









# pH Meter Calibration (GeoTech & Orion) Standard Operating Procedure

WASTE  
REDUCTION  
& DISPOSAL  
DIVISION

## Groundwater Monitoring





### ***ConCal Two-Point Manual Calibration:***

*\*NOTE – During manual calibration, use temperature corrected pH buffer values.*

1. Press the 'CAL' key until the ConCal display indicator is lit. 'ASY' will appear on the display.
2. Set the temperature of the buffers using the  or  key.
3. Triple rinse electrode with distilled water.
4. Immerse the electrode into a neutral buffer (pH of solution between 7.0 +/- 0.5).
  - First buffer should be pH 7;
  - Second buffer should be pH 4.
5. Press the 'RUN/ENTER' key, then use the  or  key to set the temperature corrected pH value of the buffer solution.
6. Press the 'RUN/ENTER' key and the  $E_0$  value will be displayed in mV.
7. Press the 'RUN/ENTER' key again, 'SLO' should appear on display. Rinse the electrode and immerse into the second buffer.
8. Press the 'RUN/ENTER' key, then use the  or  key to set the temperature corrected pH value of the buffer solution.
9. Press the 'RUN/ENTER' key – the slope will be displayed in mV/pH.
10. Press the 'RUN/ENTER' key again – the  $E_0$  value will be displayed in mV.
11. Rinse electrode and immerse into sample solution, press the 'RUN/ENTER' key to start pH measurement.

### ***ConCal one-Point Manual Calibration:***

*\*NOTE – One-point manual calibration uses the last stored slope in memory. Perform a two-point calibration to store the correct slope before one-point calibration.*

1. Press the 'CAL' key until the ConCal display indicator is lit. 'ASY' will appear on the display.
2. Set the temperature of the buffer using the  or  key.
3. Immerse the electrode into the buffer (use pH 7 buffer for one point calibration).
4. Press the 'RUN/ENTER' key, then use the  or  key to set the temperature corrected pH value of the buffer solution.
5. Press the 'RUN/ENTER' key and the  $E_0$  value will be displayed in mV.
6. Rinse electrode and immerse into the sample solution – press the pH/mV key to start pH measurement.

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### **Benefit of Compliance to Instruction:**

- Provides quality assurance and quality control of field data
- Accurate field data is necessary in order to meet sampling protocol requirements

### **Consequence of Non-Compliance to Instruction:**

- Lack of calibration leads to inaccurate pH measurements
  - Inaccurate data can mask significant pH changes, as well as water quality changes.
  - Violation of sampling protocols invalidates data
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Environmental Management System (EMS) –ISO 14001

PROCESS MAP #: N/A

**Reviewed by:** Ray Purtee, *Senior Mechanical Engineer*  
John Mauk, *Associate Civil Engineer*

**Approved by:** Kip Sturdevan, Deputy Environmental Services Director, WRAD

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