

## **Section B7. Instrument Calibration and Frequency**

An instrument or device used in obtaining an environmental measurement must be calibrated by the measurement of a standard. Every instrument or device has a specialized procedure for calibration and a special type of standard used to verify calibration. Laboratory and field equipment vary from location to location so that procedures for calibration may vary depending on the manufacturer. Therefore, a single format for calibration procedures and frequency is not possible for this program plan. The means and frequency of calibration recommended by the manufacturer of the equipment or devices as well as any instruction given in an analytical method will be followed. When such information is not specified by the method, continuing calibration will be performed on a 10 percent basis, except for analysis by gas chromatograph/mass spectrometer. It is also required that records of calibration be kept by the person performing the calibration and be accessible for verification during either a laboratory or field audit.

Field equipment needs periodic calibration. Calibration is required to be done within 24 hours before use and within 24 hours after measurement activities in the field are performed. Equipment to be calibrated includes, but is not limited to: titration equipment for chlorine analysis; thermometer; DO meter; pH meter; conductivity meter; multiparameter field meter (DO, pH, temperature, and specific conductance). Calibration log books should be issued to and maintained by each entity or agency conducting field data measurements using field equipment as listed. One calibration logbook is to be used per multiprobe instrument. These logbooks are to be kept in a safe place in the respective entity or agency laboratory and only taken to the field when instruments are to be used over a period of days requiring post-calibration or calibration in the field. All requirements for multiprobe instrumentation and calibration instructions are found in **Appendix E** of the SWAMP PM. A multiprobe sensor calibration and maintenance log recommended for use in the SWAMP Program (used in calibrating and maintaining these instruments) may also be found in **Appendix E**. If, after post-calibration checks, it is determined that the acceptable amount of drift has been exceeded for a multiprobe instrument, data collected by the probe out of compliance for that sampling event should in most cases not be submitted to the SWAMP Program for inclusion into the database, unless appropriately flagged and tracked as such. The investigator will resolve the problem with the instrument, either by conducting routine maintenance or by sending the instrument to the manufacturer for repair. The investigator will be encouraged to re-measure that field parameter as soon as possible. SOPs for laboratory equipment and devices needing calibration are referenced in the contract labs QA plans on file with each contracting laboratory. Electronic meters, analytical balances, thermometers, or temperature gauges will have verifiable calibration records. Laboratory reagents are standardized to verify that the percentage or normality is that which is prescribed for the analytical method. Reagent standardization is a form of calibration that is included in both field and laboratory quality control procedures.