

STANDARD OPERATING PROCEDURE WATER LEVEL MEASUREMENT PROCEDURES

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) was prepared to direct field personnel in the methods for conducting water level measurements in monitoring wells during field investigations at hazardous and non-hazardous waste sites.

1.1 Objective

The objective of water level measurements is to gain accurate measurements (to within 0.01 ft) of the depth of ground water for use during well installation, in the recording of data for the preparation of ground water elevation contour maps, purge volume calculations during ground water sampling, slug tests, packer tests, and pump tests.

1.2 Equipment

The following list of equipment may be utilized during water level measurements. Site-specific conditions may warrant the use of additional or deletion of items from this list.

- Electronic water level indicators – graduated
- Tap Water
- Alconox, liquinox or other non-phosphate concentrated laboratory grade soap
- Deionized Water
- Pump Sprayer
- Pint Squeeze bottles
- Any necessary personal protective equipment (gloves, eyewear, tyvek suits)
- Air Monitoring instruments as required (MiniRAE, TVA 1000, etc.)
- Field logbook and monitoring form
- Well keys
- Previous measurement data (if available)
- Oil/water interface probe
- Plunker on tape

2.0 PROCEDURES

The following procedures should be followed during water level measurements. Procedures may vary depending on the equipment used and contaminants present at the site. Site specific conditions may warrant the use of stringent air monitoring and potentially more significant decontamination scenarios.

1. Record the condition of the well (protective casing, concrete collar, lock in place etc.).
2. Check that the water level tape has no obvious kinks or damage.

3. Put on latex or other sterile gloves. Stand upwind of the well; unlock and open the well. If a vented cap is present, conduct well mouth air monitoring from the vent. If a non-vented well cap is present, remove the cap and monitor the well mouth immediately. Record all pertinent air monitoring results (sustained, dissipating, background, odor).
4. Identify the previous measuring point marking or notch on the riser or casing (if present). Record this location in the field logbook or on the water level monitoring form.
5. Using a previously decontaminated water level indicator, turn on the meter, check the audible indicator, reel the electronic probe into the well riser (with the increments visible) slowly until the meter sounds, grasp the tape with hand, withdraw the tape and lower it again slowly until the sound is again audible. Check the depth to water on the tape and make a mental note of the depth to within .01 feet. Lower the probe again slowly and repeat the measurement for accuracy. A one-foot error is the most common measurement type during water level measurements. Be sure to read the depth correctly on the tape.
6. Record the depth to water from the measuring point in the field logbook or on the water level monitoring form.
7. Procedures utilized during water level measurements where free phase petroleum products are floating on the water table should be modified to include the use of the oil/water interface probe. The procedures during the use of this probe should be implemented similarly and by manufacturers' specifications. Through the use of this probe, product thickness can be determined.
8. Decontaminate the probe and any obviously soiled tape. Refer to SOP for equipment decontamination.