

90 B John Muir Drive  
Amherst, New York 14228  
(716) 565-0624 • Fax (716) 565-0625



October 3, 2010

Tim McInerney  
National Vacuum  
408 47th Street  
Niagara Falls, NY 14304

Transmitted via email to: Tim McInerney (jtmcinerney@nationalvacuum.com)

Dear Mr. McInerney:

**Subject: Geophysical Survey Results, 300 Ohio Street, Buffalo, NY**

## **1.0 INTRODUCTION**

This letter report presents the results of the geophysical investigation performed for National Vacuum in support of their environmental investigation of a property located at 300 Ohio Street in Buffalo, NY. We understand that historical information compiled by others suggests that this property once operated as an automotive fuel station.

The geophysical investigation was designed to geophysically characterize the subsurface and focus a follow-up intrusive investigation. The information provided herein is intended to assist national Vacuum with their assessment of potential environmental concerns at the Site.

The objective for the geophysical survey was to explore for anomalies indicative of underground storage tanks (USTs). AMEC Geomatrix, Inc. performed data acquisition on September 8 and 9, 2010.

## **2.0 METHODOLOGY**

A series of reference grids were installed at the site to facilitate data acquisition along lines spaced five feet apart. The grids were marked with orange and white spray paint with select coordinates labeled to allow subsequent work if necessary.

The site was geophysically surveyed using the Geonics EM61. The EM61 unit is a high sensitivity, high resolution time domain electromagnetic (TDEM) metal detector that can detect both ferrous and nonferrous metallic objects. It has an approximate investigation depth of 10 feet. The processing console is contained in a backpack worn by the operator which is

AMEC Geomatrix, Inc.

interfaced to a digital data logger. The transmitter and two receiver coils are located on a two-wheeled cart that is pulled by the operator.

The device's transmitter coil generates a pulsed primary EM field at a rate of 150 pulses per second, inducing eddy currents into the subsurface. The decay rates of these eddy currents are measured by two, 3.28 foot by 1.64 foot (1 meter by  $\frac{1}{2}$  meter) rectangular receiver coils. By taking the measurements at a relatively long time frame after termination of the primary pulse, the response is practically independent of the survey area's terrain conductivity. Specifically, the decay rates of the eddy currents are much longer for metals than for normal soils allowing the discrimination of the two.



EM61 in use (photo not from this site)

Data are collected from the EM61's two receiver coils. One of the receiver coils is located coincident to the transmitter coil. The other receiver coil is located 1.31 feet (0.4 meters) above the transmitter coil. Data from the top receiver coil are stored on Channel 1 of a digital data logger. Data from the bottom receiver coil are stored on Channel 2 of the data logger. Channel 1 and Channel 2 data are simultaneously recorded at

each station location. The instrument responses are

recorded in units of milliVolts (mV). Data were recorded digitally by a data logger at a rate of approximately 2 measurements per foot along the survey lines which were spaced 5 feet apart.

### 3.0 RESULTS

The EM61 data for the site are shown in Figures 1 through 3. The color bar to the right of the maps indicates the colors associated with the respective measured values. Areas suspected to be free of buried metals are shown as color shades of blue. All areas exhibiting a response greater than background (0 to 40 mVolts) likely contain buried metals. These areas are depicted in shades of dark blue through yellow on the figures.

Figure 2 shows the geophysical data overlain with an air-photo. Figure 3 shows the geophysical data overlain with a historic site map showing UST's that was provided by the DEC.

Numerous surface and buried metal anomalies are observed on the figures and are shown in shades of yellow. Several linear anomalies, likely related to buried pipes, are shown in shades of dark blue.

Anomalies interpreted to be potentially significant are labeled A through S on the figures. These anomalies likely represent buried metal objects and are potentially UST's. Other explanations for the anomalies may be that some relate to miscellaneous buried metal objects. The airphoto (Figure 2) suggests that Anomalies in the region of "A" may be related to the footprint of a former building.

Any of the additional above background responses may be significant from an environmental perspective however they are more likely associated with miscellaneous surface or buried metals.

#### **4.0 LIMITATIONS**

The geophysical methods used during this survey are established, indirect techniques for non-destructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface features (reinforced concrete pads, electrical wires, scrap metal, etc.) preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pit excavation and/or test boring, if warranted.

