

**ADDENDUM 02**  
**PLUME DELINEATION**  
**JULY 9, 2001**

The following Scope of Work is an addendum to the Work Plan for Rapid Response, Interim Corrective Measures and Comprehensive Site Assessment which was approved on June 8, 2001.

### **Introduction**

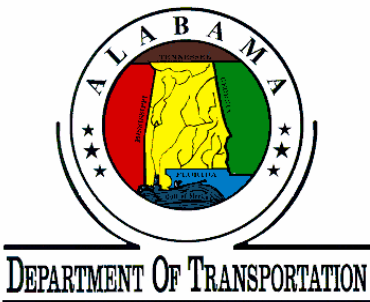
During the January and February 2001 Membrane Interface Probe (MIP) Investigation, the extent of trichloroethylene (TCE) in the ground water was not defined in the north, east and north-northeast parts of the site. The following Scope of Work includes work elements to collect ground-water samples to evaluate the extent of TCE in the ground water in these areas. A mobile laboratory will be used to obtain analytical results while the Geoprobe unit is at the site. The general locations of the initial 12 probeholes are shown on Figure 1. Figure 2 is an enlargement of the area to be investigated. Specific locations for the probeholes will be based on clearance by "line locators" regarding occurrences of utilities and (at some locations) obtaining access agreements. Each probehole location will be surveyed, by GPS, and the land surface surveyed to the nearest 0.01 foot by a Professional Land Surveyor. Immediately upon completion, each probehole will be pressure grouted to land surface with a Pure Gold Bentonite grout.

### **Soil Conductivity**

- A soil-conductivity probe will be advanced at each of the initial 12 proposed probeholes (see Figure 2) to determine the depth to the first distinct clay beneath the water table. Each probehole will be pressure grouted through the Geoprobe rods from the bottom of the probehole to land surface with Pure Gold Bentonite grout.
- Two of the proposed northeastern probeholes (north of North Boulevard) may not be accessible using a Geoprobe without excessive land clearing. Alternative methods of sample collection at these locations (i.e., a hand auger) may be used.

### **Collection of Soil/Sediment Samples**

- At each of the 12 proposed locations, offset about 3 feet from the initial soil conductivity probehole and advance a probehole to the top of the first distinct clay beneath the water table. Continuous soil/sediment samples will be retrieved in 4-foot-long disposable plastic sleeves and described by an on-site geologist. If flowing sands preclude continuous



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soil/sediment sampling, a discrete sampler will be used to collect a sample of the first distinct clay.

- The soil/sediment retrieved in the 4-foot-long plastic sleeves will be scanned with a photoionization detector to identify soils/sediments that contain ionizable organic compounds. A soil/sediment sample will be collected about a foot above the first occurrence of saturated soils/sediments retrieved at each probehole. A soil/sediment sample also will be collected from the depth/interval above saturated soils/sediments containing the greatest concentration of ionizable vapors.

### **Collection of Ground Water-Samples**

- Two ground-water samples will be collected from each probehole for VOC analysis. The shallow ground-water sample will be collected 1 to 2 feet below the first occurrence of saturated sediments that are retrieved in the plastic sleeves. A second ground-water sample will be collected in each probehole immediately above the first distinct clay that was identified by the methods described above.
- Each ground-water sample will be collected with a Geoprobe 4-foot drop-out screen. Tygon tubing will be inserted through the hollow-stem drive rods until the tubing is within the drop-out screen. If possible, a peristaltic pump will be used to purge the ground water from the probehole and pull the sample into the tubing. A check valve/vacuum apparatus or peristaltic pump will be used to purge the deeper ground-water sample and pull the sample into the tubing. The samples will be collected from the bottom of the tubing and will not be pulled through the pump. Each ground-water sample will be placed into 40-milliliter vials that contain hydrochloric acid as a preservative.
- After collecting the ground-water samples, the probeholes at each location will be pressure grouted to land surface (with Pure Gold Bentonite) through Geoprobe rods.



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**Evaluation of Data**

The results of soil and ground-water samples will be reviewed to determine whether additional probeholes are required to delineate the extent of TCE in the ground water. If required to define the extent of TCE, additional probeholes will be placed in areas where the extent is not defined while the Geoprobe and Mobile Laboratory are at the site. The results also will be reviewed to determine locations for piezometers for monitoring ground-water elevations.

**Analytical**

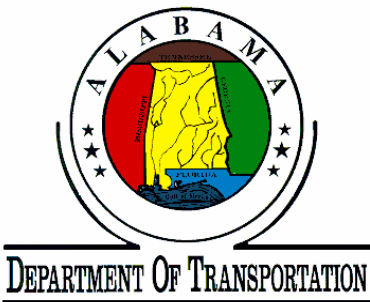
- Field measurements of pH, specific conductance, temperature and turbidity will be measured during purging and at the time of sample collection.
- The samples will be analyzed in the field using an accepted EPA method for screening using a mobile gas chromatograph equipped with electron capture detector or a GC/MS (Gas Chromatograph/Mass Spectrometer).

**Quality Assurance/Quality Control**

- Duplicate samples will be collected from 10 percent of the total number of samples collected and analyzed by the mobile laboratory.
- An equipment rinsate will be collected each day and analyzed by TTL's laboratory.
- A trip blank will be placed in each cooler that contains aqueous VOC samples.
- Verification samples will be collected from 10 percent of the samples collected and sent to a fixed laboratory for analysis using Method 8260 in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA, SW-846, 3<sup>rd</sup> Edition, November 1986.

**Decontamination**

- A decontamination pad will be set up at the central staging area of the ALDOT Complex. Probe rods will be steam-cleaned within the decon pad.



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- The following procedures will be used to clean the sampling equipment used to collect the soil/sediment and ground-water samples. The procedures are those published in: *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual*, EPA, Region IV; May 1996; Athens, Georgia; Section 2.2.3., pages B-1 through 6.
- Probe rods will be cleaned between each probehole. The drive tip that attaches to each disposable plastic sleeve will be cleaned between each sampling.
- Sampling equipment and rods will be cleaned with tap water and soap using a brush, if necessary, to remove particulate matter and surface films. The tap water will be obtained from the Montgomery Water Works and Sanitary Sewer Board public-water supply. The soap will be a standard brand of phosphate-free laboratory detergent (such as Liquinox®).
- Equipment will be rinsed thoroughly with tap water; then rinsed thoroughly with organic/analyte free water (deionized water); and then thoroughly rinsed with isopropyl alcohol. After rinsing with the isopropyl alcohol, the equipment will again be rinsed with deionized water. PVC or plastic items will not be rinsed with alcohol.
- A sample of the deionized water will be analyzed by EPA Method 8260 at TTL's laboratory to ensure that the deionized water contains no detectable volatile organic compounds.
- After it has been cleaned, the sampling equipment will be removed from the decontamination area and covered with clean unused plastic.

**Schedule**

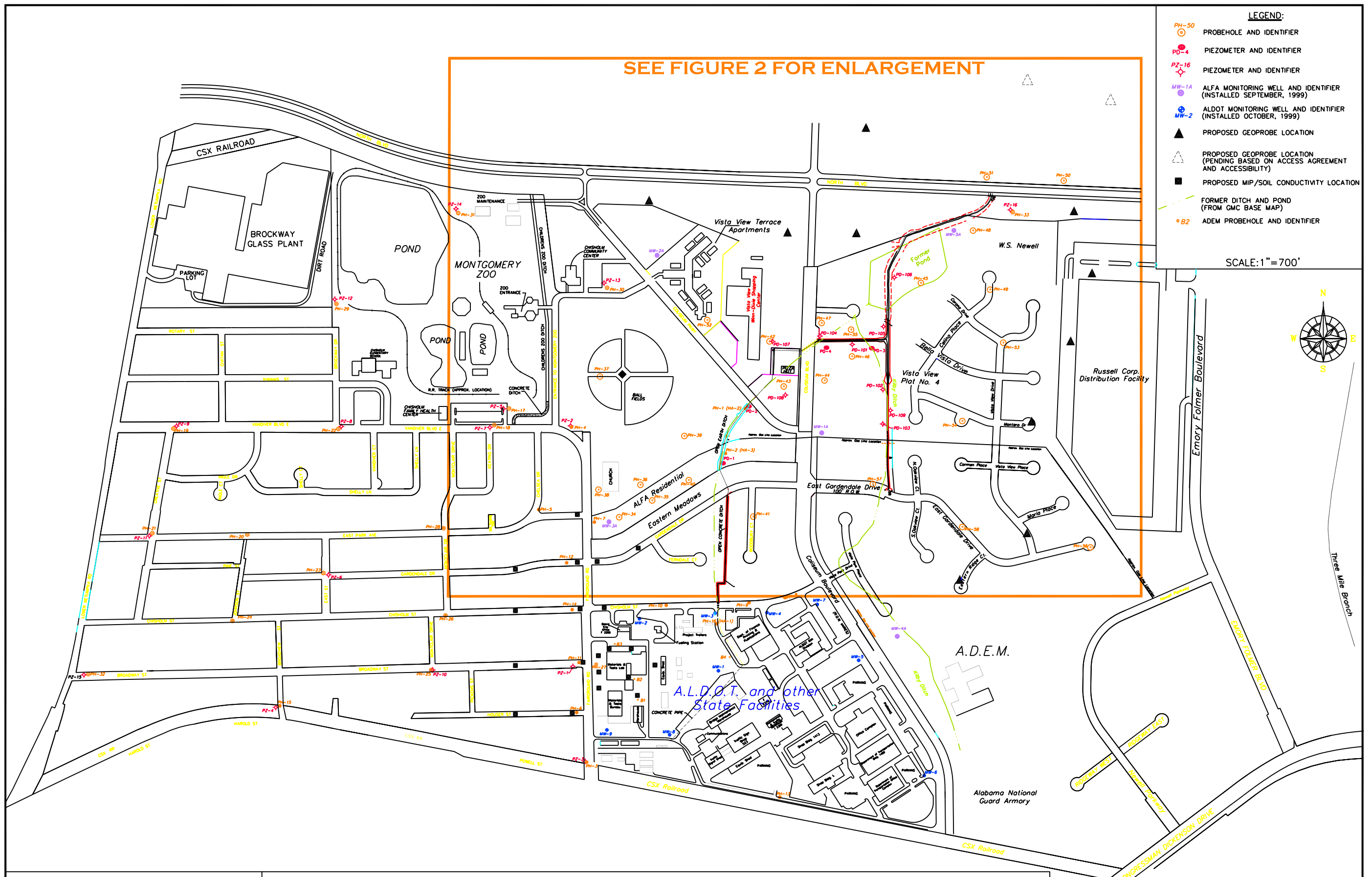
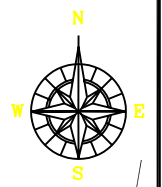
- The field work outlined herein will be completed within 60 days of final decision on Addendum 02 of the Work Plan. If subsequent phases are required to delineate the extent, ALDOT will proceed with requesting access and completing sampling and analysis as required to delineate the extent of the plume.
- A report will be completed within 45 days of receipt of all analytical work.

SEE FIGURE 2 FOR ENLARGEMENT

LEGEND:

- PH-50 ○ PROBEHOLE AND IDENTIFIER
- PD-4 ● PIEZOMETER AND IDENTIFIER
- PZ-16 ◆ PIEZOMETER AND IDENTIFIER
- MW-1A ● ALFA MONITORING WELL AND IDENTIFIER (INSTALLED SEPTEMBER, 1999)
- MW-2 ● ALDOT MONITORING WELL AND IDENTIFIER (INSTALLED OCTOBER, 1999)
- ▲ PROPOSED GEOPROBE LOCATION
- △ PROPOSED GEOPROBE LOCATION (PENDING BASED ON ACCESS AGREEMENT AND ACCESSIBILITY)
- PROPOSED MIP/SOIL CONDUCTIVITY LOCATION
- FORMER DITCH AND POND (FROM GMC BASE MAP)
- B2 ADEM PROBEHOLE AND IDENTIFIER

SCALE: 1" = 700'



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Figure 1. Proposed geoprobe and MIP/soil conductivity locations. Work Plan Addendum 02—Plume Delineation. Coliseum Boulevard Plume Investigation; Montgomery, Alabama.

Drawing No. 010530.1

Note: Base map is a composite of an initial base map compiled by Goodwyn, Mills & Cawood Environmental Consultants, Inc. and a June 16, 2000 map by Larry E. Speaks & Associates. The June 16, 2000 map of Larry Speaks & Associates was compiled from maps provided by TTL, Inc. and the Montgomery, Alabama Tax Assessor's Office.