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Mr. Gerald J. Rider, Jr., P.E.
New York State Department of Environmental Conservation
Division of Environmental Restoration
Bureau of Hazardous Site Control, Room 252
50 Wolf Road
Albany, NY 12233-7010

JUN 1 1999

ENVIRONMENTAL

Subject:
Termination of Plant 2 SVE System Operation, Northrop Grumman Corporation, Bethpage, New York
ARCADIS Geraghty & Miller Project No. NY000008.0152.00002

Melville,
26 May 1999

Contact:
Robert Porsche

Extension:
516.391.5233

Dear Mr. Rider:

As a follow-up to our May 7, 1999 telephone conversation, ARCADIS Geraghty & Miller has prepared this letter on behalf of the Northrop Grumman Corporation to petition the New York State Department of Environmental Conservation (NYSDEC) for an alternative approach for endpoint sampling regarding termination of Plant 2 SVE System operation. In place of the soil sampling requested in the NYSDEC letter dated April 6, 1998, ARCADIS Geraghty & Miller is asking for NYSDEC approval to collect and analyze soil-gas samples for the purpose of determining if operation of the Plant 2 SVE system may be permanently terminated. This letter provides a brief history of the soil contamination in the vicinity of Plant 2, discusses the operational history of the SVE system, and provides a rationale for use of soil-gas sampling as the method to determine if permanent system shut down is warranted.

Background

As part of an investigation of solvent storage areas conducted during the Northrop Grumman Bethpage Facility Remedial Investigation (RI), soil-gas samples were collected in the vicinity of the trichloroethene (TCE) storage tank adjacent to Plant 2 (see Figure 1); TCE was detected in the soil-gas at concentrations ranging from 60 to 100 ppmv. As a follow-up to the soil-gas survey, soil samples were collected from four borings drilled near the Plant 2 TCE tank; analytical results of soil samples indicated TCE concentrations ranging from 0.044 to 130 parts per million (ppm). The majority of the TCE detected in the soil was in the 0 to 2.5 ft below land surface (bls) interval, however, TCE was also detected at 48 parts per billion (ppb) at 2 to 4 ft bls. As a follow-up to the soil boring investigation, a shallow monitoring

well (GM-32S), was installed in the vicinity of the TCE storage tank to evaluate possible impacts to groundwater. TCE was detected at 160 ppb in a groundwater sample collected from Well GM-32S. A more detailed explanation of the sampling program and results is presented in the RI Report (Geraghty & Miller 1994). In general, the results of the RI indicate the presence of two soil source areas (near Plant 2 and Plant 15) and the presence of a widespread TVOC groundwater plume both on- and off-site. TCE was detected in groundwater north of Plant 2 at 58 and 1,000 ppb in Monitoring Wells GM-16I and GM-12I, respectively. The TCE soil impacts in the vicinity of Plant 2 were identified during the RI to constitute a secondary source of contamination. TCE concentrations in groundwater detected upgradient of Plant 2 are higher than those detected in the vicinity of the Plant 2 TCE tank, indicating that the TCE tank at Plant 2 is not the primary source.

Based upon the findings of the RI, Northrop Grumman installed the Plant 2 SVE system in December 1994 as part of an Interim Remedial Measure (IRM) to address the soil contamination. The purpose of the IRM, as specified in the Record of Decision (ROD), dated March 1995, was to protect groundwater from further impacts from the Plant 2 source area by remediating the TCE-impacted soils beneath the Plant 2 TCE storage tank. Following the Plant 2 SVE installation, the TCE bulk storage tank was dismantled and removed by Northrop Grumman in 1996. The ground in the vicinity of the SVE system has been paved with asphalt, effectively capping the source area, and serves as a parking lot for the current occupants of the property. In addition to the soil IRM, a groundwater IRM was designed and constructed to contain and remediate on-site impacted groundwater. The groundwater IRM system provides hydraulic control and containment of the on-site TVOC plume and has been operational since September 1998.

