once a Consultant has been selected.

**Clarification 3 – Availability of Population and Demand Projections for Forecast Modeling**

It is anticipated that the District will have access to updated population projections and associated water demand data from the State in September of 2017. Since this data will be required for the forecast modeling efforts, this task will not be able to be completed until after this time. Consultants shall plan the project schedule accordingly based on this anticipated timing.

**ATTACHMENT A**  
**MASTER-METER MODEL 100EL FLOW RECORDER INFORMATION**

(Example of a possible flow recorder device to be used for data collection)

**Functionality and Operation**

The Meter-Master Model 100EL flow recorder is a portable and universal flow recorder for use on existing meter installations. The recorder is compatible with Sensus, Neptune, Badger, Hersey, ABB, Precision, Master Meter, and Water Specialties meters, among others. The Model 100EL uses a strap-on magnetic sensor to digitize a meter’s magnetic drive signal, then logs the pulse count into memory. The installation and use of the unit does not require any meter alteration or service interruption. Typically, the sensor is placed on the side of the water meter’s register with the sensor cable going straight up or down. The Model 100EL product brochure is included at the end of this Attachment for reference.

Table 2 below shows a sample of the data collected at a customer turnout during the summer of 2016 using the Model 100EL Data Recorder. Figure 1 and Figure 2 on the following page shows the data recorders installed on existing meters.

*Table 2. Sample of data collected at a customer turnout*

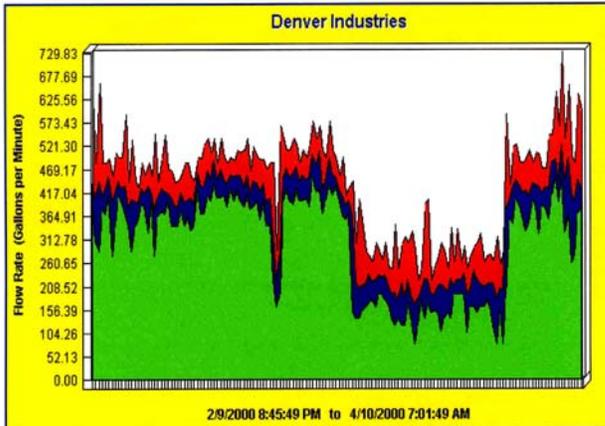
<b>Customer Turnout</b>					
<b>Row</b>	<b>Date/Time</b>	<b>Volume</b>	<b>Maximum</b>	<b>Average</b>	<b>Minimum</b>
1	9/8/2016 11:30	58533.6	343.313	325.187	47.904
2	9/8/2016 14:30	59041.25	335.329	328.007	299.401
3	9/8/2016 17:30	59086.83	335.329	328.26	299.401
4	9/8/2016 20:30	57749.17	335.329	320.829	287.425
5	9/8/2016 23:30	55967.85	323.353	310.933	297.69
6	9/9/2016 2:30	55696.65	313.772	309.426	305.389
7	9/9/2016 5:30	55450.27	311.377	308.057	303.393
8	9/9/2016 8:30	55668	321.357	309.267	287.425
9	9/9/2016 11:30	57531.12	327.345	319.617	263.473
10	9/9/2016 14:30	58404.61	335.329	324.47	299.401
11	9/9/2016 17:30	58282.26	335.329	323.79	299.401
12	9/9/2016 20:30	57377.82	327.345	318.766	293.413
13	9/9/2016 23:30	56776.45	320.958	315.425	299.401
14	9/10/2016 2:30	57253.99	322.605	318.078	311.377
15	9/10/2016 5:30	58035.76	335.329	322.421	311.377
16	9/10/2016 8:30	58106.45	347.305	322.814	299.401
17	9/10/2016 11:30	58966.47	347.305	327.591	293.413
18	9/10/2016 14:30	60090.22	347.305	333.835	293.413



*Figure 1. Data recorder installed on a meter.*



*Figure 2. Data recorder installed on a meter.*



## DESCRIPTION

The submersible, portable METER-MASTER MODEL 100EL Flow Recorder uses a magnetic sensor to digitize a meter's magnetic drive signal and then logs the pulse count into memory. No electrical or mechanical connection is required. It is compatible with large and small water meters worldwide and small enough to fit inside most residential meter boxes. A standard pulse input capability enables logging from meters which offer a pulse output capability.

The Model 100 Program software provides a variety of report and graph options. Data may easily be exported into the MeterSizer and Trace Wizard software accessories and into widely used software such as Excel® and Word®.

Meter-Master set-up in the field requires only a velcro strap to secure the sensor in position. Typically, the sensor is placed on the side of the water meter's register with the sensor cable going straight up or down. A small number of meters have different sensor locations. A rocker switch toggles the recording on/off. An LED signal light verifies accurate recording. The front of the Model 100EL has stainless steel receptacles for cable connections to the sensor, battery charger, and computer.



