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Project Example – Standard Fixed Price Remediation of Methylene Chloride using Electrical Resistance Heating at a site in Cartersville, GA

Project Reference: Dave Smoak, Mactec, (770) 421-3400, desmoak@mactec.com
Contracting and Pricing: Standard Fixed Price
Engineer: Mr. Greg Beyke, Thermal Remediation Services (TRS) Vice President of Engineering, Franklin, TN (615)791-5772, gbeyke@thermalrs.com.
Project Superintendent: Mr. Greg Knight, project manager, TRS, Denver, CO (303)722-7761, gknight@thermalrs.com.
Contaminants Treated: Methylene Chloride
Technology Applied: Electrical Resistance Heating (ERH).
Lithology: Clay and silt in the vadose and saturated zones.
Hydrology: Groundwater at 15 feet bgs.
***Treatment Interval*:** 5.3 to 30 feet bgs.
Beginning Contaminant Levels: Average 2,000mg/kg.
Average % Reduction Achieved: 99.997%
Project Status: Just began drilling in August 2006.
Total TRS Price: $990,000.00.
Cost by Others: $37,000.00.
Remediation Time Period: 57-82 Days (approx 63 days)

Background

Thermal Remediation Services, Inc. (TRS) as a subcontractor to Mactec, is providing Electrical Resistance Heating (ERH) design, construction, operations, and specialty equipment for remediation of methylene chloride in groundwater at this site in Cartersville, GA

Site Information

The desired treatment area is approximately 12,130 square feet. The remediation depth interval extends from 5.3 to 30 feet below ground surface (bgs). The resulting target remediation volume is approximately 11,100 cubic yards.

The site lithology in the remediation area consists of clay in the vadose zones and silt within the saturated zones. When groundwater is encountered, the borehole fills to about 15 feet bgs.

The ERH system includes 56 electrodes and co-located vapor recovery wells, 7 TMPs with an average of 6 thermocouples spaced vertically at set 5-foot intervals. This provides approximately 42 points within the subsurface where discrete temperatures will be recorded. These temperature readings are then used to calculate an average site temperature and average temperatures at the set depth intervals. (See Figure 1)

The TRS total price including design, work plans, permitting support, equipment mobilization, utility connection, construction, operations, demobilization, site restoration, and a final report is $990,000.00. The cost by others including drilling, waste disposal, trenching and restoration, sampling and analysis, electricity usage, and vapor treatment is $37,000.00.

Remedial Goals

The beginning maximum concentration of methylene chloride in groundwater is 3,900,000 µg/l. The remedial goal for methylene chloride in groundwater is 120 µg/l or a 99.95% reduction. Previous experience indicates that ERH should provide a similar percentage reduction in soil as in groundwater concentrations.

Operations

The ERH specialty equipment from the TRS fleet includes one custom-manufactured 2000-kW Power Control Unit (PCU) for continuous power delivery to the treatment volume, one 25-horsepower blower, and one condenser. Granular Activated Carbon (GAC) is used for vapor treatment.

ERH operations are scheduled to begin in the Fall of 2006. We estimate that 57-82 days of operations will be required to reach the remedial goals.

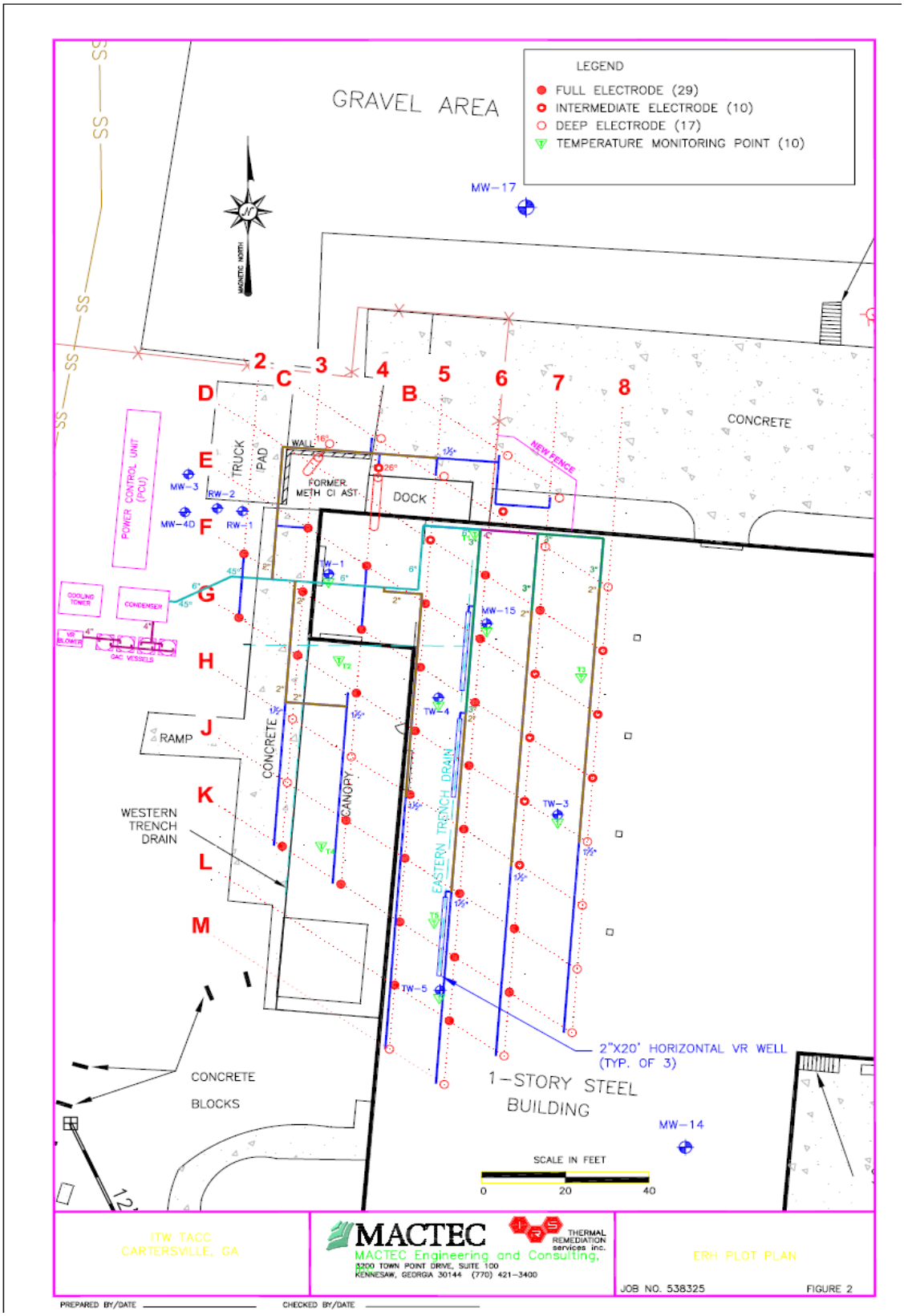

Figure 1- Electrode Layout