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Date: August 19, 2009

To: Mr. John Rashak, P.E. Via: UPS/Next Day

Location: NYSDEC – Region 3
Division of Environmental Remediation
21 South Putt Corners Road
New Paltz, New York 12561-1696

Subject: Revised Post System Closure – March 2009 Groundwater Results
Former Flagship Airlines Hangar Facility, Site #314101
Dutchess County Airport, Wappingers Falls, New York

These are:

- ☒ Per your request
- ☐ For use on job
- ☒ For your files
- ☐ For your approval

Remarks:

Enclosed please find one unbound copy which only includes the edited text, tables and figures, and one complete CD of Shaw's revised "Post System Closure – Groundwater and Indoor Air/Sub-Slab Sampling Report." for the former Flagship Airlines Hangar Facility. These changes reflect those requested by you in the letter dated July 27, 2009. If you have any questions please feel free to contact Brian Neumann at 518-785-2354 (direct).

Sincerely,
Shaw Environmental, Inc.

Marc E. Flanagan
Project Geologist

Brian Neumann
Project Manager

cc: A. Angers
John Parker, Regional Attorney (CD Only)
A. Perretta (CD Only)
Edward Rose
James Johnson, Esq.
Carol Bogle, Esq.
File - Shaw

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March 30, 2009 (**REVISED August 18, 2009**)

Mr. John Rashak, Environmental Engineer I
Division of Environmental Remediation
New York State Department of Environmental Conservation, Region III
21 South Putt Corners Road
New Paltz, New York 12561-1696

Re: Post System Closure - Groundwater and Indoor Air/Sub-Slab Sampling Report
Former Flagship Airlines Hangar Facility, Site #314101
Dutchess County Airport, Wappingers Falls, New York

Dear Mr. Rashak:

As outlined in the letter from NYSDEC dated September 18, 2007, and included as **Appendix A**, Shaw Environmental, Inc. (Shaw) was requested to conduct a groundwater and indoor air/sub-slab investigation of the indoor air and sub-slab vapor at the Former Flagship Airlines Hangar Site (Site), located at the Dutchess County Airport, in Wappingers Falls, Dutchess County, New York for post system closure monitoring. A site map is included as **Figure 1**. Indoor air/sub-slab vapor sampling was performed concurrently with the groundwater sampling on December 3rd and 4th, 2008. The following report summarizes the second of the requested consecutive indoor air/sub-slab vapor sampling events along with the fifth of requested six groundwater monitoring events the next of which is scheduled for March 2009. Contained herein are all documented materials for the December 2008 sampling events. The groundwater and indoor air/sub-slab sampling was conducted in accordance with the approved 2007-2009 Final Post Shutdown Groundwater Monitoring and Indoor Air Sampling Work Plan, dated November 16, 2007, included as **Appendix B**.

1.0 Site Background

The former Flagship Airlines Hangar Facility at the Dutchess County Airport was used for washing aircraft and performing maintenance work. This maintenance work required the use of jet fuel, heating oil and various solvents. The NYSDEC became involved with the Site in 1988 when a leaking heating-oil tank was discovered. The initial investigation soon expanded into a multi-phased remedial investigation (RI) to determine potential volatile and semi-volatile organic

compound (VOC and SVOC) impacts in the shallow groundwater. As a result of the RI, five underground storage tanks and a septic tank that were present at the Site were all removed by 1996. On March 19, 1999, American Eagle Airlines signed an Order on Consent with the NYSDEC, Index No. W3-0837-98-12.

1.1 Remedial History

A soil vapor extraction (SVE) system was installed in 1988 as an interim remedial measure (IRM) to reduce the elevated levels of benzene, toluene, ethylbenzene and xylene (BTEX) in the unsaturated soil in the vicinity of the fuel oil release. An RI conducted during installation of the SVE system indicated that the residual contamination in the groundwater was significant. In 1992, 1,020 gallons of water were pumped from monitoring wells MW-9 and MW-10 located near the gravel bed which served as the overflow drainage system to the wash water tank that was removed in 1995.

The phased RI was conducted between 1990 and 1996. An IRM based on the November 1999 Remedial Investigation (RI) and Feasibility Study (FS) Reports was implemented in 2000. As part of the IRM, an SVE and air sparging (AS) system were installed and began operating during August of 2000. Quarterly groundwater samples have been collected since August 2000 to monitor the efficiency of this remedial measure. Data collected from the groundwater sampling events has been presented in the quarterly O&M reports for the Site. During October 2005, groundwater sampling and O&M reporting was changed to a semi-annual basis.

In order for the SVE/AS system to be turned off permanently, the New York State Department of Health (NYSDOH) requested that indoor air samples be collected. Shaw performed the original indoor air/sub-slab vapor investigation on March 29, 2006, and a subsequent investigation on March 8, 2007.

Upon approval of the Indoor Air Sampling Report, dated September 5, 2007, as outlined in a letter from NYSDEC dated September 18, 2007 and included as **Appendix A**, NYSDEC granted permission to shut down the AS/SVE system. At that time, NYSDEC also stipulated the following requirements:

- 6 quarterly groundwater sampling events take place between 12/07 and 3/09.
- A work plan be submitted for annual sub-slab and indoor air monitoring for two consecutive heating seasons by 10/15/07.

On November 16, 2007, Shaw submitted the 2007-2009 Final Post Shutdown Groundwater Monitoring and Indoor Air Sampling Work Plan which was approved on November 23, 2007 in a letter from DEC included as **Appendix C**.

The first round, third historically, of indoor air/ sub-slab vapor sampling was performed on January 31, 2008 and is summarized in the Post System Closure - Groundwater and Indoor Air/Sub-Slab Sampling Report dated March 20, 2008.

2.0 Groundwater Results

The following section discusses the results of the fifth of six quarterly post system closure groundwater sampling events. For a complete description and analysis of historical groundwater sampling results please refer to the previously submitted Operation Maintenance and Monitoring Reports from February 2002 through April 2007. A well location map is included as **Figure 2**.

The water level measurements and field parameters collected on December 3 and 4, 2008 from monitoring wells located on the former Flagship and former IBM hangar properties are shown in **Table 1**. Based on depth to groundwater data obtained during the sampling event, the apparent groundwater flow is in a northwest direction as shown in **Figure 3**.

Groundwater elevations on the former Flagship parcel ranged from 153.97 feet (ME-16) to 152.47 feet (DG-1). On the former IBM parcel, groundwater elevations ranged from 152.72 feet (A-40S) to 150.42 feet (A-44S). Observed groundwater elevations during the December 2008 event were comparable to historic levels.

Wells sampled on both parcels included (ME-12, ME-14, ME-18, ME-19, MW-2, MW-6, MW-8, MW-9/10R, MW-20, DG-1, A-26S, A-27S, A-42S and A-43S). Groundwater sampling was performed using low flow sampling methodology. This method is beneficial because; less disruption is caused to the water column, the agitation of suspended particles is less severe, potential aspiration of VOCs or other contaminants is minimized, and less volume of groundwater is removed. The method entails the removal of water by pumping the well at low enough flow rates to maintain minimal drawdown of the water column followed by in-line sample collection.

A summary of the analytical results of the samples collected from the monitoring well network during the current reporting period are presented in **Table 2** and **Figure 4**. Historical results since the acknowledgement of post system closure approval are displayed on **Table 3**. Field data sheets are included as **Appendix D**. The Chain of Custody is presented in **Appendix E**. The laboratory data packages are included as **Appendix F**.

There were no dissolved concentrations of the compounds of concern detected during the December 2008 sampling event in MW-9/10R. This marks sixteen consecutive groundwater sampling events with no detections above the laboratory quantitation limits in the area of the former concrete drain. None of the remaining groundwater samples collected from wells on the former Flagship property exhibited the presence of any of the compounds of concern at or above the sample quantitation limits.

Samples collected from the former IBM property Monitoring Wells A-26S, A-27S and A-42S exhibited laboratory detections of at least one ROD target analyte above the sample quantitation limits. A-26S located near the eastern corner of the former IBM hangar facility, had detections of 1,1-DCA at 8 µg/L. A-27S also located near the eastern corner of the IBM hangar facility had detections of 1,1-DCA at 1 µg/L. A-27S also had 1,2 DCE (total) at 4 µg/l and cis-1,2-DCE at 4 µg/l, the Technical and Operational Guidance Series (T.O.G.S) 1.1.1 NYSDEC standards for 1,1-DCA, cis-1,2-DCE and 1,2-DCE (total) is 5 µg/L. Of the compounds of concern, 1,1-DCA found in A-26S at 8 µg/L and Vinyl Chloride (9 µg/L) found in A-42S were the only compounds exceeding the NYSDEC Groundwater Standard. 1,1,1-Trichloroethane, trichloroethene (TCE), toluene and naphthalene were not detected at or above the sample quantitation limits in any of the former IBM property monitoring wells (A-26S, A-27S, A-42S, and A-43S) sampled during the sampling event.

The up-gradient wells on the former Flagship property have demonstrated reductions in total VOC concentrations. The December 2008 sampling event showed a minimal detection of tetrachloroethene in ME-14 above laboratory reporting limits. Although no significant trends have been observed, the down-gradient wells (A-26S, A-27S, A-42S, and A-43S) on the former IBM property have demonstrated reductions in total VOC concentrations.

However, the presence of Vinyl Chloride in former IBM property well A-42S and 1,1-DCA in IBM property well A-26S, combined with the lack of immediate up-gradient (former Flagship property) detections, suggest that an ongoing source of these contaminants may exist on the

former IBM leased property near the eastern corner of the former IBM hangar facility. The MW-9/10R area of concern on the former Flagship property is approximately 160 feet up-gradient from this IBM well area. Historically, with the exception of low and infrequent detections in MW-6 and ME-14, no detections have been recorded between these two areas. Trends are shown as **Figures 5, 6, and 7**. A trend chart of Vinyl Chloride on the former IBM property is shown as **Figure 8**.

3.0 Indoor Air Results

The following section discusses the results of the second post system closure indoor air/sub-slab sampling event as requested and approved in Shaw's November 16, 2007 Work Plan. A sample location map is included as **Figure 9**. The Indoor Air Quality Questionnaire and Building Inventory is included as **Appendix G**. The Chain of Custody is included as **Appendix H**.

The indoor ambient air concentrations collected in the Office and Hangar areas displayed no compounds which exceeded the NYSDOH guidance standards. A summary of these results is presented in **Table 4** along with the current results. Both of the foundation soil gas samples (FSG-Office, FSG-Hangar) contained concentrations for tetrachloroethene which exceeded the NYSDOH Guideline of 100 ug/m3 with a concentration of 550 ug/m^3 and 800 ug/m^3 respectively. Laboratory analytical for the current sampling event is provided in **Appendix I**.

Based on Matrix 2 of the NYSDOH Vapor Intrusion Guideline, included as **Appendix J** which summarize the minimum actions recommended to address current and potential exposures related to soil vapor intrusion, the results indicate number 5, monitor.

If you have any questions or need additional information, please feel free to contact us at (518) 783-1996.

Sincerely,

Shaw Environmental, Inc.

Robert Adams
Project Scientist

Shaw Environmental, Inc.

Brian Neumann
Project Manager

Attachments: Tables
Figures

Appendix A	NYSDEC Letter of September 18, 2007
Appendix B	2007 – 2009 Final Post Shutdown Groundwater Monitoring and Indoor Air Sampling Work Plan
Appendix C	NYSDEC Letter of November 23, 2007
Appendix D	Field Data Sheets - Groundwater
Appendix E	Chain of Custody - Groundwater
Appendix F	Laboratory Analytical - Groundwater
Appendix G	Indoor Air Quality Questionnaire and Building Inventory
Appendix H	Chain of Custody – Indoor Air/Sub Slab
Appendix I	Laboratory Analytical – Indoor Air/Sub Slab
Appendix J	Guidance for Evaluating Soil Vapor Intrusion in the State of New York – Matrix 2

cc: Alan Angers
John Parker, Regional Attorney
Anthony Perretta (CD only)
Edward Rose
James Johnson, Esq.
Carol Bogle, Esq.
Shaw, File

TABLES

Table 1
Groundwater Monitoring
Analytical Data Summary - Field Parameters and Measurement
AA Flagship, Wappingers Falls, NY

Monitoring Well Location	DG-1	MW-2	MW-6	MW-8	MW-9/10 R	MW-20
Sample Identification	DG-1	MW-2	MW-6	MW-8	MW-9/10 R	MW-20
Sample Date	04-Dec-08	3-Dec-08	4-Dec-08	03-Dec-08	3-Dec-08	4-Dec-08
Field Parameters	Result	Result	Result	Result	Result	Result
Color	Clear	Clear	Clear	Clear	Clear	Clear
pH (Standard Units)	6.10	6.57	6.52	7.49	6.66	7.04
Conductivity (mS/cm)	0.962	0.476	0.929	0.923	0.835	0.070
Turbidity (NTU)	NM	NM	NM	NM	NM	NM
Dissolved Oxygen (mg/L)	0.73	4.51	2.40	2.01	4.58	11.41*
Temperature (^{o}C)	15.39	15.62	13.73	13.17	14.46	14.94
ORP (mv)	94.7	77.1	123.8	64.7	91.3	97.1
Field Measurements						
Depth to Water	9.74	8.51	4.96	7.01	4.55	6.23
Depth to Well Bottom	19.4	24.00	22.75	25.40	18.30	22.70
Air Monitoring Results (ppm)	0.0	0.0	0.0	0.0	0.0	0.0

Monitoring Well Location	ME-18	ME-19	A-26S	A-27S	A-42S	A-43S
Sample Identification	ME-18	ME-19	A-26S	A-27S	A-42S	A-43S
Sample Date	3-Dec-08	4-Dec-08	3-Dec-08	4-Dec-08	3-Dec-08	4-Dec-08
Field Parameters	Result	Result	Result	Result	Result	Result
Color	Clear	Clear	Clear	Clear	Clear	Clear
pH (Standard Units)	7.57	7.13	7.68	7.56	7.41	7.70
Conductivity (mS/cm)	0.802	0.706	0.943	0.772	0.697	0.873
Turbidity (NTU)	NM	NM	NM	NM	NM	NM
Dissolved Oxygen (mg/L)	6.24	2.29	0.29	0.46	4.46	0.56
Temperature (^{o}C)	14.54	14.18	13.20	13.89	13.36	14.28
ORP (mv)	101.6	113.8	-101.7	-131.8	93.6	38.5
Field Measurements						
Depth to Water	4.34	8.40	3.84	5.65	6.71	5.20
Depth to Well Bottom	21.65	25.38	23.00	25.90	25.11	25.20
Air Monitoring Results (ppm)	0.0	0.0	0.0	0.0	0.0	0..0

NOTES:
- NM indicates Not Measured.
Depth to groundwater collected at time of sampling

Table 1
Groundwater Monitoring
Analytical Data Summary - Field Parameters and Measurement
AA Flagship, Wappingers Falls, NY

Monitoring Well Location	ME-12	ME-14
Sample Identification	ME-12	ME-14
Sample Date	3-Dec-08	3-Dec-08
Field Parameters	Result	Result
Color	Clear	Clear
pH (Standard Units)	6.89	6.28
Conductivity (mS/cm)	0.769	0.943
Turbidity (NTU)	NM	NM
Dissolved Oxygen (mg/L)	1.03	1.39
Temperature (^{o}C)	14.40	16.27
ORP (mv)	114.9	88.5
Field Measurements		
Depth to Water	5.42	6.24
Depth to Well Bottom	24.2	20.60
Air Monitoring Results (ppm)	0.0	0.0

NOTES:
- NM indicates Not Measured.
* - indicates meter anamoly

Table 2
Groundwater Analytical Results
December 18, 2008
Former Flagship Airlines Hangar Dutchess County Airport

Field Parameters	NYSDEC Standard [1]	ME-12	ME-14	ME-18	ME-19	MW-2	MW-6	MW-8	MW-9/10R	MW-20	DG-1	DUP 1 (ME-12)	A-26S	A-27S	A-42S	A-43S
Dissolved Oxygen (ppm)	--	1.03	1.39	6.24	2.29	4.51	2.40	2.01	4.58	*	0.73	1.03	0.29	0.46	4.46	0.56
Volatile Organic Compound by ASP/CLP Method (µg/L)																
1,1-Dichloroethane	5	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	**8**	**1**	0.8U	0.8U
1,1-Dichloroethene [3]	5	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
cis-1,2-Dichloroethene [3]	5	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	**4**	**3**	0.2U
trans-1,2-Dichloroethene [3]	5	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
1,2-Dichloroethene, Total	5	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	0.7U	**4**	**3**	0.7U
Chlorobenzene	5	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
Chloroethane	5	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
1,1,1-Trichloroethane	5	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
Tetrachloroethene	5	0.4U	**0.5**	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U
Trichloroethene	5	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
Toluene	5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Vinyl Chloride	2	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	**9**	0.2U
Semi-Volatile Organic Compound by ASP/CLP Method (µg/L)																
Phenol	1[2]	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
4-Methylphenol	1[2]	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Naphthalene	10	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U

Notes:

BOLD values indicate detections above laboratory detection limit.

= Compound detected above NYSDEC standard

(1) - NYSDEC Standards has taken from Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998.

(2) - The collective sum of all phenol compounds should not exceed 1 µg/L.

(3) - Additional analyte reported as per request by IBM.

J = Indicates estimated value which is less than the sample quantitation limit, but greater than zero.

U = Indicates compound was analyzed for, but not detected.

B = Indicates analyte was found in the associated blank, as well as in the sample.

NA = Not Available

NS = Not Sampled due to snow / ice

* =DO meter malfunction

Table 3
Groundwater Analyitcal Results
December 18, 2007 to December 4, 2008 Former Flagship Airlines Hangar Dutchess County Airport

				Volatile Organic Compounds by ASP/CLP Method (µg/L)												Semi-Volatile Organic Compoundby ASP/CLP Method (µg/L)		
				1,1-Dichloroethane	1,1-Dichloroethene [3]	cis-1,2-Dichloroethene [3]	trans-1,2-Dichloroethene [3]	1,2-Dichloroethene, Total	Chlorobenzene	Chloroethane	1,1,1-Trichloroethane	Tetrachloroethene	Trichloroethene	Toluene	Vinyl Chloride	Phenol	4-Methylphenol	Naphthalene
Monitoring Well	**Date**	**Dissolved Oxygen (ppm)**	**NYSDEC Standard [1]**	5	5	5	5	5	5	5	5	5	5	5	2	1	1	10
ME-12	12/18/07	6.33		1U	1U	1U	1U	2U	1U	1U	1U	0.3J	1U	1U	1U	5U	5U	5U
	3/6/08	0.11		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	2.43		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	0.2 J
ME-12, DUP 1	9/17/08	2.00		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
ME-12, DUP 1	12/4/08	1.39		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
ME-14	12/18/07	*		1U	1U	1U	1U	2U	1U	1U	1U	0.4J	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	0.3 J	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	0.70		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	0.2 J
	9/17/08	0.60		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	**0.5**	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	1.03		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	**0.5**	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
ME-18, DUP 1	12/18/07	3.29		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
ME-18	3/6/08	1.76		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	6.11		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	7.58		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	6.29		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
ME-19	12/18/07	3.78		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	0.3 J	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	0.6 J
	6/11/08	0.79		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	1.30		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/4/08	2.29		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
MW-2	12/18/07	2.38		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	3.11		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	2.09		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	4.51		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
MW-6	12/18/07	5.63		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	5.31		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	11.32		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	4.32		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	2.40		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
MW-8	12/18/07	0.66		1U	1U	0.3J	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	0.3 J	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	5.52		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	1.44		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	2.01		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
MW-9/10R	12/18/07	2.85		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
MW-9/10R, DUP 1	3/6/08	8.02		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
MW-9/10R, DUP 1	6/11/08	9.09		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	0.2 J/ 5 U
MW-9/10R	9/17/08	5.83		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/3/08	4.58		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
MW-20	12/18/07	3.78		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	7.88		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	2.46		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	0.81		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/4/08	NA		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
DG-1	12/18/07	2.11		1U	1U	1U	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	0.56		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	0.48		0.3 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
	12/4/08	0.73		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
A-26S	12/18/07	2.66		**8**	1U	0.3J	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	5.31		1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	0.3 J
	6/11/08	0.36		**6**	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	0.66		**7**	0.3 U	**0.4**	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	**0.4**	5 U	5 U	5 U
	12/4/08	0.29		**8**	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U
A-27S	12/18/07	1.95		**1**	1U	**3**	1U	**3**	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		**1**	1 U	**4**	1 U	**4**	1 U	1 U	1 U	0.3 J	1 U	1 U	0.5 J	5 U	5 U	0.3 J
	6/11/08	0.35		**1**	0.3 U	**3**	0.3 U	**3**	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	**0.6**	5 U	5 U	5 U
	9/17/08	11.03		**1**	0.3 U	**4**	0.1 U	**4**	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	**1**	5 U	5 U	5 U
	12/4/08	0.46		**1**	0.3 U	**4**	0.1 U	**4**	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	**0.5**	5 U	5 U	5 U

Table 3
Groundwater Analyitcal Results
December 18, 2007 to December 4, 2008 Former Flagship Airlines Hangar Dutchess County Airport

				Volatile Organic Compounds by ASP/CLP Method (µg/L)												Semi-Volatile Organic Compoundby ASP/CLP Method (µg/L)		
				1,1-Dichloroethane	1,1-Dichloroethene (3)	cis-1,2-Dichloroethene (3)	trans-1,2-Dichloroethene (3)	1,2-Dichloroethene, Total	Chlorobenzene	Chloroethane	1,1,1-Trichloroethane	Tetrachloroethene	Trichloroethene	Toluene	Vinyl Chloride	Phenol	4-Methylphenol	Naphthalene
Monitoring Well	**Date**	**Dissolved Oxygen (ppm)**	**NYSDEC Standard (1)**	5	5	5	5	5	5	5	5	5	5	5	2	1	1	10
A-42S	12/18/07	3.34		1U	1U	0.5J	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		0.9 J	1 U	**6**	1 U	**6**	1 U	1 U	1 U	0.5 J	0.3 J	1 U	**10**	5 U	5 U	5 U
	6/11/08	0.27		**0.7**	0.3 U	**3**	0.3 U	**3**	0.3 U	0.3 U	0.3 U	**0.5**	0.3 U	0.5 U	**15**	5 U	5 U	5 U
	9/17/08	0.41		**1.0**	0.3 U	**5**	0.1 U	**5**	0.2 U	0.3 U	0.3 U	**0.4**	0.2 U	0.5 U	**21**	5 U	5 U	5 U
	12/3/08	4.46		**0.8 U**	0.3 U	**3**	0.1 U	**3**	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	**9**	5 U	5 U	5 U
A-43S	12/18/07	2.25		0.5J	1U	0.3J	1U	2U	1U	1U	1U	1U	1U	1U	1U	5U	5U	5U
	3/6/08	*		1 U	1 U	0.6 J	1 U	2 U	0.4 J	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U
	6/11/08	0.32		0.3 U	0.3 U	0.4 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.5 U	0.2 U	5 U	5 U	5 U
	9/17/08	0.70		0.8 U	0.3 U	**0.4**	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	**0.7**	5 U	5 U	5 U
	12/4/08	0.56		0.8 U	0.3 U	0.2 U	0.1 U	0.7 U	0.2 U	0.3 U	0.3 U	0.4 U	0.2 U	0.5 U	0.2 U	5 U	5 U	5 U

Notes:

BOLD values indicate detections above laboratory detection limit.

= Compound detected above NYSDEC standard

(1) - NYSDEC Standards has taken from Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998.

(2) - The collective sum of all phenol compounds should not exceed 1 µg/L.

(3) - Additional analyte reported as per request by IBM.

J = Indicates estimated value which is less than the sample quantitation limit, but greater than zero.

U = Indicates compound was analyzed for, but not detected.

B = Indicates analyte was found in the associated blank, as well as in the sample.

* =DO meter malfunction

Table 4 (Revised)
Former Flagship Airlines Hangar Facility
Dutchess County Airport, Wappingers Falls, New York

Ambient Air and Foundation Soil Gas Sampling Results

Field Parameters	NYSDOH Air Guidelines		AI - Office				FSG - Office				Recommed Minimum Action	Recommed Minimum Action	Recommed Minimum Action	Recommed Minimum Action
Photoionization Detector (ppbv)	---		1.20	0.00	NR	0.00	111	1921	NR	3050				
Sample Date:	---		03/29/06	03/08/07	01/31/08	12/03/08	03/29/06	03/08/07	01/31/08	12/03/08	03/29/06	03/08/07	01/31/08	12/03/08
Volatile Organic Compound by EPA Method TO-15 ($\mu g/m^3$)	**Ambient Air (Indoor & Outdoor)**	**NYSDOH Matrix**												
1,1-Dichloroethane	---	---	<1.4	<1.3	<1.4	<0.16	<1.7	<1.5	<1.0	<1.0				
1,1,1-Trichloroethane	---	2	<1.4	<1.3	<1.4	<0.16	**20**	**8.8**	**8.5**	**17.0**				
Tetrachloroethene	100 $\mu g/m^3$	2	<1.4	<1.3	**3.6**	**0.68**	**90**	**140**	**400**	**550**				
Trichloroethene	5 $\mu g/m^3$	1	<1.4	<1.3	<1.4	<0.16	**4.4**	<1.5	<1.4	**3.3**				
Toluene	---	---	**3.2**	**1.7**	**2.3**	**6.8**	**8.0**	**50**	**14**	**14**				
Naphthalene	---	---	<1.4	<1.3	<1.4	**0.29**	<1.7	**1.6**	**2.4**	<1.0				

Field Parameters	NYSDOH Air Guidelines		AI - Hangar				FSG - Hangar							
Photoionization Detector (ppbv)	---		3.21	0.00	NR	0.00	113	656.0	NR	2813.0				
Sample Date:	---		03/29/06	03/08/07	01/31/08	12/03/08	03/29/06	03/08/07	01/31/08	12/03/08	03/29/06	03/08/07	01/31/08	12/03/08
Volatile Organic Compound by EPA Method TO-15 ($\mu g/m^3$)	**Ambient Air (Indoor & Outdoor)**	**NYSDOH Matrix**												
1,1-Dichloroethane	---	---	<1.6	<1.4	<1.5	<0.16	**3.0**	<1.5	<130	**2.5**				
1,1,1-Trichloroethane	---	2	<1.6	<1.4	<1.5	<0.16	**39**	**6.0**	<130	**100.0**			#1	
Tetrachloroethene	100 $\mu g/m^3$	2	<1.6	<1.4	<1.5	**0.41**	**120**	**3.3**	**800**	**810**				
Trichloroethene	5 $\mu g/m^3$	1	<1.6	<1.4	<1.5	<0.16	**2.3**	<1.5	<130	<1.5			#1	
Toluene	---	---	**12**	**6.4**	**9.1**	**11**	**11.0**	**15.0**	**350.0**	**7.4**				
Naphthalene	---	---	<1.6	<1.4	<1.5	**0.36**	<1.5	<1.5	<130	**2.5**				

Field Parameters	NYSDOH Air Guidelines		AA - Flagship				AI - Duplicate (AI - Office)			
Photoionization Detector (ppbv)	---		0.00	0.00	NR	0.00	0.00	0.00	NR	0.00
Sample Date:	---		03/29/06	03/08/07	01/31/08	12/03/08	03/29/06	03/08/07	01/31/08	12/03/08
Volatile Organic Compound by EPA Method TO-15 ($\mu g/m^3$)	**Ambient Air (Indoor & Outdoor)**	**NYSDOH Matrix**								
1,1-Dichloroethane	---	---	<1.6	<1.3	<1.4	<0.15	<1.5	<1.4	<1.6	<0.16
1,1,1-Trichloroethane	---	2	<1.6	<1.3	<1.4	<0.15	<1.5	<1.4	<1.6	<0.16
Tetrachloroethene	100 $\mu g/m^3$	2	**4.1**	<1.3	<1.4	**0.44**	<1.5	<1.4	<1.6	**0.61**
Trichloroethene	5 $\mu g/m^3$	1	<1.6	<1.3	<1.4	<0.15	<1.5	<1.4	<1.6	<0.16
Toluene	---	---	**1.7**	<1.3	**3.2**	**7.4**	**3.1**	**1.8**	**2.9**	**5.9**
Naphthalene	---	---	<1.6	<1.3	<1.4	<0.15	<1.5	<1.4	<1.6	**0.33**

Notes:
BOLD values indicate detections above laboratory detection limit
Only compounds detected at one or more locations are shown.

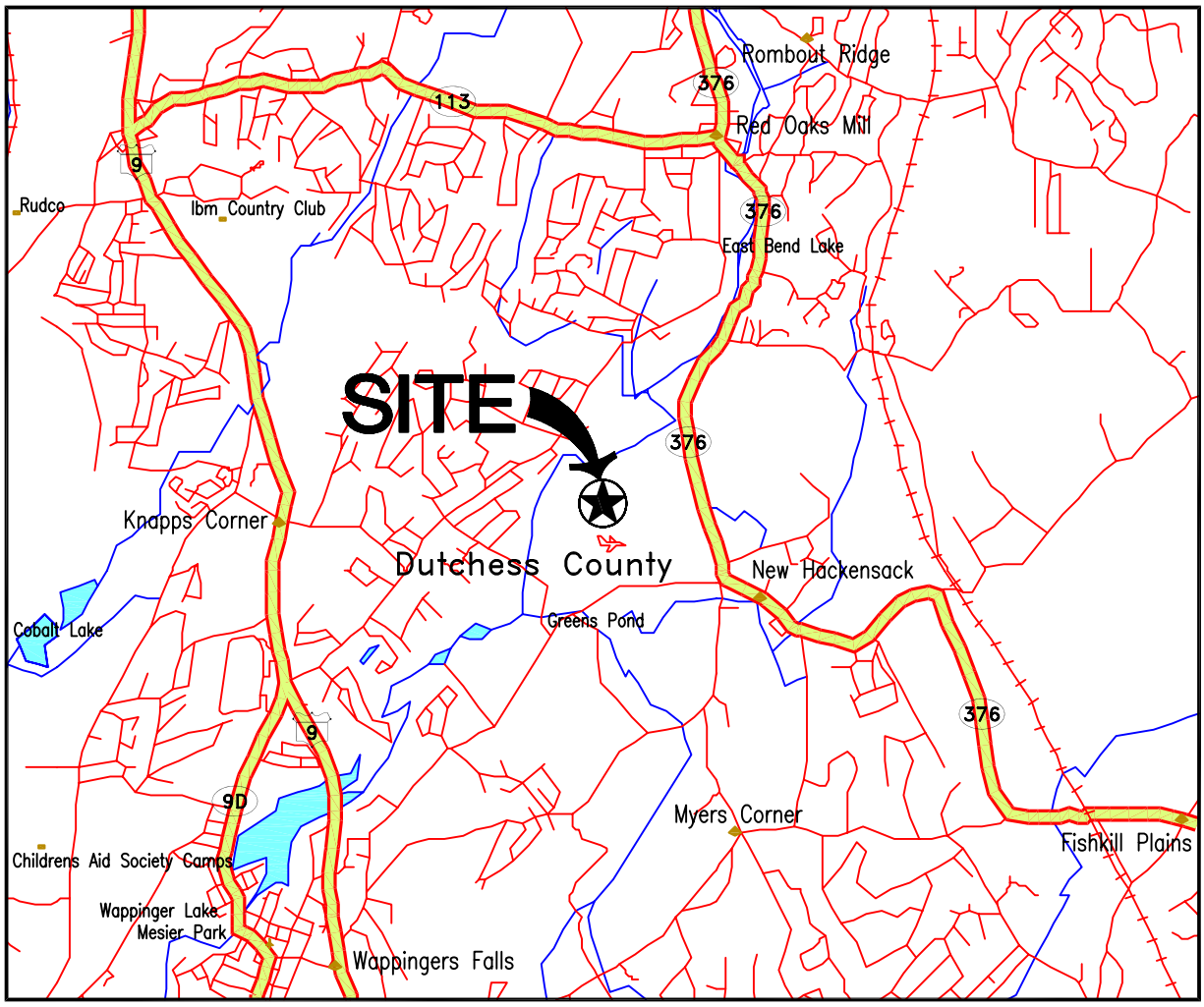
NFA or Take Reasonable Action
Monitor
Monitor/Mitigate
Mitigate

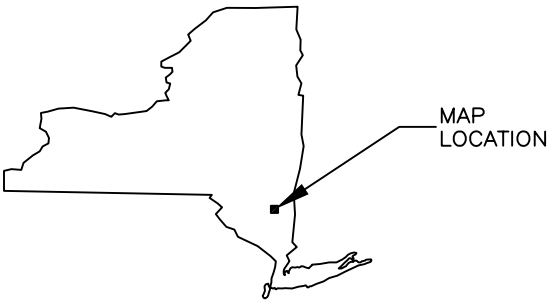
= Recommended Action for Matrix Indentified Compounds (Soil Vapor/Indoor Air Matrix 1 & 2 - October 2006)

--- = No air guildline given
NR = Not Recorded due to faulty PID
AI = Ambient Indoor Air
AA = Ambient Outdoor Air
FSG = Foundation (Sub-Slab) Soil Gas
#1 = Method reporting limit was high, therefore, the action level could have been greater

FIGURES

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	ALB	S. SHKOLNIK 12-22-02			820131A4





SCALE 1:62,500

REFERENCE:
MAP FROM DELORME'S MAP EXPERT,
FREEPORT, MAINE.

Shaw
Shaw Environmental, Inc.

FLAGSHIP
AIRLINES, INC.
(DBA AMERICAN EAGLE)

FIGURE 1

SITE LOCATION MAP
DUTCHESS COUNTY AIRPORT
WAPPINGER FALLS, NEW YORK

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
T. PERRETTA	S. SHKOLNIK			820131D98

OFFICE	DATE
ALBANY, NY	07/01/05

Xref: .
Image: .

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Plot Date/Time: 01/20/09 08:58am
Plotted by: Samuil.Shkolnik

N

TARMAC

FORMER IBM HANGAR FACILITY

FORMER FLAGSHIP HANGAR FACILITY

AIRPORT COUNTY MAINT. GARAGE

PARKING (BIT.)

PARKING (BIT.)

PARKING (BIT.)

TREATMENT COMPOUND

SANITARY SEWER

UP

SERVICE ROAD / GRIFFITH ROAD

ME-13
A-39S
A-8S
ME-15
A-16S
DG-1
A-19S
A-36S
A-41S
A-27S
A-44S
A-20S
EW-4
SP-6
A-40S
A-26S
MW-20
ME-19
SP-8
EW-6
A-42S
SP-5
MW-4
MW-8
A-43S
PZ-1
SP-4
EW-3
ME-18
MW-1
MW-3
ME-14
EW-5
SP-7
ME-17
ME-16
MW-2
EW-7
SP-2
EW-2
ME-11
SP-3
ME-12
MW-6
SP-1A
EW-1
MW-9/10R
MW-7A
MW-5

LEGEND:

- SANITARY SEWER
- SHALLOW WELL
- BEDROCK WELL
- SPARGE WELL
- EXTRACTION WELL
- PROPERTY LINE (APPROXIMATE)

SCALE
0 20 40 60 FEET

REFERENCE:
BASE MAP SOURCE: GERALD L. LYNN LAND SURVEYOR, P.C.

Shaw Environmental, Inc.

AMERICAN EAGLE AIRLINES

FIGURE 2
WELL LOCATION MAP
DUTCHESS COUNTY AIRPORT

WAPPINGERS FALLS, NEW YORK

DRAWING NUMBER	820131D138
APPROVED BY	
CHECKED BY	
DRAWN BY	SSH/MJS
DESIGNED BY	B. ADAMS
DATE	01/05/09
OFFICE	ALBANY, NY

Xref: . .
Image: . .

L:\project\820131\820131D138.dwg
Plot Date/Time: 01/05/09 05:11pm
Plotted by: Samuil.Shkolnik

N

FORMER IBM HANGAR FACILITY

FORMER FLAGSHIP HANGAR FACILITY

TARMAC

PARKING (BIT.)

PARKING (BIT.)

PARKING (BIT.)

AIRPORT COUNTY MAINT. GARAGE

TREATMENT COMPOUND

SERVICE ROAD / GRIFFITH ROAD

151.82 ME-13
A-39S 151.71
A-8S
A-16S 151.40
ME-15 153.77
152.47 DG-1
A-19S
A-36S
SANITARY SEWER
A-41S 152.51
A-27S
A-20S
A-44S 150.42
EW-4
SP-6
152.68 ME-19
A-40S 152.72
MW-20 153.01
A-26S 150.84
SP-8
EW-6
SP-5
A-42S 152.69
MW-4
MW-8 152.96
UP
A-43S 152.34
PZ-1 152.63
EW-3
SP-4
ME-18 153.41
MW-1 WD
MW-3
ME-14 153.79
EW-5
SP-7
ME-17
ME-16 153.97
MW-2 153.83
EW-7
SP-2
EW-2
ME-11
SP-3
ME-12 153.45
MW-6 153.68
SP-1A
EW-1
MW-9/10R 153.91
MW-7A 153.79
MW-5
UP
UP
UP
152
153
151

NOTE: A-8S, A-19S, A-20S AND A-27S WERE NOT USED FOR CONTOURING.

LEGEND:

- SANITARY SEWER
- SHALLOW WELL
- BEDROCK WELL
- SPARGE WELL
- EXTRACTION WELL
- PROPERTY LINE (APPROXIMATE)
- GROUNDWATER CONTOUR IN FEET (DASHED WHERE INFERRED)
- 151.82 GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION
- WD WELL DAMAGED

SCALE
0 20 40 60 FEET

REFERENCE:
BASE MAP SOURCE: GERALD L. LYNN LAND SURVEYOR, P.C.

Shaw Environmental, Inc.

AMERICAN EAGLE AIRLINES

FIGURE 3
GROUNDWATER CONTOUR MAP (12/03/08)
DUTCHESS COUNTY AIRPORT

WAPPINGERS FALLS, NEW YORK

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
J. NAFUS	SSH/MJS			820131D139

OFFICE	DATE
ALBANY, NY	01/05/09

Xref: .
Image: .

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Plot Date/Time: 01/05/09 05:12pm
Plotted by: Samuil.Shkolnik

N

TARMAC

FORMER IBM HANGER FACILITY

FORMER FLAGSHIP HANGER FACILITY

PARKING (BIT.)

PARKING (BIT.)

PARKING (BIT.)

AIRPORT COUNTY MAINT. GARAGE

TREATMENT COMPOUND

SERVICE ROAD / GRIFFITH ROAD

SANITARY SEWER

UP

DG-1
0.8U
0.3U
0.2U
0.4U
5U

ME-14
0.8U
0.3U
0.2U
0.5
5U

ME-12
0.8U
0.3U
0.2U
0.4U
5U

MW-2
0.8U
0.3U
0.2U
0.4U
5U

MW-20
0.8U
0.3U
0.2U
0.4U
5U

ME-19
0.8U
0.3U
0.2U
0.4U
5U

A-27S
1
0.3U
0.2U
0.4U
5U

A-26S
8
0.3U
0.2U
0.4U
5U

A-42S
0.8U
0.3U
0.2U
0.4U
5U

MW-8
0.8U
0.3U
0.2U
0.4U
5U

MW-6
0.8U
0.3U
0.2U
0.4U
5U

ME-18
0.8U
0.3U
0.2U
0.4U
5U

MW-9/10R
0.8U
0.3U
0.2U
0.4U
5U

A-43S
0.8U
0.3U
0.2U
0.4U
5U

ME-13
ME-15
ME-16
ME-17
ME-14
ME-12
ME-19
ME-18
A-39S
A-8S
A-16S
A-19S
A-36S
A-41S
A-27S
A-20S
A-44S
A-40S
A-26S
A-42S
A-43S
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7A
MW-8
MW-9/10R
MW-20
PZ-1
SP-1A
SP-2
SP-3
SP-4
SP-5
SP-6
SP-7
SP-8
EW-1
EW-2
EW-3
EW-4
EW-5
EW-6
ME-11

LEGEND:

- SANITARY SEWER
- SHALLOW WELL
- BEDROCK WELL
- SPARGE WELL
- EXTRACTION WELL
- PROPERTY LINE (APPROXIMATE)

MW-9/10R	WELL ID
0.8U	DCA
0.3U	1,1,1-TCA
0.2U	TCE
0.4U	PCE
5U	NAPHTHALENE

U NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMITS

REFERENCE:

BASE MAP SOURCE: GERALD L. LYNN LAND SURVEYOR, P.C.

SCALE
0 20 40 60 FEET

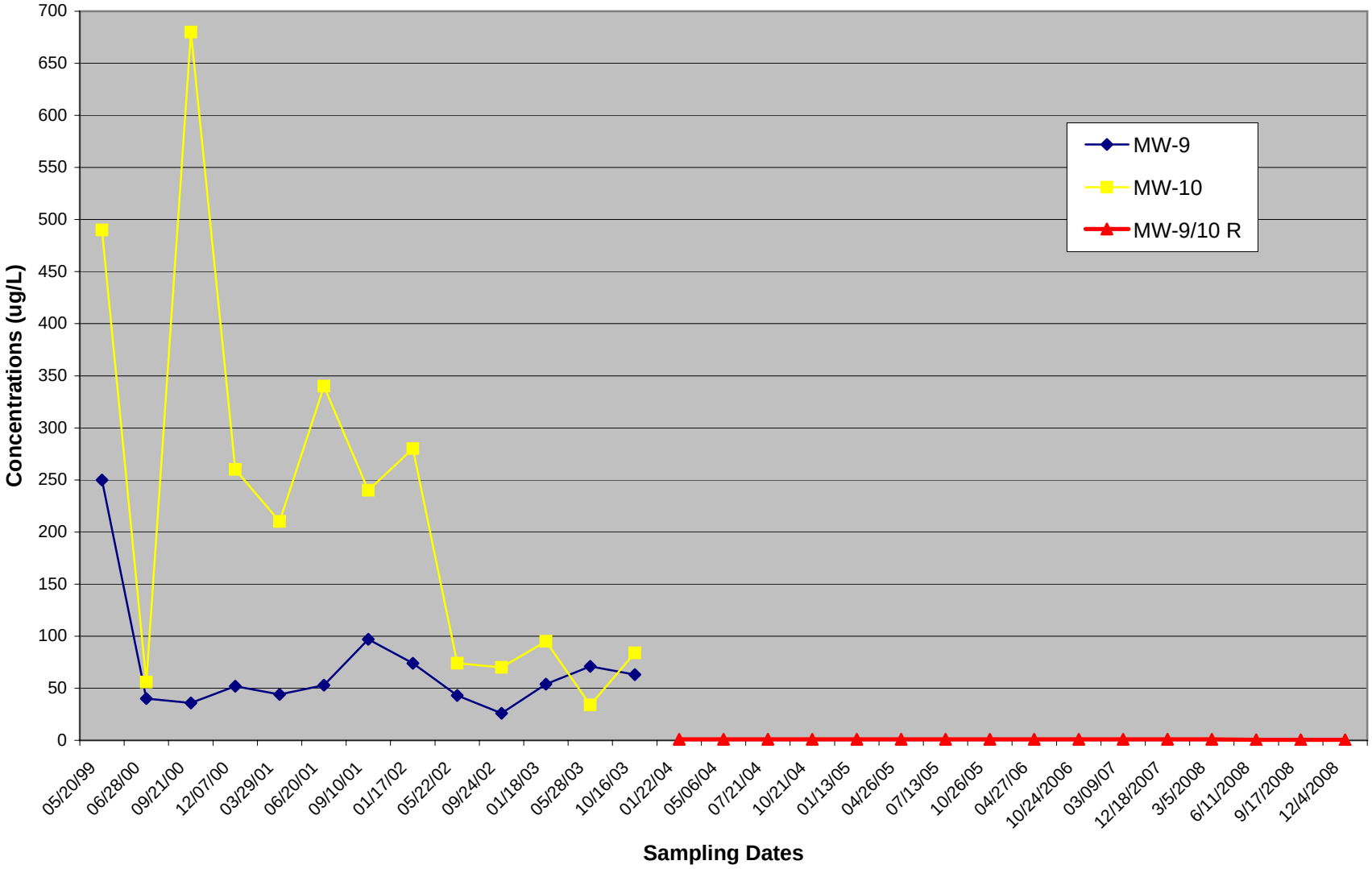
Shaw Environmental, Inc.

AMERICAN EAGLE AIRLINES

FIGURE 4
ANALYTICAL SUMMARY MAP (12/04/08)
DUTCHESS COUNTY AIRPORT

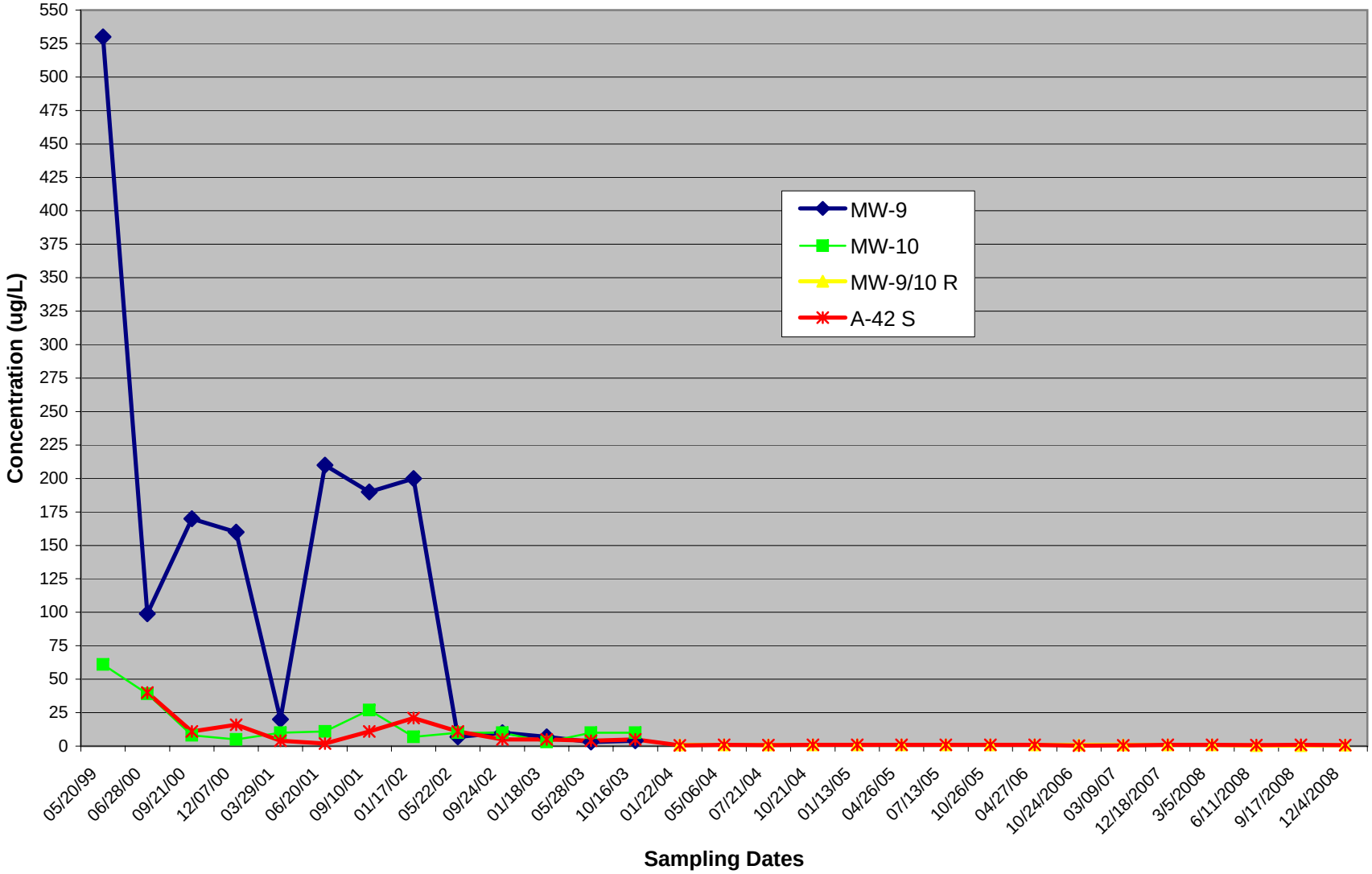
WAPPINGERS FALLS, NEW YORK

Figure 5
Dissolved Tetrachloroethene (PCE)



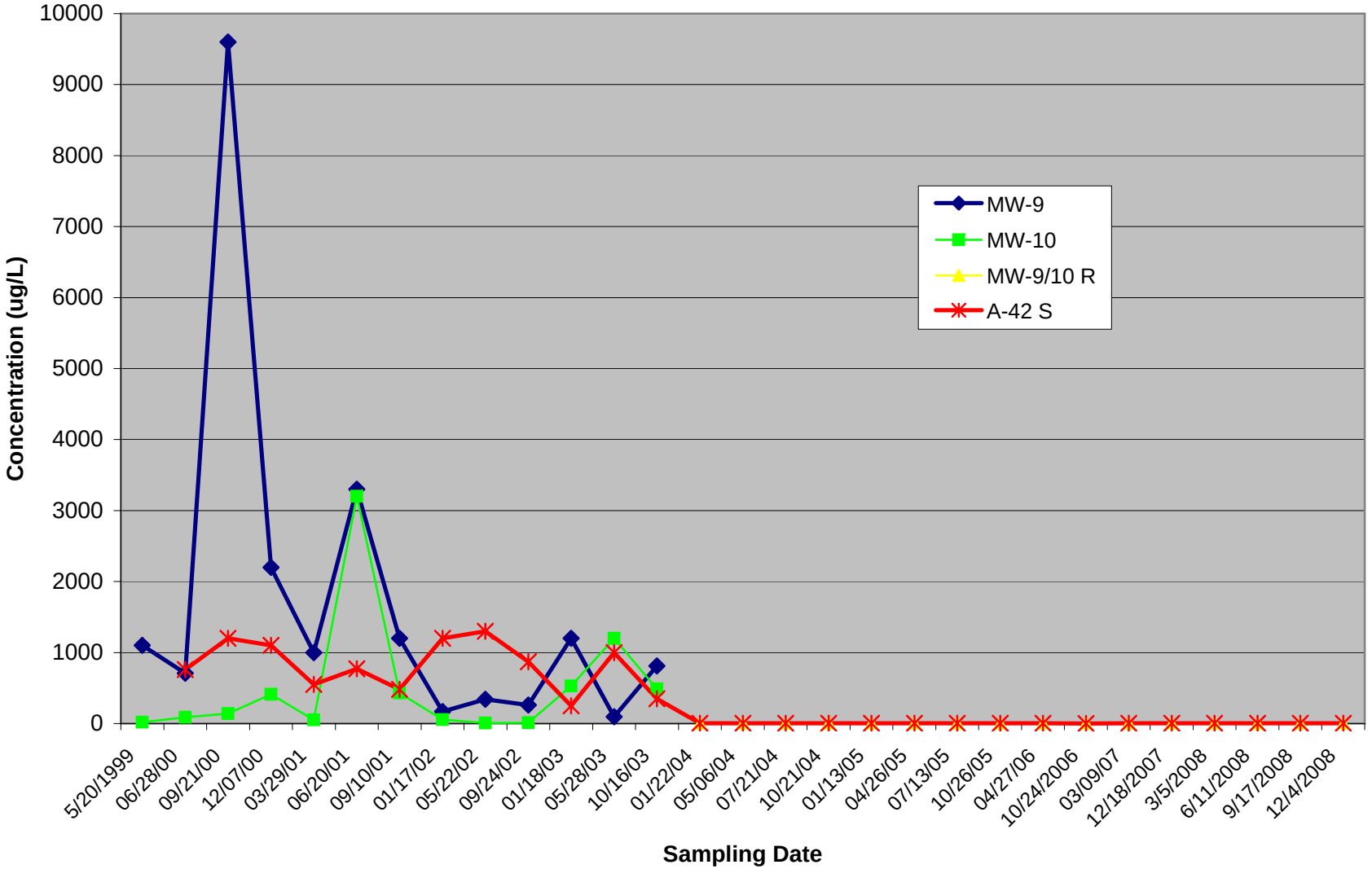
X:\MG\Flagship\Post System Closure\GW Indoor Air Jan 2009\Figures 5-8.xls

Figure 6
Dissolved 1,1-Dichloroethane



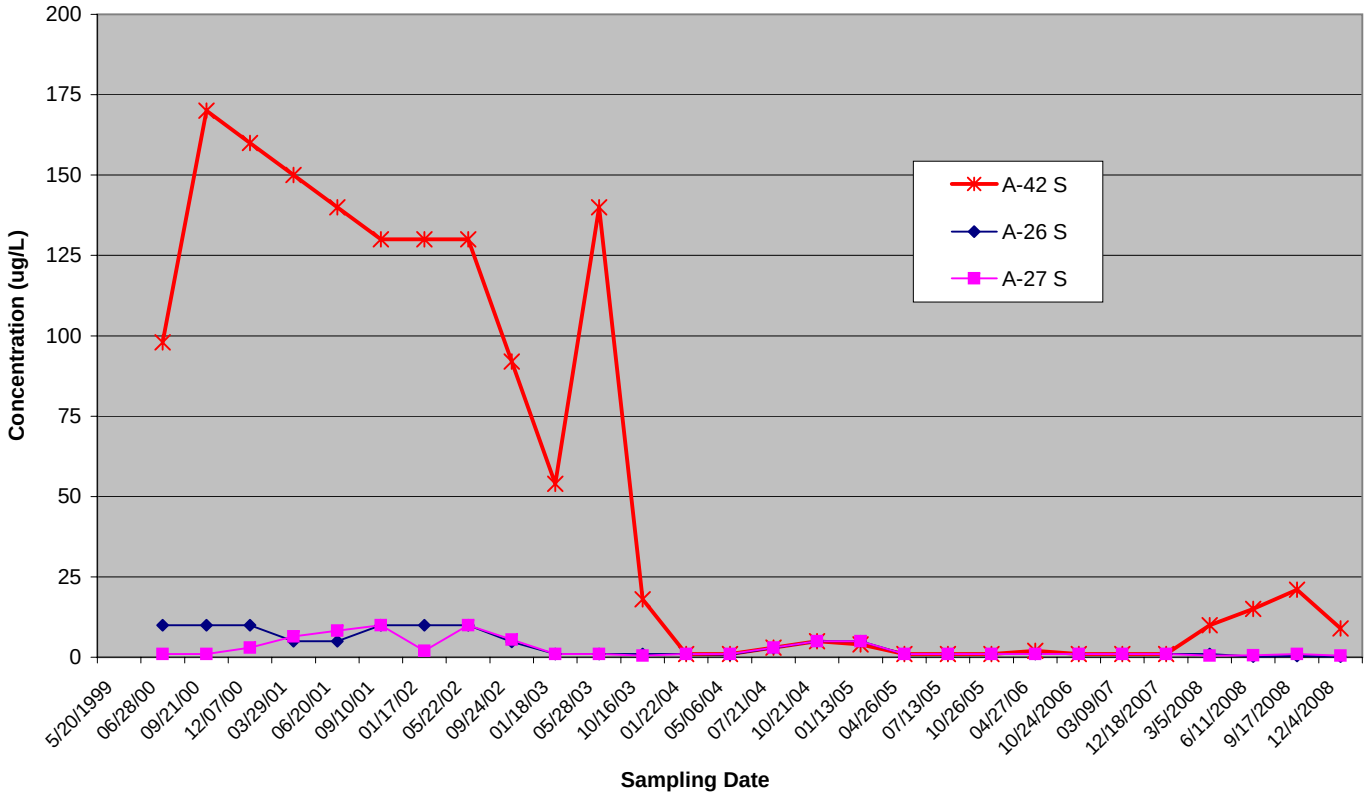
X:\MG\Flagship\Post System Closure\GW Indoor Air Jan 2009\Figures 5-8.xls

Figure 7
Dissoved Naphthalene Trends

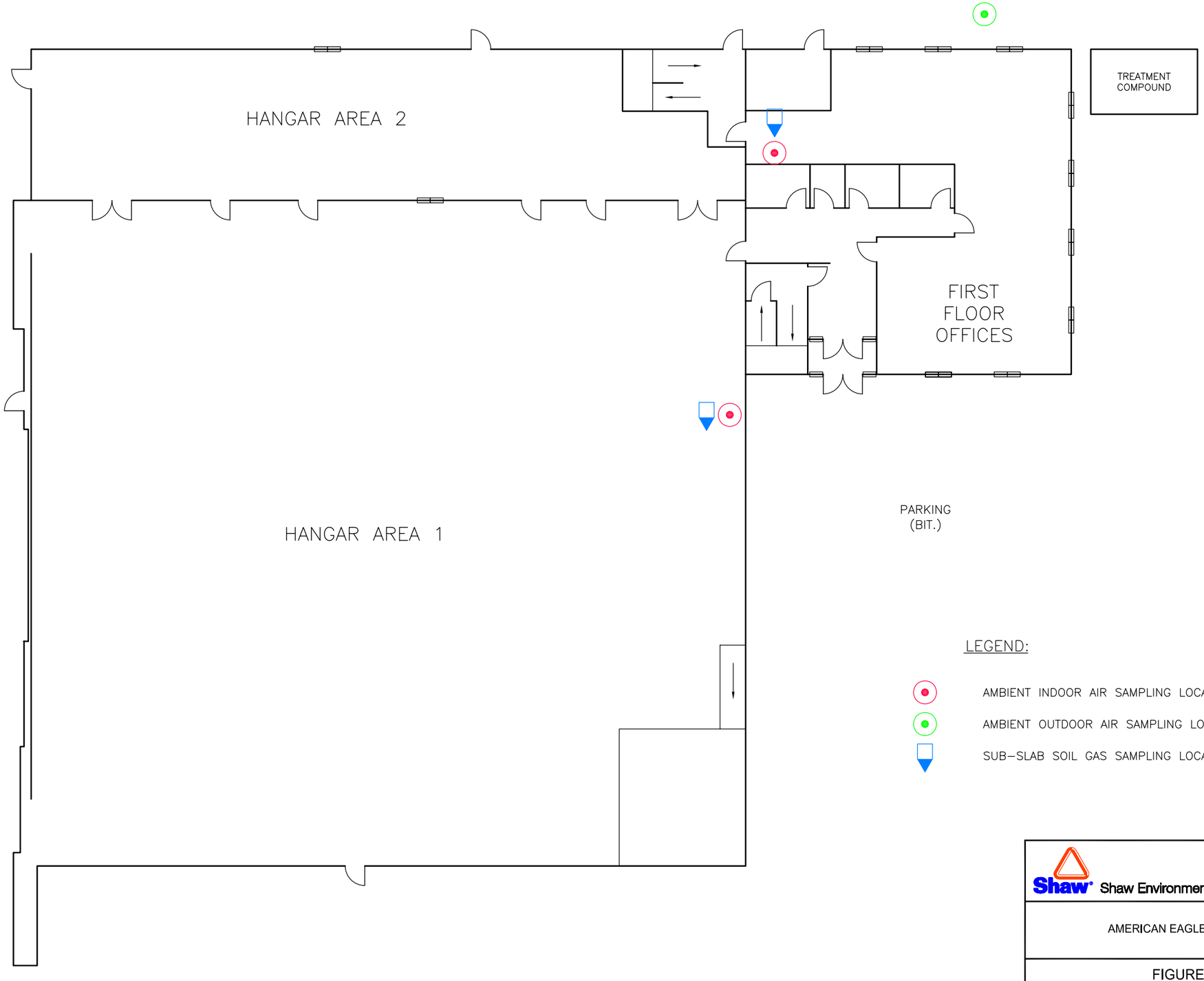


X:\MG\Flagship\Post System Closure\GW Indoor Air Jan 2009\Figures 5-8.xls

Figure 8
Dissoved Vinyl Chloride Trends



OFFICE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	01/12/09	TP/BN	S. SHKOLNIK			820131D140



LEGEND:

- AMBIENT INDOOR AIR SAMPLING LOCATION
- AMBIENT OUTDOOR AIR SAMPLING LOCATION
- SUB–SLAB SOIL GAS SAMPLING LOCATION

REFERENCE:

BASE MAP SOURCE: GERARD ASSOCIATES CONSULTING ENGINEERS, P.C.

SCALE
0 8 16 24 FEET

Shaw Environmental, Inc.

AMERICAN EAGLE AIRLINES

FIGURE 9
AIR SAMPLING LOCATIONS
(12/03/08)

WAPPINGERS FALLS, NEW YORK

Xref: .
Image: .

L:\project\820131\820131D140.dwg
Plot Date/Time: 01/20/09 08:55am
Plotted by: Samuil.Shkolnik

APPENDIX A

NYSDEC LETTER OF SEPTEMBER 18, 2007

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1620
Phone: (845) 256-3000 • **FAX:** (845) 255-3414
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

9/18/07

Proj. Flagship
Proj # 820137
File Code: 7E

Brian Neumann, Project Manager
Shaw Environmental, Inc.
13 British American Boulevard
Latham, New York 12110-1405
Re: Flagship Airlines Hangar site, ID#314101

Dear Mr. Neumann:

Your 9/5/07 "Indoor Air Sampling Report" for the Flagship Airlines Hangar site (ID#314101) is approved, subject to the following comments:

1. The air-sparging, soil vapor extraction (AS/SVE) system can be shut down. However, the following is required:

A. Groundwater monitoring should take place during 12/07 and 3/09.

B. A work plan for annual sub-slab vapor and indoor air monitoring for two consecutive heating seasons is due on 10/15/07.

2. The data from the two additional rounds of groundwater monitoring and soil vapor intrusion evaluation will be reviewed to determine if additional remedial efforts are required.

Thank you.

Sincerely,

John J. Rashak

John J. Rashak, Environmental Engineer I

cc: Carl Obermeyer, NYSDOH

APPENDIX B

2007-2009 FINAL POST SHUTDOWN GROUNDWATER MONITORING AND INDOOR AIR SAMPLING WORK PLAN

Shaw® Shaw Environmental, Inc.

13 British American Boulevard
Latham, NY 12110-1405
Phone: 518.783.1996
Fax: 518.783.8397

November 16, 2007

Via: UPS

Mr. John Rashak, Environmental Engineer I
Division of Environmental Remediation
New York State Department of Environmental Conservation, Region III
21 South Putt Corners Road
New Paltz, New York 12561-1696

RE: 2007-2009 Final Post Shutdown Groundwater Monitoring and Indoor Air Sampling Work Plan
Former Flagship Airlines Hangar Facility, Site #314101
Dutchess County Airport, Wappingers Falls, New York

Dear Mr. Rashak:

Shaw Environmental, Inc. (Shaw), on behalf of American Airlines, is pleased to provide this Groundwater Monitoring and Indoor Air Sampling Work Plan for the Former Flagship Airlines Hangar Site (Site), located at the Dutchess County Airport, Wappingers Falls, Dutchess County, New York (**Figure 1**). The activities proposed in this plan are in response to your letter dated September 18, 2007 (**Appendix A**). Shaw will monitor groundwater quality for a total of five quarters beginning in December 2007 and conclude in March of 2009. In addition to the groundwater monitoring Shaw will conduct a subsequent investigation of the sub-slab vapor/indoor air at the Site at the request of the New York State Department of Environmental Conservation (NYSDEC) during the December 2007 groundwater sampling event. After receipt of the results from the December 2007 event American Airlines would then like to discuss the necessity of a second indoor air sampling event in December 2008.

It is American Airlines understanding that this requested fieldwork will be completed to confirm the cessation of monitoring activities at the Site, thus satisfying the remedial objectives set forth in the Record of Decision, dated March 2003.

1.0 Site Background

The former Flagship Airlines Hangar Facility at the Dutchess County Airport was used for washing aircraft and performing routine maintenance work on the aircrafts. This maintenance

work required the use of jet fuel, heating oil and various solvents. The NYSDEC became involved with the Site in 1988 when a leaking heating-oil tank was discovered. The initial investigation soon expanded into a phased remedial investigation (RI) to determine potential volatile and semi-volatile organic compound (VOC and SVOC) impacts to the shallow groundwater. As a result of the ensuing RI, five underground storage tanks and a septic tank that were present at the Site were all removed by 1996. On March 19, 1999, American Eagle Airlines signed an Order on Consent, Index No. W3-0837-98-12, with the NYSDEC.

1.1 Remedial History

A soil vapor extraction (SVE) system was installed in 1988 as an interim remedial measure (IRM) to reduce elevated levels of benzene, toluene, ethylbenzene and xylene (BTEX) detected in the unsaturated soil in the vicinity of the former heating-oil tank. An RI conducted during installation of the SVE system indicated that the residual contamination in the groundwater was significant. In 1992, 1,020 gallons of water were pumped from monitoring wells MW-9 and MW-10 located near the gravel bed. This gravel bed served as the overflow drainage system to the wash water tank that was removed in 1995.

The Phased RI was conducted between 1990 and 1996. An IRM based on the November 1999 Remedial Investigation (RI) and Feasibility Study (FS) Reports was implemented in 2000. As part of the IRM, an SVE and air sparging (AS) system were installed and began operating during August of 2000. Quarterly groundwater samples have been collected since August 2000 to monitor the efficiency of this remedial measure. The data collected during sampling has been presented in the O&M reports for the Site.

In order for the SVE/AS system to be turned off permanently, the New York State Department of Health (NYSDOH) requested an indoor air/sub-slab vapor investigation be performed. Shaw conducted an indoor air/sub-slab vapor investigation on March 29, 2006, in accordance with the NYSDEC-approved indoor air sampling work plan (Revised Final Indoor Air Sampling Work Plan, dated March 6, 2006). Based on the findings of the March 2006 indoor air/sub-slab vapor investigation (Indoor Air Sampling Report, dated August 3, 2006), the NYSDEC requested another soil vapor intrusion evaluation be performed by the end of the 2007 heating season (per NYSDEC letter dated August 29, 2006). Based on the results of these sampling events, the NYSDEC granted the request to shut down the system in a letter dated September 18, 2007.

In order for the system to remain shut down and to proceed with cessation of monitoring activities at the Site, Shaw, at the request of the NYSDEC has prepared this work plan. Shaw will conduct five quarters of groundwater sampling and a maximum of two indoor air sampling events. The methods involved in these activities are explained in detail below.

2.0 Groundwater Monitoring

To monitor the remaining residual dissolved-phase hydrocarbons, a total of five quarterly groundwater sampling events will be conducted. During these sampling events groundwater samples will be collected using low flow procedures from the 14 monitoring points (ME-12, ME-14, ME-18, ME-19, MW-2, MW-6, MW-8, MW-9/10R, MW-20, DG-1, A-26S, A-27S, A-42S and A-43S) utilized in previous sampling events (**Figure 2**). One field duplicate, one matrix spike/matrix spike duplicate and one trip blank will also be collected and analyzed. Groundwater samples will be analyzed in accordance with ASP/CLP method protocols, as historically conducted for the site sampling. Only those ROD identified and previously sampled compounds will be analyzed. The volatiles include the following:

1,1 Dichloroethane	1,1 Dichloroethene	cis-1,2 Dichloroethene
trans-1,2 Dichloroethene	1,2 Dichloroethene, Total	Chlorobenzene
Chloroethane	1,1,1 Trichloroethane	Tetrachloroethene
Trichloroethene	Toluene	Vinyl Chloride

The semi-volatiles include the following:

Phenol	4-Methylphenol	Naphthalene

In addition, to the 14 groundwater monitoring points and an additional eleven points (11) will be monitored for water table elevation, only, using field instruments including an water level indicator probe (IP).

2.1 Low Flow Sampling Procedures

The purpose of low flow or "low-stress" sampling is to provide a method which minimize the amount of impact the purging process has on the ground water chemistry during sample collection and to minimize the volume of water that is being purged and disposed. According to the United States Environmental Protection Agencies (USEPA) Standard Operating Procedure

for Low-Stress (Low Flow)/ Minimal Drawdown Groundwater Sample Collection (USEPA, 1996), the following procedures apply:

1. Begin Sampling at the least contaminated well proceeding to the most contaminated well last. Check and record the condition of the monitoring well for damage or evidence of tampering.
2. Record location, time, date and appropriate information in a field logbook or on the ground-water sampling log (**Appendix B**).
3. Monitor the headspace of the monitoring well at the rim of the casing for volatile organic compounds (VOC) with a Photoionization detector (PID) and record in the logbook or groundwater sampling log.
4. Measure the depth to water (water level must be measured to nearest 0.01 feet) and depth to bottom relative to a reference measuring point on the well casing with an electronic water level indicator and record in logbook or ground-water sampling log.
5. Use the information from the depth of water and the total depth of the monitoring well to calculate the monitoring well volume. Record information in field logbook or ground-water sampling log.
6. Place the pump and support equipment at the wellhead and slowly lower the pump and tubing down into the monitoring well until the location of the pump intake is set at a pre-determined location within the screen interval, approximately the mid-screen interval.
7. Connect the discharge line from the pump to a flow-through cell.
8. Start pumping the well at a low flow rate (0.2 to 0.5 liter per minute) and slowly increase the speed. Check water level. Maintain a steady flow rate while maintaining a drawdown of less than 0.33 feet. If drawdown is greater than 0.33 feet lower the flow rate. 0.33 feet is a goal to help guide with the flow rate adjustment. It should be noted that this goal may be difficult to achieve under some circumstances due to geologic heterogeneities within the screened interval, and may require adjustment based on site-specific conditions and personal experience.
9. Measure the discharge rate of the. Continue purging and monitoring every three to five minutes during purging. Pumping rates should be kept at minimal flow to ensure minimal drawdown in the monitoring well.
10. During the purging, a minimum of one tubing volume (including the volume of water in the pump and flow cell) must be purged prior to recording the water-quality indicator parameters. Then monitor and record the water-quality indicator parameters every three to five minutes. The water-quality indicator field parameters are turbidity, dissolved oxygen, specific electrical conductance, pH, redox-potential and temperature. Oxidation-reduction potential may not always be an appropriate stabilization parameter, and will depend on site-specific conditions. However, readings should be recorded because of its value as a double check for oxidizing conditions. The stabilization criterion is based on

three successive readings of the water quality field parameters. The table below indicates the stabilization criteria:

Parameter Stabilization Criteria Reference

Parameter	Stabilization Criteria
pH	± 0.1 pH units
Specific electrical conductance (SEC)	± 3% FS/cm
Oxidation-Reduction Potential (ORP)	± 10 millivolts
Turbidity	± 10 % NTUs (when turbidity is greater than 10 NTUs)
Dissolved Oxygen	± 0.3 milligrams per liter

11. Once the criteria have been successfully met indicating that the water quality indicator parameters have stabilized, then sample collection can take place.
12. If a stabilized drawdown in the well can't be maintained at 0.33 feet and the water level is approaching the top of the screened interval, reduce the flow rate or turn the pump off (for 15 minutes) and allow for recovery. It should be noted whether or not the pump has a check valve. A check valve is required if the pump is shut off. Under no circumstances should the well be pumped dry. Begin pumping at a lower flow rate, if the water draws-down to the top of the screened interval again turn pump off and allow for recovery. If two tubing volumes (including the volume of water in the pump and flow cell) have been removed during purging then sampling can proceed next time the pump is turned on. This information should be noted in the field notebook or ground-water sampling log with a recommendation for a different purging and sampling procedure.
13. Maintain the same pumping rate or reduce slightly for sampling (0.2 to 0.5 liter per minute) in order to minimize disturbance of the water column. Samples should be collected directly from the discharge port of the pump tubing prior to passing through the flow-through cell.
14. Disconnect the pump's tubing from the flow-through-cell so that the samples are collected from the pump's discharge tubing. For samples collected for dissolved gases or Volatile Organic Compounds (VOCs) analyses, the pump's tubing needs to be completely full of ground water to prevent the ground water from being aerated as the ground water flows through the tubing. When filling the VOC samples a meniscus must be formed over the mouth of the vial to eliminate the formation of air bubbles and head space prior to capping.
15. All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container.
16. Decontaminate non-dedicated equipment in-between each monitoring well.

2.2 Quarterly Reporting

Monitoring reports will be submitted to the NYSDEC Region 3 Division of Spills Management before two months have followed the field sampling event each quarter. Quarterly reports will document the quarterly groundwater sampling and analytical results.

3.0 Indoor Air Sampling

3.1 Pre Sampling Inspection

The sampling event will begin with an inspection of general site conditions at the hangar. The pre-sampling inspection will determine the locations for the indoor air, sub-slab soil gas, and ambient outdoor air sampling (*Shaw proposes to collect samples from the same locations as with the previous events*). The pre-sampling site inspection will be performed in general accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006. An indoor air quality questionnaire and building inventory will be completed (**Appendix C**).

The inspection will include, but not be limited to the following:

- General condition of the area to be sampled;
- Specific location for ambient indoor and sub-slab sampling;
- Sketch of the area to be sampled with sample locations designated;
- Other physical characteristics of the building as outlined on the inspection questionnaire;
- Inventory of chemicals stored in the sampling area; and
- Photoionization detector (PID) readings from the general area to be sampled to quantify background or ambient air readings prior to sampling as well as from stored products suspected to contain VOCs. (Note: A PID manufactured by RAE Systems (Model PGM-7240), capable of detecting VOCs at the parts per billion (ppb) level will be utilized during the indoor air sampling activities).

This task assumes that the hangar's concrete floor is in similar condition as previous sampling events. Provisions for any necessary repairs will be made prior to sample collection.

4.0 Air Sample Collection

Three types of samples will be collected at the Site: indoor air, sub-slab soil gas, and ambient outdoor air. The following sections provide the field methodology that will be employed for the

collection of the three basic sample types. Specific sampling procedures are included in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006. An indoor air field sampling log sheet (**Appendix C**) will be completed prior to sample collection. Photographs will be taken to document the sample locations and any other conditions that may be of interest.

Sampling equipment utilized for each sample location will consist of the following:

- One 6-liter laboratory-certified summa canister,
- One 8-hour flow control unit,
- Vacuum gauge, and
- Teflon tubing.

4.1 Indoor Air Sample Collection

A laboratory-certified 6-liter summa canister fitted with an 8-hour flow control unit and vacuum gauge will be assembled in a predetermined location. A section of disposable Teflon® tubing will be extended from the summa canister to collect the sample from the breathing zone at four to six feet above the floor.

One indoor air sample will be collected inside the hangar and another indoor air sample will be collected in the office area. Both of these samples will be located in close proximity to the sub-slab vapor sampling locations. In addition, they will be collected as close as possible to the locations from the previous two indoor air sample locations. One indoor air duplicate sample will be collected.

The 6-liter summa canister valve will be opened and the initial vacuum reading will be recorded. The sample will be collected over a period of 8 hours at a sampling rate of approximately 0.0125 liters/minute. After sampling, the final vacuum of the summa canister will be recorded and the valve will be closed. The sample will be shipped to the designated laboratory by overnight courier under proper chain-of-custody. A field sampling log (**Appendix C**) will be completed in conjunction with the collection of each sample. This basic procedure will be followed for the collection of the duplicate air sample as well.

4.2 Sub-Slab Soil Gas Sample Collection

Prior to sample collection, the hangar floor will be inspected and the ambient air surrounding the proposed sampling location will be screened with a PID. A total of two sub-slab samples will be collected in conjunction with the two indoor air samples. In addition, they will be collected as close as possible to the locations from the previous two sub-slab sample locations. The samples will be collected over an 8-hour sample period.

A hammer drill will be used to advance a boring to a depth of approximately three inches beneath the vapor barrier at a location central to the hangar floor away from foundations or observed penetrations, and approved by the current property owner. In accordance with the guidance provided by the NYSDEC, the following protocol will be followed for sample collection:

1. The entire depth of the sub-slab sample hole will be drilled with a one-inch diameter drill bit. The hole will be advanced to a depth of 3 inches beneath the bottom of the slab.
2. A section of 3/8-inch outside diameter (O.D), ¼-inch inside diameter (I.D) Teflon®-lined polyethylene tubing will be inserted to the bottom of the floor slab. The void will be filled with clean sand to the base of the slab.
3. The annular space between the 1-inch hole and the 3/8-inch tubing will be sealed with beeswax from the base of the slab to the surface.
4. The tubing will be connected to a PID. For approximately 3 minutes gas will be purged from the subsurface probe using the PID. The PID readings will be observed and the highest will be recorded on the appropriate field form.
5. The (PID) will be disconnected and A laboratory-certified 6-liter summa canister, fitted with an 8-hour flow control unit and vacuum gauge, will be set up next to the sampling point. The summa canister will be attached to the Teflon® tubing, and the valve will be opened. The initial vacuum reading will be recorded. The sample will be collected over a period of 8 hours at a sampling rate of approximately 0.0125 liters/minute. Following sampling, the final vacuum of the summa canister will be recorded and the valve will be closed. The sample will be shipped to the designated laboratory by overnight courier under proper chain-of-custody. The Teflon® tube will be removed and the sampling point will be patched with concrete or similar material.

4.3 Ambient Outdoor Air Sample Collection

A minimum of one ambient outdoor air sample will be collected at the time of the ambient indoor air sample collection. The outdoor air sample will be collected within a designated area surrounding the specific indoor air sampling locations (e.g., immediately outside of the indoor air

sampling location). More specifically the sample will be collected as close as possible to the location from the previous two ambient outdoor air sample locations.

A laboratory-certified 6-liter summa canister fitted with an 8-hour flow control unit and vacuum gauge will be assembled at a pre-designated location. A disposable Teflon® tube will be extended from the summa canister to collect the sample from the breathing zone at four to six feet above grade, the valve will be opened, and the initial vacuum reading will be recorded. The sample will be collected over a period of 8 hours at a sampling rate of approximately 0.0125 liters/minute. Following sampling, the final vacuum of the summa canister will be recorded and the valve will be closed. The sample will be shipped to Columbia Analytical Laboratories of Simi Valley California by overnight courier under proper chain-of-custody.

The proposed air sampling locations are shown on **Figure 3**.

5.0 Data Screening and Reporting

Samples will be submitted to Columbia Analytical Services of Simi Valley California, a NELAP-Certified laboratory, for analysis. The analysis will test for site-specific volatile organic compounds [trichloroethene (TCE), tetrachloroethene (PCE), toluene, 1,1-dichloroethane, 1,1,1-trichloroethane, and naphthalene] by Environmental Protection Agency (EPA) Method TO-15. The analysis will achieve detection limits of 1.0 micrograms per cubic meter ($\mu g/m^3$) for each compound except TCE, which will have a detection limit of 0.25 $\mu g/m^3$.

The results of the analysis will be included in the coinciding quarterly groundwater sampling report and will include a description of field work, all tabulated data, figures, air sampling and inspection forms, and a hard copy of the data report.

If you have any questions or need additional information, please call me at 518-783-1996. We look forward to working with you.

Sincerely,
Shaw Environmental, Inc.

Jennifer Nafus
Project Scientist

Brian Neumann
Project Manager

X/MG/Flagship/Indoor Air Workplan/Nov/2007-2009 Final Report

Attachments: Figures
Appendix A – NYSDEC Letter Dated September 18, 2007
Appendix B – Field Data Sheet
Appendix C – Indoor Air Field Sampling Log

cc: Alan Angers, American Airlines
D. D'Ambrosio, Esq.
C. Obermeyer (CD Only)
E. Rose
J. Johnson, Esq.
C. Bogle, Esq.
Shaw - File

APPENDIX C

NYSDEC LETTER OF NOVEMBER 23, 2007

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1620
Phone: (845) 256-3000 • **FAX:** (845) 255-3414
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

11/23/07

Brian Neumann, Project Manager
Shaw Environmental, Inc.
13 British American Boulevard
Latham, New York 12110-1405
Re: Flagship Airlines Hangar site, ID#314101

Dear Mr. Neumann:

Your 11/16/07 "2007-2009 Final Post Shutdown Groundwater Monitoring and Indoor Air Sampling Work Plan" for the Flagship Airlines Hangar site is approved, subject to the following comment:

Please delete the words "a maximum of" from page 3, line 3 of the work plan, since future air sampling requirements, if any, will be based upon the results of the air sampling data submitted per the work plan.

Thank you.

Sincerely,

John J. Rashak

John J. Rashak, Environmental Engineer I

cc: Carl Obermeyer, NYSDOH

APPENDIX D

FIELD DATA SHEETS – GROUNDWATER

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1457 **Well ID:** ME-12

Initial Total Casing Length 24.20 (feet)

Depth to Water (from top of casing) 5.42 (feet)

a) Height of Water Column 18.78 (feet)

Well Volume ([a] x volume factor *) = 18.78 (feet) x .163 gallons/foot = 3 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
(2)-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/3/08 Time: 1504 (start) 1523 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1504	1507	1510	1513	1516	1519	1522
Volume	.4L/min						
Specific Conductivity	0.734	0.753	.738	.763	.770	0.772	0.769
pH	7.55	7.30	7.09	7.00	6.91	6.89	6.89
Turbidity	-	-	-	-	-	-	-
Temperature	12.33	13.87	14.08	14.31	14.40	14.41	14.40
ORP	109.6	112.7	112.3	114.2	114.6	114.9	114.9
DO	6.22	2.17 5.29	1.38	1.30	1.11	1.05	1.03

Did well dry out? (If yes, how many times)

Actual Volume Removed ≈9 (gallons) 6

Sampling Data

Sample Date: 12/3/08 Sample Time: 1525

Appearance (visual) Clear Color Clear Odor _____

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS:

(2) Blind Dup.

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1410 **Well ID:** ME-14

Initial Total Casing Length 20.50 (feet)

Depth to Water (from top of casing) 6.24 (feet)

a) Height of Water Column 14.26 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 14.26 (feet) x .163 gallons/foot = 2.3 gallons

Purge Data

Date: 12/3/08 Time: 1415 (start) 1426 (finish)

Method: Geo (Peri) Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1417	1420	1423	1426			
Volume	NA	NA	NA	NA			
Specific Conductivity	.920	.932	.939	.943			
pH	6.44	6.35	6.32	6.28			
Turbidity	-	-	-	-			
Temperature	15.89	16.14	16.31	16.27			
ORP	112.6	100.2	94.1	88.5			
DO	2.47	1.56	1.43	1.39			

Did well dry out? (If yes, how many times) NO Actual Volume Removed _____ (gallons)

~7L

Sampling Data

Sample Date: 12/3/08 Sample Time: 1430

Appearance (visual) clear Color clear Odor none

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate ~ 400mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1555 **Well ID:** ME-18

Initial Total Casing Length 21.65 (feet)

Depth to Water (from top of casing) 4.34 (feet)

a) Height of Water Column 17.31 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 17.31 (feet) x .653 gallons/foot = 11.3 gallons

Purge Data

Date: 12/3/08 Time: 1559 (start) 1618 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1559	1602	1605	1608	1611	1614	1617
Volume 4 min	.4						
Specific Conductivity	0.797	.798	0.797	0.800	0.801	0.802	.802
pH	7.44	7.48	7.52	7.54	7.56	7.56	7.57
Turbidity	–	–	–	–	–	–	–
Temperature	13.87	14.10	14.23	14.19	14.50	14.52	14.54
ORP	99.9	~~99.8~~ 99.8	99.9	100.2	101.9	101.6	101.6
DO	7.46	5.74	6.13	6.58	6.18	6.20	6.24

Did well dry out? (If yes, how many times) Actual Volume Removed_____ (gallons)

Sampling Data

Sample Date: 12/3/08 Sample Time: 1620

Appearance (visual) Clear Color – Odor –

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: ≈ 400 mL/min Purge Rate

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 1005 **Well ID:** ME-19

Initial Total Casing Length 25.80 (feet)

Depth to Water (from top of casing) 8.40 (feet)

a) Height of Water Column 17.40 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 17.40 (feet) x .653 gallons/foot = 11 gallons

Purge Data

Date: 12/4/08 Time: 1007 (start) 1024 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1010	1013	1616	1019			
Volume	NA	NA	NA	NA			
Specific Conductivity	.684	.696	.702	.706			
pH	7.12	7.12	7.13	7.13			
Turbidity	-	-	-	-			
Temperature	13.64	13.88	14.05	14.18			
ORP	122.0	118.9	115.6	113.8			
DO	3.12	2.64	2.89	2.29			

Did well dry out? (If yes, how many times) NO Actual Volume Removed ~2 (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 1025

Appearance (visual) clear Color clear Odor none

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: ≈400 mL/min.

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1322 **Well ID:** MW-2

Initial Total Casing Length 24.20 (feet)

Depth to Water (from top of casing) 8.51 (feet)

a) Height of Water Column 15.69 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 15.69 (feet) x .163 gallons/foot = 15.8 gallons

Purge Data

Date: 12/3/08 Time: 1345 (start) 1359 (finish)

Method: Geo Pump (peri)
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1348	1351	1355	1358			
Volume	NA	NA	NA	NA			
mS/cm Specific Conductivity	0.472	0.469	0.472	0.476			
pH	7.11	6.74	6.61	6.57			
Turbidity	-	-	-	-			
°C Temperature	13.35	13.53	13.52	13.62			
ORP	46.6	66.7	76.7	79.1			
mg/L DO	6.20	4.98	4.71	4.51			

Did well dry out? (If yes, how many times) NO Actual Volume Removed NA (gallons)
~2 gal

Sampling Data

Sample Date: 12/3/08 Sample Time: 1400
Appearance (visual) clear Color clear Odor None
Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan
COMMENTS: Purge rate 480 mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1530 **Well ID:** MW-6

Initial Total Casing Length 23.30 (feet)

Depth to Water (from top of casing) 4.96 (feet)

a) Height of Water Column 18.34 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 18.34 (feet) x .653 gallons/foot = 11.9 gallons

Purge Data

Date: 12-3-08 Time: 1530 (start) 1544 (finish)

Method: Geo (Pen) Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1532	1535	1538	1542			
Volume	NA	NA	NA	NA			
Specific Conductivity	.895	.924	.925	.929			
pH	6.67	6.56	6.54	6.52			
Turbidity	-	-	-	-			
Temperature	12.82	13.48	13.62	13.73			
ORP	127.5	125.6	124.6	123.8			
DO	6.93	3.03	2.54	2.40			

Did well dry out? (If yes, how many times) No Actual Volume Removed ~5L (gallons)

Sampling Data

Sample Date: 12/3/08 Sample Time: 1545

Appearance (visual) clear Color clear Odor none

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate = ~460 mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 830 **Well ID:** MW-8

Initial Total Casing Length 26.10 (feet)

Depth to Water (from top of casing) 7.01 (feet)

a) Height of Water Column 19.09 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 19.09 (feet) x .653 gallons/foot = 12.4 gallons

Purge Data

Date: 12/4/08 Time: 830 (start) 844 (finish)

Method: Peri Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	833	836	839	842			
Volume	NA	NA	NA	NA			
Specific Conductivity	.923	.923	.921	.923			
pH	7.44	7.46	7.47	7.49			
Turbidity	-	-	-	-			
Temperature	13.01	13.02	13.11	13.17			
ORP	66.9	66.2	65.5	64.7			
DO	4.76	3.21	2.69	2.01			

Did well dry out? (If yes, how many times) No Actual Volume Removed ~2 (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 845

Appearance (visual) clear Color clear Odor none

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate = 360 mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: 1445 **Well ID:** MW-9/10R

Initial Total Casing Length 18.52 (feet)

Depth to Water (from top of casing) 4.55 (feet)

a) Height of Water Column 13.97 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 13.97 (feet) x .653 gallons/foot = 13.3 gallons

Purge Data

Date: 12/3/08 Time: 1445 (start) 1459 (finish)

Method: Geo (Peri) Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1448	1451	1454	1457			
Volume	NA	NA	NA	NA			
Specific Conductivity	.820	.822	.831	.835			
pH	6.76	6.69	6.67	6.66			
Turbidity	-	-	-	-			
Temperature	14.23	14.40	14.46	14.46			
ORP	85.3	88.0	90.6	91.3			
DO	5.96	5.43	4.66	4.58			

Did well dry out? (If yes, how many times) NO Actual Volume Removed ~6L (gallons)

Sampling Data

Sample Date: 12/3/08 Sample Time: 1500

Appearance (visual) clear Color clear Odor none

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate = ~350mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 935 **Well ID:** MW-20

Initial Total Casing Length 22.88 (feet)

Depth to Water (from top of casing) 6.23 (feet)

a) Height of Water Column 16.65 (feet)

Well Volume ([a] x volume factor *) = 16.65 (feet) x .163 gallons/foot = 2.7 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/4/08 Time: 937 (start) 954 (finish)

Method: Peri Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	940	943	946	949			
Volume	NA	NA	NA	NA			
Specific Conductivity	.081	.075	.071	.070			
pH	7.81	7.72	7.01	7.04			
Turbidity	-	-	-	-			
Temperature	14.40	14.89	14.98	14.94			
ORP	84.6	89.3	94.5	97.1			
DO ?	11.41	X	X	X			

Did well dry out? (If yes, how many times) N 0 Actual Volume Removed ~2 (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 955
Appearance (visual) clear Color clear Odor none
Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan
COMMENTS: Purge Rate = ~400 mL/min Hi DO, no air in line, possible problem w/ probes

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 1004 **Well ID:** DG-1

Initial Total Casing Length 19.40 (feet)

Depth to Water (from top of casing) 9.74 (feet)

a) Height of Water Column 9.66 (feet)

Well Volume ([a] x volume factor *) = 9.66 (feet) x .163 gallons/foot = 1.5 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/4/08 Time: 1005 (start) 1024 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	1005	1007	1010	1013	1016	1019	1023
Volume	.60	.40					
Specific Conductivity	0.967	0.967	.965	.962	.961	.962	.962
pH	6.91	6.46	6.38	6.19	6.14	6.12	6.10
Turbidity							
Temperature	15.42	15.35	15.19	15.25	15.34	15.37	15.39
ORP	15.9	52.0	64.0	82.2	89.9	91.6	94.7
DO	3.82	0.99	0.81	0.68	0.64	0.70	0.73

Did well dry out? (If yes, how many times) Actual Volume Removed_____ (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 1030

Appearance (visual) clear Color - Odor -

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate .4L/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 755 Well ID: A-265

Initial Total Casing Length 23.00 (feet)

Depth to Water (from top of casing) 3.84 (feet)

a) Height of Water Column 19.16 (feet)

Well Volume ([a] x volume factor *) = 19.16 (feet) x .163 gallons/foot = 3.1 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/4/08 Time: 759 (start) 816 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	759	802	805	808	811	815	
Volume 4m	.4						
Specific Conductivity	0.963	0.955	0.951	0.947	0.944	.943	
pH	7.80	7.67	7.65	7.64	7.62	7.61	
Turbidity	-	-	-	-	-		
Temperature	13.41	13.35	13.34	13.33	13.32	13.29	
ORP	-136.7	-123.7	-119.5	-111.7	-106.0	-101.7	
DO	2.39	0.65	0.54	0.43	0.38	0.29	

Did well dry out? (If yes, how many times) Actual Volume Removed_____ (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 825

Appearance (visual) Fe flakes minimal, small Color Clear Odor _____

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Water in steel casing FeO_2 sheen in standing water
Purge Rate 400 ml/min.

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 920 Well ID: A-27S

Initial Total Casing Length 25.90 ~~5.65~~ NA (feet)

Depth to Water (from top of casing) 5.65 ~~5.46~~ (feet)

a) Height of Water Column 20.25 (feet)

Well Volume ([a] x volume factor *) = 20.25 (feet) x .163 gallons/foot = 3.3 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/4/08 Time: 919 (start) 937 (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	920	923	926	929	932	935	
Volume	.98	.40					
Specific Conductivity	0.765	0.772	.772	.772	.772	.772	
pH	7.65	7.65	7.63	7.60	7.57	7.56	
Turbidity							
Temperature	13.22	13.70	13.72	13.82	13.88	13.89	
ORP	-155.7	-146.0	-134.7	-126.8	-124.6	-131.8	
DO	2.12	0.92	0.57	0.50	0.48	0.46	

Did well dry out? (If yes, how many times) Actual Volume Removed_____ (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 940

Appearance (visual) Clear Color Clear Odor _____

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: Purge Rate ≈ 400 mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/3/08 Start Time: ~~1030~~ PM 908 Well ID: A - 42S

Initial Total Casing Length 25.95 (feet)

Depth to Water (from top of casing) 6.71 (feet)

a) Height of Water Column 19.24 (feet)

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Well Volume ([a] x volume factor *) = 19.24 (feet) x .163 gallons/foot = 3.1 gallons

Purge Data

Date: 12/4/08 Time: 907 (start) 919 (finish)

Method: Peri - Pump
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	910	913	916	919			
Volume	NA	NA	NA	NA			
Specific Conductivity	.689	.694	.695	.697			
pH	7.50	7.48	7.46	7.41			
Turbidity	-	-	-	-			
Temperature	12.99	13.37	13.35	13.36			
ORP	93.4	92.5	92.5	93.6			
DO	6.95	5.57	5.04	4.46			

Did well dry out? (If yes, how many times) NO Actual Volume Removed ~2.5 (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 920
Appearance (visual) clear Color clear Odor none
Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan
COMMENTS: Purge Rate ~ 320 mL/min

Groundwater Sample Event Field Data Sheet

Project Name: AA Flagship Project Number: 820131

Water Level Data

Date: 12/4/08 Start Time: 827 **Well ID:** A-435

Initial Total Casing Length 25.20 (feet)

Depth to Water (from top of casing) 5.20 (feet)

a) Height of Water Column 20.00 (feet)

Well Volume ([a] x volume factor *) = 20.00 (feet) x .163 gallons/foot = 3.26 gallons

*Volume Factors:
1-inch well = 0.041 gal/ft
1.5-inch well = 0.092 gal/ft
2-inch well = 0.163 gal/ft
3-inch well = 0.367 gal/ft
4-inch well = 0.653 gal/ft
6-inch well = 1.468 gal/ft

Purge Data

Date: 12/4/08 Time: 838 (start) _____ (finish)

Method:
(Waterra, bailer, submersible pump, etc.)

Purge Volume (3 to 5 well volumes): _____ Low Flow Sampling

Time	839	842	845	848	851	854	857
Volume	.38						
Specific Conductivity	0.870	0.866	0.860	0.863	0.869	0.877	.873
pH	7.84	7.81	7.79	7.77	7.74	7.72	7.70
Turbidity	-	-	-	-	-	-	-
Temperature	12.71	13.51	13.73	14.00	14.14	14.18	14.28
ORP	60.2	55.1	50.7	48.0	45.8	45.5	38.5
DO	6.15	2.40	1.50	1.00	0.77	0.69	0.56

Did well dry out? (If yes, how many times) Actual Volume Removed _____ (gallons)

Sampling Data

Sample Date: 12/4/08 Sample Time: 900

Appearance (visual) clear Color - Odor -

Sampling Method:

Constituents Sampled	Container Discription	Perservative
VOCs	40 mL voa	HCL
SVOCs	1 LGA	None

Personnel: R. Adams , M. Flanagan

COMMENTS: 380 mL/min ≈ Purge Rate

MS/MSD

APPENDIX E

CHAIN OF CUSTODY - GROUNDWATER

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
Shaw Environmental Inc	B. Neumann	12/4/08	121905
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
13 British American Blvd.	(518) 783-1696 / (518) 783-8397		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Latham / NY / 12110	K. Akins	C. Fox	
Project Name and Location (State)	**Carrier/Waybill Number**		
AA Flagship Wappingers Falls, NY			
Contract/Purchase Order/Quote No.			
140292			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: 8270 select	8260 Select	Special Instructions/ Conditions of Receipt
A-42S	12/4/08	920		X			2			3			X	X	
A-27S		940		X			2			3			X	X	
MW-20		955		X			2			3			X	X	
ME-19		1025		X			2			3			X	X	
DG-1		1030		X			2			3			X	X	
Trip Blank	—	—								1			—	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Kathy Akins	12/4/08	1600			
2.						
3.						

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
Shaw Environmental, Inc.	B. Neumann	12/4/08	121900
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 2**
13 British American Blvd.	(518) 783-1996 / (518) 783-8397		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Latham / NY / 12110	R Adams	C Fox	
Project Name and Location (State)	**Carrier/Waybill Number**		
AA Flagship Wappingers Falls, NY			
Contract/Purchase Order/Quote No.			
140292			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: 8270 select	8260 select
ME-12	12/3/08	1525		X			2			3			X	X
ME-18		1620		X			2			3			X	X
MW-2		1400		X			2			2			X	X
ME-14		1430		X			2			2			X	X
MW-9/10R		1500		X			2			2			X	X
MW-6		1545		X			2			2			X	X
Dup.		—		X			2			3			X	X
Trip Blank		—		X			-			1			-	X
A-26S	12/4/08	825		X			2			3			X	X
MW-8		845		X			2			3			X	X
A-43S		900		X			2			3			X	X
A-43S MS/MSD		900		X			4			6			X	X

Special Instructions/ Conditions of Receipt

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By T. Adams	12/4/08	1600	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

APPENDIX F

LABORATORY ANALYTICAL – GROUNDWATER
(PROVIDED ON CD)

APPENDIX G

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

Shaw® Shaw Environmental, Inc.

Project Name:	Flagship AA
Date:	12/3/08
Sampler(s):	MF/RA
Tax Map ID:	NA
Addresss:	Office Area (Dupe A here)
Office Phone:	

Occupant Information

Name:

Home Phone: NA

Owner or Landloard (If different than occupant)

Name: NA

Addresss: NA

Home Phone: NA

Office Phone: NA

PID Meter Used:

FID Meter Used: NA

Infrared Gas Analyzer Used: NA

SUMMA CANISTER RECORD	INDOOR AIR	SUBSTRUCTURE SOIL GAS	AMBIENT AIR
Canister Serial No:	AC 00740	AC 01128	AC 00640
Flow Controller No.:	FC 00229	OA 01376	FC 00681
Start Date/Time:	12/3/08 1302	12/3/08 1255 30	12/3/08 1137/30"
Stop Date/Time:	12/3/08 2010	12/3/08 2005	12/3/08 1940
Stop Pressure (in. Hg):	3	5	2
Sample ID:	IA - Office	SVG Office	AA - Flagship
Duplicate Sample ID	Dupe A	NA	NA
Sample ID Category:	Indoor Ambient	Soil Vapor	Outdoor Ambient
BUILDING CONSTRUCTION / OTHER CHARACTERISTICS			
Story / Level	First Floor		
Room	Office by Exit		
Indoor Air Temp (~~C~~) F	68°F		
Gas Sampling Point (in. of H_2O) Deploy	NA		
Gas Sampling Point (in. of H_2O) Pickup	NA		
Basement / Crawl Space		NA	
Crawl space condition		NA	
Floor Slab Thickness (in)		~8	
Percent $O_2/CO_2/CH_4$		0% He	
Potential Vapor Entry Points Observed?		None	
Direction/Distance from Bldg			
Distance to roadway			
Intake Height/Depth (feet)	52"	~~52~~" NA	52
Noticeable Odor?	None	No	None
PID Reading (~~ppmv~~) ppb	0	3050	
FID Reading (ppmv)	NA	NA	

Comments: Gauge AVG 01028 AVG 01007 AVG 00984

Dupe A ON 1302/30" / 2010 / 2"

Can - AC 01448

Gauge AVG 00911

FC 00681

Shaw® Shaw Environmental, Inc.

Project Name: Flagship AA	
Date: 12/3/08	
Sampler(s): Marc Flanagan / Rob. Adams	
Tax Map ID: J	

Occupant Information

Name: Dutchess County Airport Former Flagship (AA) Hanger Facility	Addresss: HANGER AREA
Home Phone: NA	Office Phone: (845) 463-6500

Owner or Landloard (If different than occupant)

Name: NA	Addresss: NA
Home Phone: NA	Office Phone: NA

PID Meter Used:	FID Meter Used:	Infrared Gas Analyzer Used:
ppb Rae 250-101513	NA	NA

SUMMA CANISTER RECORD	INDOOR AIR	SUBSTRUCTURE SOIL GAS	AMBIENT AIR
Canister Serial No:	AC 01124	AC 01351	NA
Flow Controller No.:	FC 00291	OA 01399	
Start Date/Time: Start P	12/3/08 1225 / 30"	12/3/08 1233 / 30"	
Stop Date/Time:	12/3/08 2030	12/3/08 2030	
Stop Pressure (in. Hg):	1		
Sample ID:	IA-Hanger	SVG - Hanger	
Duplicate Sample ID	NA	NA	
Sample ID Category:	Ambient Air	Soil Vapor	
BUILDING CONSTRUCTION / OTHER CHARACTERISTICS			
Story / Level	First		
Room	Hanger		
Indoor Air Temp (~~C~~) °F	64 °F		
Gas Sampling Point (in. of H_2O) Deploy	NA		
Gas Sampling Point (in. of H_2O) Pickup	NA		
Basement / Crawl Space		On Slab	
Crawl space condition		NA	
Floor Slab Thickness (in)		11	
Percent $O_2/CO_2/CH_4$		NA	
Potential Vapor Entry Points Observed?		cracks in the floor	
Direction/Distance from Bldg			NA
Distance to roadway			
Intake Height/Depth (feet)	50" high	11" deep	
Noticeable Odor?	None	None	
PID Reading (~~ppmv~~) ppb	0	2813	
FID Reading (ppmv)	NA	NA	

Comments: Gauge AVG 00899 AVG 00814
He Leak Ck = OK

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Robert Adams / Marc Flanagan Date/Time Prepared 12/3/08

Preparer's Affiliation Shaw Environmental, Inc. Phone No. 518-783-1996

Purpose of Investigation Soil Vapor Intrusion / Indoor & outdoor Ambient Site Conditions

1. OCCUPANT:

Interviewed: Y / N

Last Name: D'Amico First Name: Joanna

Address: 32 Griffith Way Wappingers Falls, NY

County: Dutchess

Home Phone: N/A Office Phone: 888-235-9224

Number of Occupants/persons at this location 2-8 Age of Occupants 20-65

2. OWNER OR LANDLORD: (Check if same as occupant ___) Dutchess County Airport

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential School (Commercial/Multi-use) 80% Hangar
Industrial Church Other: Airport 20% Office Space

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) Airport

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors 2 Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

N/A Forced Air generator at Roof, through Venting

Airflow near source

N/A

Outdoor air infiltration

Large Bay Doors in Hangar Area
Office - N/A

Infiltration into air ducts

From Vents located within the Hangar primarily +/- 15' above Floor slab.

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	(concrete)	stone	brick
b. Basement type:	full	crawlspace	slab	other N/A
c. Basement floor:	concrete	dirt	stone	other N/A
d. Basement floor:	uncovered	covered	covered with N/A	
e. Concrete floor:	(unsealed)	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other C. Block / Aluminim
g. Foundation walls:	unsealed	sealed	sealed with Paint	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / (N)			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: N/A (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

8hr
During Sampling helicoptar was removed from Hangar, Cracks present in Hangar Floor
Microwave near indoor Ambient.

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

(Hot air circulation)	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

(Natural Gas)	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in: Basement Outdoors (Main Floor) Other_____

Air conditioning: (Central Air) Window units Open Windows None

Office

Are there air distribution ducts present? (Y) / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

N/A

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	N/A
1st Floor	Hangar / Office
2nd Floor	Offices
3rd Floor	
4th Floor	

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / (N)

b. Does the garage have a separate heating unit? Y (N) / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) (Y) / N / NA
Please specify In Hangar

d. Has the building ever had a fire? Y / (N) When?

e. Is a kerosene or unvented gas space heater present? Y / (N) Where?

f. Is there a workshop or hobby/craft area? Y / N Where & Type? unknown

g. Is there smoking in the building? Y / (N) How frequently?

h. Have cleaning products been used recently? (Y) / N When & Type? 3 Nights a week

i. Have cosmetic products been used recently? (Y) / N When & Type? Weekly

j. Has painting/staining been done in the last 6 months? Y / N Where & When? Yes w/in Year used Latex

k. Is there new carpet, drapes or other textiles? Y / N Where & When? yes w/in yr

l. Have air fresheners been used recently? Y / N When & Type? yes plug-ins

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? NO

n. Is there a bathroom exhaust fan? Y / N If yes, where vented? NO

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / (N)

p. Has there been a pesticide application? Y / N When & Type? N/A

Are there odors in the building? Y / (N)
If yes, please describe: _____

Do any of the building occupants use solvents at work? (Y) (N)
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) — No
Yes, use dry-cleaning infrequently (monthly or less) — Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / (N) Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: (Public Water) Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: (Public Sewer) Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: N/A

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

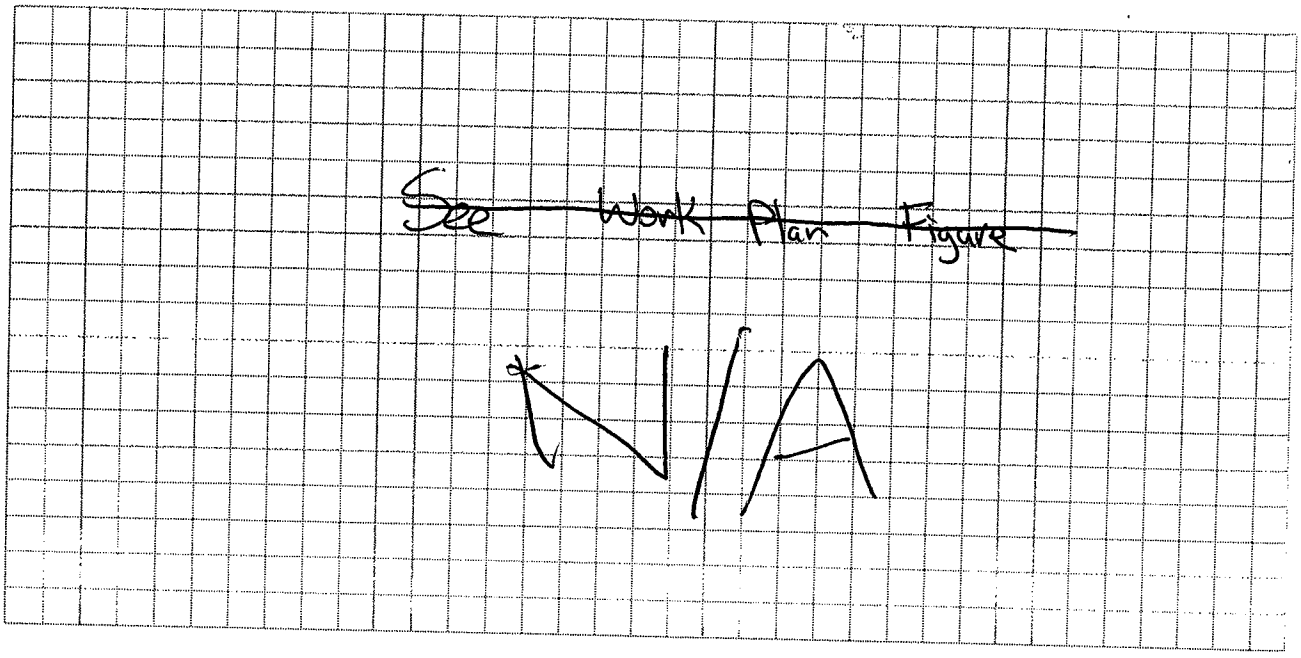
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

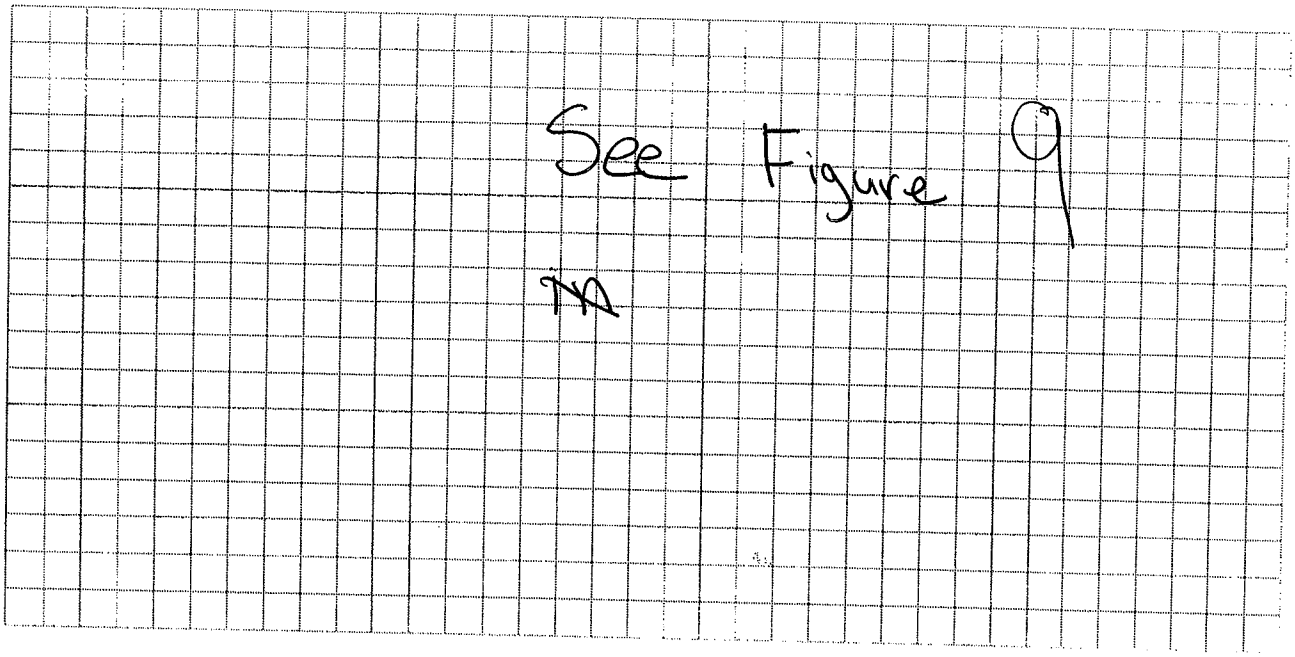
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



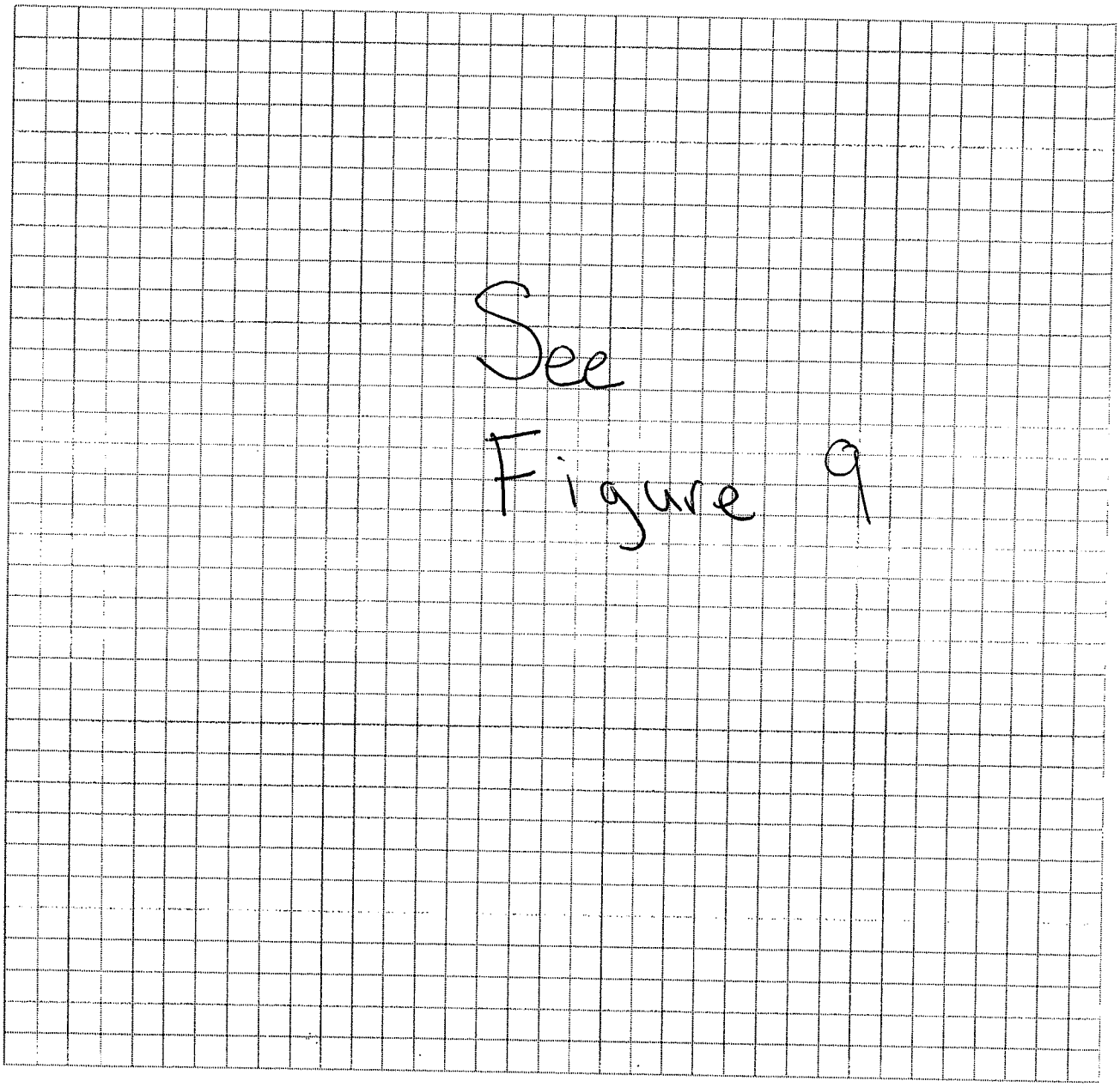
First Floor:



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: Mini Rae PID ppb

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N
Hangar	Motorcycle	-	-	Gasoline	8	N/A
Hangar	Car	-	-	Gasoline	12	N/A
11	3 Helicopters	-	-	Specialized Fuel/Hydrocarbons	0	N/A
office	Dry Eraser Markers	-	-	nonToxic	0	N/A

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

APPENDIX H

CHAIN OF CUSTODY – INDOOR AIR/SUB SLAB

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

Columbia Analytical Services INC.
An Employee - Owned Company

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No.

