



ENVIRONMENTAL STRATEGIES CONSULTING LLC
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July 7, 2004

Mr. Carl Cuipyllo
New York State Department of Environmental Conservation
Region 7
615 Erie Boulevard West
Syracuse, NY 13204-2400

Re: Vadose Zone Sampling Results
Emerson Power Transmission, Ithaca, New York

Dear Mr. Cuipyllo:

Environmental Strategies Consulting LLC, on behalf of Emerson, has prepared this letter summarizing the Vadose Zone sampling program conducted near the Emerson Power Transmission (EPT) facility in Ithaca, New York. The work was completed in accordance with procedures described in the *Vadose Zone Work Plan*, dated January 16, 2004, and approved by the New York State Department of Environmental Conservation (NYSDEC) on May 13, 2004.

The investigation consisted of installing and sampling nine shallow vadose zone sampling points (designated VP-1 through VP-9) at locations along South Cayuga Street, South Hill Terrace, and South Geneva Street (Figure 1). At the request of Emerson, four sampling points were added to the original scope of work to assess the area further down South Cayuga Street. In addition, because of construction activities along Spencer Street, alternate sampling locations were selected along South Geneva Street. The alternate and additional sample locations were approved by the NYSDEC.

Vadose Zone Sampling Procedures

The Vadose Zone sampling was conducted on June 17, 2004. The samples were collected approximately 1 foot above the saturated zone or bedrock and ranged in depth from 4.0 to 5.5 feet below ground surface (bgs). Samples VP-4, VP-6, VP-8, and VP-9 were collected from areas along South Cayuga Street and samples VP-5 and VP-7 were collected along the EPT facility access road. Samples VP-1 through VP-3 were collected from alternate locations on South Geneva Street.

Before installing the sampling devices, Environmental Strategies drilled an exploratory boring at each sampling location to verify the depth to groundwater or bedrock. The soil borings were advanced by collecting continuous soil samples using a vehicle-mounted hydraulic probe equipped with a 4-foot-long 2-inch-outside diameter macrocore sampler fitted with a single-use acetate liner. The recovered soil samples were logged in the field for color, texture, and moisture content using the unified soil

classification system. At the completion of the boring, the soil samples were returned to the borehole and the remainder of the borehole was sealed with granular bentonite hydrated with potable water. The borehole was capped with soil cuttings or asphalt patch to match the surrounding surface.

The soil gas sampling points were installed by advancing a second borehole using the macro-core sampler. A stainless steel screen fitted with 0.25-inch inside-diameter Teflon-lined tubing was lowered to the bottom of each borehole, which was then backfilled with quartz sand to form a 1-foot-thick sampling interval. The remaining annular space was sealed with hydrated granular bentonite. The bentonite was hydrated to form a thick paste before it was placed in the borehole. The bentonite paste was placed into the borehole in 3 to 6-inch lifts that were compacted to form a seal.

To ensure that the sample was representative of the vadose zone, a minimum of one well volume of gas was purged from the sampling equipment and the surrounding sand pack using a calibrated hand pump. Once the well was purged, the tubing was clamped (to prevent the entry of ambient air) and connected to an evacuated 6-liter SUMMA™ canister equipped with a flow controller. The clamp was removed and the valve on the canister was then opened to initiate the sample collection. The flow regulator was pre-set by the laboratory to collect the soil gas sample over 8 hours. The valve on the canister was closed at the end of the 8-hour period and the canister was labeled with the sample name, location, time and date of sample collection, and the analytical method.

Once the sampling activities were complete, the tubing was removed from the ground and the borehole was capped with soil cuttings or asphalt patch to match the surrounding surface. The direct-push rods and drive point were decontaminated between each point using a non-phosphate detergent and tap water wash followed by a tap water rinse. Disposable nitrile gloves were worn by the sampling personnel and the gloves were changed before the collection of each sample.

The SUMMA™ canisters were shipped to Severn Trent Laboratories, Inc., in Knoxville, Tennessee, which is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program. Samples of the soil gas in each canister were analyzed for site-related volatile organic compounds by U.S. Environmental Protection Agency Method TO-15. In accordance with the *Operation, Maintenance, and Monitoring Manual* for the site, dated April 1997, and its addendum pages, dated July 11, 1997, the soil gas samples were analyzed for the following compounds detected in site groundwater: 1,2-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride.

The sample locations will be surveyed by a surveyor licensed in New York. Each sample location was marked by Environmental Strategies with paint so that the sample locations could be accurately identified by the surveyor. Horizontal measurements will be accurate to the nearest 0.1 foot and vertical measurements to the nearest 0.01 foot.

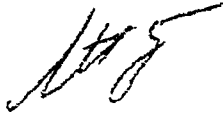
Vadose Zone Sampling Results

The analytical results for the soil gas samples are summarized in Table 1 and copies of the laboratory reports are enclosed as Attachment 1. For comparison, Table 1 also includes the 25th and 75th percentile values for site-related constituents in background outdoor air as listed in the NYSDOH's background air quality database.

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If you have any questions or comments regarding the contents of this letter, please contact us at (703) 709-6500.

Sincerely yours,



Scott P. Hartz
Senior Project Director

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Attachment

cc:encl: Mr. Derek Chase, Emerson

DRAFT Table 1

Soil Gas Results
Emerson Power Transmission Facility
Ithaca, New York
July 7, 2004 (a)

<u>Parameter (ppb(v/v))</u>	<u>VP-1 (ALT)</u>	<u>VP-2 (ALT)</u>	<u>VP-3 (ALT)</u>	<u>VP-4</u>	<u>VP-5</u>	<u>VP-6</u>	<u>VP-7</u>	<u>VP-8</u>	<u>VP-9</u>	NYSDOH Background Outdoor Air Levels (b)
1,2-Dichloroethane	2.1 U	0.3 U	0.6 U	0.31 U	0.32 U	9.6 U	14 U	9.6 U	3.2 U	<0.2
cis-1,2-Dichloroethene	2.1 U	0.3 U	0.6 U	1.1	0.32 U	9.6 U	14 U	9.6 U	3.2 U	<0.3 - <2.5
trans-1,2-Dichloroethene	2.1 U	0.3 U	0.6 U	0.31 U	0.32 U	9.6 U	14 U	9.6 U	3.2 U	<1.8 - <2.5
Methylene chloride	5.4 U	0.75 U	1.5 U	0.78 U	0.8 U	24 U	36 U	24 U	8 U	<0.3 - 1.1
Tetrachloroethene	2.1 U	0.32	1.1	6.3	0.32 U	400	14 U	650	49	<0.2 - <1.0
1,1,1-Trichloroethane	2.1 U	1.2	3.2	15	0.32 U	310	22	220	310	0.18 - 0.51
Trichloroethene	2.1 U	0.3 U	0.6 U	8.2	0.32	61	14 U	80	23	<0.2 - <1.0
Vinyl chloride	2.1 U	0.3 U	0.6 U	0.31 U	0.32 U	9.6 U	14 U	9.6 U	3.2 U	<0.4

a/ U = compound not detected above reporting limit; ALT = alternate sampling location.

All soil gas samples were analyzed using EPA-2 TO-15 - "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air," EPA-625/R-96/010B, January 1999.

b/ NYSDOH 25th to 75th percentile background concentrations in outdoor air.

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