A soil-gas survey conducted during the RI in the vicinity of the Plant 15 loading dock indicated the presence of PCE in the subsurface. As a result, in January 1996, during an off pulse of the Plant 2 SVE system, the system was temporarily moved and operated at Plant 15 for approximately one month. During this month of operation VOC levels declined to non-zero asymptotic levels. Based upon these results, NYSDEC approved the use of a soil-gas survey to determine if the SVE system in operation at Plant 15 could be permanently shut down. A 95% reduction in soil-gas concentrations was observed after conducting a soil-gas survey in March 1996. The NYSDEC approved termination of SVE operation at Plant 15, and the SVE system was moved back to Plant 2 in May 1996.

Operational History

The Plant 2 SVE system was installed and operated beginning in December 1994 and continued until the end of July 1998. Throughout the operating period, the system has been monitored to ensure optimal removal of VOCs from the soils underlying the former aboveground TCE storage tank. In addition, the system has been operated in a pulsed mode (on and off operation) to optimize VOC removal from the subsurface. On Figure 2, which shows TCE concentrations in the extracted soil-gas versus time, the concentration of TCE has reached a non-zero asymptotic level. The calculated TCE removal rate for the last operating period (May to July 1998) was approximately 3.7 pounds per month.

The effectiveness of the system was also monitored by collecting vacuum influence readings at various distances from the SVE Extraction Well. The vacuum influences measured ranged from 0.10 (40 feet away) to 0.36 inches of water (15 feet away). These readings indicated that there was a sufficient vacuum influence throughout the area believed to be impacted by the former TCE tank.

Soil-Gas Sampling

Based upon data collected during the operation of the SVE system and described in the previous section, it is our belief that the SVE system at Plant 2 has effectively remediated the TCE-impacted soils in the Plant 2 source area. In addition, the area is capped with asphalt, preventing infiltration of precipitation and thereby precluding any remaining VOCs from migrating to the water table. Furthermore, impacts to groundwater that may have occurred prior to the installation of the asphalt cap and SVE system will eventually be captured and remediated by the groundwater IRM system located downgradient of the Plant 2 area. Additionally, the Plant 2 source area overlies a TVOC-impacted groundwater plume and the TCE currently being removed by the SVE system (i.e., approximately 3.7 lbs/month) may be volatilizing from the water table.

Therefore, based on the above, and in accordance with work performed at Plant 15, ARCADIS Geraghty & Miller proposes the collection of three soil-gas samples to determine if permanent shut down of the Plant 2 SVE system is warranted. Two of the samples will be collected from the vicinity of the former TCE storage tank. The third soil-gas sample will be collected from an upgradient location overlying the TVOC groundwater plume, preferably from a paved parking lot, to establish site background concentrations of TVOCs in soil-gas. To expedite analysis of the soil-

gas samples, a portable gas chromatograph (GC) calibrated for TCE will be used in the field to analyze the samples.

Samples will be collected according to the following methodology. A rotary hammer drill equipped with a 1 ½-inch bit will be used to gain access to the soil beneath the asphalt. After the asphalt is penetrated, a ½-inch diameter borehole will be created in the soil with a slide hammer and solid rod assembly. The depth of the borehole will be approximately 3 to 4 ft bls. The solid rod will then be removed and a ¼-inch diameter stainless steel rod, containing 1/8-inch diameter Teflon tubing, will be inserted. The Teflon tubing will extend above the hollow stainless steel rod, midway down the exposed Teflon tubing a stainless steel tee will be fitted through which the soil-gas samples will be collected with a syringe. The bottom end of the Teflon tubing will be sealed with a disposable plug to prevent clogging of the assembly as it is lowered into the borehole. The plug will be disengaged prior to sample collection, and the top of the borehole will be sealed around the stainless steel rod with modeling clay. The Teflon tubing will be attached to a diaphragm pump and the borehole evacuated for two minutes, prior to sample collection.

A brief letter report will be prepared summarizing the collection and analysis of the soil-gas samples, and a figure indicating the location at which the soil-gas samples were collected will be included. The soil-gas sample results will be compared to both the soil-gas data collected during the RI, and the background soil-gas results. Following approval of the soil-gas letter report by the NYSDEC, the wells will be properly abandoned, and the Plant 2 SVE system will be disassembled and removed from the site.

If you have any questions or comments, please do not hesitate to call.

Sincerely,

ARCADIS Geraghty & Miller, Inc.

Robert Porsche

Robert Porsche
Project Scientist

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Carlo San Giovanni for

Michael F. Wolfert
Project Director

cc: John Cofman
Steve Scharf

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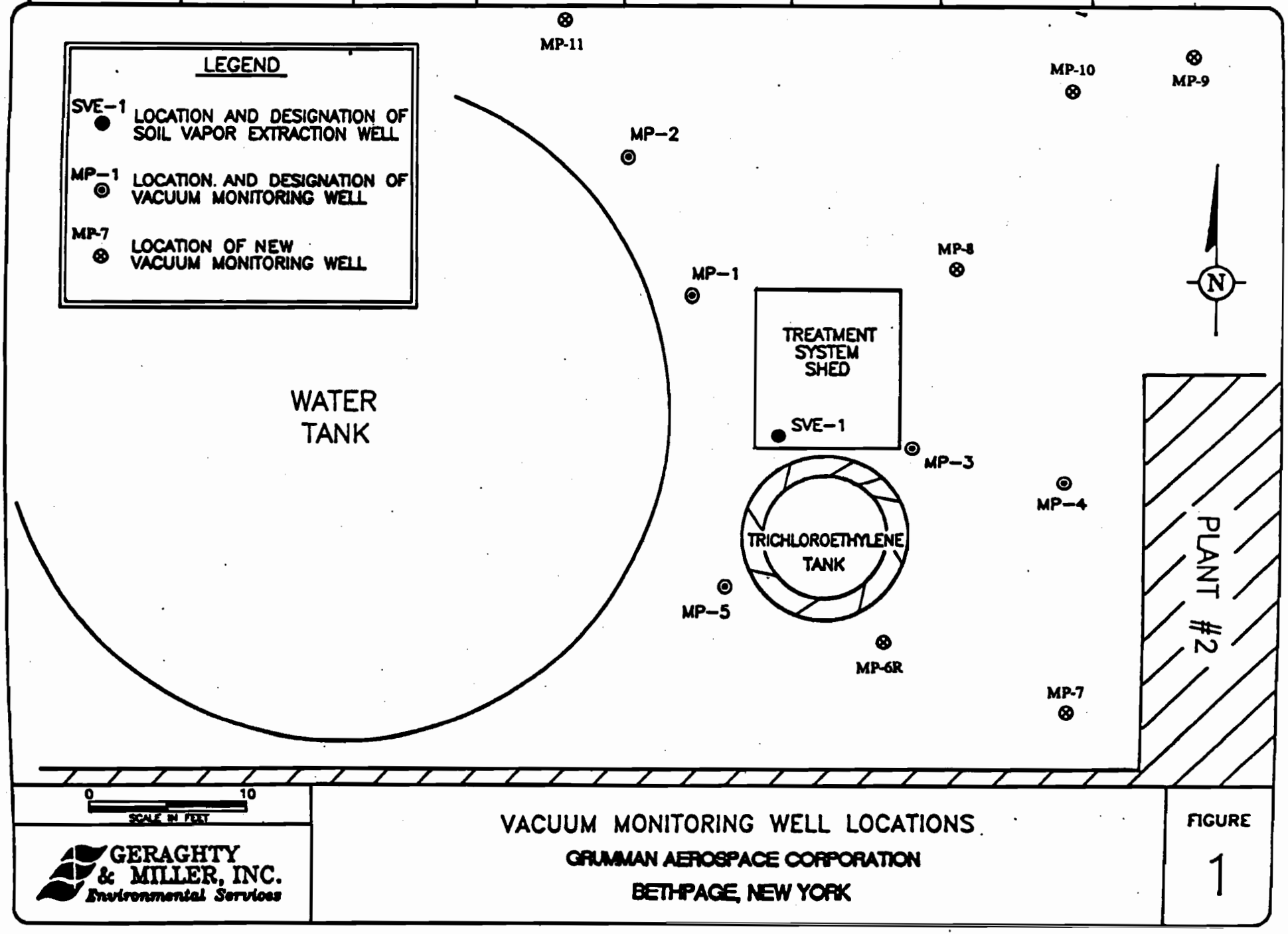


