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October 27, 2008

Mr. Timothy Dieffenbach
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

RE: Former Carborundum Site, Sanborn, New York, Registry #932102
Soil Vapor Intrusion Work Plan Amendment

Dear Mr. Dieffenbach:

Provided herein, on behalf of Atlantic Richfield Company, is an amendment to the August 2006 Soil Vapor Intrusion Work Plan for the Former Carborundum Facility in Sanborn, New York (Site). This amendment provides a scope of work for indoor air and sub-slab sampling based, in part, on results from the well vapor sampling work conducted in September 2008. Results from the well vapor sampling are summarized below. Attachment 1 contains the data used in evaluating which residences would be selected for indoor air sampling. Attachment 2 contains the revised Standard Operating Procedures (SOPs) for the sub-slab and indoor air sample collection.

SUMMARY OF WELL VAPOR SAMPLING

Soil vapor samples were collected from four wells **(**B3M, B13M, B21M and B22M) as described in the approved work plan submitted by Parsons on September 8, 2008. Samples were analyzed for volatile organic compounds (VOCs) related to the former Carborundum facility. Only trichloroethene (TCE) was detected at concentrations approaching soil gas screening levels consistent with New York State and Federal EPA vapor intrusion guidance documents, and only in the vicinity of well B22M. The well vapor sampling data show that the subsurface vapor concentrations near B21M are about 1,000 times lower than reasonable and conservative screening levels.

The data collected support a conclusion that the scope of work for the sub-slab and indoor air sampling should include properties near B22M, but should not extend as far north as B21M. As a result, the proposed scope of work for the sub-slab and indoor air sampling will include the 9 properties closest to B22M. Further information is included in Attachment 1.

SCOPE OF WORK

Community outreach, analytical requirements and methods for the proposed indoor air and sub-slab sampling will be consistent with the tasks described in the previously approved August 2006 work plan. However, to facilitate completion of the work, there are revisions to the August 2006 work plan. As mentioned previously, the revised SOPs are provided in Attachment 2, with

changes from the August 2006 work plan reflected in red italics font. The revised community outreach program is provided below.

Community Outreach

In lieu of an updated Fact Sheet described in the 2006 work plan, as discussed at the August 21, 2008 meeting with Atlantic Richfield Company, Geosyntec and the NYSDEC, letters will be developed to inform property owners about the proposed indoor air evaluation program at the selected properties. The letters will be provided to each specific residence where sampling is proposed. Consistent with the August 2006 work plan, other elements of the community outreach program include a Site contact list, a community relations team, and an informational flyer with important information designed to aid the community in understanding the planned activities. These items will be developed as a contingency in case they are needed. The contact list will contain names, addresses, and telephone numbers of individuals and organizations with an interest in the Site. The list will include residents from the neighborhood to the west of the Site, civic and neighborhood groups in the Site vicinity (if any), and regulatory contacts, such as NYSDEC and NYSDOH.

ANTICIPATED PROJECT SCHEDULE

The anticipated schedule for the work described herein, pending NYSDEC approval of the work plan, is provided below. This schedule may be adjusted pending further discussions with NYSDEC.

Task	Approximate Dates
Work Plan Submittal	October 27, 2008 (complete)
Preparation and submittal of letters to home owners. (pending NYSDEC approval of work plan)	Early November 2008
Sub-slab and Indoor Air Sampling (pending authorization from residents)	November/December 2008
Laboratory Analysis Report	January 2009
Sampling Report	February 2009

If you have any questions or comments concerning this proposed work, please contact William B. Barber of Atlantic Richfield Company (216) 271-8038.

Very truly yours,

Mark S. Raybuck

Mark S. Raybuck
Project Manager

Attachment 1: Well Vapor Sampling Results and Evaluation
Attachment 2: Revised Standard Operating Procedures

cc: M. Forcucci, NYSDOH
W. Barber, Atlantic Richfield Company
G. Hermance, Parsons
File - 444183 No. 9

ATTACHMENT 1

WELL VAPOR SAMPLING RESULTS

Geosyntec consultants

130 Research Lane, Suite 2
Guelph, Ontario, Canada
N1G 5G3
PH 519.822.2230
FAX 519.822.3151
www.geosyntec.com

October 27, 2008 TR0318

Mr. William Barber
Atlantic Richfield Company
4850 E. 49th Street
MBC3-147
Cuyahoga Heights, OH 44125-1014

RE: Former Carborundum Site, Sanborn, New York, Registry #932102
Vapor Intrusion Investigation – Interim Update

Dear Mr. Barber:

This letter presents the results of a soil gas sampling event conducted at the subject site on September 23 and 24, 2008 from monitoring wells B-3M, 13M, 21M and 22M (Figure 1). The purpose of the investigation was to collect data to assist in selection of the homes most appropriate for the sub-slab and indoor air sampling requested by the New York State Department of Environmental Conservation (NYSDEC) in a letter to the Atlantic Richfield Company (Atlantic Richfield) dated July 22, 2008, and as discussed between NYSDEC, Atlantic Richfield and Geosyntec in a meeting on August 21, 2008. This work was conducted by Geosyntec Consultants, Inc. (Geosyntec) and Parsons Corporation (Parsons), according to the methods provided in the work plan dated September 8, 2008 (Parsons, 2008), except where noted below.

STUDY METHODS

Field Screening and Soil Gas Sample Collection and Analysis

Each of the wells was purged to remove stagnant gas from within the well casing, and draw soil gas from the geologic materials surrounding the well. All of the wells were capable of sustaining a flow rate of 10 liters per minute (L/min), except B21M, which was purged at 2 L/min. Field screening readings using a PID and Landtech fixed gas meter showed stable readings of oxygen (O_2), carbon dioxide (CO_2) and methane (CH_4), where methane was detected. PID readings also

stabilized, except at monitoring wells B21M and B22M, where the PID was not operating at the time of the initial purging and sampling. Soil gas samples were collected in Summa canisters after purging, and analyzed for trichloroethene (TCE), cis and trans-1,2-dichloroethene (cDCE & tDCE) and vinyl chloride (VC) by Lancaster Laboratories via EPA Method TO-15.

