

CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

boldly "X" this box if the data are qualified data on this page.

Meter ID: 154129

RO: 2020-01-13-17

Project: SMP/Cent. Mont.

- Notes: (1) Always wait for meter to stabilize before recording any readings.
 (2) Report all digits displayed. Do not round before reporting measurements. (See special instructions for depth).
 (3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Temperature (Quarterly) FT 1400

Date of Last Temperature Verification 10/17/19

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp °C	Baro-meter mmHg	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.											P / F	L / F
ICV											P / F	L / F
CCV	<u>MC</u>	<u>1/14/20</u>	<u>8:25</u>	<u>21.3</u>	<u>771</u>	<u>9.0</u>	<u>9.05</u>	<u>100.5</u>			<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
CCV	<u>H. Schmidt</u>	<u>1/14/20</u>	<u>13:03</u>	<u>21.2</u>	<u>770.0</u>	<u>9.02</u>	<u>9.02</u>	<u>100.2</u>			<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>

DO Acceptance criteria from Table ± 0.3 mg/L.

Rapid-Pulse Sensors: DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.

Optical: DO gain range 0.85 to 1.15 (Pro-DSS 0.75 to 1.50); DO charge N/A. Steady-state & Galvanic Sensors: DO Gain & Charge N/A.

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard μ hos/cm	Meter Reading μ hos/cm	Pass / Fail	Lab / Field
Calibr.	<u>MC</u>	<u>1/14/20</u>	<u>8:27</u>	<u>190116A</u>	<u>1/20</u>	<u>1,000</u>	<u>1,000</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
ICV	<u>I</u>	<u>I</u>	<u>8:37</u>	<u>180517A</u>	<u>1/20</u>	<u>100</u>	<u>99.4</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
CCV	<u>H. Schmidt</u>	<u>1/14/20</u>	<u>13:08</u>	<u>180517A</u>	<u>1/20</u>	<u>100</u>	<u>95.3</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
CCV								P / F	L / F

Conductivity Acceptance criteria $\pm 5\%$

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Temp °C	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	<u>MC</u>	<u>1/14/20</u>	<u>8:29</u>	<u>2904082</u>	<u>3/21</u>	<u>7.</u>	<u>21.5</u>	<u>7.02</u>	<u>-93.6</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
Calibr.	<u>I</u>	<u>I</u>	<u>8:31</u>	<u>4902525</u>	<u>2/21</u>	<u>4.</u>	<u>21.2</u>	<u>4.00</u>	<u>-67.8</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
Calibr.	<u>I</u>	<u>I</u>	<u>8:33</u>	<u>4904E09</u>	<u>9/20</u>	<u>10.</u>	<u>21.1</u>	<u>10.05</u>	<u>-234.8</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
ICV	<u>I</u>	<u>I</u>	<u>8:35</u>	<u>4904E09</u>	<u>9/20</u>	<u>10.0</u>	<u>21.1</u>	<u>10.09</u>	<u>-236.8</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
CCV	<u>H. Schmidt</u>	<u>1/14/20</u>	<u>13:58</u>	<u>2904082</u>	<u>3/21</u>	<u>7.0</u>	<u>21.6</u>	<u>7.32</u>	<u>-88.8</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>
CCV										P / F	L / F

pH Acceptance criteria ± 0.2 SU; mV pH 7 Range 0 ± 50 ;

mV pH 4 Range $+180 \pm 50$;

mV pH 10 Range -180 ± 50 ;

If mV are recorded: slope from 7 to 10 145.2, slope from 4 to 7 161.4 (both must be between 165 and 180 mV)

Does meter have a depth sensor that will be used to measure total depth & sample depth? YES / NO / NA (not surf. water project)

If YES, complete daily Calibr. & ICV below and list date of last quarterly depth verification: 10/17/19

If NO, what will be used? (circle one) Secchi Disk Line / Sonar Unique ID: _____; Date of last verification: 10/17/19

Depth Sensor (Daily Calibration & ICV)	Name	Date	Time CT-ET	Calibrated Value (0.00 or Offset), meters	ICV Value, meters	Pass / Fail	Lab / Field
Pressure mode in air	<u>0.00</u>	<u>1/14/19</u>	<u>8:37</u>	<u>0.00</u>	<u>0.00</u>	<u>P</u> / <u>F</u>	<u>L</u> / <u>F</u>

Report two decimal places. Round numbers ≤ 4 down, ≥ 5 up. ICV acceptance criteria $\pm 5\%$ or ± 0.05 m, whichever is greater.

COMMENTS: Calibration malfunctioned during pH 10.0 buffer. Rather than re-calibrating all buffers again, simply calibrated point 10.0 calibration & verified. Most likely cause for failed verification.