

## **SOP S-16**

### **STANDARD OPERATING PROCEDURE FOR PORE WATER SAMPLING AT THE WEST KINGSTON TOWN DUMP/ URI DISPOSAL AREA SITE**

Woodard & Curran, Inc.

### **Pore Water Sampling Procedure**

Samples of pore water will be collected by the methods described below. Samples from water more than three feet deep may be collected from a boat or sampling barge.

Pore water samples will be collected from the top six inches of sediment, which is typically the zone of maximum biological activity. Samples will be collected by means of the sampling device illustrated in **Figure 1**. The pore water sample device consists of a steel drive point with a 6-inch-long screen at the end. Attached to the drive point will be a metal or PVC stopper plate, which will prevent the drive point from being driven into the sediment beyond the desired depth. The pore water samples will be collected using a peristaltic pump and a length of PVC tubing inserted to the depth of the screen. The sampling device will be pushed into the sediment to the desired depth and then the peristaltic pump will be turned on.

Field parameters (e.g., DO, ORP, pH, temperature, turbidity, and conductivity) may also be measured and recorded. Purging will be considered complete when DO, turbidity, conductivity, and pH have approached the stabilization goals provided below, for three consecutive readings taken at intervals of approximately five minutes:

- DO and turbidity: 10%
- Conductivity: 10%
- pH:  $\pm$  5 units

Measurements of temperature and ORP will not be used as indicators of stabilization.

A reasonable effort will be made to obtain stabilization. However, if stabilization is not possible, deviations will be noted and the sample will be collected. When purging is complete, three 40-ml vials will be filled with water directly from the pump discharge. These vials may be pre-preserved with hydrochloric acid (HCL) to extend the hold-time to 14 days. If no HCl is added, the hold time for VOC analysis is seven days.

### **Equipment needed:**

- Variable speed peristaltic pump;
- Dedicated tubing may be used;
- Appropriate sample containers with labels and preservatives, as required;
- Hard plastic cooler with ice;
- Temperature, conductivity, pH, DO, ORP, and turbidity meter;
- Decontamination supplies; and
- Personnel protective equipment (i.e. gloves), as required by the site-specific Health and Safety Plan (HASP).

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**Figure 1: Typical Pore Water Sampler**

### **Sampling Procedure:**

The following steps will be followed when sampling pore water by pumping:

1. Locate the boundaries of the sampling area. Identify the boundaries by shore markers and floating buoys, if necessary.
2. Select a representative location within the sampling area. Sampling point coordinates may be located using GPS. Measure water depth at sampling location. Record this information in logbook.
3. Put on gloves and use equipment as specified in the site-specific HASP.
4. Connect tubing to sampling device. Position the device in the water or sediment at the desired depth.
5. Connect the pump to the pore water tubing. Using the pump, purge the tubing at a rate between 100 ml and 400 ml per minute.
6. Temperature, DO, ORP, conductivity, turbidity, and pH measurements may be obtained. Record measurements in logbook.
7. When the tubing has been purged for at least three volumes and water parameters have stabilized, turn the pump down to approximately 100 ml/min.
8. While the pump is still at or less than 100 ml/min, collect the pore water sample by gently filling three pre-labeled 40-ml vials.
9. For VOC samples, tilt the sample bottle when filling to reduce aeration. Check the filled vial for bubbles and refill a new sample container if bubbles are present. Put the three filled, labeled containers in a zip lock bag and place the bag in ice-filled cooler immediately. The cooler will contain a temperature blank.
10. Record sample types and amounts collected, and time and date of collection in logbook.
11. Unless dedicated tubing is used, decontaminate sampling tubing and device with soap, water, and a distilled water rinse between sampling points. If dedicated tubing is used, decontamination will not be necessary, since new tubing will be used for each sampling point.

### **Sample Preservation and Holding Times:**

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### **QA/QC**

QA/QC procedures are outlined in the Sampling procedures discussed above. Duplicates or blanks have been incorporated into the QAPP to assess potential for sampling, shipping, and laboratory impacts on data quality.

### **References**

None.