WO

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

August 6, 2009

Brian Stearns, P.E. Sr. Environmental Engineer
National Grid
Environmental Department C-1
300 Erie Blvd
Syracuse, NY 13202

Re: Soil Vapor Investigation
Broadway, Schenectady Former MGP Site
Site No. 4-47-026

Dear Mr. Stearns:

The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the "Results of February 2009 Soil Vapor Sampling at the Schenectady, (Broadway) Former MGP Site, Schenectady, NY", dated May 15, 2009. This report was prepared to satisfy the requirement specified in the March 2008 Record of Decision, which stated:

> "Soil vapor near the on-site office building and west of the railroad tracks (off-site) will be investigated to evaluate the potential for contaminated soil vapor entering occupied buildings both prior to the start of design and post-remedy. Mitigation systems, if determined to be necessary, will be installed."

This investigation determined that MGP related constituents were not present at significantly elevated levels, and there is no need for any further investigation or remediation associated with the potential for soil vapor intrusion from MGP related contamination. We note that a post-remediation investigation is still required in the above excerpt.

The Department of Health does recommend that National Grid conduct a soil vapor intrusion investigation of the Garage/Office Building for purposes of evaluating potential exposures associated with the 1,1,1-trichloroethane (TCA) contamination. They suggest that, at a minimum, additional sub-slab vapor samples be collected along with concurrent indoor air samples for analysis.

O'BRIEN & GERE

October 30, 2009

Mr. Dave F. Ingalls, P.E., CPESC
City of Schenectady
Department of Engineering
Room 205 City Hall – 105 Jay Street
Schenectady, New York 12305-1938

Re: Schenectady Broadway
Former MGP Site, Site No. 4-47-026
Schermerhorn Creek Isolation

File: 1118.42895 Corr

Dear Mr. Ingalls:

This letter responds to comments the City provided to National Grid in a letter dated September 11, 2009 regarding the isolation of Schermerhorn Creek. For ease of review, each comment presented in the September 11, 2009 letter is provided below followed by a response.

1. *Broadway – Existing Closed Drainage System*

We agree that final locations for proposed access manholes (for inspection/maintenance) can be determined in final design. However, there should be an access manhole near the connection of any City drainage lateral from Broadway to the proposed box culvert. Based on input from City staff, it is believed that two or three storm laterals, in addition to the 24" x 38" elliptical storm pipe currently indicated on the plans, lead from Broadway to the creek on National Grid property. Unfortunately, these other storm pipe outfalls along the creek may be silted over. If the pipe outfalls to the creek are not able to be located prior to construction, it is recommended that a provision be included on the plans and specifications addressing those additional pipe connections to the box culvert and access manholes will be required.

For a number of reasons, the City does not intend to attempt to clean any catch basins or storm pipes along Broadway. The only way the Broadway pipes could be cleaned would be to jet from the outfall end; however, the pipe outfalls have not been located on National Grid's property.

The City does not have any information relative to the redevelopment at 797 Broadway or existing drainage systems along Broadway. Site plan information for 797 Broadway should be available from Schenectady County Engineering. The County contact is Latimer Schmidt, P.E., Director of Engineering at 518-356-5344. Review and analysis of the Broadway drainage system should be included in the hydraulic model. Based on the assumed drainage area of the Broadway system, the computed runoff flows should be linked to the model.

Response: O'Brien & Gere contacted the City and County Engineering Departments and obtained drawings showing three storm sewers entering Schermerhorn Creek from Broadway within the limits of the site. The design of the box culvert in Schermerhorn Creek includes the installation of manholes where these storm sewers may connect with the box culvert.

The catch basins and storm sewers along Broadway are the property of the City of Schenectady. National Grid will provide for the connection of each storm sewer outfall to the box culvert, but will not clean the storm sewers or catch basins during construction. If the outfalls cannot be located during construction activities, it will be assumed that the outfall does not exist or has been abandoned and therefore no connection with the box culvert will be made.

Contact with the Schenectady County Engineering Department was made regarding the redevelopment at 797 Broadway. The hydraulic model of Schermerhorn Creek has been revised to include the estimated flows from the storm sewers entering the creek from Broadway. The sizes of these culverts were taken from the drawings and information provided by the City and County Engineering Departments. Though the slope of these pipes is unknown, estimates have been made of the amount of stormwater they contribute to Schermerhorn Creek using an assumed pipe slope to estimate the hydraulic capacity of each. These hydraulic capacities were input into the existing and proposed versions of the model as a constant flow. The addition of these constant flow rates is reflected in the additional modeling described below in item 2.

2. *Weaver Street Flooding*

We understand National Grid's position that work beyond the site limits is not their responsibility, however, this statement is only valid if their proposed box culvert construction does not have adverse impact on downstream properties, including Weaver Street.

We have reviewed the hydraulic model results provided in Attachment A. We question how the HGL elevation for higher intensity storm events show a decrease in elevation, i.e. 10-year storm @ el. 225.18 versus 25-year storm @ el. 225.17. The table also shows the 25-year storm volume of flooding across Weaver Street (ft^3) to substantially increase for proposed conditions with an additional 717,672 ft^3, equal to approximately 16.5 acre-feet. Where will this additional flood volume go and how will it be accommodated? We also question the accuracy of the calculations for flooding under 25-year existing conditions showing a flood volume of approximately 620 acre-feet?

Response: The difference in peak hydraulic grade line elevation at the upstream end of the Weaver Street culvert between the 10-year and 25-year storms is caused by a slight difference (1 cfs) in peak flow rate through the proposed 8-ft x 6-ft rectangular pipe. This difference is caused by model calculation rounding and small time-of-travel differences caused by the small changes in peak flow rates. For each of the design storms presented in Attachment A of our August 17, 2009 letter, the peak flow rate leaving Fuller Pond through the outlet structure was 695 cfs. Similarly, the peak flow rate in the existing 3.5-ft x 7.0-ft rectangular pipe was 292 cfs for each design storm.

The additional 717,672 ft^3 volume of water that crosses Weaver Street (through the culvert and by flowing across the roadway) in the proposed condition is water that currently exits the

storm sewer system through catch basin grates and manhole covers upstream of the existing 3.5-ft x 7.0-ft rectangular pipe. By providing additional hydraulic capacity, the originally proposed 8-ft x 6-ft rectangular culvert pipe would have alleviated a portion of the upstream flooding condition. However, as you identified, this decreasing the existing upstream flooding condition through the use of the 8-ft x 6-ft rectangular culvert pipe could potentially result in a marginal increase to the existing downstream flooding, resulting in a calculated peak increased flow depth of 0.11 ft (1.32 inches) of water flowing across Weaver Street during the design storm.

It is our understanding that the City does not want increased flooding across Weaver Street. In an effort to best match the existing flow condition, two variations of the proposed design were simulated. These variations included smaller proposed rectangular culvert pipe sections (a 7-ft x 6-ft and a 6-ft x 6-ft section – the next two smaller standard size rectangular pipe sections). The results of these additional modeling efforts are summarized in Attachment A. When compared to the originally proposed 8-ft x 6-ft rectangular culvert pipe, the two variations both reduce the total volume that flows across Weaver Street (through the culvert and flow across the roadway), reduce the peak flow rate through the site, and reduce the hydraulic grade line elevation at the upstream end of Weaver Street. Although the results do not match the existing condition (i.e., flooding both upstream and downstream of the site) exactly, they are the best fit in replicating the current condition. Figure 1 illustrates the hydrographs through the natural channel section and the originally proposed 8-ft x 6-ft rectangular pipe. Figure 2 illustrates the hydraulic grade line at the upstream end of the Weaver Street culvert for the natural channel section and the originally proposed 8-ft x 6-ft rectangular pipe.

The last portion of your comment concerns the 620 acre-ft (27,008,122 ft^3) of flooded volume at Weaver Street. The 620 acre-ft that is referenced is not actually a "flooded volume". Rather, it is the total volume that passes Weaver Street over the entire model simulation of 72 hours, determined by adding the volumes passing through the culvert at Weaver Street plus the volume that overtops Weaver Street.

For the updated proposed condition model (8-ft x 6-ft rectangular pipe), essentially 956 acre-ft of water enters the system during the 25-year event. Approximately 685-acre-ft is passed through the National Grid site to Weaver Street and the remaining 271 acre-ft exits the system upstream of the National Grid site.

Based on the hydraulic modeling described above, the exact replication of the existing conditions is not possible using a rectangular pipe. Under current conditions, during the design storm, flooding occurs both upstream of the site on Broadway and across Weaver Street. Attachment B demonstrates the effect of installation of various size culverts on the flooding at the upstream catch basin and across Weaver Street. As shown on Attachment B, installation of a 7-ft x 6-ft rectangular culvert pipe to convey Schermerhorn Creek across the National Grid Property will result in flow conditions most similar to those that currently exist during the design storm. Installation of a 7-ft x 6-ft rectangular culvert best replicates the existing condition resulting in a marginal decrease in total flooding at the upstream catch basin on Broadway by approximately 3% and a marginal increase in the total volume across Weaver Street by approximately 2%. This increased flow across Weaver Street will result in a calculated increased peak flow depth of 0.03 ft (0.36 inches). As such, National Grid will re-design the box culvert from the original design size of 8-ft x 6-ft to be 7-ft x 6-ft as this size will most closely mirror the existing flow conditions.

If you have questions or comments regarding these responses, please contact Brian Stearns, P.E. of National Grid.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Stephen W. Anagnost, P.E.
Senior Managing Engineer

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cc: Brian Stearns – National Grid
Garry Cummins – Synapse Engineering Solutions
William Monette – O'Brien & Gere
Brian Platt – O'Brien & Gere
William Ottaway - NYSDEC

National Grid
Schenectady Broadway
Former MGP Site, Site No. 4-47-026

Schermerhorn Creek Isolation

Attachment A
Summary of Hydrologic and Hydraulic Model Results

Alternative Proposed Designs

Model Output		Existing Condition		Proposed Condition		
		Existing (Original)	Existing (Updated)[3]	Proposed 8' x 6' (Updated)[3]	Proposed 7' x 6'	Proposed 6' x 6'
Peak flow rate entering Fuller Pond (cfs)		2908	2908	2,908	2,908	2,908
Peak flow rate discharged from Fuller Pond (cfs)		695	695	695	695	695
Peak Fuller Pond water surface Elevation (ft)		260	260	260	260	260
Peak flow rate through the existing 3.5-ft by 7.0-ft box culvert (cfs)		276	276	289	280	263
Peak flow rate in proposed pipe (cfs)		294[2]	301[2]	319	312	292
Peak flow rate in the Weaver Street culvert (cfs)		139	139	139	139	139
Peak HGL Elevation upstream end of Weaver Street culvert		225.10	225.11	225.22	225.14	225.07
Peak flow rate across Weaver Street (culvert and road)		294	301	318	306	292
Total Volume at Weaver Street (ft^3)		27,008,122	29,156,925	29,802,008	29,331,596	28,763,241
	Volume through Weaver Street Culvert (ft^3)	18,702,559	20,283,969	19,961,032	20,283,015	20,388,064
	Volume across Weaver Street (Across Roadway) (ft^3)	8,305,564	8,877,739	9,845,895	9,053,331	8,380,018
Volume of Flooding and Location (ft^3)						
	Fuller Pond Gate House	6,084,436	6,084,635	6,084,837	6,084,634	6,083,833
	Upstream Catch Basin [1]	5,699,900	5,722,700	5,104,300	5,573,200	6,144,100

Abbreviation
HGL - Hydraulic Grade Line

[1] This catch basin is located south of Broadway and upstream of the transistion from the existing 90-inch circular pipe to the 3.5' x 7.0' rectangular pipe.

[2] This is the flow rate through the existing Schermerhorn Creek channel.

[3] This model was updated to include additional flow from two 12-inch outfalls that discharge to Schermerhorn Creek.

National Grid
Schenectady Broadway
Former MGP Site, Site No. 4-47-026

Schermerhorn Creek Isolation

Attachment B
Summary of Volume Across Weaver Steet

Alternative Proposed Designs

Model Output	Existing Condition		Proposed Condition								
	Existing (Original)	Existing (Updated)[2]	Proposed 8' x 6' (Updated)[2]			Proposed 7' x 6'			Proposed 6' x 6'		
			Total	Change, ft^3	Change, %	Total	Change, ft^3	Change, %	Total	Change, ft^3	Change, %
Volume of Flooding in Upstream Catch Basin [1]	5,699,900	5,722,700	5,104,300	-618,400	-11	5,573,200	-149,500	-3	6,144,100	421,400	7
Volume through Weaver Street Culvert (ft^3)	18,702,559	20,283,969	19,961,032	-322,937	-2	20,283,015	-954	0	20,388,064	104,095	1
Volume across Weaver Street (Across Roadway) (ft^3)	8,305,564	8,877,739	9,845,895	968,156	11	9,053,331	175,592	2	8,380,018	-497,721	-6

[1] This catch basin is located south of Broadway and upstream of the transistion from the existing 90-inch circular pipe to the 3.5' x 7.0' rectangular pipe.

[2] This model was updated to include additional flow from two 12-inch outfalls that discharge to Schermerhorn Creek.

Note:

1. The model simulation period is 72 hours. Therefore, the volumes represented in this table are the total volumes that occur during the 72-hour period.

Figure 1
Schermerhorn Creek Hydrograph at National Grid Site

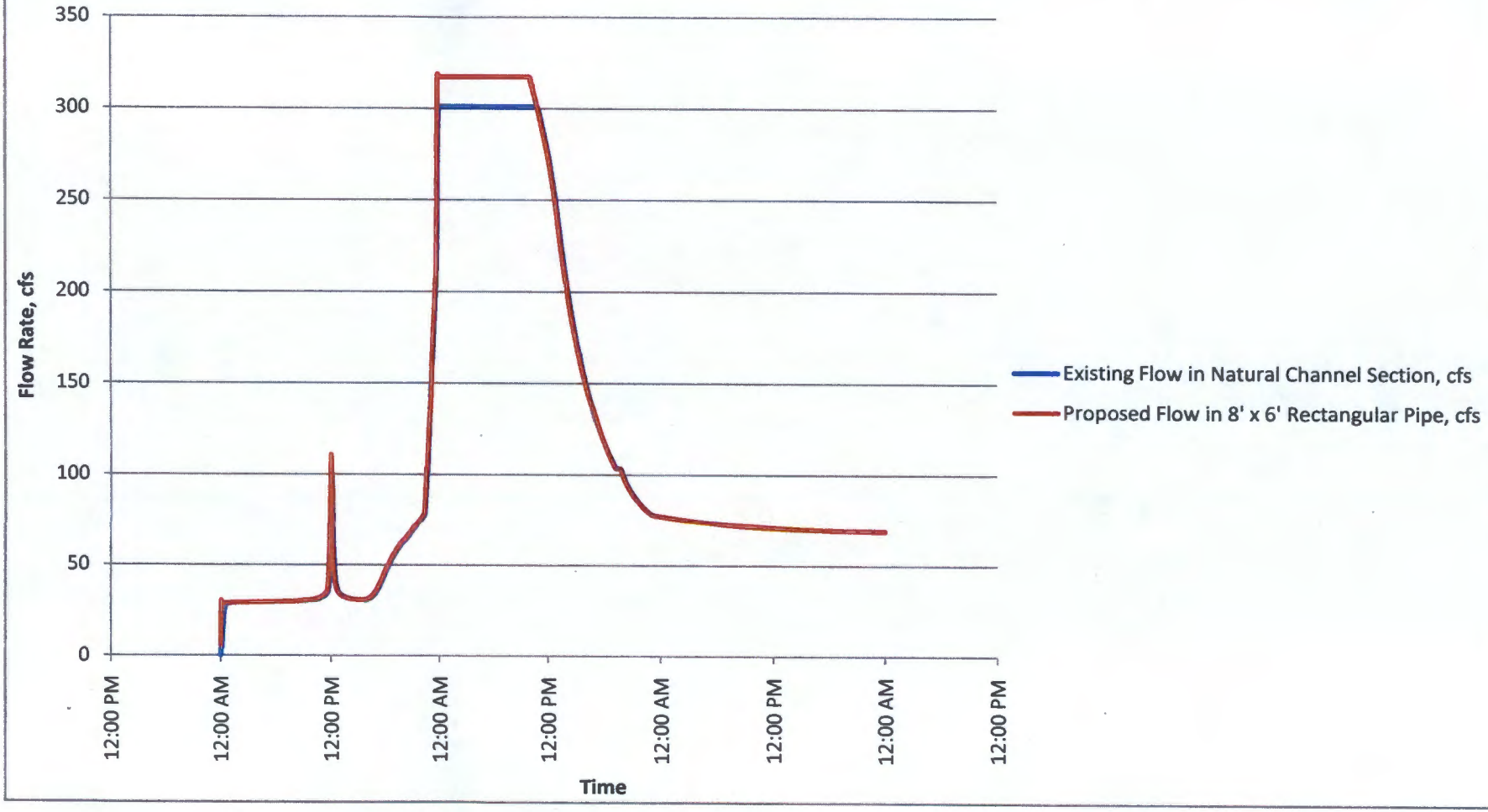
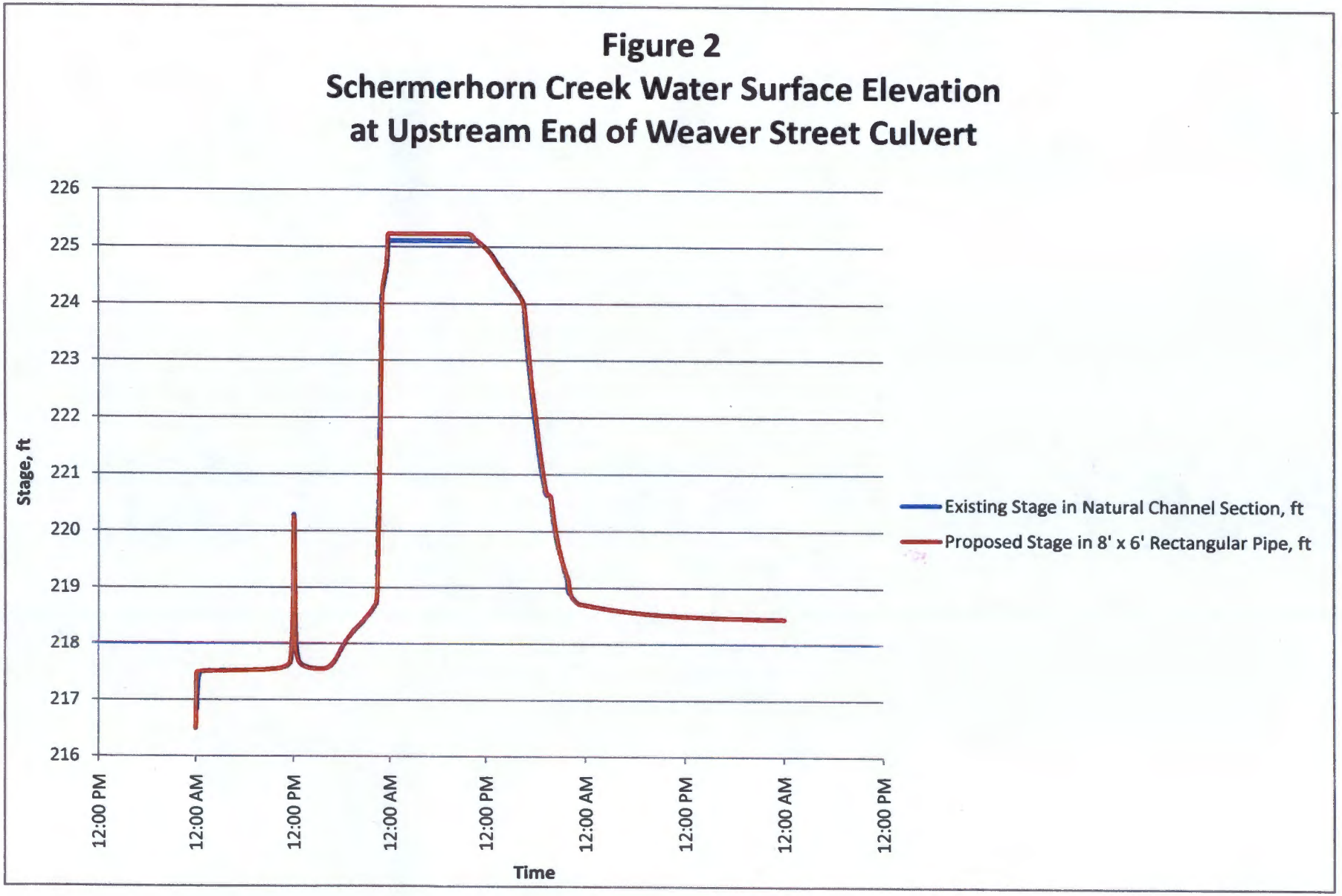


Figure 2
Schermerhorn Creek Water Surface Elevation at Upstream End of Weaver Street Culvert



O'BRIEN & GERE

April 23, 2009

Mr. William S. Ottoway
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7017

Re: Preliminary (50%) Design - for
Schenectady (Broadway) Former
Manufactured Gas Plant Site

File: 1118/42895 #2

Dear Mr. Ottoway:

Enclosed please find two electronic copies of the Preliminary (50%) Design Report for the Schenectady (Broadway) Former Manufactured Gas Plant Site. Also enclosed for ease of review are two full size copies of the Preliminary (50%) Design Drawings that are included as Appendix A of the Report. This Preliminary (50%) Design Report is being submitted on behalf of National Grid in accordance with Order on Consent Index No. A4-0473-0000 between National Grid and the New York State Department of Environmental Conservation and the approved Remedial Design Work Plan (RDWP) for the Schenectady (Broadway) Former Manufactured Gas Plant Site.

Please contact Brian Stearns of National Grid or me if you have any comments or questions, or if you require hard copies of this document.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Stephen W. Anagnost

Stephen W. Anagnost, P.E.
Senior Managing Engineer

I:\National Grid\1118\42895.Broadway\Corres\50%DesignTrans.doc
Attachment

cc: Brian Stearns, P.E. – National Grid

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

January 20, 2009

Brian Stearns, P.E. Sr. Environmental Engineer
National Grid
Environmental Department C-1
300 Erie Blvd
Syracuse, NY 13202

Re: Soil Vapor Investigation
Broadway, Schenectady Former MGP Site
Site No. 4-47-026

Dear Mr. Stearns:

The New York State Department of Conservation and New York State Department of Health have reviewed your e-mail dated December 23, 2008 responding to our previous comments on the soil vapor investigation dated November 24, 2008 . Based on our review, that plan is hereby approved. This work can be completed under the previously approved work plan, as amended by your October 15th letter and the above referenced e-mail. Please let us know when this sampling will take place.

If you have any questions, please contact me at (518) 402-9686.

Sincerely,

William S. Ottaway, P.E.
Environmental Engineer 2
MGP Remedial Section
Division of Environmental Remediation

ec Gardiner Cross, NYSDEC
Maureen Schuck. NYSDOH

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nationalgrid

October 15, 2008

Mr. William Ottaway, PE
Bureau of Western Remedial Action
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7017

Subject:
National Grid
Schenectady (Broadway) Former MGP Site
Response to NYSDEC Comments to Soil Vapor Sampling

Dear Mr. Ottaway:

National Grid has received the New York State Department of Environmental Conservation's (NYSDEC's) September 15, 2008 comment letter in connection with the soil vapor sampling (summarized in a July 22, 2008 letter) conducted at the above-referenced site. The following are the NYSDEC's (as well as the New York State Department of Health [NYSDOH]) comments followed by National Grid's responses.

NYSDEC: *Based on the soil vapor data for SV-2, an additional soil vapor sample will be required directly west of the sample, located on the other side of the tracks. Please contact the Department if you need assistance obtaining access for this sampling. Further soil vapor investigations are not warranted north of the site onto the CSX and refuse recycling area.*

Response: NYSDEC/NYSDOH did not provide a technical reason regarding whether detections at SV-2 are (1) MGP-related and (2) have the potential to migrate to off-site buildings across the railroad tracks. To reiterate, National Grid's technical reasons include evidence that soil and groundwater on the other side of the tracks are not MGP-impacted. Monitoring wells MW-8S and MW-27S have had no BTEX detections for over a decade. As part of the site remedial investigation, soil samples were collected at six locations west of the tracks - northwest, west and southwest of SV-2. Analytical results of these samples indicated non-detectable levels of BTEX in all samples in the 2 to 8-foot depth and the 8 to 30-foot depth. We suggest the soil and groundwater results are consistent with earlier predictions against vapor migration (of MGP-impacted material) based on the large distance from site property line and the railroad's likelihood to intercept the westward diffusion of site vapors.

It is likely that soil vapor is impacted west of the railroad tracks from local sources such as vehicle traffic, parking areas (asphalt), and more importantly the railroad tracks. BTEX is commonly present in soil

vapor near roadways; it is ubiquitous. Based on our experience, sampling west of the tracks will not provide any useful data regarding the MGP site.

However, we are interested in discerning the source of the elevated benzene concentrations found at SV-2. The high concentrations of benzene detected at SV-2 are not typically associated with MGP contamination, but of more recent contamination such as from gasoline sources. Benzene is often one of the first coal tar volatile compounds to biodegrade, and given the age of the MGP site, it is unlikely that benzene is attributable to the former MGP plant. Note that SV-2 results did not detect any MGP indicator compounds (naphthalene, thiophene, indene, indane and trimethylbenzene), which also indicates the contaminant source is not attributable to the former MGP plant. As you know, a potential source of gasoline vapors was detected at SV-3 (likely associated with a historic gasoline fuel island once located near there). Benzene in soil vapor is more indicative of relatively fresh source of petroleum. Therefore, we contend that benzene detected at SV-2 is attributable to the source encountered at SV-3. Therefore, we propose to investigate the source of the elevated benzene at SV-2 by collecting an additional soil vapor sample at a midpoint between SV-3 and SV-2. In addition, we also propose to re-sample ground vapors at or very near to SV-2 to confirm previous sample results. Proposed locations of these two soil vapor sample points are presented in Figure 1 as SV-2a and SV-7.

NYSDEC: *We concur with the National Grid's recommendation to proceed with only sub-slab sampling in the break-room of storage building along with additional soil vapor points to assess the extent of soil vapor contamination near the building.*

Response: To evaluate the extent soil vapor contamination, including near and below the storage building, we propose one sub-slab sample within the break room, and three additional soil vapor sampling points around SV-3 and the former gasoline fueling pad. Proposed sub-slab and soil vapor locations are depicted in Figure 1 as SS-1, SV-8, SV-9, and SV-10.

NYSDEC: *While the two soil vapor sampling points adjacent to the garage/office building showed relatively low levels of volatile organic compounds in soil vapor, there is a possibility that soil vapor contamination is greater beneath the slab. Therefore, we will require additional soil vapor investigation for this building. Sub-slab soil vapor results should be collected and analyzed. The possibility of concurrent sampling indoor air should be considered. Additional information about the current use of the basement is needed in order to determine if sampling of the indoor basement air would likely to provide us with useful data.*

Response: The low contaminant concentrations in the soil vapor sampling points located adjacent the garage/office building are consistent with subsurface soil samples collected as part of the site remedial investigation; the nearest of which indicated non-detectable levels of BTEX. Since the garage/office is adjacent to Broadway, BTEX may still be present near and perhaps beneath the building as a result of offsite vehicle traffic. As discussed above, BTEX is commonly found in soil vapor near roadways. Therefore, National Grid is reluctant but willing to conduct the additional sampling recommended by NYSDEC.

The at-grade first floor of the garage/office building (no basement) is approximately 30,000 square feet, and includes one office space (approximately 500 square feet), a vehicle shop, a parts storage area, and a locker room (approximately 1000 square feet). The first floor office is occupied by one person during normal business hours, approximately 3 to 4 days per week, and has central air conditioning and heat. The locker room is a common area accessible to all site staff, and is heated but not air-conditioned.

The vehicle shop is an open floor plan and regularly ventilated to the outdoors through large overhead doors on two ends of the shop. In addition, use and storage of petroleum products in the shop is apparent, would result in interference, and would preclude meaningful analytical results from air samples collected in that area. The parts storage area is not routinely occupied. Therefore, National Grid proposes not to conduct additional sampling in these two areas of the building.

However, National Grid proposes to conduct additional sampling in the office and locker areas since they are enclosed and normally occupied. Additional sampling will be conducted using National Grid's standard phased-approach for VI investigation, and will initially consist of collecting a sub-slab vapor sample in each of these two areas. In addition, an ambient air sample will be collected concurrently at an upwind location outside the building. Proposed locations are depicted in Figure 1 as SS-2, SS-3and Ambient-4.

Please call me at (315) 428-5731 if you have further questions, or require additional information.

Sincerely,

National Grid

Brian Stearns
Lead Engineer

Attachments: Figure 1. VI Sampling Locations

cc:
Gardiner Cross, NYSDEC
Maureen Schuck, New York State Department of Health
Mark Distler, O'Brien & Gere
Scott Manchester, O'Brien & Gere

NOTES:

1. BASE MAP PROVIDED BY NIAGARA MOHAWK POWER CORPORATION ON 5/21/99, FROM NIAGARA MOHAWK POWER CORPORATION SURVEY REFERENCE FILE DRAWING 3277.DGN, DATED 10/26/94 AT A SCALE OF 1"=100'.
2. HISTORICAL STRUCTURE LOCATIONS WITH THE EXCEPTION OF THE SEPARATOR, WATERGAS CONDENSER, AND SCRUBBER WERE DIGITIZED FROM PARSONS ENGINEERING SCIENCE, INC. FIGURE 1.5, "HISTORICAL STRUCTURES, PREVIOUS SAMPLE LOCATIONS." LOCATIONS OF SEPARATOR, WATERGAS CONDENSER, AND SCRUBBER BASED ON HISTORICAL SANBORN INSURANCE MAPS (1914 AND 1950).
3. ALL LOCATIONS ARE APPROXIMATE.
4. MONITORING WELL LOCATIONS SURVEYED BY ARCADIS BBL.
5. SAMPLING LOCATIONS ARE PRELIMINARY. FINAL LOCATIONS TO BE DETERMINED DURING A PRE-SAMPLING BUILDING WALKTHROUGH WITH NYSDEC AND NYSDOH.

LEGEND:

- LOCATION OF CURRENT SITE FEATURES
- APPROXIMATE LOCATION OF HISTORICAL STRUCTURES
- FENCE LINE
- SV-1 — PREVIOUS SOIL VAPOR SAMPLING LOCATION (MAY 2008)
- AMBIENT-1 — PREVIOUS AMBIENT AIR SAMPLING LOCTION (MAY 2008)
- MW-15S — MONITORING WELL
- PROPOSED SAMPLING LOCATION

0 100' 200'
GRAPHIC SCALE

NATIONAL GRID
SCHENECTADY (BROADWAY) SERVICE CENTER
SCHENECTADY, NEW YORK

VI SAMPLING LOCATIONS

(MODIFIED BY O'BRIEN & GERE, OCTOBER 2008)

ARCADIS

FIGURE 1

O'BRIEN & GERE

July 25, 2008

Mr. William S. Ottoway
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7017

Re: Remedial Design Work Plan for
Schenectady (Broadway) Former
Manufactured Gas Plant Site

File: 1118/42895 #2

Dear Mr. Ottoway:

Enclosed please find an electronic copy of the Remedial Design Work Plan (RDWP) for the Schenectady (Broadway) Former Manufactured Gas Plant Site. This RDWP is being submitted on behalf of National Grid in accordance with Order on Consent Index No. A4-0473-0000 between National Grid and the New York State Department of Environmental Conservation.

Please contact Brian Stearns of National Grid or me if you have any comments or questions, or if you require hard copies of this document.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Stephen W. Anagnost, P.E.
Senior Managing Engineer

I:\DIV71\Projects\1118\42895.Broadway\Corres\RDWPTrans.doc
Attachment

cc: Brian Stearns, P.E. – National Grid

5000 Brittonfield Parkway / P.O. Box 4873 Syracuse, New York 13221-4873
(315) 437-6100 / FAX (315) 463-7554 ■ http www.obg.com

with offices in 25 major metropolitan areas around the country

nationalgrid

July 22, 2008

Mr. William Ottaway
Bureau of Western Remedial Action
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7017

RE: Schenectady (Broadway) Former Manufactured Gas Plant Site
Soil Vapor Sampling Results

Dear Mr. Ottaway:

This letter presents the results for soil vapor sampling conducted at the National Grid Schenectady (Broadway) former manufactured gas plant (MGP) site. The soil vapor sampling was conducted in accordance with the New York State Department of Environmental Conservation- (NYSDEC-) approved work plan (Work Plan), prepared by ARCADIS (January 2008).

In accordance with the Work Plan, soil vapor sampling activities consisted of the following:

- Collecting six soil vapor samples at the following locations:
    - Two samples (SV-1 and SV-2) along the western fence line adjacent to the CSX railroad right-of-way.
    - Two samples (SV-3 and SV-4) near the Storage Building (one south and one east).
    - Two samples (SV-5 and SV-6) near the Garage and Office Building (one north and one west).
- Collecting three ambient air samples at the following locations:
    - One sample (AMBIENT-1) along the western fence line upwind of the property and near the soil vapor sampling locations SV-1 and SV-2.
    - Two ambient air samples (AMBIENT-2 and AMBIENT-3) located upwind and downwind (respectively) of the on-site fuel distribution island.

Soil vapor and ambient air sampling locations are shown on Figure 1.

Soil Vapor Sampling Activities

ARCADIS conducted the soil vapor and ambient air sampling on May 13 and 14, 2008, in accordance with NYSDEC-approved sampling procedures included as appendices to the Work Plan and National Grid's "Standard Operating Procedures for Soil Vapor Intrusion Evaluation at National Grid MGP Sites in New York State", dated September 2006 (National Grid's SVI SOP). Each soil vapor sample was collected using a laboratory certified 6-liter SUMMA® canister with an initial vacuum of approximately 30 inches of Mercury and flow regulators pre-set to provide uniform sample collection over an approximate two-hour sampling period (flow rate of approximately 50 milliliters per minute [mL/min]). Ambient air samples AMBIENT-1 and AMBIENT-2 were collected over an 8-hour period using similar apparatus (flow rate of approximately 12.5 mL/min). However only two 8-hour flow regulators were provided by the laboratory, therefore ambient air sample AMBIENT-3 was collected using a 2-hour flow regulator. Copies of the field sampling logs are included as Attachment 1.

Samples were submitted for laboratory analysis for volatile organic compounds (VOCs) by Test America Laboratories located in Knoxville, Tennessee. Soil vapor and ambient air samples were submitted for "United States Environmental Protection Agency (USEPA) Compendium Method TO-15" analysis. ARCADIS validated the results in accordance with the USEPA National Functional Guidelines dated October 1999. A data usability summary report (DUSR) is included as Attachment 2.

Soil Vapor Sampling Results

Analytical results for the soil vapor and ambient air samples are presented in Table 1. New York State does not currently have standards, criteria, or guidance values (SCGs) for VOCs in soil vapor. Typical indoor air background ("90th percentile") concentrations observed by the USEPA in a study of commercial buildings, as referenced in Section 3.2.4 of the NYSDOH document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), are included as comparison values to the soil vapor results in Table 1 (comparison criteria). It should be noted that indoor air concentrations resulting from soil vapor intrusion are likely to be less than soil vapor concentrations by an order of magnitude or more.

Based on the analytical results, as anticipated, there are VOCs in soil vapor associated with impacted soils that remain at the site. A summary of the analytical results grouped by general area at the site are presented below.

Western Fence Line (soil vapor samples SV-1 and SV-2) – Soil vapor sample SV-1 (located near the former Small Garage along the western fence line) did not contain any VOCs at concentrations that exceeded the associated laboratory detection limit. Soil vapor sample SV-2 (located further to the north along the western fence line) contained benzene at a concentration of 2,300 micrograms per cubic meter (ug/m^3) and additional VOCs detected in soil vapor sample SV-2 included carbon disulfide, chlorobenzene, cyclohexane, n-heptane, and n-hexane.

Near the Storage Building (soil vapor samples SV-3 and SV-4) – Both of these soil vapor samples had several VOCs that were detected at concentrations greater than the comparison criteria. Detected concentrations of VOCs in SV-3 were the most elevated relative to the other soil vapor samples collected at the site. The highest detected concentrations of individual VOCs included n-hexane 510,000 ug/m^3, cyclohexane 110,000 ug/m^3, 2,2,4-trimethylpentane (also known as iso-octane) 72,000 ug/m^3 and benzene 53,000 ug/m^3 each detected in the soil vapor sample collected at sampling location SV-3.

Near the Garage/Office Building (soil vapor samples SV-5 and SV-6) – VOCs consisting of acetone, benzene, n-hexane, and toluene were detected in both of the soil vapor samples collected near this building. Soil vapor sample SV-5 also contained 1,1,1-trichloroethane, 2,2,4-trimethylpentane, cyclohexane and n-heptane and SV-6 contained 1,1,2-trichloroethane at concentrations greater than the comparison criteria.

Based on a preliminary review of the detected VOCs, the source of the elevated levels of hydrocarbons in the soil vapor samples appears to be petroleum (likely gasoline). The presence of iso-octane (2,2,4-trimethyl pentane), cyclohexane, n-heptane, and n-hexane in these samples are compounds found in petroleum principally gasoline and not in coal tar products. Soil vapor from coal tar products contain almost exclusively aromatic compounds and none of the non-aromatic hydrocarbons found in these soil vapor samples. The presence of benzene and toluene are compounds present in both petroleum and coal tar products. If coal tar products were the source of hydrocarbons in the samples, the trimethylbenzenes, naphthalene, and methylnaphthalene would be expected to be present above detection limits in the samples. Thiophene, a sulfur heterocyclic hydrocarbon, is often associated with coal tar product sources but was not detected in these samples. The highest concentrations of hydrocarbons in the soil vapor samples are located at SV-3, and may be the source of the petroleum in the other SV locations; however, there may be more localized petroleum contamination contributing individually to these other soil vapor samples. SV-6, the soil vapor sample furthest away from the SV-3 area, had the lowest concentrations of hydrocarbons.

The ambient samples (Ambient-1, -2, -3) did not contain the non-aromatic compounds found in the soil vapor samples. The presence of low concentrations of most of the non-halogenated compounds in the ambient samples could be from a variety of local sources including combustion sources (e.g., automobile exhaust). The presence of fluorocarbons (e.g., dichlorodifluoromethane) in all ambient samples indicates a potential Freon source to ambient air throughout the site area.

Conclusions and Recommendations

The potential for intrusion of these volatile organics into occupied spaces in on- and off-site buildings is currently low. Potential current receptors are discussed below followed by proposed additional sampling activities to further investigate the potential for soil vapor intrusion at and near this property.

1. *Offsite Receptors across Railroad Tracks* - This potential receptor group is located across the CSX right-of-way to the north and west of soil vapor sampling locations SV-1, SV-2 and SV-4. Buildings west of the site and across the railroad tracks consist of commercial properties, some with apartments above the first floor. The GE facility and a County refuse recycling center are located north of the site and across the railroad tracks. Potential off-site receptors across the railroad tracks are commercially occupied at least in their basements and first floors.

   Soil vapor levels (SV-1 and SV-2) were relatively low (near background) except for benzene at SV-2. However, off-site vapor intrusion potential is unlikely because of the following reasons:

   - Large distance between receptors and SV-2 (at least 200 feet)
   - Narrow vadose zone (~5 feet)
   - Absence of groundwater impacts at off-site monitoring wells (MW-7, -27S, -8S)
   - Absence of subsurface utility lines that could serve as preferential vapor pathways between SV-2 and off-site receptors
   - All receptors are commercial buildings (at least their ground floors)

It is unusual to measure only one petroleum-related compound (particularly benzene) elevated among all others. We recommend that additional soil vapor sampling be conducted near SV-2 again to confirm the unusual result, and at two other locations either side of SV-2 to assess the extent of the elevated benzene, if confirmed. This recommendation is made not to assess vapor intrusion but to assess the source of the soil vapor for remedial design purposes.

2. *Storage Building* - The Storage Building is located along the northern property fence line near soil vapor sampling locations SV-3 and SV-4. An existing diesel fueling station is located approximately 75 feet southeast of the building (marked as "Concrete Platform with Metal Overhang" on Figure 1). Additionally, a former gasoline underground storage tank (UST) and fueling station pad (located within approximately 50 feet southwest of the Storage Building) was removed on June 1, 2004 (marked as Former Concrete Pad with Gas Pumps on Figure 1). The Storage Building is not continually occupied and serves as a parking and truck maintenance garage, small parts storage, and includes a meeting/break area in the western portion of the structure that is open to the remainder of the building. The building is ventilated via several large open overhead doors and wall-mounted fans. The building is heated with space heaters and there is no air conditioning.

   Due to the limited occupancy in the storage building, we believe that soil vapor concentrations adjacent to the building (SV-3 and SV-4) do not represent an immediate hazard to building occupants. However, due to the elevated levels of soil vapor levels found in SV-3, we believe that further investigation is warranted. National Grid proposes to collect a sub-slab sample in the area of the break room to assess potential for vapor intrusion. In addition, we recommend that three soil vapor samples be collected adjacent to SV-3 to assess the extent of the contamination.

3. *Garage/Office Building* - The Garage/Office Building is located in the southeastern portion of the property and currently serves as the only continually occupied (business hours only) building at the site. Soil vapor samples SV-5 and SV-6 were collected immediately west and north of the building (respectively). Only one enclosed office area is currently located on the first floor (one desk) and is not continually used (no more than 4 hours per business day). The rest of the first floor consists of a vehicle maintenance shop area, parts storage area, and a locker area that are in an open floor plan. The shop area has large access doors at both ends providing ventilation. All other offices in the building are on the second floor.

   Due to the relatively low soil vapor levels (SV-5 and SV-6), current storage and use of petroleum products in the first floor, higher than normal indoor air ventilation in the garage, and the limited occupancy on the first floor office of this building, we recommend no additional soil vapor investigation for this building.

The proposed additional sampling will be detailed in a separate submittal for NYSDEC/NYSDOH review. Please call me at (315) 428-5731 if you have any questions or require additional information.

Sincerely,

Brian Stearns, P.E.
Lead Engineer

cc:
Maureen Schuck, New York State Department of Health
Mark Distler, O'Brien & Gere
Margaret Carrillo-Sheridan, P.E., ARCADIS
Jason Brien, P.E., ARCADIS

Table 1

Soil Vapor Sampling Analytical Results

Table 1
Soil Vapor Sampling Analytical Results

National Grid - Schenectady (Broadway) Former Manufactured Gas Plant Site

Constituent	Typical Commerical Background Indoor Air Concentrations (ug/m3)	AMBIENT-1 05/14/2008 (ug/m^3)	AMBIENT-2 05/14/2008 (ug/m^3)	AMBIENT-3 05/14/2008 (ug/m^3)	SV-1 05/14/2008 (ug/m^3)	SV-2 05/14/2008 (ug/m^3)	SV-3 05/14/2008 (ug/m^3)	SV-4 05/14/2008 (ug/m^3)	SV-5 05/14/2008 (ug/m^3)	SV-6 05/14/2008 (ug/m^3)
trans-1,3-Dichloropropene	< 1.3	< 0.91	< 0.91	< 0.91	< 9.1	< 14	< 4,400	< 14	< 9.1	< 9.1
1,1,1-Trichloroethane	20.6	< 1.1	< 1.1	< 1.1	< 11	< 16	< 5,300	< 17	49	< 11
1,1,2,2-Tetracholorethane	--	< 1.4	< 1.4	< 1.4	< 14	< 21	< 6,700	< 21	< 14	< 14
1,1,2-Trichloro-1,2,2-trifluoroethane	--	< 1.5	< 1.5	< 1.5	< 15	< 23	< 7,500	< 24	< 15	< 15
1,1,2-Trichloroethane	< 1.5	< 1.1	< 1.1	< 1.1	< 11	< 16	< 5,300	< 17	< 11	190
1,1-Dichloroethane	< 0.7	< 0.81	< 0.81	< 0.81	< 8.1	< 12	< 4,000	< 13	< 8.1	< 8.1
1,1-Dichloroethene	< 1.4	< 0.79	< 0.79	< 0.79	< 7.9	< 12	< 3,900	< 12	< 7.9	< 7.9
1,2,3-Trimethylbenzene	--	< 0.98	< 0.98	< 0.98	< 9.8	< 15	< 4,800	< 15	< 9.8	< 9.8
1,2,4-Trichlorobenzene	< 6.8	< 7.4	< 7.4	< 7.4	< 74	< 110	< 36,000	< 120	< 74	< 74
1,2,4-Trimethylbenzene	9.5	< 0.98	< 0.98	< 0.98	< 9.8	< 15	< 4,800	< 15	< 9.8	< 9.8
1,2-Dibromoethane (EDB)	< 1.5	< 1.5	< 1.5	< 1.5	< 15	< 23	< 7,500	< 24	< 15	< 15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	--	< 1.4	< 1.4	< 1.4	< 14	< 21	< 6,800	< 22	< 14	< 14
1,2-Dichlorobenzene	< 1.2	< 1.2	< 1.2	< 1.2	< 12	< 18	< 5,900	< 19	< 12	< 12
1,2-Dichloroethane	< 0.9	< 0.81	< 0.81	< 0.81	< 8.1	< 12	< 4,000	< 13	< 8.1	< 8.1
1,2-Dichloropropane	< 1.6	< 0.92	< 0.92	< 0.92	< 9.2	< 14	< 4,500	< 14	< 9.2	< 9.2
1,3,5-Trimethylbenzene	3.7	< 0.98	< 0.98	< 0.98	< 9.8	< 15	< 4,800	< 15	< 9.8	< 9.8
1,3-Butadiene	< 3.0	< 0.88	< 0.88	< 0.88	< 8.8	< 13	< 4,300	< 14	< 8.8	< 8.8
1,3-Dichlorobenzene	< 2.4	< 1.2	< 1.2	< 1.2	< 12	< 18	< 5,900	< 19	< 12	< 12
1,4-Dichlorobenzene	5.5	< 1.2	< 1.2	< 1.2	< 12	< 18	< 5,900	< 19	< 12	< 12
1,4-Dioxane	--	< 1.8	< 1.8	< 1.8	< 18	< 27	< 8,800	< 28	< 18	< 18
1-Methylnaphthalene	--	< 15	< 15	< 15	< 150	< 220	< 71,000	< 230	< 150	< 150
2,2,4-Trimethylpentane	--	< 2.3	< 2.3	< 2.3	< 23	< 35	72,000	< 36	53	< 23
2-Butanone (MEK)	12.0	< 2.9	< 2.9	3.5	< 29	< 45	< 14,000	67	< 29	< 29
2-Chlorotoluene	--	< 2.1	< 2.1	< 2.1	< 21	< 31	< 10,000	< 32	< 21	< 21
2-Hexanone	--	< 2.0 J	< 2.0 J	< 2.0 J	< 20 J	< 31 J	< 10,000 J	< 32 J	< 20 J	< 20 J
2-Methylnaphthalene	--	< 15	< 15	< 15	< 150	< 220	< 71,000	< 230	< 150	< 150
3-Chloropropene	--	< 0.63	< 0.63	< 0.63	< 6.3	< 9.5	< 3,100	< 9.7	< 6.3	< 6.3
4-Ethyltoluene	3.6	< 2.0	< 2.0	< 2.0	< 20	< 30	< 9,600	< 30	< 20	< 20
4-Methyl-2-pentanone (MIBK)	6.0	< 2.0	< 2.0	< 2.0	< 20	< 31	< 10,000	< 32	< 20	< 20
Acetone	98.9	14	14	12	< 120	240 J	< 58,000	600 J	200	270
Benzene	9.4	1.4	1.1	1.1	< 6.4	2,300	53,000	2,300	44	12
Bromodichloromethane	--	< 1.3	< 1.3	< 1.3	< 13	< 20	< 6,500	< 21	< 13	< 13
Bromoform	--	< 2.1	< 2.1	< 2.1	< 21	< 31	< 10,000	< 32	< 21	< 21
Bromomethane	< 1.7	< 0.78	< 0.78	< 0.78	< 7.8	< 12	< 3,800	< 12	< 7.8	< 7.8
Carbon disulfide	4.2	< 1.6	< 1.6	< 1.6	< 16	33	< 7,600	180	< 16	< 16
Carbon tetrachloride	< 1.3	< 1.3	< 1.3	< 1.3	< 13	< 19	< 6,100	< 20	< 13	< 13
Chlorobenzene	< 0.9	< 0.92	< 0.92	< 0.92	< 9.2	34	< 4,500	< 14	< 9.2	< 9.2
Chloroethane	< 1.1	< 0.53	< 0.53	< 0.53	< 5.3	< 8.0	< 2,600	< 8.2	< 5.3	< 5.3
Chloroform	1.1	< 0.98	< 0.98	< 0.98	< 9.8	< 15	< 4,800	< 15	< 9.8	< 9.8
Chloromethane	3.7	1.4	1.3	1.9	< 10	< 16	< 5,000	< 16	< 10	< 10
cis-1,2-Dichloroethene	< 1.9	< 0.79	< 0.79	< 0.79	< 7.9	< 12	< 3,900	< 12	< 7.9	< 7.9
cis-1,3-Dichloropropene	< 2.3	< 0.91	< 0.91	< 0.91	< 9.1	< 14	< 4,400	< 14	< 9.1	< 9.1
Cyclohexane	--	< 1.7	< 1.7	< 1.7	< 17	72	110,000	430	87	< 17

Table 1
Soil Vapor Sampling Analytical Results

National Grid - Schenectady (Broadway) Former Manufactured Gas Plant Site

Constituent	Typical Commerical Background Indoor Air Concentrations (ug/m3)	AMBIENT-1 05/14/2008 (ug/m^3)	AMBIENT-2 05/14/2008 (ug/m^3)	AMBIENT-3 05/14/2008 (ug/m^3)	SV-1 05/14/2008 (ug/m^3)	SV-2 05/14/2008 (ug/m^3)	SV-3 05/14/2008 (ug/m^3)	SV-4 05/14/2008 (ug/m^3)	SV-5 05/14/2008 (ug/m^3)	SV-6 05/14/2008 (ug/m^3)
Dibromochloromethane	--	< 1.7	< 1.7	< 1.7	< 17	< 26	< 8,300	< 26	< 17	< 17
Dichlorodifluoromethane	16.5	2.8	2.8	3.0	< 9.9	< 15	< 4,800	< 15	< 9.9	< 9.9
Ethylbenzene	5.7	< 0.87	0.97	< 0.87	< 8.7	< 13	< 4,200	< 13	< 8.7	< 8.7
Hexachlorobutadiene	< 6.8	< 11	< 11	< 11	< 110	< 160	< 52,000	< 170	< 110	< 110
Indane	--	< 0.97	< 0.97	< 0.97	< 9.7	< 15	< 4,700	< 15	< 9.7	< 9.7
Indene	--	< 1.9	< 1.9	< 1.9	< 19	< 29	< 9,300	< 29	< 19	< 19
Isopropyl alcohol	--	< 4.9	< 4.9	< 4.9	< 49	< 74	< 24,000	< 76	< 49	< 49
Methyl tert-butyl ether	11.5	< 3.6	< 3.6	< 3.6	< 36	< 54	< 18,000	< 56	< 36	< 36
Methylene chloride	10	< 1.7	< 1.7	< 1.7	< 17	< 26	< 8,500	< 27	< 17	< 17
m-Xylene & p-Xylene	22.2	2.5	3.3	2.0	< 8.7	< 13	< 4,200	< 13	< 8.7	< 8.7
Naphthalene	5.1	< 2.6	< 2.6	< 2.6	< 26	< 40	< 13,000	< 41	< 26	< 26
n-Heptane	--	< 2.0	< 2.0	< 2.0	< 20	39	25,000	130	22	< 20
n-Hexane	10.2	1.8	< 1.8	< 1.8	< 18	140	510,000	230	370	20
o-Xylene	7.9	< 0.87	1.1	< 0.87	< 8.7	< 13	< 4,200	< 13	< 8.7	< 8.7
Styrene	1.9	< 0.85	< 0.85	< 0.85	< 8.5	< 13	< 4,200	< 13	< 8.5	< 8.5
tert-Butyl alcohol	--	< 6.1	< 6.1	< 6.1	< 61	< 92	< 30,000	< 94	< 61	< 61
Tetrachloroethene	15.9	< 1.4	< 1.4	< 1.4	< 14	< 20	< 6,600	< 21	< 14	< 14
Thiophene	--	< 0.69	< 0.69	< 0.69	< 6.9	< 10	< 3,400	< 11	< 6.9	< 6.9
Toluene	43	4.6	4.5	3.6	< 7.5	320	< 3,700	69	34	51
trans-1,2-Dichloroethene	--	< 0.79	< 0.79	< 0.79	< 7.9	< 12	< 3,900	< 12	< 7.9	< 7.9
Trichloroethene	4.2	< 1.1	< 1.1	< 1.1	< 11	< 16	< 5,300	< 17	< 11	< 11
Trichlorofluoromethane	18.1	1.3	1.4	1.6	< 11	< 17	< 5,500	< 17	< 11	< 11
Vinyl bromide	--	< 0.87	< 0.87	< 0.87	< 8.7	< 13	< 4,300	< 14	< 8.7	< 8.7
Vinyl chloride	< 1.9	< 0.51	< 0.51	< 0.51	< 5.1	< 7.7	< 2,500	< 7.9	< 5.1	< 5.1

Notes:

1. Samples were collected by ARCADIS BBL on May 14, 2008.
2. Samples were analyzed for volatile organic compounds (VOCs) by Test America Laboratories located in Knoxville, Tennessee using United States Environmental Protection Agency (USEPA) Compendium Method TO-15.
3. Sample designations indicated the following:
   - "Ambient" = ambient (outdoor) air sample; and
   - "SV" = soil vapor sample
4. Typical commercial background indoor air concentrations are the 90th percentile values observed by the USEPA in a study conducted from 1994 through 1996, which are the values recommended for comparison in "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006).
5. Concentrations reported in micrograms per cubic meter (ug/m^3).
6. J = Indicates an estimated concentration. Presented concentration is less than the laboratory detection limit.
7. < = Not detected at or above the associated reporting limit.
8. -- = Comparison value not available.
9. Results have been validated by ARCADIS BBL.

Figure 1

Soil Vapor Sampling Locations

NOTES:

1. BASE MAP PROVIDED BY NIAGARA MOHAWK POWER CORPORATION ON 5/21/99, FROM NIAGARA MOHAWK POWER CORPORATION SURVEY REFERENCE FILE DRAWING 3277.DGN, DATED 10/26/94 AT A SCALE OF 1"=100'.
2. HISTORICAL STRUCTURE LOCATIONS WITH THE EXCEPTION OF THE SEPARATOR, WATERGAS CONDENSER, AND SCRUBBER WERE DIGITIZED FROM PARSONS ENGINEERING SCIENCE, INC. FIGURE 1.5, "HISTORICAL STRUCTURES, PREVIOUS SAMPLE LOCATIONS." LOCATIONS OF SEPARATOR, WATERGAS CONDENSER, AND SCRUBBER BASED ON HISTORICAL SANBORN INSURANCE MAPS (1914 AND 1980).
3. ALL LOCATIONS ARE APPROXIMATE.
4. MONITORING WELL LOCATIONS SURVEYED BY ARCADIS BBL.
5. SAMPLING LOCATIONS ARE PRELIMINARY. FINAL LOCATIONS TO BE DETERMINED DURING A PRE-SAMPLING BUILDING WALKTHROUGH WITH NYSDEC AND NYSDOH.

LEGEND:

- LOCATION OF CURRENT SITE FEATURES
- APPROXIMATE LOCATION OF HISTORICAL STRUCTURES
- FENCE LINE
- SV-1 PROPOSED SOIL VAPOR SAMPLING LOCATION
- AMBIENT-1 PROPOSED AMBIENT AIR SAMPLING LOCATION
- MW-153 MONITORING WELL

0 100' 200'
GRAPHIC SCALE

NATIONAL GRID
SCHENECTADY (BROADWAY) SERVICE CENTER
SCHENECTADY, NEW YORK
SOIL VAPOR SAMPLING

SOIL VAPOR SAMPLING LOCATIONS

ARCADIS

FIGURE 1

Attachment 1

Field Sampling Logs

nationalgrid

Ambient Air (Canister) Sample Collection Field Form

Project # 36657
Project Name National Grid - Schenectady (Broadway)
Consultant ARCADIS
Collector Marcus Eriksson, Jason Gutkowski

Sample ID Ambient-1

Start Date/Time	5/14/08 0600	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 1400	Start Pressure ("Hg)	-29.1
Canister ID	04323	End Pressure ("Hg)	-10
Flow controller ID	K171	End pressure > "zero"?	
		Sampling duration (intended)	8 hours

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc
Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (°F)	49.0	Rainfall	0.0	Wind direction	—
Barometric pressure	30.06	Relative humidity	76%	Wind speed (mph)	0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments:

nationalgrid

Ambient Air (Canister) Sample Collection Field Form

Project # 36657
Project Name National Grid - Schenectady (Broadway)
Consultant ARCADIS
Collector Marcus Eriksson, Jason Gutkowski

Sample ID Ambient-2

Start Date/Time	5/14/08 0600	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 1400	Start Pressure ("Hg)	-29.1
Canister ID	6674	End Pressure ("Hg)	-8
Flow controller ID	K112	End pressure > "zero"?	
		Sampling duration (intended)	8 hours

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc
Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (°F)	49.0	Rainfall	0.0	Wind direction	—
Barometric pressure	30.06	Relative humidity	76%	Wind speed (mph)	0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments:

nationalgrid

Ambient Air (Canister) Sample Collection Field Form

Project #	36657	Consultant	ARCADIS
Project Name	National Grid - Schenectady (Broadway)	Collector	Marcus Eriksson Jason Guttowski

Sample ID	Ambient-3	Vacuum gauge "zero" ("Hg)	
Start Date/Time	5/14/08 0600	Start Pressure ("Hg)	-29.1
End Date/Time	5/14/08 0800	End Pressure ("Hg)	-8
Canister ID	6667	End pressure > "zero"?	
Flow controller ID	K362	Sampling duration (intended)	8 hours *

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (°F)	49.0	Rainfall	—	Wind direction	—
Barometric pressure	30.06	Relative humidity	76%	Wind speed (mph)	0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: * Laboratory only provided two 8-hour flow regulators. Therefore AMBIENT-3 was collected over a two-hour period.

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657 Consultant ARCADIS

Project Name National Grid - Schenectady (Broadway) Collector Marcus Eriksson, Jason Gutkowski

Sample ID SV-1

Start Date/Time	5/14/08 0715	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 0915	Start Pressure ("Hg)	-30
Canister ID	0063	End Pressure ("Hg)	-10
Flow controller ID	K116	End pressure > "zero"?	
Associated ambient air sample ID		Sampling duration (intended)	2 hours
		Depth of sample point below grade	

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature (°F)	59.8	Rainfall	0.0	Wind direction	North
Barometric pressure	30.06			Wind speed (mph)	5.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:

Air temperature (°F)	50.0	Rainfall	0.0	Wind direction	—
Barometric pressure	30.07			Wind speed (mph)	0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: _____

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657 Consultant ARCADIS

Project Name National Grid - Schenectady (Broadway) Collector Marcus Eriksson, Jason Gutkowski

Sample ID SV-2

Start Date/Time	5/14/08 0700	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 0900	Start Pressure ("Hg)	-30
Canister ID	6393	End Pressure ("Hg)	-10
Flow controller ID	K418	End pressure > "zero"?	
Associated ambient air sample ID		Sampling duration (intended)	2 hours
		Depth of sample point below grade	

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature (°F) 65.0 Rainfall 0.0 Wind direction Northeast

Barometric pressure 30.06 Wind speed (mph) 9.8

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:

Air temperature (°F) 50.0 Rainfall 0.0 Wind direction —

Barometric pressure 30.07 Wind speed (mph) 0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments:

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657
Project Name National Grid-Schenectady (Broadway)
Consultant ARCADIS
Collector Marcus Eriksson
Jason Gutkowski

Sample ID SV-3

Start Date/Time 5/14/08 0740
End Date/Time 5/14/08 0940
Canister ID 0001
Flow controller ID K273
Associated ambient air sample ID

Vacuum gauge "zero" ("Hg)
Start Pressure ("Hg) -30
End Pressure ("Hg) -10
End pressure > "zero"?
Sampling duration (intended) 2 hours
Depth of sample point below grade

Tubing type used Length of tubing cm Tubing volume cc
Volume purged cc @ min 1 to 3 volumes purged @ < 200cc/min?
Chamber tracer gas conc. Tracer gas conc. during purging

Weather Conditions during Probe Installation:
Air temperature (°F) 65.0 Rainfall 0.0 Wind direction North
Barometric pressure 30.06 Wind speed (mph) 10.3

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:
Air temperature (°F) 51.0 Rainfall 0.0 Wind direction —
Barometric pressure 30.07 Wind speed (mph) 0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments:

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657 Consultant ARCADIS

Project Name National Grid - Schenectady (Broadway) Collector Marcus Eriksson, Jason Gutkowski

Sample ID SV-4

Start Date/Time	5/14/08 0720	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 0920	Start Pressure ("Hg)	-30
Canister ID	7506	End Pressure ("Hg)	-10
Flow controller ID	K402	End pressure > "zero"?	
Associated ambient air sample ID		Sampling duration (intended)	2 hours
		Depth of sample point below grade	

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature (°F) 65.0 Rainfall 0.0 Wind direction North

Barometric pressure 30.06 Wind speed (mph) 10.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:

Air temperature (°F) 50.1 Rainfall 0.0 Wind direction —

Barometric pressure 30.07 Wind speed (mph) 0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments:

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657
Project Name National Grid - Schenectady (Broadway)
Consultant ARCADIS
Collector Marcus Eriksson, Jason Gutkowski

Sample ID SV-5

Start Date/Time	5/14/08 0800	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 1000	Start Pressure ("Hg)	-30
Canister ID	3396	End Pressure ("Hg)	-10
Flow controller ID	K108	End pressure > "zero"?	
Associated ambient air sample ID		Sampling duration (intended)	2 hours
		Depth of sample point below grade	

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc
Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____
Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:
Air temperature (°F) 65.5 Rainfall 0.0 Wind direction North
Barometric pressure 30.06 Wind speed (mph) 10.7

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:
Air temperature (°F) 51.5 Rainfall 0.0 Wind direction -
Barometric pressure 30.08 Wind speed (mph) 0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:
No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments:

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # 36657 Consultant ARCADIS

Project Name National Grid - Schenectady (Broadway) Collector Marcus Eriksson, Jason Gutkowski

Sample ID SV-6

Start Date/Time	5/14/08 0910	Vacuum gauge "zero" ("Hg)	
End Date/Time	5/14/08 1105	Start Pressure ("Hg)	-30
Canister ID	1524	End Pressure ("Hg)	-10
Flow controller ID	K294	End pressure > "zero"?	
Associated ambient air sample ID		Sampling duration (intended)	2 hours
		Depth of sample point below grade	

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature (°F) 67.0 Rainfall 0.0 Wind direction North

Barometric pressure 30.05 Wind speed (mph) 11.5

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Weather Conditions at Start of Sampling:

Air temperature (°F) 59.8 Rainfall 0.0 Wind direction —

Barometric pressure 30.09 Wind speed (mph) 0.0

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

No substantial changes in weather conditions occurred.

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: _____

Attachment 2

Data Usability Summary Report

DATA USABILITY SUMMARY REPORT

NATIONAL GRID

SCHENECTADY, NEW YORK

SDG #H8E160194

VOLATILE ANALYSES

Analyses performed by:

TestAmerica Laboratories
Knoxville, Tennessee

Review performed by:

ARCADIS
Infrastructure, environment, facilities

Syracuse, New York
Report #8521R

Summary

The following is an assessment of the data package for sample delivery group (SDG) #H8E160194 for sampling from the National Grid Schenectady Site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date	Analysis				
				VOC	SVOC	PCB	MET	MISC
Ambient-1	H8E160194-001	Air	5/14/2008	X				
Ambient-2	H8E160194-002	Air	5/14/2008	X				
Ambient-3	H8E160194-003	Air	5/14/2008	X				
SV-2	H8E160194-004	Air	5/14/2008	X				
SV-1	H8E160194-005	Air	5/14/2008	X				
SV-4	H8E160194-006	Air	5/14/2008	X				
SV-3	H8E160194-007	Air	5/14/2008	X				
SV-5	H8E160194-008	Air	5/14/2008	X				
SV-6	H8E160194-009	Air	5/14/2008	X				

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

Introduction

Analyses were performed according to United Stated Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-18- Validating Canisters of Volatile Organics in Ambient Air of August 1994, and New York State ASP 2005- R9 TO-15 QC.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

E The compound was quantitated above the calibration range.

D Concentration is based on a diluted sample analysis.

UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Method TO-15	Air	14 days from collection to analysis	Ambient temperature

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure contamination of samples during shipment. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

No compounds were detected in the associated blanks.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable. System performance and column resolution were acceptable. The mass spectrometer tune was performed within method specifications.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less then the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
All sample locations	ICV %RSD	2-Hexanone	30.4%
SV-2 SV-4	CCV %D	Acetone	33.2%
		MTBE	35.8%
		m&p-Xylene	32.4%
Ambient-1 Ambient-2 Ambient-3 SV-1 SV-3 SV-5 SV-6	CCV %D	1,4-Dioxane	31.2%
		2-Hexanone	36.4%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 30%	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >30% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >30% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

1. RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e. ketones, 1,4-Dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+40%) or less than one-half (-40%) of the area counts of the associated continuing calibration standard.

All sample locations exhibited acceptable internal standard responses.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

> Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations were the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not included with this data set.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 20% for air matrices, 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate.

A field duplicate was not included with this data set.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist

Volatile Organics Data Validation Checklist

	YES	NO	NA
Data Completeness and Deliverables			
Have any missing deliverables been received and added to the data package?		X	
Is there a narrative or cover letter present?	X		
Are the sample numbers included in the narrative?	X		
Are the sample chain-of-custodies present?	X		
Do the chain-of-custodies indicate any problems with sample receipt or sample condition?		X	
Holding Times			
Have any holding times been exceeded?		X	
Surrogate Recovery			
Are surrogate recovery forms present?	X		
Are all samples listed on the surrogate recovery form?	X		
Was one or more surrogate recovery outside control limits for any sample or blank?		X	
If yes, were the samples reanalyzed?			X
Are there any transcription/calculation errors between the raw data and the summary form?		X	
Matrix Spikes			
Is there a MS recovery form present?		X	
Were matrix spikes analyzed at the required frequency?		X	
How many spike recoveries were outside of QC limits?			
NA out of NA			
How many RPDs for MS/MSD were outside of QC limits?			
NA out of NA			
Blanks			
Is a method blank summary form present?	X		
Has a method blank been analyzed for each day or for each 20 samples, whichever is more frequent?	X		
Has a blank been analyzed at least once every 12 hours for each system used?	X		
Do any method/instrument blanks have positive results?		X	
Are trip/field/rinse blanks associated with every sample?		X	
Do any trip/field/rinse blanks have positive results?			X

	YES	NO	NA
Tuning and Mass Calibration			
Are the GC/MS tuning forms present for BFB?	X		
Are the bar graph spectrum and mass/charge listing provided for each BFB?	X		
Has a BFB been analyzed for each 12 hours of analysis per instrument?	X		
Have the ion abundance criteria been met for each instrument used?	X		
Target Analytes			
Is an organics analysis data sheet present for each of the following:			
Samples	X		
Matrix spikes	X		
Blanks	X		
Are the reconstructed ion chromatograms present for each of the following:			
Samples	X		
Matrix spikes	X		
Blanks	X		
Is the chromatographic performance acceptable?	X		
Are the mass spectra of the identified compounds present?	X		
Are all ions present in the standard mass spectrum at a relative intensity of 10% or greater also present in the sample spectrum?	X		
Do the samples and standard relative ion intensities agree within 20%?	X		
Tentatively Identified Compounds			
Are all the TIC summary forms present?	X		
Are the mass spectra for the tentatively identified compounds and their associated "best match" spectra present?	X		
Are any target compounds listed as TICs?			X
Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?			X
Do the TIC and "best match" spectrum agree within 20%?			X
Quantitation and Detection Limits			
Are there any transcription/calculation errors in the Form 1 results?		X	
Are the reporting limits adjusted to reflect sample dilutions and, for soils, sample moisture?	X		

	YES	NO	NA
Standard Data			
Are the quantitation reports and reconstructed ion chromatograms present for the initial and continuing calibration standards?	X		
Initial Calibration			
Are the initial calibration forms present for each instrument used?	X		
Are the response factor RSDs within acceptable limits?		X	
Are the average RRFs minimum requirements met?	X		
Are there any transcription/calculation errors in reporting the RRFs or RSDs?		X	
Continuing Calibration			
Are the continuing calibration forms present for each day and each instrument?	X		
Has a continuing calibration standard been analyzed for each 12 hours of analysis per instrument?	X		
All %D within acceptable limits?		X	
Are all RF minimum requirements met?	X		
Are there any transcription/calculation errors in reporting of RF or %D?		X	
Internal Standards			
Are internal standard areas of every sample within the upper and lower limits for each continuing calibration?	X		
Are the retention times of the internal standards within 30 seconds of the associated calibration standard?	X		
Field Duplicates			
Were field duplicates submitted with the samples?		X	

CORRECTED SAMPLE ANALYSIS DATA SHEETS

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-1

GC/MS Volatiles

Lot-Sample #	H8E160194 - 001	**Work Order #**	KNDEM1AA	**Matrix.....:**	AIR
Date Sampled...:	05/14/2008	**Date Received..:**	05/15/2008		
Prep Date.....:	05/20/2008	**Analysis Date...**	05/20/2008		
Prep Batch #....:	8142381				
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	0.20	ND	0.91
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.20	ND	1.4
Acetone	5.8	5.0	14	12
1,4-Dioxane	ND	0.50	ND	1.8
Ethylbenzene	ND	0.20	ND	0.87
Trichlorofluoromethane	**0.23**	**0.20**	**1.3**	**1.1**
n-Heptane	ND	0.50	ND	2.0
Hexachlorobutadiene	ND	1.0	ND	11
n-Hexane	**0.52**	**0.50**	**1.8**	**1.8**
2-Hexanone	ND J	0.50	ND J	2.0
2,2,4-Trimethylpentane	ND	0.50	ND	2.3
Isopropyl alcohol	ND	2.0	ND	4.9
tert-Butyl alcohol	ND	2.0	ND	6.1
Methylene chloride	ND	0.50	ND	1.7
2-Methylnaphthalene	ND	2.5	ND	15
Naphthalene	ND	0.50	ND	2.6
Benzene	**0.43**	**0.20**	**1.4**	**0.64**
Styrene	ND	0.20	ND	0.85
1,1,2,2-Tetrachloroethane	ND	0.20	ND	1.4
Tetrachloroethene	ND	0.20	ND	1.4
Toluene	**1.2**	**0.20**	**4.6**	**0.75**
1,2,4-Trichlorobenzene	ND	1.0	ND	7.4
1,1,1-Trichloroethane	ND	0.20	ND	1.1
1,1,2-Trichloroethane	ND	0.20	ND	1.1
Trichloroethene	ND	0.20	ND	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.20	ND	1.5
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98
1,3,5-Trimethylbenzene	ND	0.20	ND	0.98
Vinyl chloride	ND	0.20	ND	0.51
o-Xylene	ND	0.20	ND	0.87
1-Methylnaphthalene	ND	2.5	ND	15
Methyl tert-butyl ether	ND	1.0	ND	3.6
m-Xylene & p-Xylene	**0.58**	**0.20**	**2.5**	**0.87**
Bromodichloromethane	ND	0.20	ND	1.3
1,2-Dibromoethane (EDB)	ND	0.20	ND	1.5
2-Butanone (MEK)	ND	1.0	ND	2.9
4-Methyl-2-pentanone (MIBK)	ND	0.50	ND	2.0
Vinyl bromide	ND	0.20	ND	0.87

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-1

GC/MS Volatiles

Lot-Sample # H8E160194 - 001 Work Order # KNDEM1AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	0.20	ND	2.1
Bromomethane	ND	0.20	ND	0.78
Indene	ND	0.40	ND	1.9
1,3-Butadiene	ND	0.40	ND	0.88
4-Ethyltoluene	ND	0.40	ND	2.0
Thiophene	ND	0.20	ND	0.69
Carbon disulfide	ND	0.50	ND	1.6
Carbon tetrachloride	ND	0.20	ND	1.3
Chlorobenzene	ND	0.20	ND	0.92
1,2,3-Trimethylbenzene	ND	0.20	ND	0.98
Dibromochloromethane	ND	0.20	ND	1.7
Chloroethane	ND	0.20	ND	0.53
Chloroform	ND	0.20	ND	0.98
Chloromethane	**0.70**	**0.50**	**1.4**	**1.0**
3-Chloropropene	ND	0.20	ND	0.63
Indane	ND	0.20	ND	0.97
2-Chlorotoluene	ND	0.40	ND	2.1
Cyclohexane	ND	0.50	ND	1.7
1,2-Dichlorobenzene	ND	0.20	ND	1.2
1,3-Dichlorobenzene	ND	0.20	ND	1.2
1,4-Dichlorobenzene	ND	0.20	ND	1.2
Dichlorodifluoromethane	**0.58**	**0.20**	**2.8**	**0.99**
1,1-Dichloroethane	ND	0.20	ND	0.81
1,2-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79
trans-1,2-Dichloroethene	ND	0.20	ND	0.79
1,2-Dichloropropane	ND	0.20	ND	0.92
cis-1,3-Dichloropropene	ND	0.20	ND	0.91

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	100	70 - 130
Toluene-d8	100	70 - 130
4-Bromofluorobenzene	105	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-1

GC/MS Volatiles

Lot-Sample #	H8E160194 - 001	Work Order #	KNDEM1AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-2

GC/MS Volatiles

Lot-Sample #	H8E160194 - 002	**Work Order #**	KNDER1AA	**Matrix.....:**	AIR
Date Sampled....:	05/14/2008	**Date Received..:**	05/15/2008		
Prep Date.....:	05/20/2008	**Analysis Date...**	05/20/2008		
Prep Batch #.....:	8142381				
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	0.20	ND	0.91
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.20	ND	1.4
Acetone	**6.0**	**5.0**	**14**	**12**
1,4-Dioxane	ND	0.50	ND	1.8
Ethylbenzene	**0.22**	**0.20**	**0.97**	**0.87**
Trichlorofluoromethane	**0.25**	**0.20**	**1.4**	**1.1**
n-Heptane	ND	0.50	ND	2.0
Hexachlorobutadiene	ND	1.0	ND	11
n-Hexane	ND	0.50	ND	1.8
2-Hexanone	ND J	0.50	ND J	2.0
2,2,4-Trimethylpentane	ND	0.50	ND	2.3
Isopropyl alcohol	ND	2.0	ND	4.9
tert-Butyl alcohol	ND	2.0	ND	6.1
Methylene chloride	ND	0.50	ND	1.7
2-Methylnaphthalene	ND	2.5	ND	15
Naphthalene	ND	0.50	ND	2.6
Benzene	**0.35**	**0.20**	**1.1**	**0.64**
Styrene	ND	0.20	ND	0.85
1,1,2,2-Tetrachloroethane	ND	0.20	ND	1.4
Tetrachloroethene	ND	0.20	ND	1.4
Toluene	**1.2**	**0.20**	**4.5**	**0.75**
1,2,4-Trichlorobenzene	ND	1.0	ND	7.4
1,1,1-Trichloroethane	ND	0.20	ND	1.1
1,1,2-Trichloroethane	ND	0.20	ND	1.1
Trichloroethene	ND	0.20	ND	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.20	ND	1.5
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98
1,3,5-Trimethylbenzene	ND	0.20	ND	0.98
Vinyl chloride	ND	0.20	ND	0.51
o-Xylene	**0.25**	**0.20**	**1.1**	**0.87**
1-Methylnaphthalene	ND	2.5	ND	15
Methyl tert-butyl ether	ND	1.0	ND	3.6
m-Xylene & p-Xylene	**0.77**	**0.20**	**3.3**	**0.87**
Bromodichloromethane	ND	0.20	ND	1.3
1,2-Dibromoethane (EDB)	ND	0.20	ND	1.5
2-Butanone (MEK)	ND	1.0	ND	2.9
4-Methyl-2-pentanone (MIBK)	ND	0.50	ND	2.0
Vinyl bromide	ND	0.20	ND	0.87

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-2

GC/MS Volatiles

Lot-Sample # H8E160194 - 002 Work Order # KNDER1AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	0.20	ND	2.1
Bromomethane	ND	0.20	ND	0.78
Indene	ND	0.40	ND	1.9
1,3-Butadiene	ND	0.40	ND	0.88
4-Ethyltoluene	ND	0.40	ND	2.0
Thiophene	ND	0.20	ND	0.69
Carbon disulfide	ND	0.50	ND	1.6
Carbon tetrachloride	ND	0.20	ND	1.3
Chlorobenzene	ND	0.20	ND	0.92
1,2,3-Trimethylbenzene	ND	0.20	ND	0.98
Dibromochloromethane	ND	0.20	ND	1.7
Chloroethane	ND	0.20	ND	0.53
Chloroform	ND	0.20	ND	0.98
Chloromethane	**0.63**	**0.50**	**1.3**	**1.0**
3-Chloropropene	ND	0.20	ND	0.63
Indane	ND	0.20	ND	0.97
2-Chlorotoluene	ND	0.40	ND	2.1
Cyclohexane	ND	0.50	ND	1.7
1,2-Dichlorobenzene	ND	0.20	ND	1.2
1,3-Dichlorobenzene	ND	0.20	ND	1.2
1,4-Dichlorobenzene	ND	0.20	ND	1.2
Dichlorodifluoromethane	**0.56**	**0.20**	**2.8**	**0.99**
1,1-Dichloroethane	ND	0.20	ND	0.81
1,2-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79
trans-1,2-Dichloroethene	ND	0.20	ND	0.79
1,2-Dichloropropane	ND	0.20	ND	0.92
cis-1,3-Dichloropropene	ND	0.20	ND	0.91

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	97	70 - 130
Toluene-d8	106	70 - 130
4-Bromofluorobenzene	97	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-2

GC/MS Volatiles

Lot-Sample #	H8E160194 - 002	Work Order #	KNDER1AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-3

GC/MS Volatiles

Lot-Sample #	H8E160194 - 003	Work Order #	KNDEV1AA	Matrix.....:	AIR
Date Sampled...:	05/14/2008	Date Received..:	05/15/2008		
Prep Date.....:	05/20/2008	Analysis Date...	05/20/2008		
Prep Batch #....:	8142381				
Dilution Factor.:	1	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	0.20	ND	0.91
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.20	ND	1.4
Acetone	5.0	5.0	12	12
1,4-Dioxane	ND	0.50	ND	1.8
Ethylbenzene	ND	0.20	ND	0.87
Trichlorofluoromethane	0.28	0.20	1.6	1.1
n-Heptane	ND	0.50	ND	2.0
Hexachlorobutadiene	ND	1.0	ND	11
n-Hexane	ND	0.50	ND	1.8
2-Hexanone	ND J	0.50	ND J	2.0
2,2,4-Trimethylpentane	ND	0.50	ND	2.3
Isopropyl alcohol	ND	2.0	ND	4.9
tert-Butyl alcohol	ND	2.0	ND	6.1
Methylene chloride	ND	0.50	ND	1.7
2-Methylnaphthalene	ND	2.5	ND	15
Naphthalene	ND	0.50	ND	2.6
Benzene	0.34	0.20	1.1	0.64
Styrene	ND	0.20	ND	0.85
1,1,2,2-Tetrachloroethane	ND	0.20	ND	1.4
Tetrachloroethene	ND	0.20	ND	1.4
Toluene	0.95	0.20	3.6	0.75
1,2,4-Trichlorobenzene	ND	1.0	ND	7.4
1,1,1-Trichloroethane	ND	0.20	ND	1.1
1,1,2-Trichloroethane	ND	0.20	ND	1.1
Trichloroethene	ND	0.20	ND	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.20	ND	1.5
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98
1,3,5-Trimethylbenzene	ND	0.20	ND	0.98
Vinyl chloride	ND	0.20	ND	0.51
o-Xylene	ND	0.20	ND	0.87
1-Methylnaphthalene	ND	2.5	ND	15
Methyl tert-butyl ether	ND	1.0	ND	3.6
m-Xylene & p-Xylene	0.45	0.20	2.0	0.87
Bromodichloromethane	ND	0.20	ND	1.3
1,2-Dibromoethane (EDB)	ND	0.20	ND	1.5
2-Butanone (MEK)	1.2	1.0	3.5	2.9
4-Methyl-2-pentanone (MIBK)	ND	0.50	ND	2.0
Vinyl bromide	ND	0.20	ND	0.87

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-3

GC/MS Volatiles

Lot-Sample # H8E160194 - 003 Work Order # KNDEV1AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	0.20	ND	2.1
Bromomethane	ND	0.20	ND	0.78
Indene	ND	0.40	ND	1.9
1,3-Butadiene	ND	0.40	ND	0.88
4-Ethyltoluene	ND	0.40	ND	2.0
Thiophene	ND	0.20	ND	0.69
Carbon disulfide	ND	0.50	ND	1.6
Carbon tetrachloride	ND	0.20	ND	1.3
Chlorobenzene	ND	0.20	ND	0.92
1,2,3-Trimethylbenzene	ND	0.20	ND	0.98
Dibromochloromethane	ND	0.20	ND	1.7
Chloroethane	ND	0.20	ND	0.53
Chloroform	ND	0.20	ND	0.98
Chloromethane	**0.92**	**0.50**	**1.9**	**1.0**
3-Chloropropene	ND	0.20	ND	0.63
Indane	ND	0.20	ND	0.97
2-Chlorotoluene	ND	0.40	ND	2.1
Cyclohexane	ND	0.50	ND	1.7
1,2-Dichlorobenzene	ND	0.20	ND	1.2
1,3-Dichlorobenzene	ND	0.20	ND	1.2
1,4-Dichlorobenzene	ND	0.20	ND	1.2
Dichlorodifluoromethane	**0.60**	**0.20**	**3.0**	**0.99**
1,1-Dichloroethane	ND	0.20	ND	0.81
1,2-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79
trans-1,2-Dichloroethene	ND	0.20	ND	0.79
1,2-Dichloropropane	ND	0.20	ND	0.92
cis-1,3-Dichloropropene	ND	0.20	ND	0.91

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	95	70 - 130
Toluene-d8	99	70 - 130
4-Bromofluorobenzene	95	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: AMBIENT-3

GC/MS Volatiles

Lot-Sample #	H8E160194 - 003	Work Order #	KNDEV1AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-2

GC/MS Volatiles

Lot-Sample #	H8E160194 - 004	**Work Order #**	KNDEW1AA	**Matrix.....:**	AIR
Date Sampled...:	05/14/2008	**Date Received..:**	05/15/2008		
Prep Date.....:	05/19/2008	**Analysis Date..**	05/19/2008		
Prep Batch #.....:	8141195				
Dilution Factor.:	15.1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	3.0	ND	14
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.0	ND	21
Acetone	**99** J	**76**	**240** J	**180**
1,4-Dioxane	ND	7.6	ND	27
Ethylbenzene	ND	3.0	ND	13
Trichlorofluoromethane	ND	3.0	ND	17
n-Heptane	**9.5**	**7.6**	**39**	**31**
Hexachlorobutadiene	ND	15	ND	160
n-Hexane	**39**	**7.6**	**140**	**27**
2-Hexanone	ND J	7.6	ND J	31
2,2,4-Trimethylpentane	ND	7.6	ND	35
Isopropyl alcohol	ND	30	ND	74
tert-Butyl alcohol	ND	30	ND	92
Methylene chloride	ND	7.6	ND	26
2-Methylnaphthalene	ND	38	ND	220
Naphthalene	ND	7.6	ND	40
Benzene	**710**	**3.0**	**2300**	**9.6**
Styrene	ND	3.0	ND	13
1,1,2,2-Tetrachloroethane	ND	3.0	ND	21
Tetrachloroethene	ND	3.0	ND	20
Toluene	**86**	**3.0**	**320**	**11**
1,2,4-Trichlorobenzene	ND	15	ND	110
1,1,1-Trichloroethane	ND	3.0	ND	16
1,1,2-Trichloroethane	ND	3.0	ND	16
Trichloroethene	ND	3.0	ND	16
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	3.0	ND	23
1,2,4-Trimethylbenzene	ND	3.0	ND	15
1,3,5-Trimethylbenzene	ND	3.0	ND	15
Vinyl chloride	ND	3.0	ND	7.7
o-Xylene	ND	3.0	ND	13
1-Methylnaphthalene	ND	38	ND	220
Methyl tert-butyl ether	ND	15	ND	54
m-Xylene & p-Xylene	ND	3.0	ND	13
Bromodichloromethane	ND	3.0	ND	20
1,2-Dibromoethane (EDB)	ND	3.0	ND	23
2-Butanone (MEK)	ND	15	ND	45
4-Methyl-2-pentanone (MIBK)	ND	7.6	ND	31
Vinyl bromide	ND	3.0	ND	13

ARCADIS U.S., Inc.

Client Sample ID: SV-2

GC/MS Volatiles

Lot-Sample # H8E160194 - 004 Work Order # KNDEW1AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	3.0	ND	31
Bromomethane	ND	3.0	ND	12
Indene	ND	6.0	ND	29
1,3-Butadiene	ND	6.0	ND	13
4-Ethyltoluene	ND	6.0	ND	30
Thiophene	ND	3.0	ND	10
Carbon disulfide	**11**	7.6	**33**	**24**
Carbon tetrachloride	ND	3.0	ND	19
Chlorobenzene	**7.3**	**3.0**	**34**	**14**
1,2,3-Trimethylbenzene	ND	3.0	ND	15
Dibromochloromethane	ND	3.0	ND	26
Chloroethane	ND	3.0	ND	8.0
Chloroform	ND	3.0	ND	15
Chloromethane	ND	7.6	ND	16
3-Chloropropene	ND	3.0	ND	9.5
Indane	ND	3.0	ND	15
2-Chlorotoluene	ND	6.0	ND	31
Cyclohexane	**21**	7.6	**72**	**26**
1,2-Dichlorobenzene	ND	3.0	ND	18
1,3-Dichlorobenzene	ND	3.0	ND	18
1,4-Dichlorobenzene	ND	3.0	ND	18
Dichlorodifluoromethane	ND	3.0	ND	15
1,1-Dichloroethane	ND	3.0	ND	12
1,2-Dichloroethane	ND	3.0	ND	12
1,1-Dichloroethene	ND	3.0	ND	12
cis-1,2-Dichloroethene	ND	3.0	ND	12
trans-1,2-Dichloroethene	ND	3.0	ND	12
1,2-Dichloropropane	ND	3.0	ND	14
cis-1,3-Dichloropropene	ND	3.0	ND	14

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	96	70 - 130
Toluene-d8	97	70 - 130
4-Bromofluorobenzene	90	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-2

GC/MS Volatiles

Lot-Sample #	H8E160194 - 004	Work Order #	KNDEW1AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-1

GC/MS Volatiles

Lot-Sample #	H8E160194 - 005	Work Order #	KNDE01AA	Matrix.....:	AIR
Date Sampled...:	05/14/2008	Date Received..:	05/15/2008		
Prep Date.....:	05/20/2008	Analysis Date...	05/20/2008		
Prep Batch #....:	8142381				
Dilution Factor.:	10	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	2.0	ND	9.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.0	ND	14
Acetone	ND	50	ND	120
1,4-Dioxane	ND	5.0	ND	18
Ethylbenzene	ND	2.0	ND	8.7
Trichlorofluoromethane	ND	2.0	ND	11
n-Heptane	ND	5.0	ND	20
Hexachlorobutadiene	ND	10	ND	110
n-Hexane	ND	5.0	ND	18
2-Hexanone	ND J	5.0	ND J	20
2,2,4-Trimethylpentane	ND	5.0	ND	23
Isopropyl alcohol	ND	20	ND	49
tert-Butyl alcohol	ND	20	ND	61
Methylene chloride	ND	5.0	ND	17
2-Methylnaphthalene	ND	25	ND	150
Naphthalene	ND	5.0	ND	26
Benzene	ND	2.0	ND	6.4
Styrene	ND	2.0	ND	8.5
1,1,2,2-Tetrachloroethane	ND	2.0	ND	14
Tetrachloroethene	ND	2.0	ND	14
Toluene	ND	2.0	ND	7.5
1,2,4-Trichlorobenzene	ND	10	ND	74
1,1,1-Trichloroethane	ND	2.0	ND	11
1,1,2-Trichloroethane	ND	2.0	ND	11
Trichloroethene	ND	2.0	ND	11
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.0	ND	15
1,2,4-Trimethylbenzene	ND	2.0	ND	9.8
1,3,5-Trimethylbenzene	ND	2.0	ND	9.8
Vinyl chloride	ND	2.0	ND	5.1
o-Xylene	ND	2.0	ND	8.7
1-Methylnaphthalene	ND	25	ND	150
Methyl tert-butyl ether	ND	10	ND	36
m-Xylene & p-Xylene	ND	2.0	ND	8.7
Bromodichloromethane	ND	2.0	ND	13
1,2-Dibromoethane (EDB)	ND	2.0	ND	15
2-Butanone (MEK)	ND	10	ND	29
4-Methyl-2-pentanone (MIBK)	ND	5.0	ND	20
Vinyl bromide	ND	2.0	ND	8.7

ARCADIS U.S., Inc.

Client Sample ID: SV-1

GC/MS Volatiles

Lot-Sample # H8E160194 - 005 Work Order # KNDE01AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	2.0	ND	21
Bromomethane	ND	2.0	ND	7.8
Indene	ND	4.0	ND	19
1,3-Butadiene	ND	4.0	ND	8.8
4-Ethyltoluene	ND	4.0	ND	20
Thiophene	ND	2.0	ND	6.9
Carbon disulfide	ND	5.0	ND	16
Carbon tetrachloride	ND	2.0	ND	13
Chlorobenzene	ND	2.0	ND	9.2
1,2,3-Trimethylbenzene	ND	2.0	ND	9.8
Dibromochloromethane	ND	2.0	ND	17
Chloroethane	ND	2.0	ND	5.3
Chloroform	ND	2.0	ND	9.8
Chloromethane	ND	5.0	ND	10
3-Chloropropene	ND	2.0	ND	6.3
Indane	ND	2.0	ND	9.7
2-Chlorotoluene	ND	4.0	ND	21
Cyclohexane	ND	5.0	ND	17
1,2-Dichlorobenzene	ND	2.0	ND	12
1,3-Dichlorobenzene	ND	2.0	ND	12
1,4-Dichlorobenzene	ND	2.0	ND	12
Dichlorodifluoromethane	ND	2.0	ND	9.9
1,1-Dichloroethane	ND	2.0	ND	8.1
1,2-Dichloroethane	ND	2.0	ND	8.1
1,1-Dichloroethene	ND	2.0	ND	7.9
cis-1,2-Dichloroethene	ND	2.0	ND	7.9
trans-1,2-Dichloroethene	ND	2.0	ND	7.9
1,2-Dichloropropane	ND	2.0	ND	9.2
cis-1,3-Dichloropropene	ND	2.0	ND	9.1

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	94	70 - 130
Toluene-d8	102	70 - 130
4-Bromofluorobenzene	94	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-1

GC/MS Volatiles

Lot-Sample #	H8E160194 - 005	Work Order #	KNDE01AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-4

GC/MS Volatiles

Lot-Sample #	H8E160194 - 006	Work Order #	KNDE11AA	Matrix.....:	AIR
Date Sampled...:	05/14/2008	Date Received..:	05/15/2008		
Prep Date.....:	05/19/2008	Analysis Date...	05/19/2008		
Prep Batch #.....:	8141195				
Dilution Factor.:	15.5	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	3.1	ND	14
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.1	ND	22
Acetone	250 J	78	600 J	180
1,4-Dioxane	ND	7.8	ND	28
Ethylbenzene	ND	3.1	ND	13
Trichlorofluoromethane	ND	3.1	ND	17
n-Heptane	32	7.8	130	32
Hexachlorobutadiene	ND	16	ND	170
n-Hexane	66	7.8	230	27
2-Hexanone	ND J	7.8	ND J	32
2,2,4-Trimethylpentane	ND	7.8	ND	36
Isopropyl alcohol	ND	31	ND	76
tert-Butyl alcohol	ND	31	ND	94
Methylene chloride	ND	7.8	ND	27
2-Methylnaphthalene	ND	39	ND	230
Naphthalene	ND	7.8	ND	41
Benzene	720	3.1	2300	9.9
Styrene	ND	3.1	ND	13
1,1,2,2-Tetrachloroethane	ND	3.1	ND	21
Tetrachloroethene	ND	3.1	ND	21
Toluene	18	3.1	69	12
1,2,4-Trichlorobenzene	ND	16	ND	120
1,1,1-Trichloroethane	ND	3.1	ND	17
1,1,2-Trichloroethane	ND	3.1	ND	17
Trichloroethene	ND	3.1	ND	17
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	3.1	ND	24
1,2,4-Trimethylbenzene	ND	3.1	ND	15
1,3,5-Trimethylbenzene	ND	3.1	ND	15
Vinyl chloride	ND	3.1	ND	7.9
o-Xylene	ND	3.1	ND	13
1-Methylnaphthalene	ND	39	ND	230
Methyl tert-butyl ether	ND	16	ND	56
m-Xylene & p-Xylene	ND	3.1	ND	13
Bromodichloromethane	ND	3.1	ND	21
1,2-Dibromoethane (EDB)	ND	3.1	ND	24
2-Butanone (MEK)	23	16	67	46
4-Methyl-2-pentanone (MIBK)	ND	7.8	ND	32
Vinyl bromide	ND	3.1	ND	14

ARCADIS U.S., Inc.

Client Sample ID: SV-4

GC/MS Volatiles

Lot-Sample # H8E160194 - 006 Work Order # KNDE11AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	3.1	ND	32
Bromomethane	ND	3.1	ND	12
Indene	ND	6.2	ND	29
1,3-Butadiene	ND	6.2	ND	14
4-Ethyltoluene	ND	6.2	ND	30
Thiophene	ND	3.1	ND	11
Carbon disulfide	59	7.8	180	24
Carbon tetrachloride	ND	3.1	ND	20
Chlorobenzene	ND	3.1	ND	14
1,2,3-Trimethylbenzene	ND	3.1	ND	15
Dibromochloromethane	ND	3.1	ND	26
Chloroethane	ND	3.1	ND	8.2
Chloroform	ND	3.1	ND	15
Chloromethane	ND	7.8	ND	16
3-Chloropropene	ND	3.1	ND	9.7
Indane	ND	3.1	ND	15
2-Chlorotoluene	ND	6.2	ND	32
Cyclohexane	120	7.8	430	27
1,2-Dichlorobenzene	ND	3.1	ND	19
1,3-Dichlorobenzene	ND	3.1	ND	19
1,4-Dichlorobenzene	ND	3.1	ND	19
Dichlorodifluoromethane	ND	3.1	ND	15
1,1-Dichloroethane	ND	3.1	ND	13
1,2-Dichloroethane	ND	3.1	ND	13
1,1-Dichloroethene	ND	3.1	ND	12
cis-1,2-Dichloroethene	ND	3.1	ND	12
trans-1,2-Dichloroethene	ND	3.1	ND	12
1,2-Dichloropropane	ND	3.1	ND	14
cis-1,3-Dichloropropene	ND	3.1	ND	14

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	95	70 - 130
Toluene-d8	95	70 - 130
4-Bromofluorobenzene	93	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-4

GC/MS Volatiles

Lot-Sample #	H8E160194 - 006	Work Order #	KNDE11AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-3

GC/MS Volatiles

Lot-Sample #	H8E160194 - 007	**Work Order #**	KNDE51AA	**Matrix.....:**	AIR
Date Sampled...:	05/14/2008	**Date Received..:**	05/15/2008		
Prep Date.....:	05/20/2008	**Analysis Date...**	05/20/2008		
Prep Batch #....:	8142381				
Dilution Factor.:	4886.4	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	980	ND	4400
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	980	ND	6800
Acetone	ND	24000	ND	58000
1,4-Dioxane	ND	2400	ND	8800
Ethylbenzene	ND	980	ND	4200
Trichlorofluoromethane	ND	980	ND	5500
n-Heptane	**6200**	**2400**	**25000**	**10000**
Hexachlorobutadiene	ND	4900	ND	52000
n-Hexane	**150000**	**2400**	**510000**	**8600**
2-Hexanone	ND J	2400	ND J	10000
2,2,4-Trimethylpentane	**16000**	**2400**	**72000**	**11000**
Isopropyl alcohol	ND	9800	ND	24000
tert-Butyl alcohol	ND	9800	ND	30000
Methylene chloride	ND	2400	ND	8500
2-Methylnaphthalene	ND	12000	ND	71000
Naphthalene	ND	2400	ND	13000
Benzene	**17000**	**980**	**53000**	**3100**
Styrene	ND	980	ND	4200
1,1,2,2-Tetrachloroethane	ND	980	ND	6700
Tetrachloroethene	ND	980	ND	6600
Toluene	ND	980	ND	3700
1,2,4-Trichlorobenzene	ND	4900	ND	36000
1,1,1-Trichloroethane	ND	980	ND	5300
1,1,2-Trichloroethane	ND	980	ND	5300
Trichloroethene	ND	980	ND	5300
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	980	ND	7500
1,2,4-Trimethylbenzene	ND	980	ND	4800
1,3,5-Trimethylbenzene	ND	980	ND	4800
Vinyl chloride	ND	980	ND	2500
o-Xylene	ND	980	ND	4200
1-Methylnaphthalene	ND	12000	ND	71000
Methyl tert-butyl ether	ND	4900	ND	18000
m-Xylene & p-Xylene	ND	980	ND	4200
Bromodichloromethane	ND	980	ND	6500
1,2-Dibromoethane (EDB)	ND	980	ND	7500
2-Butanone (MEK)	ND	4900	ND	14000
4-Methyl-2-pentanone (MIBK)	ND	2400	ND	10000
Vinyl bromide	ND	980	ND	4300

ARCADIS U.S., Inc.

Client Sample ID: SV-3

GC/MS Volatiles

Lot-Sample # H8E160194 - 007 Work Order # KNDE51AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	980	ND	10000
Bromomethane	ND	980	ND	3800
Indene	ND	2000	ND	9300
1,3-Butadiene	ND	2000	ND	4300
4-Ethyltoluene	ND	2000	ND	9600
Thiophene	ND	980	ND	3400
Carbon disulfide	ND	2400	ND	7600
Carbon tetrachloride	ND	980	ND	6100
Chlorobenzene	ND	980	ND	4500
1,2,3-Trimethylbenzene	ND	980	ND	4800
Dibromochloromethane	ND	980	ND	8300
Chloroethane	ND	980	ND	2600
Chloroform	ND	980	ND	4800
Chloromethane	ND	2400	ND	5000
3-Chloropropene	ND	980	ND	3100
Indane	ND	980	ND	4700
2-Chlorotoluene	ND	2000	ND	10000
Cyclohexane	32000	2400	110000	8400
1,2-Dichlorobenzene	ND	980	ND	5900
1,3-Dichlorobenzene	ND	980	ND	5900
1,4-Dichlorobenzene	ND	980	ND	5900
Dichlorodifluoromethane	ND	980	ND	4800
1,1-Dichloroethane	ND	980	ND	4000
1,2-Dichloroethane	ND	980	ND	4000
1,1-Dichloroethene	ND	980	ND	3900
cis-1,2-Dichloroethene	ND	980	ND	3900
trans-1,2-Dichloroethene	ND	980	ND	3900
1,2-Dichloropropane	ND	980	ND	4500
cis-1,3-Dichloropropene	ND	980	ND	4400

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	94	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	97	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-3

GC/MS Volatiles

Lot-Sample #	H8E160194 - 007	Work Order #	KNDE51AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-5

GC/MS Volatiles

Lot-Sample # H8E160194 - 008 Work Order # KNDE61AA Matrix.....: AIR

Date Sampled...: 05/14/2008 Date Received..: 05/15/2008
Prep Date.....: 05/20/2008 Analysis Date... 05/20/2008
Prep Batch #.....: 8142381
Dilution Factor.: 10 Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	2.0	ND	9.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.0	ND	14
Acetone	**86**	**50**	**200**	**120**
1,4-Dioxane	ND	5.0	ND	18
Ethylbenzene	ND	2.0	ND	8.7
Trichlorofluoromethane	ND	2.0	ND	11
n-Heptane	**5.3**	**5.0**	**22**	**20**
Hexachlorobutadiene	ND	10	ND	110
n-Hexane	**100**	**5.0**	**370**	**18**
2-Hexanone	ND J	5.0	ND J	20
2,2,4-Trimethylpentane	**11**	**5.0**	**53**	**23**
Isopropyl alcohol	ND	20	ND	49
tert-Butyl alcohol	ND	20	ND	61
Methylene chloride	ND	5.0	ND	17
2-Methylnaphthalene	ND	25	ND	150
Naphthalene	ND	5.0	ND	26
Benzene	**14**	**2.0**	**44**	**6.4**
Styrene	ND	2.0	ND	8.5
1,1,2,2-Tetrachloroethane	ND	2.0	ND	14
Tetrachloroethene	ND	2.0	ND	14
Toluene	**8.9**	**2.0**	**34**	**7.5**
1,2,4-Trichlorobenzene	ND	10	ND	74
1,1,1-Trichloroethane	**8.9**	**2.0**	**49**	**11**
1,1,2-Trichloroethane	ND	2.0	ND	11
Trichloroethene	ND	2.0	ND	11
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.0	ND	15
1,2,4-Trimethylbenzene	ND	2.0	ND	9.8
1,3,5-Trimethylbenzene	ND	2.0	ND	9.8
Vinyl chloride	ND	2.0	ND	5.1
o-Xylene	ND	2.0	ND	8.7
1-Methylnaphthalene	ND	25	ND	150
Methyl tert-butyl ether	ND	10	ND	36
m-Xylene & p-Xylene	ND	2.0	ND	8.7
Bromodichloromethane	ND	2.0	ND	13
1,2-Dibromoethane (EDB)	ND	2.0	ND	15
2-Butanone (MEK)	ND	10	ND	29
4-Methyl-2-pentanone (MIBK)	ND	5.0	ND	20
Vinyl bromide	ND	2.0	ND	8.7

ARCADIS U.S., Inc.

