

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

Meter ID:

2nd Sec'd Bucket  
Shrimp Trap

RQ:

2019-10-14-43

Project:

SMP

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

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>/ Fail | Lab<br>/ Field |
|--------------------------|--------------|---------|---------------|------------|------------------------|-----------------------|-----------------------|-------|-----------------|---------------|----------------|----------------|
| Calibr.                  | Mike Drennen | 10/9/19 | 715           | 22.8       | 757.2                  | 8.6                   | 8.59                  | 99.6  | —               | 1.035         | P/F            | L/F            |
| ICV                      |              |         |               | 22.8       | 757.1                  | 8.6                   | 8.59                  | 99.8  | —               | —             | P/F            | L/F            |
| CCV                      |              |         | 1445          | 22.3       | 758.3                  | 8.7                   | 8.74                  | 100.5 | —               | —             | 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>/ Fail | Lab<br>/ Field |
|---------------------------|--------------|---------|---------------|---------|----------------|---------------------------|-----------------------------------|----------------|----------------|
| Calibr.                   | Mike Drennen | 10/9/19 | 715           | 1812194 | 12/19          | 1000                      | 1000                              | P/F            | L/F            |
| ICV                       |              |         | 1             | 190403  | 4/20           | 100                       | 104.3                             | P/F            | L/F            |
| CCV                       |              |         | 1445          | 190403  | 4/20           | 100                       | 104.1                             | 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>/ Fail | Lab<br>/ Field |
|--------------------------|--------------|---------|---------------|--------|----------------|--------------------|------------|------------------------|--------|----------------|----------------|
| Calibr.                  | Mike Drennen | 10/9/19 | 715           | 188510 | 1/21           | 7.00               | 23.2       | 7.00                   | -41.1  | P/F            | L/F            |
| Calibr.                  |              |         |               | 187827 | 11/20          | 4.00               | 23.2       | 4.00                   | 128.3  | P/F            | L/F            |
| Calibr.                  |              |         |               | 190071 | 1/21           | 10.01              | 23.3       | 10.01                  | -218.1 | P/F            | L/F            |
| ICV                      |              |         |               | 190071 | 1/21           | 10.01              | 23.3       | 10.03                  | -217.9 | P/F            | L/F            |
| CCV                      |              |         |               |        |                | 10.00              | LMD        |                        |        | P/F            | L/F            |
| CCV                      |              |         | 1445          | 190071 | 1/21           | 10.01              | 22.9       | 10.12                  | -223.2 | 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 10 177.0, slope from 4 to 7 169.4 (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:

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 Drennen | 10/9/19 | 715           | 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: Shrimp / Trap

RQ: 2019-10-07-67

Project: BMAP

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 9/6/19

| 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.            | T. Riordan | 10/9/19 | 0825       | 22.3    | 758.4           | 8.7             | 8.68            | 99.8  | —            | 1.0296     | P/F         | L/F         |
| ICV                | 1          | 1       | 1          | 22.4    | 758.5           | 8.7             | 8.66            | 99.8  | —            | —          | P/F         | L/F         |
| CCV                | T. Riordan | 1       | 1225       | 22.7    | 759.4           | 8.6             | 8.62            | 100.0 | —            | —          | 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. Cond. FT 1200 | Name       | Date    | Time CT-ET | Lot #   | Expir. Date | Standard $\mu$ mhos/cm | Meter Reading $\mu$ mhos/cm | Pass / Fail | Lab / Field |
|---------------------|------------|---------|------------|---------|-------------|------------------------|-----------------------------|-------------|-------------|
| Calibr.             | T. Riordan | 10/9/19 | 0825       | 181219A | 12/19       | 1000                   | 1000                        | P/F         | L/F         |
| ICV                 | 1          | 1       | 1          | 190403  | 4/20        | 100                    | 102.9                       | P/F         | L/F         |
| CCV                 | T. Riordan | 1       | 1225       | 181219B | 12/19       | 50,000                 | 51,016                      | P/F         | L/F         |
| 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.            | T. Riordan | 10/9/19 | 0825       | 188510 | 1/21        | 7.01         | 23.1    | 7.01             | -12.8  | P/F         | L/F         |
| Calibr.            | 1          | 1       | 1          | 187827 | 11/20       | 4.00         | 23.0    | 4.00             | 162.0  | P/F         | L/F         |
| Calibr.            | 1          | 1       | 1          | 190071 | 1/21        | 10.02        | 23.1    | 10.02            | -192.8 | P/F         | L/F         |
| ICV                | 1          | 1       | 1          | 187827 | 11/20       | 4.00         | 23.2    | 4.01             | 162.7  | P/F         | L/F         |
| CCV                | T. Riordan | 1       | 1225       | 190071 | 1/21        | 10.0         | 23.1    | 10.10            | -194.6 | 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 10 178.0, slope from 4 to 7 174.8 (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: light; Date of last verification: 5/31/19

| 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                   | T. Riordan | 10/9/19 | 0825       | 0.222                                     | 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: ULAN 2420Y

RQ- 2019-04-15-35

Project: 5MP

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>/<br>Fail | Lab<br>/<br>Field |
|--------------------------|------------|----------|---------------|------------|------------------------|-----------------------|-----------------------|-------|-----------------|---------------|-------------------|-------------------|
| Calibr.                  | Leif Boman | 10/09/19 | 8:25          | 22.8       | 760.2                  | 8.6                   | 8.60                  | 100.1 | /               | 1.0475        | P/F               | D/F               |
| ICV                      |            |          |               | 22.9       | 760.3                  | 8.6                   | 8.61                  | 100.2 | /               | /             | P/F               | D/F               |
| CCV                      |            |          | 15:20         | 22.1       | 760.0                  | 8.7                   | 8.80                  | 100.8 | /               | /             | P/F               | D/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>$\mu$ mos/cm | Meter<br>Reading<br>$\mu$ mos/cm | Pass<br>/<br>Fail | Lab<br>/<br>Field |
|---------------------------|------------|----------|---------------|---------|----------------|--------------------------|----------------------------------|-------------------|-------------------|
| Calibr.                   | Leif Boman | 10/09/19 | 8:25          | 1812194 | 12/19          | 1000                     | 1000                             | P/F               | D/F               |
| ICV                       |            |          |               | 190403  | 04/20          | 100                      | 103.2                            | P/F               | L/F               |
| CCV                       |            |          | 15:20         | 190403  | 04/20          | 100                      | 103.6                            | 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.                  | Leif Boman | 10/09/19 | 8:25          | 188510 | 01/21          | 7.01               | 23.2       | 7.01                   | -260   | P/F               | D/F               |
| Calibr.                  |            |          |               | 187827 | 11/20          | 4.00               | 23.1       | 4.00                   | 154.7  | P/F               | D/F               |
| Calibr.                  |            |          |               | 190071 | 01/21          | 10.02              | 23.2       | 10.02                  | -202.4 | P/F               | D/F               |
| ICV                      |            |          |               | 187827 | 11/20          | 4.00               | 23.1       | 3.99                   | 154.9  | P/F               | L/F               |
| CCV                      |            |          | 15:20         | 190071 | 01/21          | 10.02              | 23.0       | 10.03                  | -203.3 | P/F               | D/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 10 174.4, slope from 4 to 7 180.7 (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                         | Leif Boman | 10/09/19 | 8:25          | 0.272                                           | 0.272                | P/F            | D/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: