

**TOWN OF LISBON WATER DEPARTMENT
CONTRACT #1 WATER SYSTEM IMPROVEMENTS
USDA WEP, ARPA #1361010, DWSRF#1361010, DWGT-82
COMMUNITY DEVELOPMENT BLOCK GRANT
LISBON, NEW HAMPSHIRE**

ADDENDUM #2

DATE: JULY 6, 2026
TO: ALL PLAN HOLDERS

This ADDENDUM #2 shall become part of the Bidding Documents, Contract Documents and Technical Specifications (Documents) for the above referenced project. BIDDERS, please acknowledge receipt of this ADDENDUM #2 on the BID FORM (Page 1). This ADDENDUM #2 consists of 8 pages in total.

1. Bid Plans

- a. The Radio Communication systems called out to be provided for CP-1 and CP-2, please provide the Existing Radio Communication and specs on which radio modem is required.

Shall be provided after bid.

- b. Please confirm the line size for the Magnetic Flow Meters for FT-10 & 20 and if the Flow Meter for FT-50 is an Ultrasonic Flow Meter?

FT-10 and FT-20 are 4" Badger M2000. FT-50 is a Badger Modmag M2000.

- c. I do not see a Pressure Transmitter Shown on the Drawings. 2.02 in Section 33 09 01 under E. & F shows some specs for a Pressure Transmitter and Gauge. 2.02 Heading says Flow/level/Pressure Instruments (where outlined or required). There is no Tag Number for either the Pressure Transmitter or Pressure Gauge. If they are required, please provide the plan(s) they are shown and the Tag Number associated with them.

There is a discharge pressure gauge located in the well control building just before it leaves the building.

- a. Looking for the Pump Power specs and supply power specs for each control panel.

Pump power and supply specifications shall be able to handle Two (2) Grundfos 192500C5 475S400-5B 40 HP 60 Hz or equivalent (shown on sheet C3.2).

- b. The sizes of some doors are listed, but there is no door schedule with necessary details. Please provide a door schedule with details for doors and frames.

No door schedule is provided. Openings are given on the bid plans.

2. Bid Specifications

- a. Under the TOC there is a section noted as 33 90 30 Chlorine PH Measure and Control instrumentation, but no corresponding section is provided within the full specifications. Is this section required or is there a typo in the TOC? Please provide the corresponding specification if this section is required

See attached 33 90 30.

- b. For Section 33 14 00, each page is labeled as being in Section 33 12 23. Are these different specification sections or is this a typo?

Reference it as 33 14 00. 33 12 23 is a typo.

- c. Please provide a wage rate for a millwright.

Mechanic

Attached:
Specification 33 90 30

End of Addendum #2

SECTION 33 09 30
CHLORINE AND PH MEASUREMENT CONTROL INSTRUMENTATION
PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Amperometric chlorine analyzer for continuous measurement of free or total chlorine in aqueous solutions.

1.2 MEASUREMENT PROCEDURES

- A. The method of measuring free or total chlorine will be with a three-electrode amperometric sensor immersed into an electrolytic medium with a membrane, selective to chlorine, separating it from the sample.

1.3 ALTERNATES

- A. Other methods of chlorine measurement, such as two-electrode amperometric, open cell amperometric, or measurements with external pH compensation are not acceptable.

1.4 SYSTEM DESCRIPTION

A. Performance Requirements

1. Measurement range: 0 to 20 ppm chlorine for either free or total chlorine
2. Total Chlorine
 - a. Low Limit Of Detection (LOD): 30 ppb (0.03 ppm) or better
 - b. Limit Of Quantitation (LOQ): 90 ppb (0.09 ppm) or better
 - c. Repeatability/precision: 30 ppb or 3%, whichever is greater
 - d. Response time: ~100 s for 90% change (T_{90}) (At a stable T and pH)
 - e. Interference: Chlorine Dioxide, Ozone, and chalk deposits
3. Free Chlorine
 - a. Low Limit Of Detection (LOD): 30 ppb (0.03 ppm) or better
 - b. Limit Of Quantitation (LOQ): 90 ppb (0.09 ppm) or better
 - c. Repeatability/precision: 30 ppb or 3%, whichever is greater
 - d. Response time: ~140 s for 90% change (T_{90}) (At a stable T and pH)
 - e. Interference: Monochloramine, Chlorine Dioxide, Ozone, and chalk deposits
4. Drift: <10% with regular calibration (calibration will be weekly to quarterly depending on the application, given stable sample temperature and pH of water sample)
5. Specificity/Selectivity: Non-specific to a certain chlorine form, responds to any chlorine species and other oxidizers as noted in the interference section
6. Calibration method: Customer has the option to use one (zero or slope) or two point (zero and slope) calibration. Two point calibration with chemical zero is recommended

for chlorine concentration <0.5 ppm

7. Verification procedure: One-point process calibration (slope) against a standard reference method.

1.5 CERTIFICATIONS (WHEN CONNECTED TO A HACH SC CONTROLLER):

- A. EMC: CE compliant for conducted and radiated emissions CISPR 11 (Class A limits), EMC Immunity EN 61326-1 (Industrial limits)
- B. Safety: General Purpose UL/CSA 61010-1 with cETLus safety mark
- C. Australian C-TICK and Korean KC Markings
- D. NEMA 4X/IP65 Water and Dust Ingress Ratings

1.6 ENVIRONMENTAL REQUIREMENTS

A. Operational Criteria

1. Operating temperature: 5 to 45 °C (41 to 113 °F)
2. Relative humidity: 0-95%, non condensing

B. Sample Requirements

1. Maximum back pressure the chlorine sensor can manage without failure:
 - a. 0.5 bar, no pressure impulses and/or vibrations
2. Temperature: 0 to 45 °C (33 to 113 °F)
3. Temperature compensation range: 5 to 45 °C (41 to 113 °F)
4. Flow: 30-50 L/hr, 40 L/hr - optimal (7.9-13.2 g/hr, 10.6 g/hr - optimal)

C. Storage Requirements

1. Electrolyte: 15 to 25°C (59 to 77°F)
2. Chlorine sensors: 0 to 50°C (32 to 122°F) dry without electrolyte
3. Panel: -20 to 60°C (-4 to 149°F)

1.7 WARRANTY

- A. The product includes a one-year warranty from the date of shipment.

