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**Guaranteed Remediation Certainty  
Our Word Is Who We Are**

### **Project Example**

#### **Full Scale Guaranteed Remediation of Tetrachloroethene using Electrical Resistance Heating, Great Lakes, IL**

*This project involves a **guaranteed remediation of primarily tetrachloroethene (PCE), at a former dry cleaning facility at Site 22 Naval Station, Great Lakes, IL.***

**Client Reference:** Mr. Bob Davis, civil/environmental engineer, Tetra Tech NUS, Inc. Pittsburgh, PA (412) 921-7251

**Engineer:** Mr. Chad Crownover, staff engineer, TRS, Seattle, WA, (206) 934-1661, ccrownover@thermalrs.com

**Project Superintendent:** Mr. Chris Blundy, project manager, TRS, Charleston, SC, (843) 225-6018, cblundy@thermalrs.com

**Lithology:** Gravel and silty-clay and cinders in the vadose zone and clay, silt, sand and gravel in the saturated zone

**Hydrology:** Groundwater on average across the site is at approximately 5 ft bgs

**Treatment Area, Depth Interval and Volume:** 2,400 square feet, 0.5 – 17 ft bgs and about 1,400 cubic yards

**Beginning Contaminant Concentrations:** 1,500 mg/kg of tetrachloroethene (PCE) in soil

**Period of Performance:** Presently in progress- expected completion in summer-fall 2006

**Value of Project:** \$446,000

**Contract Terms:** Pay for Performance / Guaranteed Fixed Price (GFP)

### **Background**

Site 22 consists of the old dry cleaning facility that operated in former Building 105 until 1993 or 1994. The building has been demolished and the area and surrounding lot are now used for vehicle parking. The remediation area is located in the southeastern portion of the active parking lot. There is a Fire Department to the east of the Site and Navy personnel housing to the south.

There are three regions in the remediation area that require treatment. The approximate areas, depth of treatment intervals, and remediation volumes of each region are described in Table 1. The total treatment area is approximately 2,400 square feet (sq ft), the average depth interval requiring treatment is from 0.5 – 17 feet below ground surface (ft bgs), and the resulting total treatment volume is approximately 1,400 cubic yards (yds<sup>3</sup>).

The maximum initial concentration of PCE in soil is 1,500 mg/kg. The remedial goal for PCE in soil is <20 mg/kg, or a 98.6% reduction.

**Table 1. Treatment Areas\***

<b>Region</b>	<b>Treatment Area (sq ft)</b>	<b>Depth Interval (ft bgs)</b>	<b>Volume (yd<sup>3</sup>)</b>
Area 1	300	0.5 – 25	300
Area 2	1,425	0.5 – 18	900
Area 3	675	0.5 – 8	200
<b>Total</b>	<b>2,400</b>		<b>1,400</b>

\* The treatment regions are defined on Figure 2 “ERH Treatment Area and Depths” of the TtNUS RFP.

