GWS MDEQ SOW

Scope of Work for Groundwater Sampling

Facility I.D. #_____

Facility	Owner	ERAC
Name:	**Contact & Name:**	**Contact & Name:**
Address:	**Address:**	**Address:**

Wells to be Sampled and to Record Groundwater Elevations	Total Number
Four-inch Wells:	
One-inch Wells:	

Wells to Record Groundwater Elevations Only	Total Number

Analysis Required	QA/QC Samples
Total Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX), Methyl Tertiary-Butyl Ether (MTBE) & Polynuclear Aromatic Hydrocarbons (PAHs)	**Trip Blank(s):** **BTEX & MTBE = ____** (One trip blank per 10 samples if PAH, but one trip blank per 20 samples if no PAH) **Duplicate:** **BTEX & MTBE = 1** **PAH = 1**

Frequency of Sampling Events	Number of Sampling Events

Average Depth of Wells	MDEQ Project Manager	Date

{In the table above, the project manager will specify the required information.}

In performing the tasks of the proposal, the Environmental Response Action Contractor (ERAC) shall conduct the groundwater sampling activities in accordance with the requirements on page 1 and shall:

1. Abide by the Mississippi Department of Environmental Quality (MDEQ)- Underground Storage Tank (UST) Branch Standard Operating Procedure Manual (SOP);

2. Monitor and record groundwater/product elevations (to the nearest 0.01 foot) in **all wells** and record the product thicknesses (in inches);

3. Collect and analyze required quality control samples. These samples shall include one duplicate per sampling event to be analyzed for BTEX, MTBE, and PAH, and one trip blank per cooler (unless the cooler only contains PAH samples) to be analyzed for BTEX and MTBE;

4. In the event that free product is in a monitoring well that is to be sampled, record, based on visual and olfactory methods, the type of petroleum (i.e., gasoline, diesel, etc.) and if it appears to be weathered. A groundwater sample will **not** be collected and analyzed when 1/8 inch or greater of free product is present in a monitoring well. If only a sheen of product is present, record that a sheen was found, and then evacuate the well as required and collect the appropriate samples.

The ERAC shall report his findings as follows:

1. Provide a cover letter to the owner referring to the site;

2. Summarize the findings in one page and include conclusions and recommendations. The conclusions should include a discussion of whether or not the QA/QC samples met the quality control criteria. Also, a discussion of any anomalies in the groundwater elevation regime should be included. The recommendations should state if groundwater sampling should continue, if so how much longer should sampling continue until other remedial or sampling options are discussed, and when should sampling be discontinued. The recommendations should also state if the same wells should continue to be sampled, and if the samples should continue to be analyzed for the same constituents. The Mississippi Registered Professional Engineer(P.E.) and/or Geologist (P.G.) must stamp/seal and sign the report as stated in the Mississippi Groundwater Protection Trust Fund (MGPTF) Regulations;

3. Include a table(s) consisting of the all sets of groundwater data and the most recent set of data. It shall have, at a minimum, the following headings, as applicable:

Well ID	Sample Date	MTBE (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	BTEX (ppm)	Water Elevations (feet)	Product Thickness (inches)

Well ID	Sample Date	Acenaphthene (ppm)	Acenaphthylene (ppm)	Anthracene (ppm)	Benzo (b) Fluoranthene (ppm)	Benzo (g, h, i) Perylene (ppm)	Benzo (K) Fluoranthene (ppm)	Benzo (a) Anthracene (ppm)	Benzo (a) Pyrene (ppm)	Chrysene (ppm)	Dibenzo (a, h) Anthracene (ppm)	Fluoranthene (ppm)	Fluorene (ppm)	Indeno (1,2,3,c,d) Pyrene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)

4. Include a Groundwater Elevation Contour Map* with an arrow indicating the groundwater flow direction. Use water level data referenced from an assumed 100 foot base. Correct levels for thickness of any liquid hydrocarbon. Elevations should be 0.01 foot accurate. Extend contours only as far as data allows;

5. Include a Dissolved Hydrocarbon Contour Map* that will contour all parameters that are analyzed and differentiate them by various distinguishable contour lines. The groundwater data should be plotted adjacent to the well using the following format, if applicable:

Benzene (ppm)	PAH Constituent Level (ppm)
BTEX (ppm)	Free Product Thickness** (inches)

**Include free product thickness or an additional Polynuclear Aromatic Hydrocarbon constituent above the UST Branch's allowable levels.

This map should include the contours of the 18 ppm values for any contaminated groundwater above 18 ppm. When contouring the 18 ppm isocons, use solid lines where data can be interpolated and dashed lines where interpretation is necessary. In the event that 1/8 inch or greater of free product is in a monitoring well, the product thickness will be included on this map and contoured with the concentration data.

6. Include analytical laboratory sheets and chain of custody forms.

*** NOTE:** The Groundwater Elevation Contour Map and Dissolved Hydrocarbon Maps shall include the owner, facility I.D. number, facility address, date, scale, north arrow, and the location of any buildings, former and/or existing tanks, product lines, canopies, roads, borings, and monitoring wells. The maps should be prepared by a draftsman or by a computer-aided design (CAD) system.