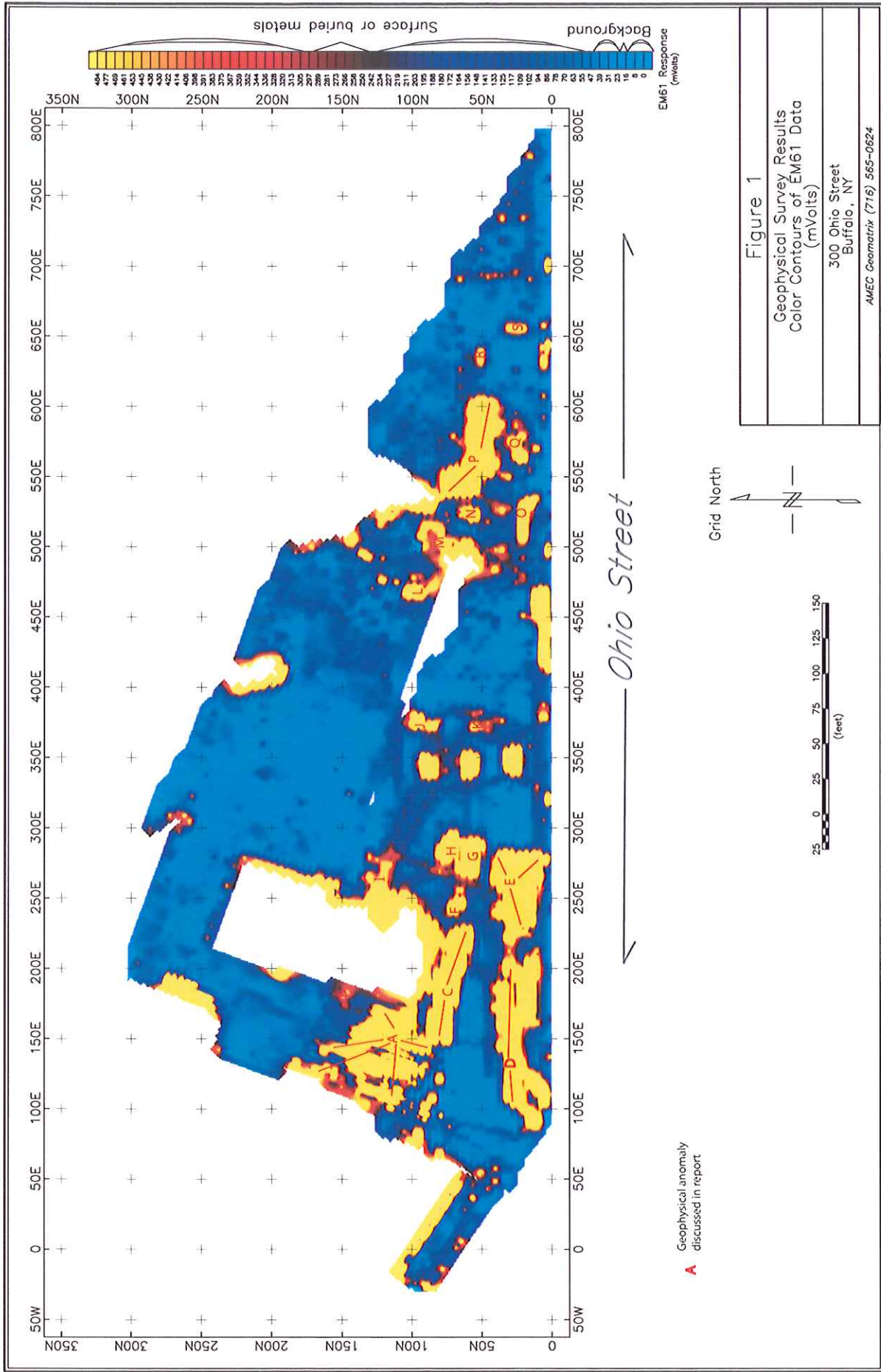
Tim McInerney  
National Vacuum  
October 3, 2010  
Page 4

Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely yours,  
AMEC GEOMATRIX, INC.

A handwritten signature in cursive script, appearing to read "John Luttinger", written in a light blue or grey ink.

John Luttinger  
Senior Geophysicist





**A** Geophysical anomaly discussed in report