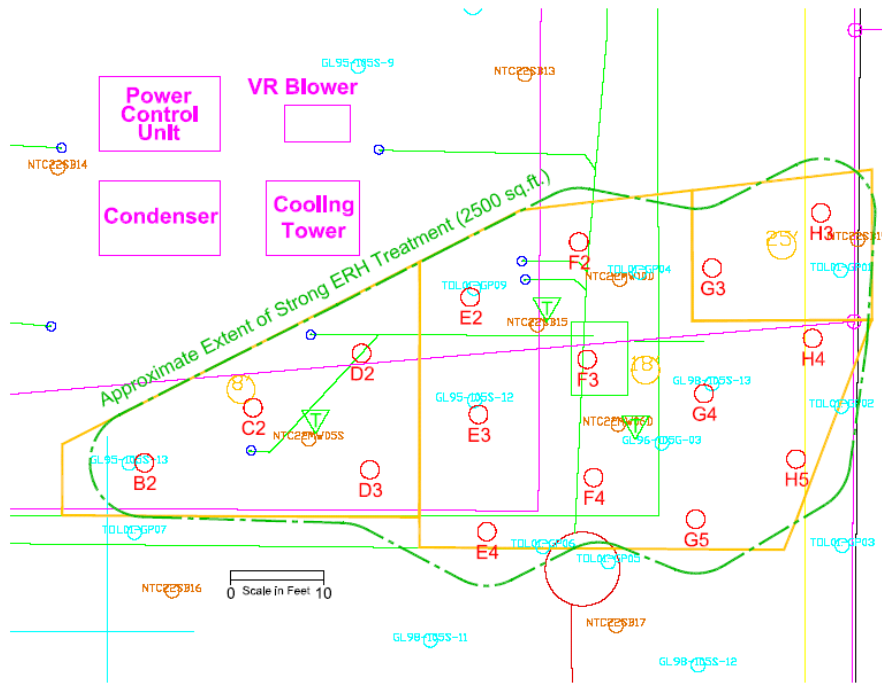


**Figure 1. Site Layout**

### ***Construction and Operations***

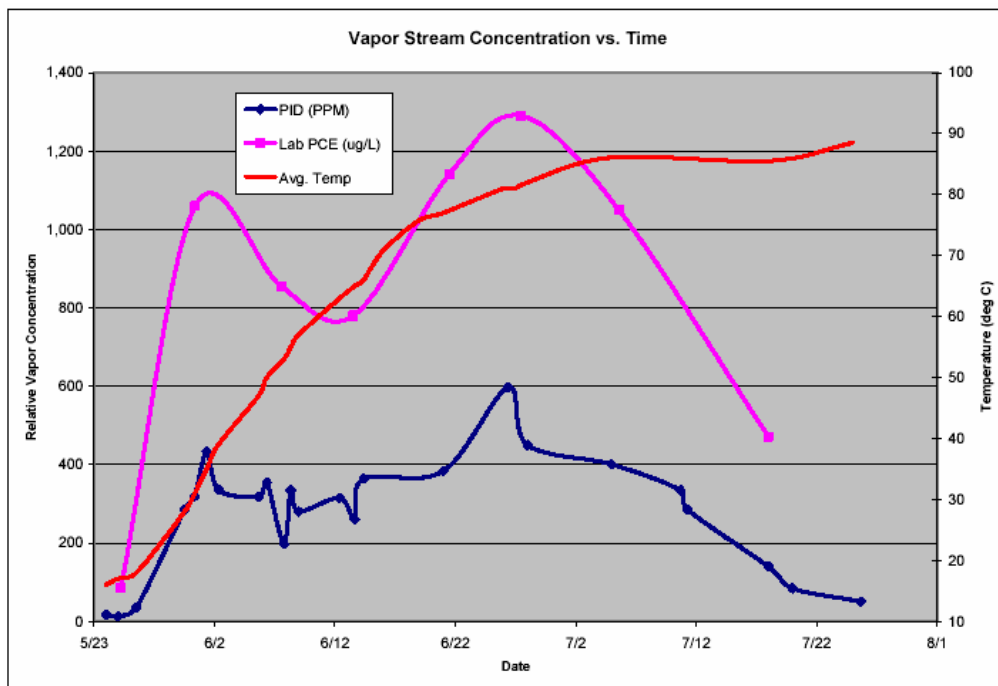
The ERH system includes 16 electrodes and co-located vapor recover wells, 3 Temperature Monitoring Points (TMP's) with thermocouples at every five foot subsurface interval. Figure 2 shows the locations of the electrodes and ERH specialty equipment from the TRS fleet including one 500 kW Power Control Unit (PCU) for continuous power to the treatment volume, a 15 horsepower blower, and a steam condenser.





**Figure 2. Site Plot Plan**

Operations began on May 23, 2006 and are expected to be completed in late summer or fall of 2006. As of July 25, 2006, approximately 970 pounds of PCE have been recovered in the vapor stream.



**Figure 3. Vapor Stream Concentration Verses Time**

Figure 3 illustrates the vapor stream concentration of the PID and Lab samples versus time, with the average subsurface temperature included for reference.