GERAGHTY & MILLER, INC.
Environmental Services

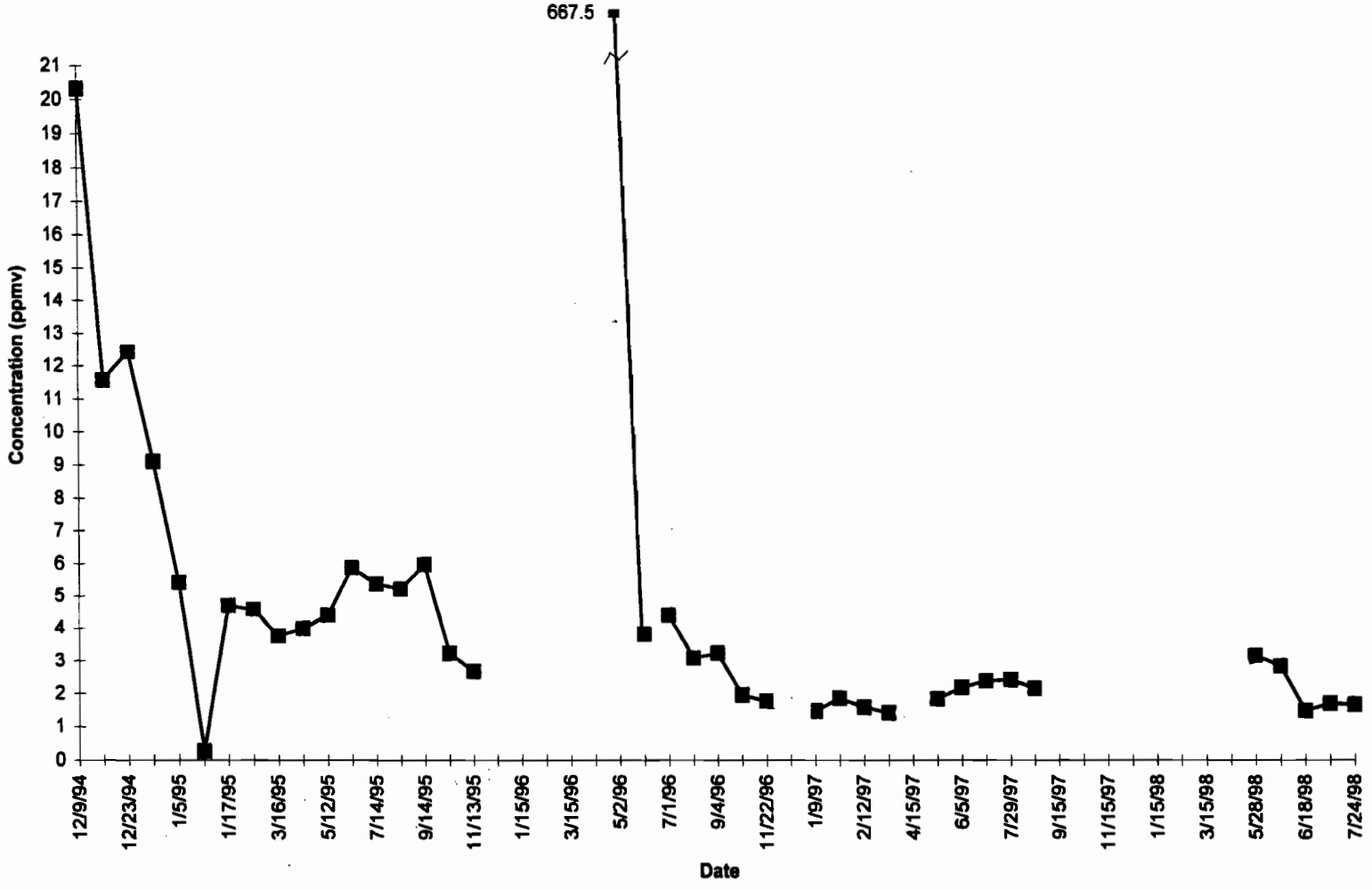
VACUUM MONITORING WELL LOCATIONS

GRUMMAN AEROSPACE CORPORATION

BETHPAGE, NEW YORK

FIGURE 1

Figure 2. Concentration of Trichloroethylene vs. Time in Extracted Soil Gas, Northrop Grumman Corporation, Bethpage, New York.



Breaks in graph represent pulses (shut down) in system operation.