Client Sample ID: SV-5

GC/MS Volatiles

Lot-Sample # H8E160194 - 008 Work Order # KNDE61AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	2.0	ND	21
Bromomethane	ND	2.0	ND	7.8
Indene	ND	4.0	ND	19
1,3-Butadiene	ND	4.0	ND	8.8
4-Ethyltoluene	ND	4.0	ND	20
Thiophene	ND	2.0	ND	6.9
Carbon disulfide	ND	5.0	ND	16
Carbon tetrachloride	ND	2.0	ND	13
Chlorobenzene	ND	2.0	ND	9.2
1,2,3-Trimethylbenzene	ND	2.0	ND	9.8
Dibromochloromethane	ND	2.0	ND	17
Chloroethane	ND	2.0	ND	5.3
Chloroform	ND	2.0	ND	9.8
Chloromethane	ND	5.0	ND	10
3-Chloropropene	ND	2.0	ND	6.3
Indane	ND	2.0	ND	9.7
2-Chlorotoluene	ND	4.0	ND	21
Cyclohexane	25	5.0	87	17
1,2-Dichlorobenzene	ND	2.0	ND	12
1,3-Dichlorobenzene	ND	2.0	ND	12
1,4-Dichlorobenzene	ND	2.0	ND	12
Dichlorodifluoromethane	ND	2.0	ND	9.9
1,1-Dichloroethane	ND	2.0	ND	8.1
1,2-Dichloroethane	ND	2.0	ND	8.1
1,1-Dichloroethene	ND	2.0	ND	7.9
cis-1,2-Dichloroethene	ND	2.0	ND	7.9
trans-1,2-Dichloroethene	ND	2.0	ND	7.9
1,2-Dichloropropane	ND	2.0	ND	9.2
cis-1,3-Dichloropropene	ND	2.0	ND	9.1

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	93	70 - 130
Toluene-d8	100	70 - 130
4-Bromofluorobenzene	92	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-5

GC/MS Volatiles

Lot-Sample #	H8E160194 - 008	**Work Order #**	KNDE61AA	**Matrix.....:**	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

ARCADIS U.S., Inc.

Client Sample ID: SV-6

GC/MS Volatiles

Lot-Sample #	H8E160194 - 009	Work Order #	KNDE71AA	Matrix.....:	AIR
Date Sampled...:	05/14/2008	Date Received..:	05/15/2008		
Prep Date.....:	05/20/2008	Analysis Date...	05/20/2008		
Prep Batch #....:	8142381				
Dilution Factor.:	10	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	2.0	ND	9.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.0	ND	14
Acetone	110	50	270	120
1,4-Dioxane	ND	5.0	ND	18
Ethylbenzene	ND	2.0	ND	8.7
Trichlorofluoromethane	ND	2.0	ND	11
n-Heptane	ND	5.0	ND	20
Hexachlorobutadiene	ND	10	ND	110
n-Hexane	5.8	5.0	20	18
2-Hexanone	ND J	5.0	ND J	20
2,2,4-Trimethylpentane	ND	5.0	ND	23
Isopropyl alcohol	ND	20	ND	49
tert-Butyl alcohol	ND	20	ND	61
Methylene chloride	ND	5.0	ND	17
2-Methylnaphthalene	ND	25	ND	150
Naphthalene	ND	5.0	ND	26
Benzene	3.7	2.0	12	6.4
Styrene	ND	2.0	ND	8.5
1,1,2,2-Tetrachloroethane	ND	2.0	ND	14
Tetrachloroethene	ND	2.0	ND	14
Toluene	14	2.0	51	7.5
1,2,4-Trichlorobenzene	ND	10	ND	74
1,1,1-Trichloroethane	ND	2.0	ND	11
1,1,2-Trichloroethane	34	2.0	190	11
Trichloroethene	ND	2.0	ND	11
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	2.0	ND	15
1,2,4-Trimethylbenzene	ND	2.0	ND	9.8
1,3,5-Trimethylbenzene	ND	2.0	ND	9.8
Vinyl chloride	ND	2.0	ND	5.1
o-Xylene	ND	2.0	ND	8.7
1-Methylnaphthalene	ND	25	ND	150
Methyl tert-butyl ether	ND	10	ND	36
m-Xylene & p-Xylene	ND	2.0	ND	8.7
Bromodichloromethane	ND	2.0	ND	13
1,2-Dibromoethane (EDB)	ND	2.0	ND	15
2-Butanone (MEK)	ND	10	ND	29
4-Methyl-2-pentanone (MIBK)	ND	5.0	ND	20
Vinyl bromide	ND	2.0	ND	8.7

ARCADIS U.S., Inc.

Client Sample ID: SV-6

GC/MS Volatiles

Lot-Sample # H8E160194 - 009 Work Order # KNDE71AA Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Bromoform	ND	2.0	ND	21
Bromomethane	ND	2.0	ND	7.8
Indene	ND	4.0	ND	19
1,3-Butadiene	ND	4.0	ND	8.8
4-Ethyltoluene	ND	4.0	ND	20
Thiophene	ND	2.0	ND	6.9
Carbon disulfide	ND	5.0	ND	16
Carbon tetrachloride	ND	2.0	ND	13
Chlorobenzene	ND	2.0	ND	9.2
1,2,3-Trimethylbenzene	ND	2.0	ND	9.8
Dibromochloromethane	ND	2.0	ND	17
Chloroethane	ND	2.0	ND	5.3
Chloroform	ND	2.0	ND	9.8
Chloromethane	ND	5.0	ND	10
3-Chloropropene	ND	2.0	ND	6.3
Indane	ND	2.0	ND	9.7
2-Chlorotoluene	ND	4.0	ND	21
Cyclohexane	ND	5.0	ND	17
1,2-Dichlorobenzene	ND	2.0	ND	12
1,3-Dichlorobenzene	ND	2.0	ND	12
1,4-Dichlorobenzene	ND	2.0	ND	12
Dichlorodifluoromethane	ND	2.0	ND	9.9
1,1-Dichloroethane	ND	2.0	ND	8.1
1,2-Dichloroethane	ND	2.0	ND	8.1
1,1-Dichloroethene	ND	2.0	ND	7.9
cis-1,2-Dichloroethene	ND	2.0	ND	7.9
trans-1,2-Dichloroethene	ND	2.0	ND	7.9
1,2-Dichloropropane	ND	2.0	ND	9.2
cis-1,3-Dichloropropene	ND	2.0	ND	9.1

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-Tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-Tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-Tetramethylbenzene	ND	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	94	70 - 130
Toluene-d8	97	70 - 130
4-Bromofluorobenzene	95	70 - 130

ARCADIS U.S., Inc.

Client Sample ID: SV-6

GC/MS Volatiles

Lot-Sample #	H8E160194 - 009	Work Order #	KNDE71AA	Matrix.....:	AIR

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
H8E160194	5/14/2008	TO-15	Ambient-1	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	Ambient-2	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	Ambient-3	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-2	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-1	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-4	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-3	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-5	Air	No					VOC – ical, ccal
H8E160194	5/14/2008	TO-15	SV-6	Air	No					VOC – ical, ccal

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
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Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

August 28, 2008

Brian Stearns, P.E. Sr. Environmental Engineer
National Grid
Environmental Department C-1
300 Erie Blvd
Syracuse, NY 13202

Re: Remedial Design Work Plan
Broadway, Schenectady Former MGP Site
Site No. 4-47-026

Dear Mr. Stearns:

The New York State Department of Conservation (Department) has reviewed the Remedial Design Work Plan for the above referenced site dated July 2008. That plan is hereby approved.

1. In the last paragraph of section 3.4, relocating utilities to eliminate the penetration of the wall should be considered.

2. If the price of steel continues to increase, some economic analysis of the cost of sheet piling versus jet grouting may be appropriate.

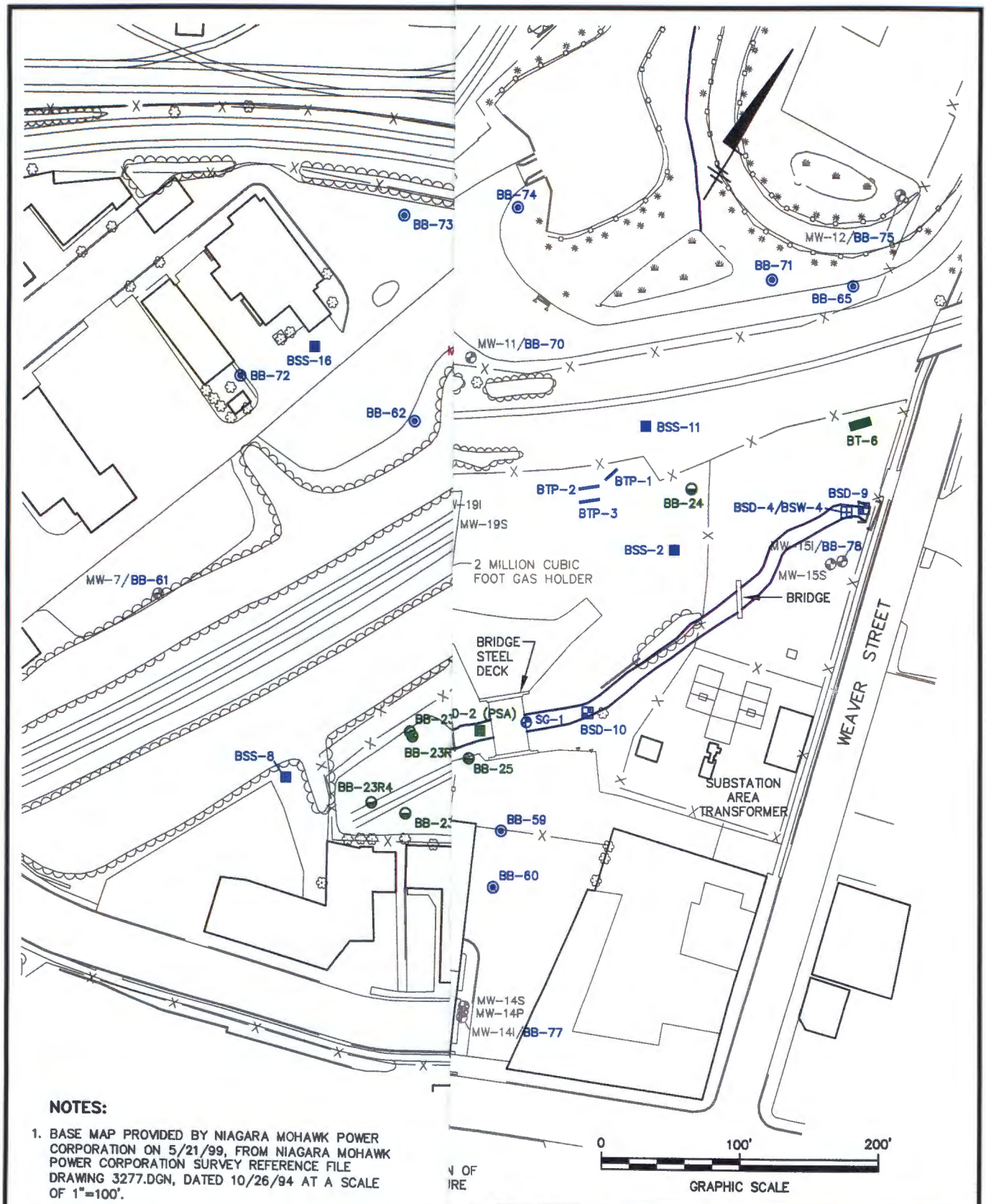
3. In section 3.6, the work plan states that "The purpose of any ground water collection system at this site is solely to maintain an inward hydraulic gradient." We agree that no other considerations should compromise the primary role of the collection wells. However, the Department will consider the degree of contamination in the area of the recovery wells. If collection wells can serve double duty as NAPL recovery wells without compromising their primary role, then that would be an overall benefit to the site remedy.

If you have any questions, please contact me at (518) 402-9686.

Sincerely,

William S. Ottaway, P.E.
Environmental Engineer 2
MGP Remedial Section
Division of Environmental Remediation

ec Gardiner Cross, NYSDEC
Maureen Schuck. NYSDOH



NOTES:

1. BASE MAP PROVIDED BY NIAGARA MOHAWK POWER CORPORATION ON 5/21/99, FROM NIAGARA MOHAWK POWER CORPORATION SURVEY REFERENCE FILE DRAWING 3277.DGN, DATED 10/26/94 AT A SCALE OF 1"=100'.
2. SAMPLING LOCATIONS WERE SURVEYED BY NIAGARA MOHAWK AND BLASLAND, BOUCK & LEE, INC.. LOCATIONS OF OTHER SITE FEATURES ARE APPROXIMATE.
3. HORIZONTAL DATUM IS NEW YORK STATE PLANE OF 1983, EAST ZONE.
4. MONITORING WELL MW-20 WAS ABANDONED AND REPLACED WITH MONITORING WELL MW-20R IN JANUARY 2005.

X: 36657X01.DWG
L: ON=*, OFF=*REF*, |FEATURES_GEO-PHYS-HIST, |HIST-TXT, |MISC-POST
P: PAGESET/SYR-BL
11/30/05 SYR-85-RC8 WLJ GMS
36657011/SITE-RI/36657B01.DWG

NATIONAL GRID
SCHENECTADY (BROADWAY) SERVICE CENTER
SCHENECTADY, NEW YORK
SITE REMEDIAL INVESTIGATION REPORT

SAMPLE LOCATION MAP

BBL BLASLAND, BOUCK & LEE, INC.

FIGURE

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

September 15, 2008

Brian Stearns, P.E. Sr. Environmental Engineer
National Grid
Environmental Department C-1
300 Erie Blvd
Syracuse, NY 13202

Re: Soil Vapor Sampling Results
Broadway, Schenectady Former MGP Site
Site No. 4-47-026

Dear Mr. Stearns:

The New York State Department of Conservation (Department) and New York State Department of Health have reviewed the Soil Vapor Sampling results submitted July 22, 2008. Based on our review, the following comments are offered.

1. Based on the soil vapor data for SV-2, an additional soil vapor sample will be required directly west of that sample, located on the other side of the tracks. Please contact the Department if you need assistance obtaining access for this sampling. Further soil vapor investigations are not warranted north of the site onto the CSX and refuse recycling area.

2. We concur with National Grid's recommendation to proceed with only sub-slab sampling in the break-room of storage building along with additional soil vapor points to assess the extent of soil vapor contamination near this building.

3. While the two soil vapor sampling points adjacent to the garage/office building showed relatively low levels of volatile organic compounds in soil vapor, there is a possibility that soil vapor contamination is greater beneath the slab. Therefore, we will require additional soil vapor investigation for this building. Sub-slab soil vapor samples should be collected and analyzed. The possibility of concurrent sampling indoor air should be considered. Additional information about the current use of the basement is needed in order to determine if sampling the indoor basement air would be likely to provide us with useful data.

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **FAX:** (518) 402-9679
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

November 24, 2008

Brian Stearns, P.E. Sr. Environmental Engineer
National Grid
Environmental Department C-1
300 Erie Blvd
Syracuse, NY 13202

Re: Soil Vapor Sampling Results
Broadway, Schenectady Former MGP Site
Site No. 4-47-026

Dear Mr. Stearns:

The New York State Department of Conservation and New York State Department of Health have reviewed your letter dated October 15, 2008 responding to our previous comments on the soil vapor investigation dated September 15, 2008 . Based on our review, the following comments are offered.

1. The requirement to collect a sample west of SV-2 is based on the need to determine the full nature and extent of site related contamination. While we acknowledge that the chemicals found in SV-2 may be related to petroleum and not coal tar, we still have an obligation to complete the delineation.

   Recent gasoline contamination is likely contributing to the soil vapors detected at SV-2. However, MGP sites can be sources of petroleum contamination as well as coal tar. It would be difficult, if not impossible, to definitively eliminate the potential for some MGP vapors to be co-mingled with the chemicals seen in SV-2. While we have no objection to the proposed sampling near SV-2 which is intended to discern what source material is generating the soil vapors, we question the potential for this work to be conclusive, and will not require this work to be completed.

