FORMER BLAISE PROPERTY
ROUTE 74 & 22A
SHOREHAM, VT

BIENNIAL GROUNDWATER REPORT

VERMONT SMS SITE #96-2099

September 3, 2014

Prepared for:

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Prepared by:

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1.0 INTRODUCTION

This report presents the results of groundwater sampling at the former Blaise property, located at the intersection of Routes 74 and 22A in Shoreham, Vermont (see attached USGS Map). Waite-Heindel Environmental Management (WHEM) completed this work on July 25, 2014, in accordance with a work plan dated March 28, 2014 and approved by the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (VDEC). This property is sampled on a biennial basis, and was last sampled in May of 2012.

The property was formerly owned by the Blaise family. The property changed hands in November 2013, and is now owned by Creek Road, LLC. The building on the property is currently unoccupied.

2.0 GROUNDWATER ELEVATION MEASUREMENT

Groundwater depth measurements were obtained from monitoring wells MW-2, MW-3, MW-4, MW-5 and MW-6 on July 25, 2014 prior to groundwater sampling. Well MW-1 could not be located this round, and has not been located for sampling since 2001 and is presumed to be destroyed. Groundwater elevation data is included in Table 1 of the Attachment. Groundwater elevations have been contoured and are shown visually in the Groundwater Elevation and BTEX Concentration Map in the Attachment.

The direction of groundwater flow continues to be generally south to north across the site. The lateral hydraulic gradient across the site is approximately 0.01 ft/ft (MW-2 to MW-5). Compared to previous sampling in 2012, groundwater elevations are higher by an average of 0.43 ft.

3.0 GROUNDWATER SAMPLING

Groundwater samples were collected from five monitoring wells (MW-2, MW-3, MW-4, MW-5 and MW-6) on July 25, 2014. Prior to sampling, wells were purged using a peristaltic pump of three well volumes of water and samples collected. Free product was not encountered in any of the wells. All water samples were preserved with hydrochloric acid and ice, and submitted to Endyne, Inc for analysis of petroleum hydrocarbons via EPA Method 8021B. Analytical results are included in Table 2 of the Attachment, and laboratory report is also attached.

The July 2014 results indicate that residual petroleum hydrocarbons were identified in monitoring wells MW-4 and MW-5. Well MW-4 had detectable concentrations of Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX), Naphthalene, Trimethylbenzenes and MTBE; while well MW-5 had detectable concentrations of MTBE only. Violations of Vermont's Groundwater Enforcement Standards (VGES) were noted for Benzene and Naphthalene in MW-4. Additionally, violation of VGES was noted for MTBE in MW-5. Sampling conducted in May 2012 had indicated no violations of VGES for MW-5, however, it is noted that MTBE has since rebounded to levels exceeding VGES; these fluctuations have been historically observed in this well. MW-4 and MW-5 are located within the footprint of the former UST, and they have historically shown high contaminant levels. The levels detected in MW-4 are significantly lower than 2012 results but remain within historic ranges, as concentrations continue to fluctuate within this source area well.

Contaminant concentrations in MW-2, MW-3, and MW-6 were all below laboratory detection limits (ND). More than ten unidentified peaks were observed in MW-2, MW-3, and MW-4. A duplicate sample was collected from MW-4 and results are very similar, well within acceptable QA/QC ranges.

A contaminant concentration map is (provided in the Attachment) was generated using the current laboratory results showing the BTEX concentrations of each monitoring well. These results are consistent with historic contaminant data, indicating the center of the plume is confined in the eastern section of the footprint of the former USTs (where MW-4 and MW-5 are located). The majority of the contamination continues to remain in this footprint, and does not appear to extend beyond the boundaries of the property at this time.

The BTEX Graph in the Attachment shows declining concentrations with time in wells MW-3, MW-4, and MW-5. BTEX has been reduced to below detectable levels in MW-3 and MW-5, but remains in MW-4.

4.0 BASEMENT AND SUMP INVESTIGATION

In a letter dated June 4, 2012, the SMS approved an additional investigation of the basement and sump. This investigation was prompted by concerns voiced by the tenant, including a petroleum scent in the basement and visible sheen in the sump water. A staff scientist was on-site on July 13, 2012 to conduct an inspection of the basement which included PID screening, visual analysis, determination of sump outfall, and sampling of the sump water.

The 2012 inspection confirmed that the sump discharges to the municipal sewer, along with the rest of the home's sewage. The inspection also revealed substantial evidence of flooding events. Silt stained portions of the northern wall, where surface water had penetrated the building envelope. Much of the basement floor, built of poured concrete, was covered in a thin, moist silt layer. While most of the silt was gray and very low chroma, some was stained with reduced iron. The activity of iron bacteria in the silt surrounding the sump area was evident. The only staining that might have been caused by petroleum was near the oil storage tank, which was empty at the time of inspection. There was minimal staining in this area. The water heater is electric, and the oil-fired air heating system was turned off for the summer.

A sample was collected from the sump itself in May 2012 and analyzed for volatile organics by EPA Method 8021B. No petroleum compounds were detected. Results are shown in Table 2. This sump was re-sampled by WHEM on July 25, 2014. Again, no petroleum compounds were detected and no petroleum odor was detected in the basement. Although the WHEM field technician noted that a sheen was present on the sump water, its dispersal pattern showed biological rather than petrochemical characteristics. WHEM staff hypothesize that the petroleum-like odor noted by the tenant in 2012 is actually sewer gas venting from the exposed septic line. When water is pushed through the line, the sewer gas is forced out of the pipe and into the basement air. This venting should be plumbed to the outside.

Although the contaminant plume possibly abuts the building foundation, WHEM's findings from the basement and sump investigation suggest that petroleum contamination has not infiltrated the building in recent history. Additionally, water elevation data indicates that groundwater does not flow in the direction of the building.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Waite-Heindel Environment Management (WHEM) completed the biennial groundwater sampling of the former Blaise property in Shoreham, Vermont on July 25, 2014. This sampling was completed under agreement with the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (VDEC). Groundwater samples were collected from five monitoring wells: MW-2, MW-3, MW-4, MW-5 and MW-6. Additional sump sampling and basement inspection was also conducted in July 25, 2014. Based on the results of this sampling and basement sampling, WHEM concludes that:

- Groundwater flow continues to be from south to north across the site, with a lateral hydraulic gradient across the site of approximately 0.01 ft/ft (MW-2 to MW-5).

- Residual petroleum hydrocarbons remain in monitoring wells MW-4 and MW-5. Violations of the VGES were noted for Benzene and Naphthalene in MW-4 and for MTBE in MW-5. Petroleum hydrocarbons were not detected in wells MW-2, MW-3, or MW-6.

- The 2014 results are consistent with historic contaminant data, indicating the center of the plume is confined in the eastern section of the footprint of the former USTs (where MW-4 and MW-5 are located). The majority of the contamination continues to remain within this footprint, and does not extend beyond the boundaries of the property.

- Sampling of the basement and sump in July 2014 re-confirmed that petroleum contamination is not being drawn into the sump pump.

WHEM does not recommend further assessment of the basement sump. While contaminant levels in well MW-4 and MW-5 remain above VGES, biennial groundwater monitoring could continue until the concentrations fall below VGES. However, because groundwater contamination is well defined and restricted to a small portion of the property, with no evidence of migration and clear decreasing trends, a SMAC Checklist has been included in the Attachment of this report for VDEC review, contingent on filing a notice to the land record (NTLOR) that identifies the small area of residual contamination.

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ATTACHMENT

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Blaise Property

Shoreham, Vermont

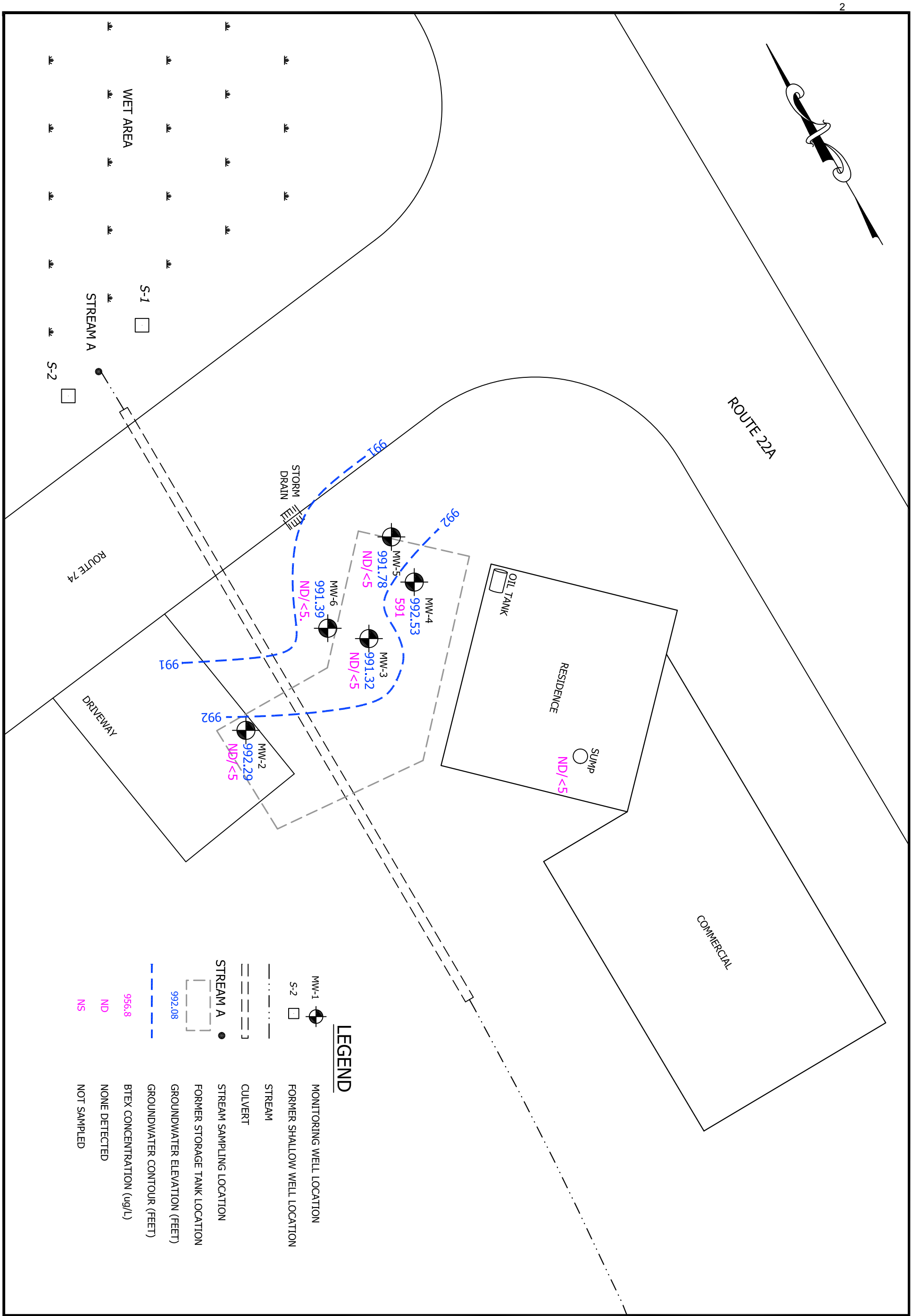
USGS Site Location Map

2000 0 2000 4000 Feet

August 5, 2003
S. Smith
c:\blaise\sitemap.apr

Heindel and Noyes
•Hydrogeology • Ecology•
•Environmental Engineering•
CONSULTING SCIENTISTS AND ENGINEERS

Prepared by:
INFORMATION & VISUALIZATION SERVICES



BLAISE/SHOREHAM

SHOREHAM, VERMONT

GROUNDWATER ELEVATION, GROUNDWATER CONTOUR, AND BTEX CONCENTRATION MAP - 7/24/2014

SCALE:	1"=20'
FILE:	\SHORHAM\CADD\dwg\Blaise.dwg
DATE:	9/2/2014
PROJECT NO.	98197.1
DRAWN BY:	D.W.F.
PROJ. MGR:	C.P.
APPROVED:	

☐ DRAFT ☒ FINAL

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TABLE 1
GROUNDWATER ELEVATION DATA (FT)
Former Blaise Property
Shoreham, Vermont

DEPTH TO GROUNDWATER (ft)

Monitoring Well		3/18/1999	6/2/1999	8/30/1999	5/12/2000	4/24/2001	5/3/2002	9/9/2002	5/13/2003	5/5/2004	5/19/2006	5/23/2008	5/14/2010	5/22/2012	7/25/2014
MW-01		5.05	4.05	6.21	4.03	4.90	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-02		4.80	5.39	6.20	3.22	4.41	NS	NS	NS	4.98	2.21	5.94	4.52	4.46	6.06
MW-03		5.66	6.65	6.50	6.79	6.74	6.32	6.63	7.20	6.91	6.66	7.20	7.02	6.98	7.05
MW-04		5.04	6.05	6.27	5.00	5.77	4.75	6.24	3.50	5.96	3.24	6.48	5.82	5.79	6.05
S-1		1.46	1.74	1.60	0.42										
S-2		0.16	0.66	0.93	1.52										
MW-05								6.18	4.80	6.05	4.63	6.43	5.83	5.74	6.04
MW-06								5.95	2.30	5.97	1.71	6.33	6.05	6.12	6.19

GROUNDWATER ELEVATION (ft)

Monitoring Well	Top of Casing Elevation	3/18/1999	6/2/1999	8/30/1999	5/12/2000	4/24/2001	5/3/2002	9/9/2002	5/13/2003	5/5/2004	5/19/2006	5/23/2008	5/14/2010	5/22/2012	7/25/2014
MW-01	1000.16	995.11	996.11	993.95	996.13	995.26				NS	NS	NS	NS	NS	NS
MW-02	998.35	993.55	992.96	992.15	995.13	993.94				993.37	996.14	992.41	993.83	993.89	992.29
MW-03	998.37	992.71	991.72	991.87	991.58	991.63	992.05	991.74	991.17	991.46	991.71	991.17	991.35	991.39	991.32
MW-04	998.58	993.54	992.53	992.31	993.58	992.81	993.83	992.34	995.08	992.62	995.34	992.10	992.76	992.79	992.53
MW-05	997.82							991.64	993.02	991.77	993.19	991.39	991.99	992.08	991.78
MW-06	997.43							991.48	995.13	991.46	995.72	991.10	991.38	991.31	991.39
	average	993.73	993.33	992.57	994.11	993.41	992.94	991.80	993.60	992.14	994.42	991.63	992.26	992.29	991.86

note: Elevations based on a benchmark of 1000' at the top of the Tri-Town water valve adjacent to Rt. 22A

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TABLE 2
WATER QUALITY DATA
Former Blaise Property

Monitoring Well	Parameter	Units	VGES	3/18/1999	6/2/1999	8/30/1999	5/12/2000	4/24/2001	5/3/2002	9/9/2002	5/13/2003	5/5/2004	5/19/2006	5/23/2008	5/14/2010	5/22/2012	7/25/2014
MW-01	Benzene	ppb	5	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	Toluene	ppb	1000	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	Ethylbenzene	ppb	700	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	Xylene	ppb	10000	ND / < 2	ND / < 2	ND / < 2	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	Total BTEX	ppb		ND / < 5	ND / < 5	ND / < 5	ND / < 4	ND / < 4				NS	NS	NS	NS	NS	NS
	MTBE	ppb	40	ND / < 2	ND / < 2	ND / < 2	ND / < 10	ND / < 10				NS	NS	NS	NS	NS	NS
	Naphthalene	ppb	20	ND / < 5	ND / < 5	ND / < 5	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	1,3,5-Trimethylbenzene	ppb	350	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	1,2,4-Trimethylbenzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	NS	NS	NS	NS
	Unidentified Peaks	#		0	0	0	0	0				NS	NS	NS	NS	NS	NS
	Total Petroleum Hydrocarbons	ppb		ND / < 100	ND / < 100	ND / < 100						NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS
MW-02	Benzene	ppb	5	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	ND / < 1	NS	NS	ND / < 1
	Toluene	ppb	1000	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	ND / < 1	NS	NS	ND / < 1
	Ethylbenzene	ppb	700	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	ND / < 1	NS	NS	ND / < 1
	Xylene	ppb	10000	ND / < 2	ND / < 2	ND / < 2	ND / < 1	ND / < 1				NS	NS	ND / < 2	NS	NS	ND / < 2
	Total BTEX	ppb		ND / < 5	ND / < 5	ND / < 5	ND / < 4	ND / < 4				NS	NS	ND / < 5	NS	NS	ND / < 5
	MTBE	ppb	40	ND / < 2	ND / < 2	ND / < 2	ND / < 10	ND / < 10				NS	NS	ND / < 2	NS	NS	ND / < 2
	Naphthalene	ppb	20	ND / < 5	ND / < 5	ND / < 5	ND / < 1	ND / < 1				NS	NS	ND / < 2	NS	NS	ND / < 2
	1,3,5-Trimethylbenzene	ppb	350	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	ND / < 1	NS	NS	ND / < 1
	1,2,4-Trimethylbenzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1				NS	NS	ND / < 1	NS	NS	ND / < 1
	Unidentified Peaks	#		0	0	0	0	0				NS	NS	ND / <	NS	NS	>10
	Total Petroleum Hydrocarbons	ppb		ND / < 100	ND / < 100	ND / < 100						NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS
MW-03	Benzene	ppb	5	**88**	**109**	**64.2**	**84.2**	**95.2**	**67.1**	**71.2**	**59.6**	**11.6**	ND / < 2	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Toluene	ppb	1000	106	85.1	29.4	22.7	33.4	19.6	6.2	18.2	< 2	ND / < 2	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Ethylbenzene	ppb	700	198	267	226	174	214	198	196	**960**	64.7	ND / < 2	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Xylene	ppb	10000	516	591	556	185	336	415	356	380	41.4	ND / < 4	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	Total BTEX	ppb		908	1052.1	875.6	465.9	678.6	699.7	629.4	1417.8	119.7	ND / < 10	ND / < 5	ND / < 5	ND / < 5	ND / < 5
	MTBE	ppb	40	ND / < 20	23.2	15.7	ND / < 50	ND / < 50	ND / < 15	ND / < 10	34.2	< 4	ND / < 4	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	Naphthalene	ppb	20	ND / < 50	**57.9**	**61**	**37.3**	**60.3**	**41.9**	**49.1**	**30.3**	2.1	ND / < 4	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	1,3,5-Trimethylbenzene	ppb	350	**20.3**	**16.5**	**28.2**	**7.2**	**71.9**	**13.5**	**11.9**	**76.9**	< 2	ND / < 2	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	1,2,4-Trimethylbenzene	ppb		**254**	**331**	**366**	**231**	**289**	**312**	**363**	**383**	**101**	ND / < 2	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Unidentified Peaks	#		> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	9	> 10	6	> 10	>10
	Total Petroleum Hydrocarbons	ppb		2,900	4,740	4,200	2,370		7,520	4,320		NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS

ND = None detected
NS = Not sampled
TBQ = Trace below quantitation
Shaded values exceed VGES

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TABLE 2
WATER QUALITY DATA
Former Blaise Property

Monitoring Well	Parameter	Units	VGES	3/18/1999	6/2/1999	8/30/1999	5/12/2000	4/24/2001	5/3/2002	9/9/2002	5/13/2003	5/5/2004	5/19/2006	5/23/2008	5/14/2010	5/22/2012	7/25/2014
MW-04	Benzene	ppb	5	**107**	**94.5**	**110**	**105**	**24**	**73.8**	**65.4**	2.9	**26.2**	**41.7**	**42.4**	**55.7**	**22**	**15.4**
	Toluene	ppb	1000	723	601	788	391	77	115	227	4.3	43.3	58.0	34.3	47.9	23.8	16.3
	Ethylbenzene	ppb	700	ND / < 100	635	678	463	121	390	343	9.5	167	259	211	474	177	120
	Xylene	ppb	10000	8980	6710	6340	2820	724	2,010	2,260	57.6	865.0	1110	557	2030	734	439
	Total BTEX	**ppb**		**< 9910**	**8040.5**	**7916**	**3779**	**946**	**2588.8**	**2895.4**	**74.3**	**1101.5**	**1468.7**	**844.7**	**2607.6**	**956.8**	**591**
	MTBE	ppb	40	ND / < 200	ND / < 100	ND / < 100	ND / < 200	ND / < 50	< 20.0	ND / < 40	2	< 20	< 40	ND / < 20	ND / < 20	35.8	24.2
	Naphthalene	ppb	20	**619**	**561**	**531**	**342**	**103**	**221**	**268**	7	**112**	**170**	**107**	**223**	**104**	**54**
	1,3,5-Trimethylbenzene	ppb	350	**1040**	**622**	**665**	**318**	**48.6**	**49.7**	**68.8**	2.3	**42.1**	**76.1**	**65.8**	**183**	**69.5**	**27.6**
	1,2,4-Trimethylbenzene	ppb		**2880**	**2050**	**2050**	**1100**	**237**	**930**	**921**	**20.5**	**348**	**566**	**310**	**1000**	**351**	**168**
	Unidentified Peaks	#		> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	>10
	Total Petroleum Hydrocarbons	ppb		21,000	29,900	27,300	14,500	14,500	15,000	16,700		NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS
MW-05	Benzene	ppb	5							**37.2**	**88.2**	**14.5**	**9.5**	**17.1**	2.1	1.6	ND / < 1
	Toluene	ppb	1000							1.5	4.1	< 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Ethylbenzene	ppb	700							1.2	18.4	< 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Xylene	ppb	10000							2	12.9	< 2	< 2	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	Total BTEX	ppb								41.9	123.6	18.5	< 13.5	< 21	< 6	< 6	ND / < 5
	MTBE	ppb	40							**65.1**	23.5	**56.3**	**63.4**	15.6	**46.9**	35.5	**61.5**
	Naphthalene	ppb	20							ND / < 2	2	< 1	< 2	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	1,3,5-Trimethylbenzene	ppb	350							ND / < 1	1.3	< 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	1,2,4-Trimethylbenzene	ppb								1.3	**18.8**	1.9	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Unidentified Peaks	#								> 10	> 10	> 10	3	5	5	4	4
	Total Petroleum Hydrocarbons	ppb								450		NS	NS	NS	NS	NS	NS
MW-06	Benzene	ppb	5							ND / < 1	ND / < 1	ND / < 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Toluene	ppb	1000							ND / < 1	ND / < 1	ND / < 1	< 1	ND / < 1	2.9	ND / < 1	ND / < 1
	Ethylbenzene	ppb	700							ND / < 1	ND / < 1	ND / < 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Xylene	ppb	10000							ND / < 2	ND / < 2	ND / < 2	< 2	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	Total BTEX	ppb								ND / < 5	ND / < 5	ND / < 5	< 5	ND / < 5	ND / < 7	ND / < 5	ND / < 5
	MTBE	ppb	40							ND / < 2	ND / < 2	ND / < 2	< 2	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	Naphthalene	ppb	20							ND / < 2	ND / < 1	ND / < 1	< 2	ND / < 2	ND / < 2	ND / < 2	ND / < 2
	1,3,5-Trimethylbenzene	ppb	350							ND / < 1	ND / < 1	ND / < 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	1,2,4-Trimethylbenzene	ppb								ND / < 1	ND / < 1	ND / < 1	< 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1
	Unidentified Peaks	#								0	0	0	0	5	5	0	0
	Total Petroleum Hydrocarbons	ppb								ND / < 200	ND / < 200	NS	NS	NS	NS	NS	NS
Sump	Benzene	ppb	5												NS	ND / < 1	ND / < 1
	Toluene	ppb	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 1	ND / < 1
	Ethylbenzene	ppb	700	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 1	ND / < 1
	Xylene	ppb	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 2	ND / < 2
	Total BTEX	ppb		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 5	ND / < 5
	MTBE	ppb	40	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 2	ND / < 2
	Naphthalene	ppb	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 2	ND / < 2
	1,3,5-Trimethylbenzene	ppb	350	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 1	ND / < 1
	1,2,4-Trimethylbenzene	ppb		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND / < 1	ND / < 1
	Unidentified Peaks	#		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0	0
	Total Petroleum Hydrocarbons	ppb		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

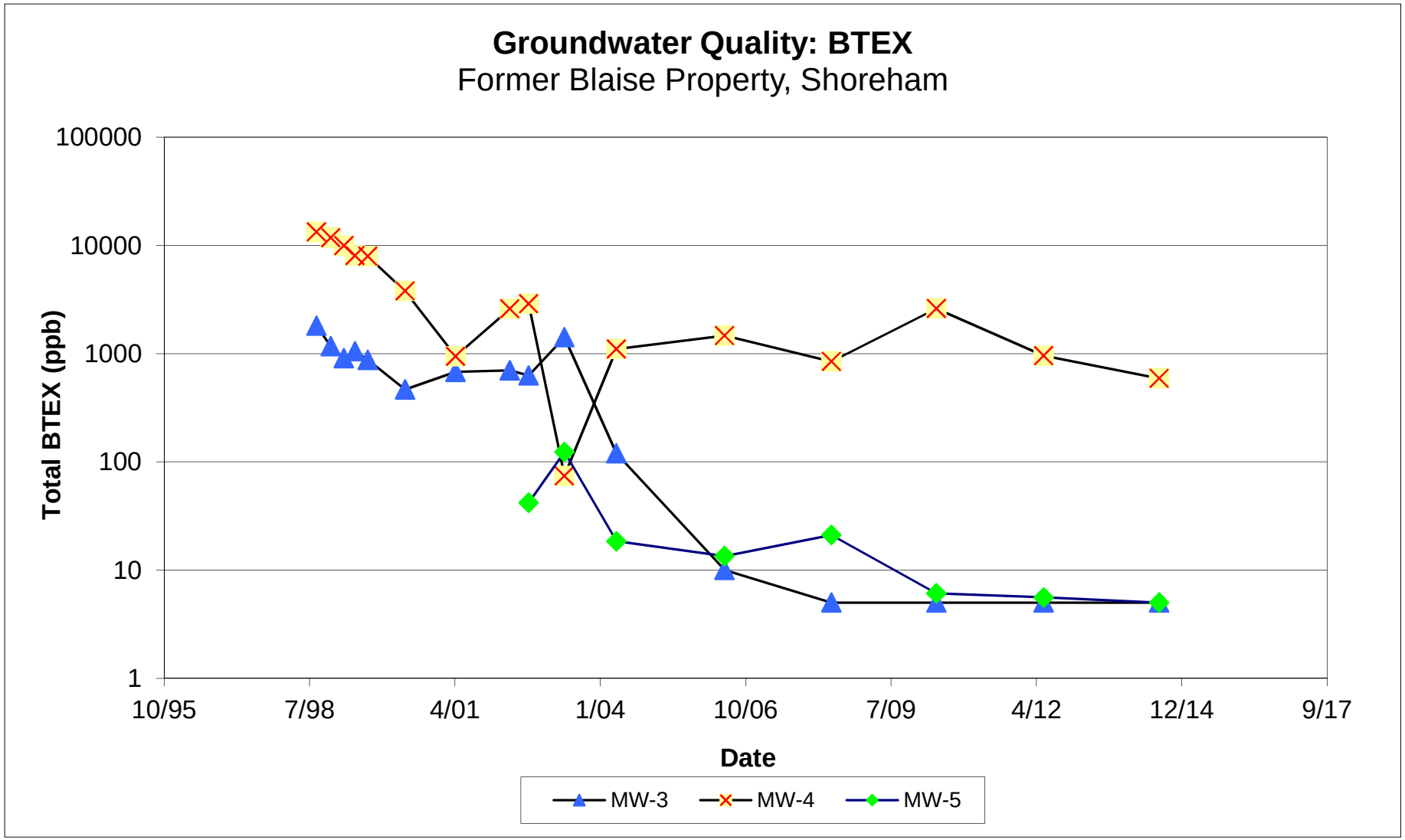
ND = None detected
NS = Not sampled
TBQ = Trace below quantitation
Shaded values exceed VGES

Waite - Heindel E M

TABLE 2
WATER QUALITY DATA
Former Blaise Property

Monitoring Well	Parameter	Units	VGES	3/18/1999	6/2/1999	8/30/1999	5/12/2000	4/24/2001	5/3/2002	9/9/2002	5/13/2003	5/5/2004	5/19/2006	5/23/2008	5/14/2010	5/22/2012	7/25/2014
Stream A	Benzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1			NS	NS	NS	NS	NS	NS
	Toluene	ppb		ND / < 1	4.0	11.3	ND / < 1	ND / < 1	ND / < 1			NS	NS	NS	NS	NS	NS
	Ethylbenzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1			NS	NS	NS	NS	NS	NS
	Xylene	ppb		ND / < 2	ND / < 2	ND / < 2	ND / < 1	ND / < 1	ND / < 2			NS	NS	NS	NS	NS	NS
	Total BTEX	ppb		ND / < 5	< 8.0	< 15.3	ND / < 4	ND / < 4	ND / < 5			NS	NS	NS	NS	NS	NS
	MTBE	ppb		ND / < 2	ND / < 2	ND / < 2	ND / < 10	ND / < 10	ND / < 2			NS	NS	NS	NS	NS	NS
	Naphthalene	ppb		ND / < 5	ND / < 5	ND / < 5	ND / < 1	ND / < 1	ND / < 2			NS	NS	NS	NS	NS	NS
	1,3,5-Trimethylbenzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1			NS	NS	NS	NS	NS	NS
	1,2,4-Trimethylbenzene	ppb		ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1	ND / < 1			NS	NS	NS	NS	NS	NS
	Unidentified Peaks	#		0	1	0	0	0	0			NS	NS	NS	NS	NS	NS
	Total Petroleum Hydrocarbons	ppb		ND / < 100	ND / < 100	ND / < 100			< 0.20			NS	NS	NS	NS	NS	NS
S-01	Benzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Toluene	ppb			1.1	ND / < 1						NS	NS	NS	NS	NS	NS
	Ethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Xylene	ppb			ND / < 2	ND / < 2						NS	NS	NS	NS	NS	NS
	Total BTEX	ppb			< 5.1	ND / < 5						NS	NS	NS	NS	NS	NS
	MTBE	ppb			ND / < 2	ND / < 2						NS	NS	NS	NS	NS	NS
	Naphthalene	ppb			ND / < 5	ND / < 5						NS	NS	NS	NS	NS	NS
	1,3,5-Trimethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	1,2,4-Trimethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Unidentified Peaks	#			0	0						NS	NS	NS	NS	NS	NS
	Total Petroleum Hydrocarbons	ppb			ND / < 100	ND / < 100						NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS
S-02	Benzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Toluene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Ethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Xylene	ppb			ND / < 2	ND / < 2						NS	NS	NS	NS	NS	NS
	Total BTEX	ppb			ND / < 5	ND / < 5						NS	NS	NS	NS	NS	NS
	MTBE	ppb			ND / < 2	ND / < 2						NS	NS	NS	NS	NS	NS
	Naphthalene	ppb			ND / < 5	ND / < 5						NS	NS	NS	NS	NS	NS
	1,3,5-Trimethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	1,2,4-Trimethylbenzene	ppb			ND / < 1	ND / < 1						NS	NS	NS	NS	NS	NS
	Unidentified Peaks	#			0	0						NS	NS	NS	NS	NS	NS
	Total Petroleum Hydrocarbons	ppb			ND / < 100	ND / < 100						NS	NS	NS	NS	NS	NS
	Chloride	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Ammonia	ppm										NS	NS	NS	NS	NS	NS
	Nitrogen, Nitrate	ppm										NS	NS	NS	NS	NS	NS
	E. coli	CFU/100 mls										NS	NS	NS	NS	NS	NS
	Conductivity	umhos/cm										NS	NS	NS	NS	NS	NS

