



Maine Volunteer River Monitoring Program (VRMP)

Appendix I

Maintenance, Testing and Inspection Procedures (VRMP QAPP-Table 5a)

Program-Wide SAP Appendix

From:

Maine DEP (Maine Department of Environmental Protection). 2009. Maine Volunteer River Monitoring Program [VRMP] - Quality Assurance Program Plan. Doc #: DEPLW-0984. Portland, ME. <http://www.maine.gov/dep/blwq/docstream/vrmp/publication.htm>

Appendix I. General maintenance, testing, and inspection procedures for field meters, test kits, and other equipment that should be considered in volunteer group SAPs and VRMP SOPs. Individual groups should explain any deviations from these procedures in their own SAPs and SOPs, if any exist. (Detailed information on testing, inspection, and maintenance requirements, and on calibration procedures and frequency of all meters, instruments and other equipment used by volunteer groups should be contained in their SAPs and SOPs as methods can vary slightly among different makes and models of equipment. Refer to “user’s manuals” for each type of equipment for these details.) *Additionally, annual calibration and testing will occur at annual at volunteer certification workshops. (This appendix is Table 5a from Maine DEP [2009]¹.)

| Parameter/Equipment | Inspection ² | Maintenance | Testing | Calibration Method | Calibration Frequency* |
|---------------------------------------|--|--|---|--|--|
| Dissolved Oxygen (meter) | <u>Full inspection</u> of meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use (includes an inspection of the condition of the probe membrane or membrane cap sensor) | Once a year at beginning of field season and as required | Check battery status prior to each use | Typically a “water-saturated air calibration” done within a protective sheath or a cell/hole within the meter’s body | <ul style="list-style-type: none"> • Each time the meter is turned on; • Also, most meters need to be turned on for a period of time before calibration or use (refer to your meter’s user manual for details) |
| Dissolved Oxygen (kit) | <u>Full inspection</u> of chemicals (e.g., expiration dates) prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | Once a year at beginning of field season and as required | kits require sodium thiosulfate check monthly | -- | n/a |
| Temperature (instantaneous) | <u>Full inspection</u> of thermometer or meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | -- | (Checked for accuracy at a VRMP certification workshop using an NIST-certified thermometer) | Before beginning of field season |
| Temperature (continuous; data logger) | <u>Full inspection</u> of logger prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | -- | (Controlled test of multiple loggers using a VRMP-accepted SOP) | Before beginning of field season |
| Specific Conductivity (meter) | <u>Full inspection</u> of meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | Check battery status prior to each use | Calibrate against a standard solution of 84 µS/cm | Before beginning of field season. |
| pH (meter) | <u>Full inspection</u> of meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | Check battery status prior to each use | Calibrate against two standard buffers – either pH 4 & 7 or 7 & 10 | At beginning of each day of use (or more as needed). |

¹ From: Maine DEP (Maine Department of Environmental Protection). 2009. Maine Volunteer River Monitoring Program [VRMP] - Quality Assurance Program Plan. Doc #: DEPLW-0984. Portland, ME.

² Meters that give readings that are consistently high or low as compared to the mean will be further examined for air bubbles, old membranes, dirty anode or cathode and/or weak batteries. After repairs are made the meter/probe assembly will be tested again. Meters that fail will not be taken into the field or used at certification/recertification workshops. Repairable meters will be returned to their manufacturer or a qualified repair person (e.g., QC Services – Harrison, ME) for service.

Appendix I. (cont'd)

| Parameter/ Equipment | Inspection ² | Maintenance | Testing | Calibration Method | Calibration Frequency* |
|-----------------------------------|---|-------------|--|--|---|
| Turbidity (meter) | <u>Full inspection</u> of meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | Check battery status prior to each use; checking against standards once at beginning of each sampling day; if bad readings, then recalibrate; or as needed | Calibrate against the standard(s) which came with the unit | Before beginning of field season and at beginning of each day of use. |
| Turbidity (tube) | <u>Full inspection</u> of tube prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | -- | -- | -- |
| Total Dissolved Solids (meter) | <u>Full inspection</u> of meter prior to beginning of field season; <u>simple visual inspection</u> at beginning of each day of use | As required | Check battery status prior to each use | Calibrate against a standard TDS solution of 30 ppm | Before beginning of field season |