   We also understand that there may be some difficulty obtaining access to collect these samples, so we would suggest that the other proposed sampling should be carried out without waiting to resolve access for this sampling. If you need Department assistance in obtaining access, please do not hesitate to contact me.

O'BRIEN & GERE

May 19, 2009

Mr. John DiGesualdo
Realty USA
2426 Parkville Place
Schenectady, NY 12309

Re: Results of February 2009
Soil Vapor Sampling
1302 Lower Broadway
Schenectady, NY

File: 1118/42895

Dear Mr. DiGesualdo:

On behalf of National Grid, enclosed for you information is a summary of results for the soil vapor air samples collected on February 17, 2009 near the property located at 1302 Lower Broadway, Schenectady, New York (Christy's). The sampling activities were conducted by National Grid in cooperation with the New York State Department of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH) to evaluate the potential migration of soil vapor from the former manufactured gas plant (MGP) property. The attached Figure 1 shows the sample locations. The attached Table 1 presents a summary of the compounds detected in the soil vapor. Results of all compounds analyzed are provided in the attached laboratory reports.

A soil vapor sample designated as SV-11 was collected near the corner of the garage located along Delaware Avenue on the backside of Christy's. A second soil vapor sample designated as SV-12 was collected east of Christy's between Delaware Avenue and the train tracks. The samples represent the vapor drawn from pore spaces within the shallow soils.

Review of the data suggests that the compounds identified are generally low in concentration and not from MGP-related material. They are most likely associated with refrigerants and/or common petroleum sources such as gasoline and motor oil. Therefore, based on this information, National Grid, NYSDEC and the NYSDOH concur that no further soil vapor investigations in this area are needed as part of the overall soil vapor investigation of the Schenectady (Broadway) former manufactured gas plant site. If you have any concerns regarding the results please contact:

Maureen Schuck
Public Health Specialist
Center for Environmental Health
NYS Department of Health/ BEEI
mer10@health.state.ny.us
Phone: (518) 402-7860
Fax: (518) 402-7859

5000 Brittonfield Parkway / P.O. Box 4873, Syracuse, New York 13221-4873
(315) 437-6100 / FAX (315) 463-7554 ■ http://www.obg.com

If you have any questions regarding this report, please contact me at (315) 437-6100.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Scott Manchester
Project Manager

Attachments: Figure 1 – Offsite Soil Vapor Sampling Location
Table 1 – Soil Vapor Sampling Results - DiGesualdo Property
Attachment 1 – Laboratory Report

cc: Bill Ottaway – NYSDEC
Maureen Schuck – NYSDOH
Brian Stearns, P.E. – National Grid
Mark Distler – O'Brien & Gere

FIGURE 1

N

LEGEND

▲ Soil Vapor Sampling Location

Former Broadway
National Grid MGP Site
Schenectady

OFFSITE SOIL VAPOR SAMPLING LOCATION FEBRUARY 2009

0 50 100 200
Feet

APRIL 2009
1118/42895

O'BRIEN & GERE

PATH: I:\National-Grid.1118\42895.Schenectady-Bro\Docs\ArcGIS\MXD\Offsite Soil Vapor Sampling Location 042309.mxd

NAME: CooperKA

DATE: 4/23/2009 1:27:08 PM

O'BRIEN & GERE

Table 1
Soil Vapor Sampling Results - DiGesualdo Property
National Grid - Former Broadway Schenectady MGP Site

Compound	CAS Number	Concentration			
		SV-11 ($\mu g/m^3$)		SV-12 ($\mu g/m^3$)	
Acetone	67-64-1	11	J	10	J
Benzene	71-43-2	0.44	J	1.3	
Toluene	108-88-3	0.93		1.10	
Carbon disulfide	75-15-0	0.17	J	0.7	J
2-Butanone (MEK)	78-93-3	0.91	J	2.7	J
n-Butane	106-97-8	1.9		110	
Dichlorodifluoromethane	75-71-8	2.1		2.4	
Methylene chloride	75-09-2	7.3		1.1	J
Pentane	109-66-0	0.73	J	130	
Trichlorofluoromethane	75-69-4	1.4		1	J
n-Hexane	110-54-3	0.98	J	94	
Isopropyl alcohol	67-63-0	0.49	J	0.73	J
Chloroform	67-66-3	0.3	J	0.21	J
1,1,1-Trichloroethane	71-55-6	ND		0.23	J
n-Undecane	1120-21-4	ND		2.50	J
m-Xylene & p-Xylene	136777-61-2	ND		0.69	J
n-Decane	124-18-5	ND		13	
o-Xylene	95-47-6	ND		0.30	J
Ethylbenzene	100-41-4	ND		0.49	J
Nonane	111-84-2	ND		40	
n-Heptane	142-82-5	ND		72	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND		0.42	J
n-Octane	111-65-9	ND		53	
trans-1,3-Dichloropropene	10061-02-6	ND		0.25	J
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	ND		0.71	J
1,4-Dioxane	123-91-1	ND		0.18	J
Hexachlorobutadiene	87-68-3	ND		0.58	J

Note: Results are reported in units of micrograms per cubic meter ($\mu g/m^3$).

J - Estimated result below the reporting limit.

ND - Not detected at the reporting limit.

ATTACHMENT 1

Laboratory Report

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-11-NG-021709

GC/MS Volatiles

Lot-Sample #	H9B200192 - 002	**Work Order #**	K7HJE1AD	**Matrix.....:**	AIR
Date Sampled...:	02/17/2009	**Date Received..:**	02/20/2009		
Prep Date.....:	02/23/2009	**Analysis Date...**	02/23/2009		
Prep Batch #.....:	9055102				
Dilution Factor.:	1	**Method.....:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)		REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	0.20	ND		0.91
1,2-Dichloro-1,1,2,2-tetrafluoroeth ane	ND	0.20	ND		1.4
Acetone	4.8	5.0	11	J	12
1,4-Dioxane	ND	0.50	ND		1.8
Ethylbenzene	ND	0.20	ND		0.87
Trichlorofluoromethane	0.25	0.20	1.4		1.1
n-Heptane	ND	0.50	ND		2.0
Hexachlorobutadiene	ND	1.0	ND		11
n-Hexane	0.28	0.50	0.98	J	1.8
2-Hexanone	ND	0.50	ND		2.0
2,2,4-Trimethylpentane	ND	0.50	ND		2.3
Isopropyl alcohol	0.20	2.0	0.49	J	4.9
tert-Butyl alcohol	0.069	2.0	0.21	J	6.1
Methylene chloride	2.1	0.50	7.3		1.7
2-Methylnaphthalene	ND	2.5	ND		15
Naphthalene	ND	0.50	ND		2.6
Benzene	0.14	0.20	0.44	J	0.64
n-Octane	ND	0.40	ND		1.9
Pentane	0.25	1.0	0.73	J	3.0
Styrene	ND	0.20	ND		0.85
1,1,2,2-Tetrachloroethane	ND	0.20	ND		1.4
Tetrachloroethene	ND	0.20	ND		1.4
Toluene	0.25	0.20	0.93		0.75
1,2,4-Trichlorobenzene	ND	1.0	ND		7.4
1,1,1-Trichloroethane	ND	0.20	ND		1.1
1,1,2-Trichloroethane	ND	0.20	ND		1.1
Trichloroethene	ND	0.20	ND		1.1
1,1,2-Trichloro-1,2,2-trifluoroet hane	0.060	0.20	0.46	J	1.5
1,2,4-Trimethylbenzene	ND	0.20	ND		0.98
1,3,5-Trimethylbenzene	ND	0.20	ND		0.98
Vinyl chloride	ND	0.20	ND		0.51
o-Xylene	ND	0.20	ND		0.87
1-Methylnaphthalene	ND	2.5	ND		15
Methyl tert-butyl ether	ND	1.0	ND		3.6
n-Decane	ND	1.0	ND		5.8
n-Dodecane	ND	1.0	ND		7.0
n-Undecane	ND	1.0	ND		6.4
Nonane	ND	0.50	ND		2.6

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-11-NG-021709

GC/MS Volatiles

Lot-Sample # H9B200192 - 002 Work Order # K7HJE1AD Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)		REPORTING LIMIT (ug/m3)
m-Xylene & p-Xylene	ND	0.20	ND		0.87
Bromodichloromethane	ND	0.20	ND		1.3
1,2-Dibromoethane (EDB)	ND	0.20	ND		1.5
2-Butanone (MEK)	**0.31**	**1.0**	**0.91**	**J**	**2.9**
4-Methyl-2-pentanone (MIBK)	ND	0.50	ND		2.0
Vinyl bromide	ND	0.20	ND		0.87
n-Butane	**0.80**	**0.40**	**1.9**		**0.95**
Bromoform	ND	0.20	ND		2.1
Bromomethane	ND	0.20	ND		0.78
Indene	ND	0.40	ND		1.9
1,3-Butadiene	ND	0.40	ND		0.88
4-Ethyltoluene	ND	0.40	ND		2.0
Thiophene	ND	0.20	ND		0.69
Carbon disulfide	**0.053**	**0.50**	**0.17**	**J**	**1.6**
Carbon tetrachloride	ND	0.20	ND		1.3
Chlorobenzene	ND	0.20	ND		0.92
1,2,3-Trimethylbenzene	ND	0.20	ND		0.98
Dibromochloromethane	ND	0.20	ND		1.7
Chloroethane	ND	0.20	ND		0.53
Chloroform	**0.062**	**0.20**	**0.30**	**J**	**0.98**
Chloromethane	ND	0.50	ND		1.0
3-Chloropropene	ND	0.20	ND		0.63
Indane	ND	0.20	ND		0.97
2-Chlorotoluene	ND	0.40	ND		2.1
Cyclohexane	ND	0.50	ND		1.7
1,2-Dichlorobenzene	ND	0.20	ND		1.2
1,3-Dichlorobenzene	ND	0.20	ND		1.2
1,4-Dichlorobenzene	ND	0.20	ND		1.2
Dichlorodifluoromethane	**0.43**	**0.20**	**2.1**		**0.99**
1,1-Dichloroethane	ND	0.20	ND		0.81
1,2-Dichloroethane	ND	0.20	ND		0.81
1,1-Dichloroethene	ND	0.20	ND		0.79
cis-1,2-Dichloroethene	ND	0.20	ND		0.79
trans-1,2-Dichloroethene	ND	0.20	ND		0.79
1,2-Dichloropropane	ND	0.20	ND		0.92
cis-1,3-Dichloropropene	ND	0.20	ND		0.91

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-tetramethylbenzene	ND	ppb(v/v)

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-11-NG-021709

GC/MS Volatiles

Lot-Sample # H9B200192 - 002 Work Order # K7HJE1AD Matrix.....: AIR

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	97	70 - 130

Qualifiers

J Estimated result. Result is less than RL.

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-12-NG-021709

GC/MS Volatiles

Lot-Sample #	H9B200192 - 003	Work Order #	K7HJG1AD	Matrix.....:	AIR
Date Sampled...:	02/17/2009	Date Received..:	02/20/2009		
Prep Date.....:	02/23/2009	Analysis Date...	02/24/2009		
Prep Batch #....:	9055102				
Dilution Factor.:	1	Method.....:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)		REPORTING LIMIT (ug/m3)
trans-1,3-Dichloropropene	ND	0.20	ND		0.91
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.20	ND		1.4
Acetone	**4.3**	**5.0**	**10**	**J**	**12**
1,4-Dioxane	ND	0.50	ND		1.8
Ethylbenzene	**0.11**	**0.20**	**0.49**	**J**	**0.87**
Trichlorofluoromethane	**0.18**	**0.20**	**1.0**	**J**	**1.1**
n-Heptane	**17**	**0.50**	**72**		**2.0**
Hexachlorobutadiene	ND	1.0	ND		11
n-Hexane	**27**	**0.50**	**94**		**1.8**
2-Hexanone	**0.062**	**0.50**	**0.25**	**J**	**2.0**
2,2,4-Trimethylpentane	**0.15**	**0.50**	**0.71**	**J**	**2.3**
Isopropyl alcohol	**0.30**	**2.0**	**0.73**	**J**	**4.9**
tert-Butyl alcohol	**0.060**	**2.0**	**0.18**	**J**	**6.1**
Methylene chloride	**0.31**	**0.50**	**1.1**	**J**	**1.7**
2-Methylnaphthalene	ND	2.5	ND		15
Naphthalene	ND	0.50	ND		2.6
Benzene	**0.41**	**0.20**	**1.3**		**0.64**
n-Octane	**11**	**0.40**	**53**		**1.9**
Pentane	**43**	**1.0**	**130**		**3.0**
Styrene	ND	0.20	ND		0.85
1,1,2,2-Tetrachloroethane	ND	0.20	ND		1.4
Tetrachloroethene	ND	0.20	ND		1.4
Toluene	**0.30**	**0.20**	**1.1**		**0.75**
1,2,4-Trichlorobenzene	ND	1.0	ND		7.4
1,1,1-Trichloroethane	**0.042**	**0.20**	**0.23**	**J**	**1.1**
1,1,2-Trichloroethane	ND	0.20	ND		1.1
Trichloroethene	ND	0.20	ND		1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.054**	**0.20**	**0.42**	**J**	**1.5**
1,2,4-Trimethylbenzene	ND	0.20	ND		0.98
1,3,5-Trimethylbenzene	ND	0.20	ND		0.98
Vinyl chloride	ND	0.20	ND		0.51
o-Xylene	**0.068**	**0.20**	**0.30**	**J**	**0.87**
1-Methylnaphthalene	ND	2.5	ND		15
Methyl tert-butyl ether	ND	1.0	ND		3.6
n-Decane	**2.3**	**1.0**	**13**		**5.8**
n-Dodecane	ND	1.0	ND		7.0
n-Undecane	**0.40**	**1.0**	**2.5**	**J**	**6.4**
Nonane	**7.6**	**0.50**	**40**		**2.6**
m-Xylene & p-Xylene	0.16	0.20	0.69	J	0.87

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-12-NG-021709

GC/MS Volatiles

Lot-Sample # H9B200192 - 003 Work Order # K7HJG1AD Matrix.....: AIR

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)		REPORTING LIMIT (ug/m3)
Bromodichloromethane	ND	0.20	ND		1.3
1,2-Dibromoethane (EDB)	ND	0.20	ND		1.5
2-Butanone (MEK)	**0.93**	**1.0**	**2.7**	**J**	**2.9**
4-Methyl-2-pentanone (MIBK)	**0.14**	**0.50**	**0.58**	**J**	**2.0**
Vinyl bromide	ND	0.20	ND		0.87
n-Butane	**45**	**0.40**	**110**		**0.95**
Bromoform	ND	0.20	ND		2.1
Bromomethane	ND	0.20	ND		0.78
Indene	ND	0.40	ND		1.9
1,3-Butadiene	ND	0.40	ND		0.88
4-Ethyltoluene	ND	0.40	ND		2.0
Thiophene	ND	0.20	ND		0.69
Carbon disulfide	**0.22**	**0.50**	**0.70**	**J**	**1.6**
Carbon tetrachloride	ND	0.20	ND		1.3
Chlorobenzene	ND	0.20	ND		0.92
1,2,3-Trimethylbenzene	ND	0.20	ND		0.98
Dibromochloromethane	ND	0.20	ND		1.7
Chloroethane	ND	0.20	ND		0.53
Chloroform	**0.043**	**0.20**	**0.21**	**J**	**0.98**
Chloromethane	ND	0.50	ND		1.0
3-Chloropropene	ND	0.20	ND		0.63
Indane	ND	0.20	ND		0.97
2-Chlorotoluene	ND	0.40	ND		2.1
Cyclohexane	ND	0.50	ND		1.7
1,2-Dichlorobenzene	ND	0.20	ND		1.2
1,3-Dichlorobenzene	ND	0.20	ND		1.2
1,4-Dichlorobenzene	ND	0.20	ND		1.2
Dichlorodifluoromethane	**0.48**	**0.20**	**2.4**		**0.99**
1,1-Dichloroethane	ND	0.20	ND		0.81
1,2-Dichloroethane	ND	0.20	ND		0.81
1,1-Dichloroethene	ND	0.20	ND		0.79
cis-1,2-Dichloroethene	ND	0.20	ND		0.79
trans-1,2-Dichloroethene	ND	0.20	ND		0.79
1,2-Dichloropropane	ND	0.20	ND		0.92
cis-1,3-Dichloropropene	ND	0.20	ND		0.91

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,2,3,4-tetramethylbenzene	ND	ppb(v/v)
1,2,3,5-tetramethylbenzene	ND	ppb(v/v)
1,2,4,5-tetramethylbenzene	ND	ppb(v/v)

O'Brien & Gere Engineers, Inc.

Client Sample ID: SV-12-NG-021709

GC/MS Volatiles

Lot-Sample # H9B200192 - 003 Work Order # K7HJG1AD Matrix.....: AIR

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	102	70 - 130

Qualifiers

J Estimated result. Result is less than RL.

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)