

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

Boldly "X" this box if there are qualified data on this page.

Meter ID: SCUD Bucket

RQ- 2019-09-09-40

Project: SMP

- 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

8/23/19

| DO<br>DEP SOP<br>FT 1500 | Name         | Date    | Time<br>CT-ET | Temp<br>°C | Baro-<br>meter<br>mmHg | D.O.<br>Chart<br>mg/L | Meter<br>D.O.<br>mg/L | % DO | Probe<br>Charge | Probe<br>Gain | Pass<br>/<br>Fail | Lab<br>/<br>Field |
|--------------------------|--------------|---------|---------------|------------|------------------------|-----------------------|-----------------------|------|-----------------|---------------|-------------------|-------------------|
| Calibr.                  | Mike Drennan | 10/3/19 | 710           | 23.4       | 758.5                  | 8.5                   | 8.49                  | 99.9 | —               | 1.022         | P/F               | L/F               |
| ICV                      |              |         |               | 23.4       | 758.6                  | 8.5                   | 8.49                  | 99.8 | —               | —             | P/F               | L/F               |
| CCV                      |              |         | 1445          | 23.8       | 758.0                  | 8.4                   | 8.45                  | 99.9 | —               | —             | P/F               | L/F               |
| CCV                      |              |         |               |            |                        |                       |                       |      |                 |               | P/F               | L/F               |

DO Acceptance criteria from Table  $\pm 0.3$  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.<br>Cond.<br>FT 1200 | Name         | Date    | Time<br>CT-ET | Lot #   | Expir.<br>Date | Standard<br>$\mu$ mhos/cm | Meter<br>Reading<br>$\mu$ mhos/cm | Pass<br>/<br>Fail | Lab<br>/<br>Field |
|---------------------------|--------------|---------|---------------|---------|----------------|---------------------------|-----------------------------------|-------------------|-------------------|
| Calibr.                   | Mike Drennan | 10/3/19 | 710           | 18/219A | 12/19          | 1000                      | 1000                              | P/F               | L/F               |
| ICV                       |              |         |               | 190403  | 4/20           | 100                       | 104.6                             | P/F               | L/F               |
| CCV                       |              |         | 1445          | 190403  | 4/20           | 100                       | 103.9                             | P/F               | L/F               |
| CCV                       |              |         |               |         |                |                           |                                   | P/F               | L/F               |

Conductivity Acceptance criteria  $\pm 5\%$

| pH<br>DEP SOP<br>FT 1100 | Name         | Date    | Time<br>CT-ET | Lot #  | Expir.<br>Date | pH<br>Buffer<br>SU | Temp<br>°C | Meter<br>reading<br>SU | mV     | Pass<br>/<br>Fail | Lab<br>/<br>Field |
|--------------------------|--------------|---------|---------------|--------|----------------|--------------------|------------|------------------------|--------|-------------------|-------------------|
| Calibr.                  | Mike Drennan | 10/3/19 | 710           | 188510 | 1/21           | 7.00               | 23.0       | 7.00                   | -36.0  | P/F               | L/F               |
| Calibr.                  |              |         |               | 187827 | 11/20          | 4.00               | 23.4       | 4.00                   | 136.0  | P/F               | L/F               |
| Calibr.                  |              |         |               | 190071 | 1/21           | 10.01              | 23.3       | 10.01                  | -213.5 | P/F               | L/F               |
| ICV                      |              |         |               | 190071 | 1/21           | 10.01              | 23.4       | 10.03                  | -213.8 | P/F               | L/F               |
| CCV                      |              |         | 1445          | 190071 | 1/21           | 10.01              | 23.2       | 10.16                  | -221.5 | P/F               | L/F               |
| CCV                      |              |         |               |        |                |                    |            |                        |        | P/F               | L/F               |

pH Acceptance criteria  $\pm 0.2$  SU; mV pH 7 Range  $0 \pm 50$ ; mV pH 4 Range  $+180 \pm 50$ ; mV pH 10 Range  $-180 \pm 50$ ;

If mV are recorded: slope from 7 to 10 180.5, slope from 4 to 7 172.0 (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: 7/5/19

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

| Depth Sensor<br>(Daily Calibration &<br>ICV) | Name         | Date    | Time<br>CT-ET | Calibrated<br>Value (0.00 or<br>Offset), meters | ICV Value,<br>meters | Pass /<br>Fail | Lab /<br>Field |
|----------------------------------------------|--------------|---------|---------------|-------------------------------------------------|----------------------|----------------|----------------|
| Pressure mode in air                         | Mike Drennan | 10/3/19 | 710           | 0.272                                           | 0.272                | P/F            | L/F            |

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

COMMENTS:

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

Boldly "X" this box if there are qualified data on this page.

