SAMPLE COLLECTION TECHNIQUES FOR MA DEP VPH AND EPH METHOD

The following details Spectrum's policy regarding collection, preservation and handling of all samples that are submitted for VPH and/or EPH analysis. These guidelines are in accordance with Massachusetts DEP Method for the determination of Volatile (VPH) and Extractable (EPH) Petroleum Hydrocarbons, January 1998.

Sample Collection, Preservation and Handling for VPH Method

All samples must be cooled to 4 degrees (Celsius) immediately after collection.

A Chain of Custody must accompany all samples submitted for analysis, documenting the time and date of sampling and any preservative addition.

Aqueous Samples

1. Aqueous samples should be collected in triplicate without agitation and without headspace in contaminate-free, HCl preserved, 40ml VOA vial with Teflon-lined septa screw caps. The Teflon liner must come in contact with the sample.

2. The laboratory must determine the pH of all water samples unless the laboratory (this must be noted on the Chain of Custody) supplied the sample vials containing acid for field preservation. The pH measurement may be performed on leftover sample. Any sample found to have a pH above 2.0 must be so noted on the laboratory/data report sheet.

3. A reagent trip blank should accompany each batch of water samples.

4. Aqueous samples must be analyzed within 14 days of collection.

Soil Samples

1. Soil samples must be collected in a manner that minimizes sample handling and agitation. Samples must be in a Methanol-preserved 40ml VOA vial that is provided by Spectrum. All sediment must be removed from the glass threads of the vial to ensure an adequate seal.

2. *Methanol preservation of soil samples is mandatory.* Methanol (purge and trap grade) must be added to the sample vial before or immediately after sample collection. Spectrum will provide pre-weighed 40ml VOA vials containing 15 ml of purge and trap grade Methanol for in-field preservation of VPH samples.

3. During collection, approximately 15 grams (+/- 25%) of soil must be added to exactly 15ml of Methanol. This may be accomplished visually by adding soil until the layer of soil is approximately equal or just less than the layer of preservative. *In all cases, the soil sample in the vial must be completely covered by methanol.*

4. *An additional sample of soil should also be obtained (without Methanol) to allow for a determination of soil moisture content and VPH dry weight correction factors.* (Remaining soil from EPH method will be sufficient to calculate soil moisture content if applicable.)

5. A Methanol trip blank should accompany each batch of samples.

6. Soil and sediment samples must be analyzed within 28 days of collection.

Sample Collection, Preservation and Handling for EPH Method

All samples must be cooled to 4 degrees (Celsius) immediately after collection.

A Chain of Custody must accompany all samples that are submitted for analysis documenting the time and date of sampling and any preservative addition.

Aqueous Samples

1. Aqueous samples are collected in HCl preserved 1 liter amber glass bottles with Teflon-lined screw caps.

2. Aqueous samples must be extracted within 14 days of collection and analyzed within 40 days of extraction.

Soil Samples

1. Soil and sediment samples are collected in 4 oz amber glass jars with Teflon-lined screw caps.

2. Soil and sediment samples must be extracted within 7 days of collection, and analyzed within 40 days of extraction.

TABLE 1 HOLDING TIMES AND PRESERVATIVES FOR VPH SAMPLES			
Matrix	**Container**	**Preservation**	**Holding Times**
Aqueous samples	3-40ml VOC vials with Teflon-lined septa screw caps	Add 3 to 4 drops of 1:1 HCl; cool to 4ºC	14 days
Soil/Sediment samples	2-40ml VOC vials with Teflon-lined septa screw caps 40-ml vials: add 15g soil	1ml methanol for every g soil; add before or at time of sampling, cool to 4ºC	28 days

TABLE 2 HOLDING TIMES AND PRESERVATIVES FOR EPH SAMPLES			
Matrix	**Container**	**Preservation**	**Holding Times**
Aqueous samples	1-Liter amber glass bottle with Teflon-lined screw cap	Add 5 ml of 1:1 HCl; cool to 4ºC	Samples must be extracted within 14 days and extracts analyzed within 40 days
Soil/Sediment samples	4-oz or 8-oz wide mouth amber glass jar with Teflon-lined screw cap	Cool to 4ºC	Samples must be extracted within 14 days and extracts analyzed within 40 days