## FEATURES

- **Quick/Easy Setup**
- **Portable**
- **Rugged**
- **High Resolution**
- **Securable**
- **Submersible**
- **Accuracy Verification**
- **RF Communications**
- **Standard Pulse Input**
- **Dual Memory Options**
- **Universal Compatibility**

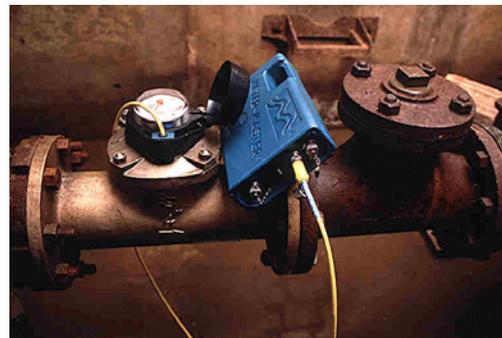
## APPLICATIONS

- **Customer Service**
- **Billing Disputes**
- **Meter Sizing**
- **Meter Maintenance**
- **Conservation**
- **Hydraulic Modeling**
- **Demand Monitoring**
- **Cost of Service Studies**
- **Water Audits**

*Specifications on second page ...*

# MODEL 100EL SPECIFICATIONS

- **Size:** 8.6" x 5.4" x 2.1" (225 mm x 139 mm x 54 mm).
- **Weight (including internal batteries; excluding cables):** 3.75 lbs. (1.7 kg).
- **Case With Integral Handle:** Submersible, ABS/polycarbonate blend. Handle may be used to chain unit for security.
- **Stainless Steel Threaded Connectors.**
- **Recording On/Off Via Rocker Switch.**
- **Test Of Sensor Location Initiated By Pressing Rocker Switch ON.** Because rocker switch automatically returns to middle position when turned on, a new sensor test may be initiated at any time.
- **Strap-On Magnetic Sensor:** fastens to outside of meter with velcro straps provided.
- **Computer, Minimum Requirements:** receptacle for RS232 cable (9 pin); Windows (3.1, 3.11, 95, 98, 2000, ME, XP or NT); Pentium processor; 16MB RAM; 100MB free hard disk space. (Program files use 12MB of hard disk space; swap space plus real memory should be at least 30MB.)
- **Variable Data Storage Interval.** 4 interval settings: 5, 10, 30, and 60 seconds.
- **Data Storage Capacity:** 130,000+ intervals. Provides the following recording periods: 5 second interval = 7.5 days ; 10 sec. = 15 days; 30 sec. = 45 days; 60 sec. = 90 days. Recording stops when memory is used up; unit will not overwrite. Double memory available as an option.
- **Dual Memory Option:** Low resolution memory partition available for continuous recording of 15, 30, or 60 minute volumes in ASCII format.
- **RF Communications Ready:** Individually addressable in a wireless bus environment.
- **Low Battery Power-Down:** automatically stops recording and powers down when battery is low to preserve recorded data and avoid battery damage. Power-down is indicated by a 6 second alternating long-short flash on the Meter-Master rocker switch LED when the switch is toggled ON from the OFF position.
- **Internal Power:** 2 rechargeable lead-acid, 2 volt, 5 ampour batteries. Internal battery life (approx.): 3+ months on each charge. Relief valve allows battery gases to escape when overcharging occurs.
- **AC Operation via Battery Charger.**
- **External Battery Operation through Battery Charger Receptacle:** an external battery may be used to increase the continuous operating time. (A 6 volt, 33 ampour battery is available as an accessory.)
- **Overnight (14 hours) Battery Charging.**
- **Capacity to Make 20 Records:** recording can be started/ stopped 20 times before downloading. Brief records (shorter than one data storage interval) are ignored.
- **Downloaded Data Accuracy Verification:** software compares the register volume (difference between beginning and ending meter readings) to the recorded Meter-Master volume (total pulse count multiplied by actual meter pulse factor in database as supplied to F. S. Brainard & Company by the meter manufacturers).
- **Recording Accuracy Verification in the Field:** flashing LED signal light integral to "on" side of rocker switch verifies accurate sensor location based on preset meter specifications. (Initialized settings for the meter affect only the sensor test; they are not used for the recording of data or generation of reports.)
- **Auto Shut-Off of LED:** sensor test ends after 30 flashes. Test can be reinitiated without affecting recording status by pressing the ON side of the switch again.
- **"Realtime Display" Option:** provision to view 3-D graphic display of current flow through meter (cumulative volume and rate updated each second).
- **AccuRate Software:** A unique software feature which removes false data oscillations caused by slow pulse rates during periods of steady flow.
- **Units of Measure Supported:** Gallons, Cubic Feet, Cubic Metres, Litres, and Imperial Gallons.
- **Two Year Warranty.**



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