Meter ID: CRAW/PADDY

RQ: 2019-10-07-82

Project: SMP

- 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 7/5/19

| DO<br>DEP SOP<br>FT 1500 | Name       | Date    | Time<br>CT-ET | Temp<br>°C | Baro-<br>meter<br>mmHg | D.O.<br>Chart<br>mg/L | Meter<br>D.O.<br>mg/L | % DO  | Probe<br>Charge | Probe<br>Gain | Pass<br>/ Fail | Lab<br>/ Field |
|--------------------------|------------|---------|---------------|------------|------------------------|-----------------------|-----------------------|-------|-----------------|---------------|----------------|----------------|
| Calibr.                  | T. Riordan | 10/3/19 | 0740          | 22.7       | 758.0                  | 8.6                   | 8.62                  | 99.7  | —               | 1.0306        | Ⓟ/F            | L/F            |
| ICV                      | 1          | 1       | 1             | 22.6       | 759.0                  | 8.6                   | 8.63                  | 99.9  | —               | —             | Ⓟ/F            | L/F            |
| CCV                      | Luif Boman | 1       | 15:15         | 22.5       | 752.3                  | 8.4                   | 8.52                  | 100.2 | —               | —             | Ⓟ/F            | L/F            |
| CCV                      |            |         |               |            |                        |                       |                       |       |                 |               | P/F            | L/F            |

DO Acceptance criteria from Table  $\pm 0.3$  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.<br>Cond.<br>FT 1200 | Name       | Date    | Time<br>CT-ET | Lot #   | Expir.<br>Date | Standard<br>$\mu$ hos/cm | Meter<br>Reading<br>$\mu$ hos/cm | Pass<br>/ Fail | Lab<br>/ Field |
|---------------------------|------------|---------|---------------|---------|----------------|--------------------------|----------------------------------|----------------|----------------|
| Calibr.                   | T. Riordan | 10/3/19 | 0740          | 181219A | 12/19          | 1000                     | 1000                             | Ⓟ/F            | L/F            |
| ICV                       | 1          | 1       | 1             | 190403  | 4/20           | 100                      | 103.1                            | Ⓟ/F            | L/F            |
| CCV                       | Luif Boman | 1       | 15:15         | 190403  | 4/20           | 100                      | 103.8                            | Ⓟ/F            | L/F            |
| CCV                       |            |         |               |         |                |                          |                                  | P/F            | L/F            |

Conductivity Acceptance criteria  $\pm 5\%$

| pH<br>DEP SOP<br>FT 1100 | Name       | Date    | Time<br>CT-ET | Lot #  | Expir.<br>Date | pH<br>Buffer<br>SU | Temp<br>°C | Meter<br>reading<br>SU | mV     | Pass<br>/ Fail | Lab<br>/ Field |
|--------------------------|------------|---------|---------------|--------|----------------|--------------------|------------|------------------------|--------|----------------|----------------|
| Calibr.                  | T. Riordan | 10/3/19 | 0740          | 188510 | 1/21           | 7.01               | 23.3       | 7.01                   | -22.1  | Ⓟ/F            | L/F            |
| Calibr.                  | 1          | 1       | 1             | 187827 | 11/20          | 4.00               | 23.4       | 4.00                   | 157.0  | Ⓟ/F            | L/F            |
| Calibr.                  | 1          | 1       | 1             | 190071 | 1/21           | 10.01              | 23.5       | 10.01                  | -199.3 | Ⓟ/F            | L/F            |
| ICV                      | 1          | 1       | 1             | 187827 | 11/20          | 4.00               | 23.5       | 4.00                   | 156.8  | Ⓟ/F            | L/F            |
| CCV                      | Luif Boman | 1       | 15:15         | 190071 | 1/21           | 10.02              | 23.1       | 9.97                   | -197.0 | Ⓟ/F            | L/F            |
| CCV                      |            |         |               |        |                |                    |            |                        |        | P/F            | L/F            |

pH Acceptance criteria  $\pm 0.2$  SU; mV pH 7 Range  $0 \pm 50$ ; mV pH 4 Range  $+180 \pm 50$ ; mV pH 10 Range  $-180 \pm 50$ ;

If mV are recorded: slope from 7 to 10 177.2, slope from 4 to 7 179.1 (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: 7/5/19

If NO, what will be used? (circle one) Secchi Disk Line / Sonar Unique ID: Knothead; Date of last verification: 9/20/19

| Depth Sensor<br>(Daily Calibration &<br>ICV) | Name       | Date    | Time<br>CT-ET | Calibrated<br>Value (0.00 or<br>Offset), meters | ICV Value,<br>meters | Pass /<br>Fail | Lab /<br>Field |
|----------------------------------------------|------------|---------|---------------|-------------------------------------------------|----------------------|----------------|----------------|
| Pressure mode in air                         | T. Riordan | 10/3/19 | 0740          | 0.272                                           | 0.272                | Ⓟ/F            | Ⓟ/F            |

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

COMMENTS: