

GENERAL CONDITIONS FOR STREAMING CURRENT MONITORING (SCM) SYSTEM JULY 2026

I. CONTRACT PERIOD

The period of this contract will be for **sixty (60) days** from the date the bid is awarded. This contract may be renewed for up to **three (3) years** from the initial award date upon the agreement of both parties. The bid price will remain firm during the period of the contract.

II. DELIVERY

All quoted prices shall include delivery charges. Deliveries shall be made to the following address:

**Shelby County Water Services
10927 Highway 280
Sterrett, AL 35147**

III. BILLING

Invoice payments shall be based solely on the item(s) received and the vendor's stated bid price. **The product shall be billed in item(s) received, and all prices shall include shipping.** Shelby County Water Services does require a Purchase Order for every order placed. Shelby County Water Services is tax-exempt.

All invoices shall be billed to:

**Shelby County Water Service
10927 Highway 280
Sterrett, AL 35147**

ap-water-landfill@shelbyal.com – preferred delivery method

IV. BID QUALIFICATIONS

All BIDDERS must submit product information with bids. Information to be submitted must show the product proposed meets all the specifications listed below and list **ALL EXCEPTIONS** to the specifications in a separate document.

BID SPECIFICATIONS FOR: STREAMING CURRENT MONITORING (SCM) SYSTEM

1.1 SECTION INCLUDES

- A. On-line Streaming Current Monitor. The Streaming Current Monitoring (SCM) System provides continuous, real-time measurement of electrokinetic charge in a treated water sample to support the control and optimization of coagulant dosing in water treatment processes. The Streaming Current Sensor generates a Streaming Current Value (SCV), which serves as an indicator of charge neutralization effectiveness for colloidal solids and soluble, natural organic matter (NOM). The SCV output can be used for monitoring coagulation performance and for optional automated control of coagulant feed.

1.2 PERFORMANCE REQUIREMENTS

- A. The analyzer shall measure the streaming current value (SCV) of a treated water sample have a measurement range of -1000 to +1000 SCV.
- B. The analyzer shall have the option of accepting up to 3 additional measurement parameters such as Flow, NTU, UV, Alkalinity and pH.
- C. The analyzer shall provide a Signal Health (0-100%) diagnostic readout that can alert the user to signal issues caused by worn linkage, sensor fouling, electrical interference, etc. This shall include a Streaming Current (SC) Signal Waveform View, viewable directly on the analyzer display for advanced troubleshooting. Signal Health value shall also be available as a 4-20 mA output.
- D. The analyzer shall include 2 analog outputs and 2 relays, and have option for Read & Write digital communication using Modbus RTU or Modbus TCP. The analyzer shall be capable of having up to 4 analog outputs and up to 8 relays.
- E. The analyzer shall provide a "quick zero" function that allows the operator to zero the reading from the main display with the press of a button.
- F. The analyzer shall provide security login as an option to help prevent unauthorized changes from being made to settings.
- G. The analyzer shall have color display with onscreen graphing and internal data logging that is stored on removable storage media. Data logs shall be user-customized for sensor readings and control parameters, with logging intervals including 1, 2, 5, 10, 15, 20, 30, and 60 minutes. Up to 1 million records of data and status log entries can be stored and downloaded as a .csv file to removable storage media (e.g., microSD card).
- H. The analyzer shall have an option for Compound Loop control (PID + Flow Pacing). Control logic shall include options for Flow Pacing (requires separate flow signal input), Set Point Ramping for smooth transitions during startup or setpoint changes, and "Start Mode" operation triggered by digital input for unattended transition to automatic control.
- I. The Sensor shall be capable of accepting a sample flow of 0.5 to 10 gpm. Sample inlet and outlet connections shall be 1" NPT to help accommodate higher sample flows and reduce likelihood of plugging.
- J. The impact of sample conductivity on the sensor's reading shall be less than 1% for a 100 μ S change in conductivity.
- K. The sensor shall have a quick replacement probe and piston which require no tools for removal. The probe shall be user serviceable and allow for replacement of the measurement surfaces that wear over time.
- L. The sensor and analyzer shall be rated Nema 4 / NEMA 4X / IP65 and capable of 1000 ft separation.
- M. Wetted Materials: Delrin, FKM, EPDM, PU, PTFE, Stainless Steel.

1.3 WARRANTY

- A. The product shall include a two-year warranty from the date of shipment.

2.1 SITE PLANNING AND INSTALLATION

- A. The sample point for the Streaming Current Monitoring System (SCM) must be located immediately following coagulant addition and rapid mixing to capture representative process conditions. Consult with the manufacturer to help identify an ideal location for the sample point to ensure adequate mixing of coagulant and minimize lag time from the coagulant injection point to the sensor.
- B. It is recommended to install the sensor as close to the sample point as possible to minimize lag time. The maximum recommended lag time is <60 seconds, with <30 seconds being ideal, as SCM response often degrades with increasing lag time.
- C. The analyzer can be mounted up to 1000 ft away from the sensor. However, to help facilitate routine maintenance, it is recommended to locate the analyzer near the sensor when possible.
- D. Securely mount the analyzer and sensor units in a vertical orientation, level and plumb, at the locations indicated in drawings. Ensure required utilities (power, sample lines, atmospheric drain) are available and correctly located.
- E. Provide a minimum clearance of 6 inches (152 mm) beneath the sensor probe block to allow for removal of the probe and piston assembly. Where feasible, provide a minimum clearance of 9 inches (229 mm) above the analyzer to permit the front cover to be raised.
- F. The sensor outlet should drain to an atmospheric drain with minimal backpressure where possible. If a pressurized installation is unavoidable, maintain the pressure as low as possible and ensure it does not exceed the manufacturer's maximum limit (20 psi).
- G. Install the interconnect cable between the analyzer and the sensor using the manufacturer-supplied or recommended cable. Route and secure the cable to protect it from physical damage and avoid proximity to high-voltage sources to minimize electrical interference.
- H. For outdoor installations and where freezing temperatures are expected, mount the sensor (and analyzer if installed at the same outdoor location) inside a weatherproof, insulated enclosure equipped with a thermostatically controlled heater. Sample lines should be protected with self-regulating heat trace cable and insulated with weather-resistant foam