1.8 MAINTENANCE SERVICE**A. Scheduled maintenance:**

1. Calibration by comparison with lab method: every 1 month or as necessary
2. Replace membrane: every 6 months or as necessary
3. Replace electrolyte: every 3 to 6 months or as necessary

B. Unscheduled maintenance

1. Cleaning as needed based on environmental conditions.
2. Working electrode tip polishing when required

PART 2 PRODUCTS**2.1 MANUFACTURER****A. Hach Company or other reputable manufacturer**

1. Model CLF10sc Reagentless Free Chlorine Analyzer, or equivalent
2. Model CLT10sc Reagentless Total Chlorine Analyzer, or equivalent

2.2 MANUFACTURED UNIT**A. The CLF10 sc or CLT10sc analyzer consists of:**

1. Three-Electrode Amperometric Chlorine sensor
2. Chlorine sensor flow cell with integrated flow sensor
3. pH flow cell with grab sample port
4. Digital gateway for communication between probes and controller
5. Stainless steel panel

2.3 EQUIPMENT**A. The CLF10 sc and CLT10 sc work with Hach sc model controllers only. (Specific controller specifications can be found in the associated sensor CSI specifications)****B. The amperometric cell of the sensor consists of:**

1. Gold cathode
2. Stainless steel counter electrode
3. Silver/silver chloride reference electrode
4. pH buffered electrolyte
5. Sensor membrane to filter chlorine species selectively and to provide interface between the electrochemical cell and the sample

- C. Wetted materials as follows:
 - 1. Chlorine Measuring Cell: PVC
 - 2. Chlorine Sensor Body: PVC
 - 3. Chlorine Sensor Flow Cell: Acrylic
 - 4. Optional pH Sensor Flow Cell: PVC
- D. The sensor interface to the controller is through a digital gateway.
- E. The chlorine sensor automatically compensates for temperature utilizing an embedded temperature sensor.
- F. The electrolyte provides internal, buffered pH compensation in the range of 4-9 pH units.
- G. The sensor includes proprietary Cal Watch self-diagnostic technology.
- H. The panel assembly includes a flow cell that integrates a flow meter and control valve.

2.4 **COMPONENTS**

- A. Standard equipment:
 - 1. Stainless Steel Mounting Panel
 - 2. Chlorine Sensor with Membrane and Electrolyte
 - 3. Chlorine Sensor flow cell
 - 4. Flow meter with control valve
 - 5. Digital gateway to sc controller with cable
 - 6. User Manual
- B. Dimensions
 - 1. Sensor
 - a. Length: 7.68 in. (195 mm)
 - b. Diameter: 0.98 in. (25 mm)
 - 2. Panel
 - a. Length: 19.0 in. (482.6 mm)
 - b. Width: 19.5 in. (495.3 mm)
 - c. Depth: 5.95 in. (151.2 mm)
 - 3. Gateway to Controller cable: 3 ft. (1 m)
- C. Weight
 - 1. Panel and empty panel-mounted components: approximately 12 lbs. (5.5 kg)
 - 2. Complete panel with pH sensor: approximately 20 lbs. (9.1 kg)

2.5 **ACCESSORIES**

- A. Required
 - 1. sc Controller
 - 2. pH sensor
 - 3. Acidification unit
 - 4. Sample conditioning kit

PART 3 EXECUTION**3.1 PREPARATION**

- A. Clearances
 - 1. The pre-assembled analyzer panel must be mounted to allow clearance for sensor removal and routine maintenance.
- B. Mounting
 - 1. Wall or panel mounted
- C. Sample Inlet (order with English or Metric Fittings)
 - 1. English Fittings
 - a. Speed-fit fitting – ¼ in OD Tube
 - 2. Metric Fittings
 - a. Speed-fit fitting – 6 mm OD Tube
- D. Sample Outlet (order with English or Metric Fittings)
 - 1. English Fittings
 - a. Speed-fit fitting – ½ in OD
 - 2. Metric Fittings
 - a. Speed-fit fitting – 12 mm OD

3.2 INSTALLATION

- A. Contractor will install the analyzer in strict accordance with the manufacturer's instructions and recommendation.
- B. Manufacturer's representative will include a half-day of start-up service by a factory-trained technician, if requested.
 - 1. Contractor will schedule a date and time for start-up.
 - 2. Contractor will require the following people to be present during the start-up procedure.
 - a. General contractor

- b. Electrical contractor
- c. Factory trained representative
- d. Owner's personnel
- e. Engineer

3.3 MANUFACTURER'S SERVICE AND START-UP

- A. Contractor will include the manufacturer's services to perform start-up on instrument to include basic operational training and certification of performance of the instrument.
- B. Contractor will include a manufacturer's Service Agreement that covers all the manufacturer's recommended preventative maintenance, regularly scheduled calibration and any necessary repairs beginning from the time of equipment startup through to end user acceptance / plant turnover and the first 12 months of end-user operation post turnover.
- C. Items A and B are to be performed by manufacturer's factory-trained service personnel. Field service and factory repair by personnel not employed by the manufacturer is not allowed.
- D. Use of manufacturer's service parts and reagents is required. Third-party parts and reagents are not approved for use.

END OF SECTION