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Guaranteed Remediation Certainty
Our Word Is Who We Are

Project Example – Standard Fixed Price Remediation of Tetrachloroethene (PCE) at the Siemens Energy and Automation facility in Tucker, GA.

Project Reference: Mr. Robert Rivera, Brown and Caldwell, Atlanta, GA, (770)673-3652
Engineer: Mr. Greg Beyke, Thermal Remediation Services (TRS) Vice President of Engineering, Franklin, TN (615)791-5772, gbeyke@thermalrs.com.
Project Superintendent: Mr. Paul Bianco, project manager, TRS, Bend, OR.
(541) 348-7079, pbianco@thermalrs.com.
Contaminants Treated: PCE
Technology Applied: Electrical Resistance Heating (ERH).
Lithology: Silt in the vadose and saturated zones.
Hydrology: Groundwater at 20 feet bgs.
Treatment Area, Depth Interval and Volume: 16,357 square feet, 1.7-18.9 ft. bgs, and about 10,452cubic yards.
Beginning Contaminant Levels: Average 17 mg/kg in soil.
Total TRS Price: $1,118,000.00.
Cost by Others: $187,000.00.
Contract Terms: Standard Fixed Pricing.
Remediation Time Period: 246-359 days (Approx. 273)

Figure 1. Site Photo

Background

Thermal Remediation Services, Inc. (TRS) as a subcontractor to Brown & Caldwell, is providing Electrical Resistance Heating (ERH) design, construction, operations, and specialty equipment for remediation of primarily tetrachloroethene (PCE) at the Siemens Energy and Automation facility located at 2037 Weems Road in Tucker, GA (the Site).

A building presently covers the remediation areas. Operations in the building will cease and the equipment inside the building will be removed by others prior to the ERH remediation. The building will be vacant at the time of the ERH remediation.

There are four regions requiring treatment with the approximate areas, depth intervals and remediation volumes described in Table 1. The total treatment area is approximately 16,357 square feet (sq ft), the average depth interval is from approximately 0 – 19 feet below ground surface (ft bgs), and the total treatment volume is approximately 10,453 cubic yards (yds^3).

Table 1. Treatment Areas*

Region	Treatment Area (sq ft)	Depth Interval (ft bgs)	Volume (yd^3)
Area 1	2,107	0 – 20	1,561
Area 2	1,722	0 – 10	638
Area 3	2,772	10 – 20	1,027
Area 4	9,756	0 – 20	7,227
Total	**16,357**		**10,453**

* The treatment regions are defined on the Brown and Caldwell provided figure named "Siemens soil treat vol 020306.pdf" (attached)

Site lithology in the remediation area consists of silt in both the vadose and saturated zone.

The ERH system includes 65 electrodes and co-located vapor recovery wells as well as an isolation barrier as a large electrode, 15 TMPs with an average of 5 thermocouples spaced vertically at set 5-foot intervals. This provides approximately 45 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 2)

The TRS total price including design, work plans, permitting support, equipment mobilization, utility connection, construction, operations, demobilization, site restoration, and a final report is $1,118,000.00. The costs by others including drilling, waste disposal, trenching and restoration, sampling and analysis, electricity usage, and vapor treatment are $187,000.00.

Remedial Goals

The beginning concentrations of the COCs and their corresponding remedial goals in soil are described in Table 2.

Table 2. Initial Concentrations of COCs and Remedial Goals in Soil

	Maximum Initial	Remedial Goal in Soil

COCs	Concentration in Soil (mg/kg)	(mg/kg)
MC	110	0.08
PCE	17	0.18
TCE	0.84	0.13
DCE	4.3	0.53
VC	3.1	0.04

Construction and Operations

The ERH specialty equipment from the TRS fleet includes one custom-manufactured 700-kW Power Control Unit (PCU) for continuous power delivery to the treatment volume, one 20-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 246-359 days of operations will be required to reach the remedial goals.