Company Name & Address (Reporting Information)

Project Name

CAS Contact: K-te Aguilera

Project Number

Project Manager

P.O. # / Billing Information

Phone | Fax

Email Address for Result Reporting

Sampler (Print & Sign)

Analysis Method and/or Analytes

Comments
e.g. Actual Preservative or specific instructions

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Sample Type (Air/Tube/ Solid)	Canister ID (Bar Code # - AC, SC, etc.)	Flow Controller (Bar Code - FC #)	Sample Volume	10-1				
IA - Hangar		11/1/02	2030	Air	AC 01124	FC 02091	6L	X				
SVG - Hangar			2030		AC 01651	OA 01599						
Dupe A			-		AC 01498	FC 00681						
IA - Office			2110		AC 00740	FC 02289						
SVG - Office			2115		AC 01128	OA 01576						
AA - Flagship			1940		AC 00010	FC 02691						

Report Tier Levels - please select
Tier I - (Results/Default if not specified) ____
Tier II - (Results + QC) X
Tier III - (Data Validation Package) 10% Surcharge ____
Tier V - (client specified) ____

EDD required Yes / No
Type: _____ EDD Units: _____

Project Requirements (MRLs, QAPP)
Low MDL for NYSDOH

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	11/4/02	1600	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank
Temperature _____ °C

APPENDIX I

LABORATORY ANALYTICAL – INDOOR AIR/SUB SLAB

2655 Park Center Drive, Suite A Simi Valley, California 93065 (805) 526-7161 (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

LABORATORY REPORT

December 19, 2008

Brian Neumann
Shaw Environmental & Infrastructure,Inc.
13 British American Blvd.
Latham, NY 12110

RE: Flagship / 820131

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on December 5, 2008. For your reference, these analyses have been assigned our service request number P0804092.

All Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 14 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Kate Aguilera
Project Manager

2655 Park Center Drive, Suite A Simi Valley, California 93065 (805) 526-7161 (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

Client:	Shaw Environmental & Infrastructure,Inc.	CAS Project No:	P0804092
Project:	Flagship / 820131	New York Lab ID:	11221

CASE NARRATIVE

The samples were received intact under chain of custody on December 5, 2008 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for selected volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: Shaw Environmental & Infrastructure, Inc.

Folder: P0804092

Project: Flagship 820131

Detailed Sample Information

CAS Sample ID	Client Sample ID	Container Type	Pi1 (Hg)	Pi1 (psig)	Pf1	Pi2 (Hg)	Pi2 (psig)	Pf2	Cont ID	Order #	FC ID	Bottle Order #
P0804092-001.01	IA - Hanger	6.0 L-Summa Canister Ambient		0.5	3.5				AC01124	**11055**	FC00291	**11055**
P0804092-002.01	SVG - Hanger	6.0 L-Summa Canister Ambient		0.7	3.5				AC01351	**11055**	OA01399	**11055**
P0804092-003.01	Dupe A	6.0 L-Summa Canister Ambient		0.2	3.5				AC01448	**11055**	FC00681	**11055**
P0804092-004.01	IA - Office	6.0 L-Summa Canister Ambient		0.1	3.5				AC00740	**11055**	FC00229	**11055**
P0804092-005.01	SVG - Office	6.0 L-Summa Canister Ambient		0.3	3.5				AC01128	**11055**	OA01376	**11055**
P0804092-006.01	AA - Flagship	6.0 L-Summa Canister Ambient		1.4	3.5				AC00640	**11055**	FC00252	**11055**

Miscellaneous Items - received

AVG00984
AVG01007
AVG01028
AVG00814
AVG00911
AVG00899

Air - Chain of Custody Record & Analytical Service Request

Columbia Analytical Services INC.
An Employee - Owned Company

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P080 4092

CAS Contact: Kate Aguilera

Company Name & Address (Reporting Information)	Project Name	Analysis Method and/or Analytes	Comments e.g. Actual Preservative or specific instructions
Shaw Environmental, Inc 13 British American Blvd. Latham, NY 12110	Flagship Project Number: 820131	10-15	
Project Manager: Brian Neumann Phone: (518) 783-1996 Fax: (518) 783-8397	P.O. # / Billing Information		
Email Address for Result Reporting	Sampler (Print & Sign): Marc Flanagan		

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Sample Type (Air/Tube/Solid)	Canister ID (Bar Code # - AC, SC, etc.)	Flow Controller (Bar Code - FC #)	Sample Volume	10-15
IA - Hanger	1	12/3/08	2030	Air	AC 01124	FC 00291	6L	X
SVG - Hanger	2		2030		AC 01351	OA 01399		
Dupe A	3		-		AC 01448	FC 00681		
IA - Office	4		2110		AC 00740	FC 00229		
SVG - Office	5		2105		AC 00928	OA 01376		
AA - Flagship	6		1940		AC 00640	FC 00681		

Report Tier Levels - please select
Tier I - (Results/Default if not specified) ____
Tier II - (Results + QC) X
Tier III - (Data Validation Package) 10% Surcharge ____
Tier V - (client specified) ____

EDD required Yes / No
Type: _____
EDD Units: _____

Project Requirements (MRLs, QAPP)
Low MDL for NYSDOH

Relinquished by: (Signature)	Date: 12/4/08	Time: 1600	Received by: (Signature) Ultrawave	Date: 12/5/08	Time: 1115	Cooler / Blank	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Temperature _____ °C	

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **IA - Hanger**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01124

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.20

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	0.60	0.16	ND	0.15	0.039	
71-55-6	1,1,1-Trichloroethane	ND	0.60	0.16	ND	0.11	0.029	
79-01-6	Trichloroethene	ND	0.60	0.16	ND	0.11	0.029	
108-88-3	**Toluene**	**11**	0.60	0.17	**2.8**	0.16	0.045	
127-18-4	**Tetrachloroethene**	**0.41**	0.60	0.26	**0.060**	0.089	0.039	**J**
91-20-3	**Naphthalene**	**0.36**	0.60	0.16	**0.069**	0.11	0.030	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

Verified By: _____ Date: 12/16/08

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **SVG - Hanger**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01351

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 0.10 Liter(s)

Initial Pressure (psig): 0.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.18

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	**1,1-Dichloroethane**	**2.5**	5.9	1.5	**0.61**	1.5	0.38	**J**
71-55-6	**1,1,1-Trichloroethane**	**100**	5.9	1.5	**18**	1.1	0.28	
79-01-6	Trichloroethene	ND	5.9	1.5	ND	1.1	0.29	
108-88-3	**Toluene**	**7.4**	5.9	1.7	**2.0**	1.6	0.44	
127-18-4	**Tetrachloroethene**	**810**	5.9	2.6	**120**	0.87	0.38	
91-20-3	**Naphthalene**	**2.5**	5.9	1.5	**0.48**	1.1	0.29	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

Verified By: _____ Date: 12/16/08

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **Dupe A**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01448

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.2 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	0.61	0.16	ND	0.15	0.039	
71-55-6	1,1,1-Trichloroethane	ND	0.61	0.16	ND	0.11	0.029	
79-01-6	Trichloroethene	ND	0.61	0.16	ND	0.11	0.030	
108-88-3	**Toluene**	**5.9**	0.61	0.17	**1.6**	0.16	0.045	
127-18-4	**Tetrachloroethene**	**0.61**	0.61	0.27	**0.091**	0.090	0.040	
91-20-3	**Naphthalene**	**0.33**	0.61	0.16	**0.064**	0.12	0.030	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

Verified By: _____ Date: 12/16/08

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **IA - Office**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00740

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.1 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.23

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	0.62	0.16	ND	0.15	0.040	
71-55-6	1,1,1-Trichloroethane	ND	0.62	0.16	ND	0.11	0.029	
79-01-6	Trichloroethene	ND	0.62	0.16	ND	0.11	0.030	
108-88-3	**Toluene**	**6.8**	0.62	0.17	**1.8**	0.16	0.046	
127-18-4	**Tetrachloroethene**	**0.68**	0.62	0.27	**0.10**	0.091	0.040	
91-20-3	**Naphthalene**	**0.29**	0.62	0.16	**0.054**	0.12	0.031	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

Verified By: _____ Date: 12/16/08

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **SVG - Office**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01128

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 0.15 Liter(s)

Initial Pressure (psig): 0.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	4.0	1.0	ND	1.0	0.26	
71-55-6	**1,1,1-Trichloroethane**	**17**	4.0	1.0	**3.1**	0.74	0.19	
79-01-6	**Trichloroethene**	**3.3**	4.0	1.0	**0.62**	0.75	0.20	**J**
108-88-3	**Toluene**	**14**	4.0	1.1	**3.8**	1.1	0.30	
127-18-4	**Tetrachloroethene**	**550**	4.0	1.8	**81**	0.60	0.26	
91-20-3	Naphthalene	ND	4.0	1.0	ND	0.77	0.20	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **AA - Flagship**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00640

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 1.4 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.13

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	0.57	0.15	ND	0.14	0.036	
71-55-6	1,1,1-Trichloroethane	ND	0.57	0.15	ND	0.10	0.027	
79-01-6	Trichloroethene	ND	0.57	0.15	ND	0.11	0.027	
108-88-3	**Toluene**	**7.4**	0.57	0.16	**2.0**	0.15	0.042	
127-18-4	**Tetrachloroethene**	**0.44**	0.57	0.25	**0.065**	0.083	0.037	**J**
91-20-3	Naphthalene	ND	0.57	0.15	ND	0.11	0.028	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P081209-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/9/08
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ND	0.12	0.032	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.13	ND	0.092	0.024	
79-01-6	Trichloroethene	ND	0.50	0.13	ND	0.093	0.024	
108-88-3	Toluene	ND	0.50	0.14	ND	0.13	0.037	
127-18-4	Tetrachloroethene	ND	0.50	0.22	ND	0.074	0.032	
91-20-3	Naphthalene	ND	0.50	0.13	ND	0.095	0.025	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

COLUMBIA ANALYTICAL SERVICES, INC.

SURROGATE SPIKE RECOVERY RESULTS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 12/3/08
Date(s) Received: 12/5/08
Date(s) Analyzed: 12/9/08

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4		Toluene-d8		Bromofluorobenzene		Data Qualifier
		% Recovered	Acceptance Limits	% Recovered	Acceptance Limits	% Recovered	Acceptance Limits	
Method Blank	P081209-MB	**95**	70-130	**97**	70-130	**105**	70-130	
Lab Control Sample	P081209-LCS	**102**	70-130	**95**	70-130	**104**	70-130	
IA - Hanger	P0804092-001	**99**	70-130	**97**	70-130	**108**	70-130	
SVG - Hanger	P0804092-002	**103**	70-130	**97**	70-130	**107**	70-130	
SVG - Hanger	P0804092-002DUP	**98**	70-130	**96**	70-130	**108**	70-130	
Dupe A	P0804092-003	**95**	70-130	**97**	70-130	**108**	70-130	
IA - Office	P0804092-004	**99**	70-130	**96**	70-130	**108**	70-130	
SVG - Office	P0804092-005	**101**	70-130	**97**	70-130	**107**	70-130	
AA - Flagship	P0804092-006	**101**	70-130	**97**	70-130	**106**	70-130	

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P081209-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/09/08
Volume(s) Analyzed: NA Liter(s)

CAS #	Compound	Spike Amount ng	Result ng	% Recovery	CAS Acceptance Limits	Data Qualifier
75-34-3	1,1-Dichloroethane	26.8	**25.3**	**94**	72-130	
71-55-6	1,1,1-Trichloroethane	26.5	**26.2**	**99**	69-127	
79-01-6	Trichloroethene	26.5	**24.7**	**93**	72-122	
108-88-3	Toluene	27.0	**22.8**	**84**	74-119	
127-18-4	Tetrachloroethene	25.8	**21.4**	**83**	72-125	
91-20-3	Naphthalene	25.8	**24.4**	**95**	69-141	

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Shaw Environmental & Infrastructure,Inc.**
Client Sample ID: **SVG - Hanger**
Client Project ID: **Flagship / 820131**

CAS Project ID: P0804092
CAS Sample ID: P0804092-002DUP

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Li Li
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01351

Date Collected: 12/3/08
Date Received: 12/5/08
Date Analyzed: 12/9/08
Volume(s) Analyzed: 0.10 Liter(s)

Initial Pressure (psig): 0.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.18

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
1,1-Dichloroethane	2.47	0.610	2.45	0.607	2.46	**0.8**	25	**J**
1,1,1-Trichloroethane	101	18.4	98.8	18.1	99.9	**2**	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
Toluene	7.39	1.96	7.38	1.96	7.385	**0.1**	25	
Tetrachloroethene	805	119	798	118	801.5	**0.9**	25	
Naphthalene	2.49	0.475	2.44	0.466	2.465	**2**	25	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The analyte was positively identified below the method reporting limit; the associated numerical value is considered estimated.

APPENDIX J

GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK – MATRIX 2

Soil Vapor/Indoor Air Matrix 2

October 2006

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m³)			
	< 3	3 to < 30	30 to < 100	100 and above
< 100	1. No further action	2. Take reasonable and practical actions to identify source(s) and reduce exposures	3. Take reasonable and practical actions to identify source(s) and reduce exposures	4. Take reasonable and practical actions to identify source(s) and reduce exposures
100 to < 1,000	5. MONITOR	6. MONITOR / MITIGATE	7. MITIGATE	8. MITIGATE
1,000 and above	9. MITIGATE	10. MITIGATE	11. MITIGATE	12. MITIGATE

No further action:
Given that the compound was not detected in the indoor air sample and that the concentration detected in the sub-slab vapor sample is not expected to significantly affect indoor air quality, no additional actions are needed to address human exposures.

Take reasonable and practical actions to identify source(s) and reduce exposures:
The concentration detected in the indoor air sample is likely due to indoor and/or outdoor sources rather than soil vapor intrusion given the concentration detected in the sub-slab vapor sample. Therefore, steps should be taken to identify potential source(s) and to reduce exposures accordingly (e.g., by keeping containers tightly capped or by storing volatile organic compound-containing products in places where people do not spend much time, such as a garage or outdoor shed). Resampling may be recommended to demonstrate the effectiveness of actions taken to reduce exposures.

MONITOR:
Monitoring, including sub-slab vapor, basement air, lowest occupied living space air, and outdoor air sampling, is needed to determine whether concentrations in the indoor air or sub-slab vapor have changed. Monitoring may also be needed to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined on a site-specific and building-specific basis, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

MITIGATE:
Mitigation is needed to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system, and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

MONITOR / MITIGATE:
Monitoring or mitigation may be recommended after considering the magnitude of sub-slab vapor and indoor air concentrations along with building- and site-specific conditions.

See additional notes on page 2.