High Purge Volume Testing

Additional purging was conducted after sample collection at each well to assess the distribution of VOC vapors in the vicinity of the well. Soil gas was extracted at the maximum sustainable rate and screened periodically throughout the conduct of these tests with the PID and fixed gas meter.

RESULTS

Soil Gas Analysis

The field screening data collected during purging and prior to sample collection are presented in Table 1. The laboratory report of analysis is included in Attachment 1, and the data are summarized in Table 2. Table 2 also includes the predicted soil vapor concentrations calculated by multiplying the most recently measured groundwater concentration by the dimensionless Henry's Law Constant for each individual compound and a unit conversion factor of 1,000 (ug/m^3 per ug/L).

The duplicate sample (B-113) from well B-13M showed very poor agreement with the primary investigative sample because concentrations in the duplicate sample were considerably lower. The duplicate sample B-13M is not considered representative. Both canisters (investigative and duplicate) had similar vacuum levels before and after sample collection, which was for the same time period, therefore both collected soil gas at the same rate and time. The seals between both canisters and the well were verified before sampling began using a "shut-in" test. The primary investigative sample B-13M had the higher concentrations which were consistent with expectations from the groundwater data at B-13M, so it is considered appropriate for the study purpose.

High Purge Volume Testing

Results of data collected during the High Purge Volume (HPV) testing are presented in Table 3. The test data shows that there were sustainable flows of gas from all four wells, which is consistent with expectations based on the well screen interval extending above the water table. The sustainable flow rates varied considerably from well to well (as low as 2 L/min for B21M and as high as 480 L/min at B22M), which is not unexpected because the permeability of

geologic materials is heterogeneous and the length of the unsaturated screen of the well varied from one well to the next (Table 2). The field screening data generally show minor and gradual changes in the concentrations of O_2, CO_2, CH_4 (where detected) and PID readings varied by a factor of about 5 or less. Therefore, the concentrations measured in the laboratory samples are considered representative of soil gas in the vicinity of each well within about a factor of 5. This is well within the range of variability in groundwater concentrations over time in samples collected over the past decade from this well.

DISCUSSION

As discussed during the August 21, 2008 meeting, The State of New York does not have published guidelines, standards or criteria for soil vapor concentrations considered protective of the vapor intrusion pathway. However, many other states and the Federal EPA have derived soil vapor screening levels from target indoor air concentrations and empirical or calculated attenuation factors. Generally speaking, vapor concentrations in soil gas at depths greater than about 5 feet below the building would need to be more than 100 times higher (and up to 10,000 times higher) than the risk-based target indoor air concentration before they would pose an unacceptable risk (Johnson, 2002). At this particular site, the soil vapors measured in this study are isolated from the overlying residences by about 20 feet of clay till. From Figure 3a of the EPA OSWER Vapor Intrusion Guidance (EPA, 2002) the expected attenuation factor would be about 5E-3, which means the target indoor air concentration would be multiplied by 2,000 to calculate a soil vapor screening level (note that the OSWER Guidance considers the attenuation factors in Figure 3a to be conservative by design, and therefore protective of public health). New York State considers indoor air concentrations of TCE above 5.0 ug/m^3 to require mitigation, therefore, soil gas concentrations above about 10,000 ug/m^3 for TCE could potentially require mitigation.

None of the samples analyzed in this study had TCE concentrations above 10,000 µg/m^3. The highest concentration of TCE was 4,900 µg/m^3 in the sample from monitoring well B-22M. Concentrations of the other compounds investigated are all much lower by comparison to screening levels derived from the OSWER Guidance target indoor air concentration for a 1E-5 incremental risk level and an attenuation factor of 5E-3, specifically cis-1,2-dichloroethene (maximum measured concentration was 5,500 µg/m^3 and screening level would be 70,000 µg/m^3), trans-1,2-dichloroethene (maximum of 290 µg/m^3 versus screening level of 140,000 µg/m^3), and vinyl chloride (maximum of 37J µg/m^3 versus screening level of 5,600 µg/m^3), are all much lower by comparison to soil vapor screening levels that would be derived from the OSWER Guidance process. In fact, trans-1,2-dichloroethene concentrations are so low by comparison to the other compounds and the screening levels that no further assessment of this compound is considered necessary or appropriate. Furthermore, Table 2 shows that vinyl

chloride concentrations measured in the soil vapor samples were noticeably lower (two to three orders of magnitude) than the predicted concentrations calculated from groundwater concentrations. This is attributable to the fact that vinyl chloride degrades much faster under aerobic conditions than the other three compounds (Singh et al., 2004, Davis and Carpenter, 1990).

The PID provides a reading of all ionizable vapors present in a gas sample, and each compound has a different response factor for the instrument. The laboratory analysis provides measured concentrations of each compound. A comparison between the laboratory analysis and the PID readings can be made by multiplying the laboratory concentrations by the compound-specific response factors and summing the results, as shown in Table 4. This shows the PID readings agreed within about a factor of 3 with the laboratory concentrations, and supports the reliability of the PID for monitoring.

CONCLUSIONS

TCE measured in the sample from B-21M (2.49 $\mu g/m^3$) is approximately 3 orders of magnitude lower than a soil vapor screening level that could potentially require mitigation (10,000 $\mu g/m^3$). Therefore, there is no justification for further assessment of vapor intrusion in the vicinity of B21M, as shown on Figure 2.

TCE measured in the sample for B-22M (4,900 $\mu g/m^3$) is less than the soil vapor screening level calculated using New York State and Federal EPA vapor intrusion guidance. However, given the increase in PID readings noted in the HPV testing, additional evaluation is justified.

B-3M and B-13M are located away from the residential area and showed lower concentrations of VOCs vapors. This indicates that there is a low likelihood of higher concentrations of vapors migrating toward the residential areas in the future.

FUTURE WORK

Future work should include development and implementation of a work plan to collect sub-slab and indoor air samples at the nine properties identified in Figure 2.

If you have any questions or comments concerning the above, please contact William B. Barber of Atlantic Richfield Company at (216) 271-8038.

Sincerely,
Geosyntec Consultants, Inc.

Todd McAlary, M.Sc., P.Eng., P.G.
Practice Leader, Vapor Intrusion

David Bertrand
Hydrogeologist

Attchs: Table 1: Soil Gas Purging and Sampling Data
Table 2: Measured Soil Vapor Concentrations Versus Concentrations Predicted from Groundwater Concentrations and Henry's Law
Table 3: High Purge Volume Data
Table 4: Comparison Between Measured PID Readings and Values Calculated from Laboratory Data
Figure 1: Locations of Monitoring Wells
Figure 2: Proposed Buildings for Sub-slab and Indoor Air Sampling
Attachment 1: Laboratory Report of Analysis

REFERENCES

Davis, J. and C. Carpenter, 1990. Aerobic Biodegradation of Vinyl Chloride in Groundwater Samples, Applied and Environmental Microbiology, Vol. 56, No. 12 p. 3878-3880, Dec. 1990.

Johnson, P.C. 2002. "Sensitivity Analysis and Identification of Critical and Non-Critical Parameters for the Johnson and Ettinger (1991) Vapor Intrusion Model." API Soil and Groundwater Research Bulletin No. 17. API. May.

Singh, H., Löffler, F.E. and B. Z. Fathepure, 2004. Aerobic biodegradation of vinyl chloride by a highly enriched mixed Culture, *Biodegradation* 15: 197–204, 2004.

United States Environmental Protection Agency (US EPA), 2002. Draft OSWER Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). November 29.

TABLE 1
SOIL GAS PURGING AND SAMPLING DATA
Sanborn, New York

Well ID	Date	Elapsed Time (min)	PID (ppm_v)	Flow Rate (L/min)	Cumulative Volume Purged (L)	Parameters			Sample Identification			
						CH_4 (%)	CO_2 (%)	O_2 (%)	Sample ID	Summa Cannister Number	Initial Vacuum (in Hg)	Final Vacuum (in Hg)
B-3M	23-Sep-08	2	0.1	10	20	0.1	0.1	20.1				
		2	0.5	10	40	0.1	0.2	20.1				
		2	0.5	10	60	0.1	0.2	20.0	B-3M	957	29.78	4.40
		2	0.7	10	80	0.1	0.3	19.8				
		4	0.7	10	120	0.1	0.3	19.8				
B-13M	23-Sep-08	0.5	0.0	2	1	0.1	0.6	20.2				
		2	0.0	10	21	0.1	0.7	20.1				
		2	0.0	10	41	0.1	0.6	20.3	B-13M	912	29.84	3.27
		2	0.0	10	61	0.1	0.6	20.2	B-113M	944	29.79	3.23
		2	0.1	10	81	0.1	0.7	20.2				
		2	0.3	10	101	0.1	0.7	20.2				
		1	0.4	1	102	0.1	0.7	20.2				
B-21M	24-Sep-08	8	*	2.0	16	0.0	1.5	18.6				
		8	*	2.0	32	0.0	2.2	16.5				
		8	*	2.0	48	0.0	2.2	16.2	B-21M	979	29.63	3.13
		8	*	2.0	64	0.0	2.2	14.5				
		8	*	2.0	84	0.0	2.3	13.6				
B-22M	24-Sep-08	2	*	10	20	0.0	0.3	19.9				
		2	*	10	40	0.0	0.3	20.1				
		2	*	10	60	0.0	0.3	20.1	B-22M	986	29.61	0.75
		2	*	10	80	0.0	0.2	20.1				
		2	*	10	100	0.0	0.3	20.0				

Notes:

min - minutes
L/min - liters per minute
L - liters
% - percent
ppm_v - parts per million by volume
in Hg - inch of mercury
- - not measured
* - PID malfunctioned

TABLE 2
MEASURED SOIL VAPOR CONCENTRATIONS VERSUS
CONCENTRATIONS PREDICTED FROM GROUNDWATER CONCENTRATIONS AND HENRY'S LAW
Sanborn, New York

				Groundwater Concentrations and Calculated Soil Vapor Concentrations using Henry's Law		Soil Gas Sample Data
Well ID	Well Screen Interval (ft bgs)	Water Level (ft bgs)	Chemical Compound	Groundwater Concentration (ug/L)	Predicted Soil Vapor Concentration (ug/m^3)*	Measured Soil Vapor Concentration (ug/m3)
				Most Recent (July 2008)**		**September 2008**
B-3M	19 - 24	22.1	TCE	19	6,650	1,800
			cDCE	190	28,500	4,000
			tDCE	4	<350	290
			VC	14	12,600	37 J
B-13M	23 - 34	24.9	TCE	210	73,500	2,200
			cDCE	660	99,000	710
			tDCE	14	4,900	110
			VC	33	29,700	<10
B-21M	10 - 27	24.7	TCE	<1	<350	2.49
			cDCE	<1	<150	1.17
			tDCE	<1	<350	0.0808 J
			VC	<2	<1,800	0.252 J
B-22M	21 - 37	30.6	TCE	4.9J	1,715J	4,900
			cDCE	24	3,600	5,500
			tDCE	<1	<350	250
			VC	1.2J	1,080J	15 J

Notes:

NA- Not available

- not able to calculate

J - estimated value

ft bgs - feet below ground surface

*Groundwater Concentration x Henry's Constant x 1000 (ug/m^3)

** July 2008 Groundwater data are preliminary and subject to revision

TABLE 3
HIGH PURGE VOLUME DATA
Sanborn, New York

Well ID	Date	Elapsed Time (min)	PID (ppm_v)	Flow Rate (L/min)	Vacuum (in H_2O)	Cumulative Volume Purged (L)	Parameters		
							CH_4 (%)	CO_2 (%)	O_2 (%)
B-3M	23-Sep-08	10	0.4	10	0.8	100	0.1	0.5	19.2
		20	0.0	10	0.8	200	0.1	0.5	19.6
		30	0.0	10	0.8	300	0.1	0.6	19.0
		40	0.0	10	0.8	400	0.1	0.6	18.9
	24-Sep-08	5	1.7	15	1.7	75	0.0	0.3	19.6
		10	2.7	15	1.7	150	0.0	0.4	19.6
		14	2.5	15	1.7	210	0.0	0.4	19.0
B-13M	23-Sep-08	10	0.6	20	8	200	0.1	0.6	19.9
		20	1.8	20	8	400	0.1	0.7	19.8
		30	*	20	8	600	0.1	0.8	19.6
	24-Sep-08	5	4.9	15	5	75	0.0	0.7	18.9
		10	3.1	15	5	150	0.0	0.7	18.8
		15	3.5	15	5	225	0.0	0.8	18.4
B-21M	24-Sep-08	8	*	2.0	10	16	0.0	1.5	18.6
		16	*	2.0	10	32	0.0	2.2	16.5
		24	*	2.0	10	48	0.0	2.2	16.2
		32	*	2.0	10	64	0.0	2.2	14.5
		40	*	2.0	10	80	0.0	2.3	13.6
		41	0.2	1.0	-	81	0.0	1.2	15.6
		42	0.0	1.0	-	82	0.0	1.7	13.8
		43	0.0	1.0	-	83	0.0	2.1	12.5
		44	0.0	1.0	-	84	0.0	2.1	12.4
B-22M	24-Sep-08	2	4.4	20	1.25	40	0.0	0.3	20.4
		5	5.1	20	1.25	100	0.0	0.3	20.4
		10	5.7	20	1.25	200	0.0	0.3	20.2
		28	9.0	20	1.25	560	0.0	0.5	19.9
		55	21.3	480	14	13,520	0.0	2.1	11.9
		59	22.0	480	14	15,440	0.0	2.1	11.9
		62	22.8	480	14	16,880	0.0	2.2	11.3

Notes:

min - minutes
L/min - liters per minute
L - liters
% - percent
in H_2O - inches of water
ppm_v - parts per million by volume
- - not measured
* - PID malfunctioned

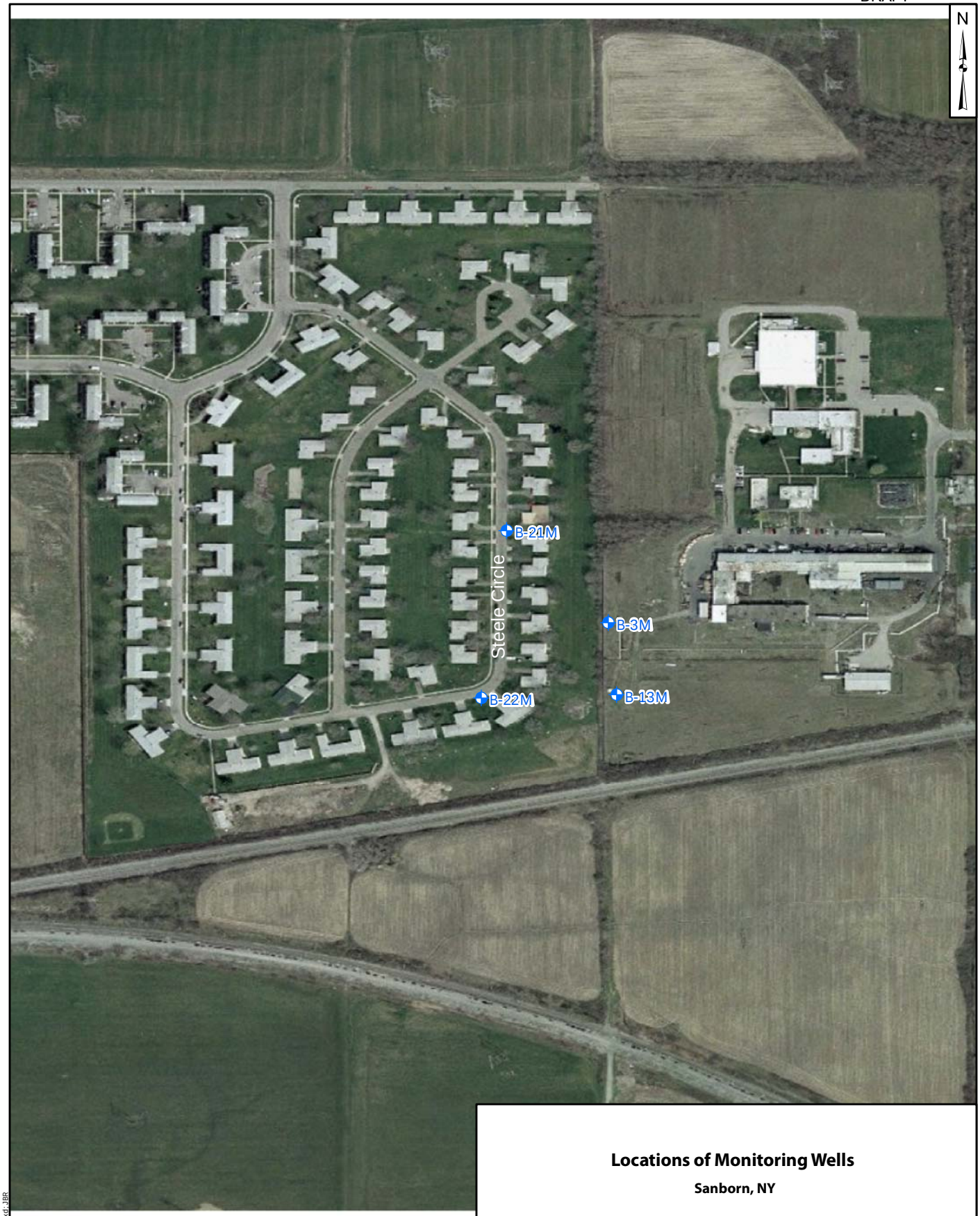
TABLE 4
COMPARISON BETWEEN MEASURED PID READINGS AND VALUES CALCULATED FROM LABORATORY DATA
Sanborn, New York

Compound	Laboratory Results (ppb_v)				Correction Factor*	Calculated PID Reading (ppb_v)			
	B-3M	B-13M	B-21M	B-22M		B-3M	B-13M	B-21M	B-22M
TCE	330	400	0.463	910	0.54	611	741	1	1,685
cDCE	1,000	180	0.296	1,400	0.8	1,250	225	0.4	1,750
tDCE	73	28	0.0204	64	0.45	162	62	0.05	142
VC	14	<4	0.0984	5.7	2.0	7	<2	0.05	2.9
					Calculated PID Reading (ppm_v)	**2.03**	**1.03**	**0.001**	**3.58**
					Actual PID Reading (ppm_v)	**0.7**	**0.4**	**<0.1 ****	**4.4****

Notes:

ppb_v - parts per billion by volume
ppm_v - parts per million by volume
VOCs - volatile organic compounds
* - Correction factors taken from User Manual for TN_106 MiniRAE
** - PID malfunctioned during initial sampling, inferred reading drawn from subsequent high purge volume test data

DRAFT



Locations of Monitoring Wells

Sanborn, NY

Monitoring Well

200 100 0 200 Feet

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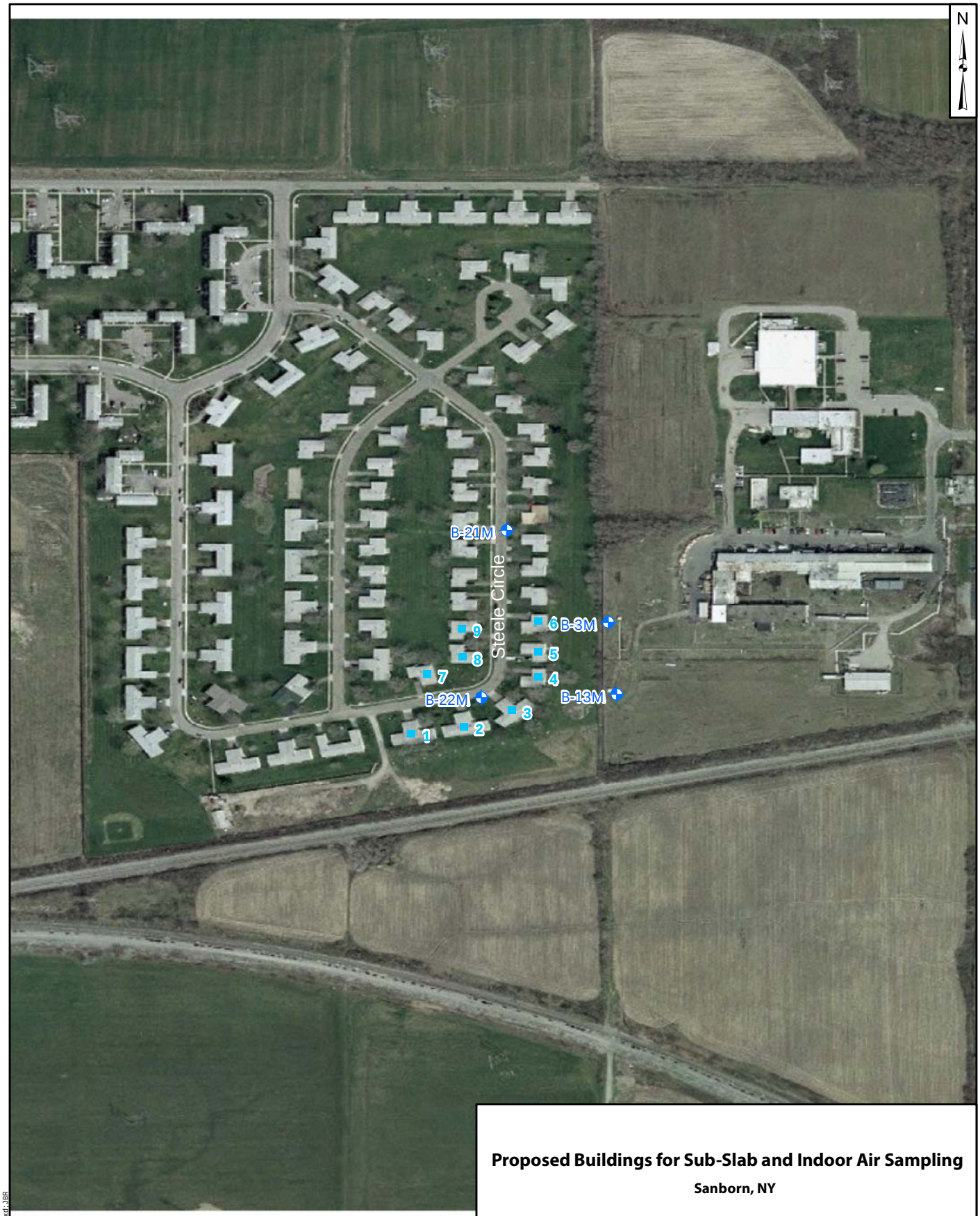
Geosyntec consultants

Guelph | 24-Oct-2008

Figure 1

P:\GIS\Misc\Sanborn\Sanborn.mxd; JBR



Proposed Buildings for Sub-Slab and Indoor Air Sampling

Sanborn, NY

Proposed Sampling Site (with address on Steele Circle)

Monitoring Well

200 100 0 200 Feet

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Figure 2

P:\GIS\Misc\Sanborn\Sanborn.mxd: JBR

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

281-366-2000

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1112193. Samples arrived at the laboratory on Friday, September 26, 2008. The PO# for this group is 001Q0-0130 and the release number is BARBER.

Client Description	Lancaster Labs Number
B-13M SC #912 338047 Grab Air	5481764
B-113M SC #944 234836 Grab Air	5481765
B-3M SC #957 7236807 Grab Air	5481766
B-21M SC #979 338030 Grab Air	5481767
B-22M SC #986 316846 Grab Air	5481768

1 COPY TO	Parsons	Attn: George Hermance
ELECTRONIC COPY TO	Parsons	Attn: Lorraine Weber

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Questions? Contact your Client Services Representative
Jessica A Oknefski at (717) 656-2300

Respectfully Submitted,

Chad A. Moline
Group Leader

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5481764 AQ **Group No. 1112193**

B-13M SC #912 338047 Grab Air
BP Sanborn COC: 191318
2040 Cory Dr.-Sanborn, NY B-13M

Collected:09/23/2008 12:30 by JS

Account Number: 12495

Submitted: 09/26/2008 09:20
Reported: 10/10/2008 at 10:41
Discard: 11/10/2008

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

CAT No.	Analysis Name	CAS Number	As Received Final Result	MDL	Units	As Received Final Result	MDL	Units	DF
05298	TO 15 VOA Ext. List								
07206	Vinyl Chloride	75-01-4	N.D.	4.0	ppb(v)	N.D.	10	ug/m3	20
07224	trans-1,2-Dichloroethene	156-60-5	28	4.0	ppb(v)	110	16	ug/m3	20
07230	cis-1,2-Dichloroethene	156-59-2	180	4.0	ppb(v)	710	16	ug/m3	20
07241	Trichloroethene	79-01-6	400	4.0	ppb(v)	2,200	21	ug/m3	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	10/09/2008 09:52	Fanella S Zamcho	20

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. 5481765 AQ **Group No. 1112193**

B-113M SC #944 234836 Grab Air
BP Sanborn COC: 191318
2040 Cory Dr.-Sanborn, NY B-113M

Collected:09/23/2008 12:30 by JS

Account Number: 12495

Submitted: 09/26/2008 09:20
Reported: 10/10/2008 at 10:41
Discard: 11/10/2008

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

CAT No.	Analysis Name	CAS Number	As Received Final Result	MDL	Units	As Received Final Result	MDL	Units	DF
07345	EPA Method TO-15 using SIM								
07349	Vinyl Chloride	75-01-4	N.D.	0.460	ug/m3	N.D.	0.180	ppb(v)	20
07368	trans-1,2-Dichloroethene	156-60-5	7.28	0.793	ug/m3	1.84	0.200	ppb(v)	20
07372	cis-1,2-Dichloroethene	156-59-2	46.2	1.11	ug/m3	11.7	0.280	ppb(v)	20
07377	Trichloroethene	79-01-6	75.0	2.15	ug/m3	14.0	0.400	ppb(v)	20

The reporting limits for the GC/MS volatile compounds were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07345	EPA Method TO-15 using SIM	EPA TO-15 using SIM	1	10/08/2008 23:30	Jonathan K Nardelli	20

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Analysis Report

Lancaster Laboratories Sample No. 5481766 AQ **Group No. 1112193**

B-3M SC #957 7236807 Grab Air
BP Sanborn COC: 191318
2040 Cory Dr.-Sanborn, NY B-3M

Collected:09/23/2008 15:15 by JS

Account Number: 12495

Submitted: 09/26/2008 09:20
Reported: 10/10/2008 at 10:41
Discard: 11/10/2008

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

CAT No.	Analysis Name	CAS Number	As Received Result	MDL	Units	Final Result	MDL	Units	DF
05298	TO 15 VOA Ext. List								
07206	Vinyl Chloride	75-01-4	14 J	4.0	ppb(v)	37 J	10	ug/m3	20
07224	trans-1,2-Dichloroethene	156-60-5	73	4.0	ppb(v)	290	16	ug/m3	20
07230	cis-1,2-Dichloroethene	156-59-2	1,000	40	ppb(v)	4,000	160	ug/m3	200
07241	Trichloroethene	79-01-6	330	4.0	ppb(v)	1,800	21	ug/m3	20

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	10/09/2008 10:34	Fanella S Zamcho	20
05298	TO 15 VOA Ext. List	EPA TO-15	1	10/09/2008 14:22	Fanella S Zamcho	200

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Analysis Report

Lancaster Laboratories Sample No. 5481767 AQ **Group No. 1112193**

B-21M SC #979 338030 Grab Air
BP Sanborn COC: 191318
2040 Cory Dr.-Sanborn, NY B-21M

Collected:09/24/2008 10:30 by JS

Account Number: 12495

Submitted: 09/26/2008 09:20
Reported: 10/10/2008 at 10:41
Discard: 11/10/2008

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

CAT No.	Analysis Name	CAS Number	As Received Final Result	MDL	Units	As Received Final Result	MDL	Units	DF
07345	EPA Method TO-15 using SIM								
07349	Vinyl Chloride	75-01-4	0.252 J	0.0460	ug/m3	0.0984 J	0.0180	ppb(v)	2
07368	trans-1,2-Dichloroethene	156-60-5	0.0808 J	0.0793	ug/m3	0.0204 J	0.0200	ppb(v)	2
07372	cis-1,2-Dichloroethene	156-59-2	1.17	0.111	ug/m3	0.296	0.0280	ppb(v)	2
07377	Trichloroethene	79-01-6	2.49	0.215	ug/m3	0.463	0.0400	ppb(v)	2

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
07345	EPA Method TO-15 using SIM	EPA TO-15 using SIM	1	10/09/2008 09:30	Fanella S Zamcho	2

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Analysis Report

Lancaster Laboratories Sample No. 5481768 AQ **Group No. 1112193**

B-22M SC #986 316846 Grab Air
BP Sanborn COC: 191318
2040 Cory Dr.-Sanborn, NY B-22M

Collected:09/24/2008 11:35 by JS

Account Number: 12495

Submitted: 09/26/2008 09:20
Reported: 10/10/2008 at 10:41
Discard: 11/10/2008

Atlantic Richfield(Parsons-NY)
BP Corporation
501 WestLake Park Blvd
Houston TX 77079

CAT No.	Analysis Name	CAS Number	As Received Result		As Received MDL	Units	Final Result	Final MDL	Units	DF
05298	TO 15 VOA Ext. List									
07206	Vinyl Chloride	75-01-4	5.7	J	4.0	ppb(v)	15 J	10	ug/m3	20
07224	trans-1,2-Dichloroethene	156-60-5	64		4.0	ppb(v)	250	16	ug/m3	20
07230	cis-1,2-Dichloroethene	156-59-2	1,400		40	ppb(v)	5,500	160	ug/m3	200
07241	Trichloroethene	79-01-6	910		40	ppb(v)	4,900	210	ug/m3	200

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	10/09/2008 11:16	Fanella S Zamcho	20
05298	TO 15 VOA Ext. List	EPA TO-15	1	10/09/2008 15:04	Fanella S Zamcho	200

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Analysis Report

Quality Control Summary

Client Name: Atlantic Richfield(Parsons-NY) Group Number: 1112193
Reported: 10/10/08 at 10:41 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A0828230AA	Sample number(s): 5481764,5481766,5481768							
Vinyl Chloride	N.D.	0.20	ppb(v)	99	104	70-130	4	25
trans-1,2-Dichloroethene	N.D.	0.20	ppb(v)					
cis-1,2-Dichloroethene	N.D.	0.20	ppb(v)	96	104	52-125	8	25
Trichloroethene	N.D.	0.20	ppb(v)	105	107	70-130	2	25
Batch number: C0828230AA	Sample number(s): 5481765,5481767							
Vinyl Chloride	N.D.	0.0230	ug/m3	104	121	70-130	15	25
trans-1,2-Dichloroethene	N.D.	0.0396	ug/m3					
cis-1,2-Dichloroethene	N.D.	0.0555	ug/m3	104	122	70-130	17	25
Trichloroethene	N.D.	0.107	ug/m3	61	72	49-173	16	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Case Narrative

Project Name: BP Sanborn
LLI Group #: 1112193

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Chronicle section of the Analysis Report for the method references

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

07345: EPA Method TO-15 using SIM

Sample #s: 5481765

The reporting limits for the GC/MS volatile compounds were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 12495 Group# 1112193 Sample # 5481764-68

COC # 191318

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Parsons, BP Acct. #:

Project Name/#: Sanborn/444183 PWSID #:

Project Manager: George Hermance P.O.#: 444183.07027

Sampler: Jim Schuetz Quote #:

Name of state where samples were collected: New York

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

(6) Temperature of samples (lab / recpt) (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water	Other	# of containers	(5) Analyses Requested / Preservation Codes: TO-15 (select)
B-13m 912 338047	9/23/08	1230	✓				✓	1	✓
B-113m 944 234836	9/23/08	1230	✓				✓	1	✓
B-3m 957 7236807	9/23/08	1515	✓				✓	1	✓
B-21M 979 338030	9/24/08	1030	✓				✓	1	✓
B-22M 986 316846	9/24/08	1135	✓				✓	1	✓

Entos # 001QO-0130
Phase 40
sub phase 03
Cost element 01

Remarks Per G.H. @1009/30/08

TCE, cis-DCE, trans-DCE, VC

See task order and call George Hermance (716)407-4990 for QC req. and data package

(7) **Turnaround Time Requested** (TAT) (please circle): (Normal) Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

Rush results requested by (please circle): Phone Fax E-mail

Phone #: Fax #:

E-mail address: George.Hermance@Parsons.com

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

TX TRRP-13
MA MCP CT RCP

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Jim Schuetz	9/24/08	1400			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: Brandy Barclay	9-26-08	0920

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Environmental Sample Administration
Receipt Documentation Log

Client/Project: Parsons, BP

Date of Receipt: 9-26-08

Time of Receipt: 0920

Source Code: 50-1

Unpacker Emp. No.: 2299

Shipping Container Sealed: (YES) NO

Custody Seal Present: YES (NO)

Custody Seal Intact: YES NO (NA)

Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1							
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Rcvd one Extra Summa #1044
Rcvd 6 Flow controls

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
Bryandy Buckley	9-26-08	11:36	Unpacking / to Storage
Kristin Zeigler	9-26-08	1529	Place in Storage or (Entry)
			Entry
			Entry

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ATTACHMENT 2

STANDARD OPERATING PROCEDURES

(Revised Sub-slab and Indoor Air)

SOP-2
SUB-SLAB SAMPLING

2.1 Pre-sampling Evaluation

A pre-sampling inspection will be performed prior to each sampling event to identify and minimize conditions that may interfere with the proposed testing. The pre-sampling evaluation will consist of a walk-through of the structures (primarily basement and first floor) during which time observations will be made concerning potential indoor sources of the COCs and about other influencing factors. In addition, a questionnaire will be administered to the occupants of each structure to obtain basic information about the structure and potential sources of COCs within the structure. An "Indoor air quality questionnaire and building inventory" (NYSDOH, 2005) form will be completed by the evaluator using visual observations and information obtained from the occupants. A copy of the "Indoor air quality questionnaire and building inventory" form is provided in Appendix A ***of the August 2006 work plan.***

The inspection will evaluate the type of structure, floor layout, air flows and physical conditions of the building(s) being studied. This information, along with information on sources of potential indoor air contamination will be identified on a building inventory form (included in Appendix A ***of the August 2006 work plan***). Items to be included in the building inventory include the following

- Construction characteristics, including foundation cracks and utility penetrations or other opening that may serve as preferential pathways for vapor intrusion.

- Presence of an attached garage.

- Recent renovations or maintenance to the building (e.g., fresh paint, new carpet or furniture).

- Mechanical equipment that can affect pressure gradients (e.g., heating systems, clothes dryers or exhaust fans).

- Use or storage of petroleum products (e.g., fuel containers, gasoline operated equipment and unvented kerosene heaters).

- Recent use of petroleum-based finishes or products containing volatile chemicals. Each room on the floor of the building being tested and on lower floors, if possible, should be inspected. This is important because even products stored in another area of a building can affect the air of the room being tested.

2.2 Installation

If necessary, sub-slab VMPs will be installed within the interior of the buildings through the existing floor material. Prior to installation of the sub-slab vapor probe, the building floor should be inspected and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) should be noted and recorded. Probes should be installed at locations where the potential for ambient air infiltration via floor penetrations is minimal. Sub-slab implants or probes should be constructed in the same manner at all sampling locations to minimize possible discrepancies.

A minimal amount of floor covering material will be displaced prior to VMP installation. A detail of the sub-slab sampling string ***was*** provided as Figure A-3 ***in the August 2006 work plan***. Once the floor covering is removed, a rotary hammer will be used to make a hole for VMP construction through the slab on grade.

A rotary hammer will be used to make a 2-inch diameter hole 2 inches deep into the slab. Then the bit will be changed and a 5/8-inch diameter hole will be extended through the slab, for each VMP. The implant should be sealed to the surface with non-VOC-containing and non-shrinking products. Once completed, the floor covering material will be put back into place and only disturbed as needed. The sampling port of the VMP will be constructed with a threaded stainless steel union and threaded cap which will allow for sealed equilibration and connection of the sample tubing. ***After the VMP is installed, the seal will be allowed to set 15 minutes before sampling rather than 24 hours before leak testing and sampling. The VMP will then be purged (minimum of three liters), which will remove any atmospheric air that may have entered the probe during the installation. In addition, a helium tracer will also be used to confirm the absence of leaks and competency of the seal.*** Installation will be documented photographically, and using a field log book.

2.3 Sample Collection

Prior to collecting the initial set of samples, a leak test will be preformed to ensure the construction and sampling techniques are adequate. ***The leak test procedures will be consistent with SOP-1 of the August 2006 work plan with the following revision. For the sub-slab leak test, helium will be used as a tracer to ensure atmospheric air does not bias the sub-slab sample by leaking through the annular seal between the floor slab and probe. During the leak test a shroud will be placed around the floor surface of***

each VMP and helium gas added prior to sampling the VMP. The concentration of helium in the shroud will be recorded with a portable helium detector to confirm that the shroud contains a minimum of 10% helium. Sub-slab gas samples will then be collected in the Tedlar™ bag and screened to confirm that the concentration of helium in the sample is less than 5% of the concentration in the shroud. If the Tedlar™ bag sample consists of at least 95% soil gas, a sample will be collected for laboratory analysis.

After the leak testing is completed, the samples can be collected as follows:

1) At a minimum, the VMP will be purged of three volume with flow rates between ***100 to 200*** mL/min (estimated flow rates for sampling assuming a 1-liter SUMMA®). If a leak test was performed immediately prior then no purging will be conducted.

2) During purging, field measurements of oxygen, carbon dioxide, methane, and VOCs will be collected and recorded. ***In addition, flow rate and corresponding vacuum will be measured and recorded.*** Measurements will be used to assess consistency among sequential purge volumes to ensure representative samples are being collected. This will be used as a secondary quality assurance and quality control (QA/QC) measure beyond the purge volume test.

3) Once purging is complete, samples for laboratory analyses will be collected directly into pre-cleaned, 1-liter, flow-controlled, evacuated SUMMA® canisters. The use of the 1-liter SUMMA canister assumes that the detection limits will be sufficient for the objectives of the sampling program. The SUMMA® canisters will be shipped to the field by the analytical laboratory with certificates that verify their cleanliness.

4) Prior to sampling, each canister will be checked to verify that the vacuum in the canister is greater than 22 inches of mercury. If the vacuum is less than 22 inches, the SUMMA® canister will not be used.

5) The initial vacuum will then be recorded on the chain of custody form.

6) For SUMMA® canister sampling, the valve cap will be removed from the canister and a sampling line will be attached between the canister and the sample port on the exhaust side of the blower. The sample port will be opened, then the valve on the SUMMA® canister will be rotated counter-clockwise 3 to 4 turns. Rushing air should be heard.

7) The sample will be collected over a 30-minute interval. After sample collection, the sample port will be closed and the sample line will be removed. The final pressure of the SUMMA® canister will be recorded on the chain-of-custody form. The gauge will read zero or a slight vacuum.

8) The valve caps on the SUMMA® canister will be put back on.

9) The sample canisters will be packed with foam pellets in rigid containers for shipment to the laboratory. Samples will be sent at ambient temperature to prevent condensation of hydrocarbons. A chain-of-custody form describing the contents of the shipment will be filled out and placed in the shipping container.

10) It is anticipated that the samples will be analyzed via standard EPA Method TO-15.

11) All measurements and field conditions will be recorded in the field log.

SOP-3
INDOOR AIR SAMPLING

If required, indoor air samples will be collected using the procedures outlined in this SOP. Indoor air samples will be collected simultaneously with sub-slab and outdoor air samples. Samples will be collected during the colder months while the building's heating system is active. Heating systems should be operating to maintain normal indoor temperatures for at least 24 hours prior to sampling.

The objective for sample duration will be a time-weighted sampling of 24 hours. The actual duration may be less than 24 hours, to account for sampler accessibility and Summa® canister flow controller performance. In addition to the time weighted 24-hour samples, short duration time-discrete samples may be used to supplement the characterization effort.

3.1 Pre-sampling Evaluation

A pre-sampling inspection will be performed prior to each sampling event to identify and minimize conditions that may interfere with the proposed testing. See SOP 2 for further details.

3.2 Indoor Air Sampling Procedures

Indoor air samples will be collected in the following manner:

1) Time-weighted indoor air samples for laboratory analyses will be collected directly into pre-cleaned, 6-liter, flow-controlled, evacuated SUMMA® canisters. The SUMMA® canisters will be shipped to the field by the analytical laboratory with certificates that verify their cleanliness.

2) An apparatus or table will be used so the sample will be taken from a height of approximately three feet above the floor.

3) Prior to sampling, each canister will be checked to verify that the vacuum in the canister is greater than 22 inches of mercury. If the vacuum is less than 22 inches, the SUMMA® canister will not be used.

4) The initial vacuum will then be recorded on the chain of custody form.

5) The sample port will be opened, then the valve on the SUMMA® canister will be rotated counter-clockwise 3 to 4 turns.

6) The sample will be collected over a 24 hour interval (if possible). The final pressure of the SUMMA® canister will be recorded on the chain-of-custody form. The gauge will read zero or a slight vacuum.

7) The valve caps on the SUMMA® canister will be put back on.

8) The sample canisters will be packed with foam pellets in rigid containers for shipment to the laboratory. Samples will be sent at ambient temperature to prevent condensation of hydrocarbons. A chain-of-custody form describing the contents of the shipment will be filled out and placed in the shipping container.

9) It is anticipated that the samples will be analyzed via standard EPA Method TO-15.

3.3 Field Documentation

In support of the samples, the following actions will be taken

1) Indoor Air Quality Building Survey and product inventory survey will be completed use the field forms in SOP – Appendix A ***of the August 2006 work plan***.

2) The use of heating or air conditioning systems during sampling should be noted.

3) Floor plan sketches should be drawn that include the floor layout with sample locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system supply and return registers, compass orientation (north),and any other pertinent information should be completed.

4) If possible, photographs should accompany floor plan sketches.

5) Outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sample locations (if applicable), compass orientation (north), footings that create separate foundation sections, and paved areas.

6) Weather conditions (e.g., precipitation, indoor and outdoor temperature, and barometric pressure) and ventilation conditions (e.g., heating system active and windows closed) should be reported.

7) Al measurements and field conditions will be recorded in the field log

8) Any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID), should be recorded.

The field sampling team must maintain a sample log sheet summarizing the following:

- sample identification;
- date and time of sample collection;
- sampling height;
- identity of samplers;
- sampling methods and devices;
- depending upon the method, volume of air sampled;
- If canisters are used, vacuum of canisters before and after samples collected; and
- Chain-of-custody protocols and records used to track samples from sampling point to analysis.