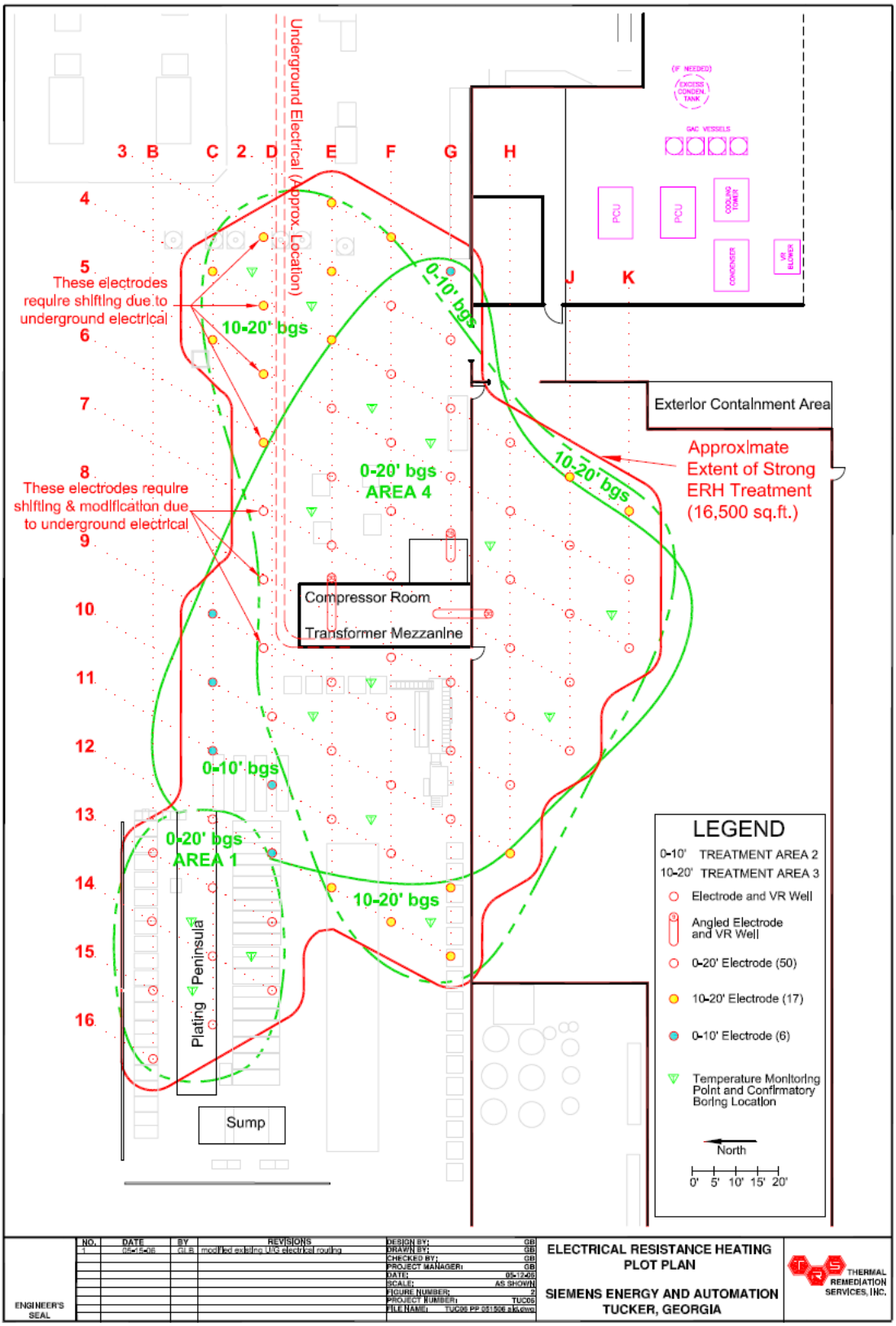

Figure 2. Electrode Layout