ND = None detected
NS = Not sampled
TBQ = Trace below quantitation
Shaded values exceed VGES


Groundwater Quality: BTEX
Former Blaise Property, Shoreham
Total BTEX (ppb)
100000
10000
1000
100
10
1
10/95
7/98
4/01
1/04
10/06
7/09
4/12
12/14
9/17
Date
MW-3
MW-4
MW-5

Site Management Activity Completed (SMAC) Checklist

Site Number: 96-2099 Site Name: Former Blaise Property - Shoreham

Criteria	Yes	No	N/A
1. The source(s), nature and extent has been adequately defined.	X		
2. Source(s) has been removed, remediated or adequately contained.	X		
3. Levels of contaminants shall be stable, falling, or non-detectable as measured over a reasonable period of time.	X		
4. Groundwater enforcement standards are met at entire property...:		X	
Groundwater enforcement standards are met at compliance point(s). Identify compliance point(s) Predicted at Property Line	X		
...land record notice for residual contamination?	X		
5. Soil compliance/exposure points are met...		X	
...if not engineering or institutional controls are in place..		X	
...land record notice for residual contamination?	X		
6. No unacceptable threat to human health or the environment exists onsite.	X		
7. Monitoring wells have been properly closed...		X	
...maintenance plan in place...			X
8. Site meets RCRA requirements.	X		
9. Site meets CERCLA requirements.	X		
10. Outstanding balances paid to satisfaction of WMD?			X
Comments:			

Signature: _____ Date: September 3, 2014

DRAFT of Notice to the Town of Shoreham Land Records

This is to serve notice to the Town of Shoreham, Vermont, that at the Former Blaise property, located on the corner of Routes 7A and 22A, soil and groundwater in the subsurface is impacted by petroleum VOCs from a leaking underground storage tank. This property is further described in town records as lot #..... tax parcel #..... The property is filed in the Waste Management and Prevention Division records as the Blaise-Shoreham property, SMS Site #96-2099.

On-site contamination resulted from a leaking underground storage tank containing fuel oil, and consists of petroleum VOCs such as Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene. This contamination may be present in soil and groundwater at the northern portion of the property, approximately 50-100 feet north of the existing building on-property. Contamination has been identified in the groundwater, which is approximately six (6) feet below grade. Laboratory analyses performed on groundwater samples collected from on-site wells in 2014 indicate that Benzene exceeded the Vermont Groundwater Enforcement Standards (VGES) in one well (MW-04) and Naphthalene exceeded VGES in two wells (MW-04 and MW-05). Both compounds, along with other detected petroleum compounds, have been observed as having a steady downward trend over monitoring history, and no other wells on-property have reported any VOCs in recent history. There is no evidence of off-property migration of contamination. Natural attenuation of petroleum compounds has been the primary means of contaminant reduction on-site. The basement of the on-site building has been screened by PID, and the sump pit was sampled in 2012 following when the tenant reported a sheen and odor in the basement. Analytical results from the sump sampling and PID screening revealed no evidence of contaminant impacts to the building envelope.

Further details are outlined in the report titled *Former Blaise Property – 2014 Biennial Groundwater Monitoring Report* prepared by Waite-Heindel Environmental, dated September 3, 2014. Copies of this report and past monitoring reports are in the site file and are available for review at the Vermont Department of Environmental Conservation (VTDEC) offices in Montpelier, Vermont.

The conditions described in the above reports and VTDEC site file do not require further remedial action or VTDEC management. These conditions do not represent a significant risk to human health or the environment. Nevertheless residual contamination remains in the subsurface soil and/or groundwater. Contact with these materials may present a low level of risk or the creation of wastes that may require specialized handling.

Prior to conducting any subsurface work, excavation, or groundwater extraction in the vicinity of the above described contamination on the property, the Agency of Natural Resources, Department of Environmental Conservation, Waste Management Division (VTANR/DEC/WMD), should be notified. The status of this site may only be updated or altered by the Vermont ANR/DEC/WMD. For further information contact:

Vermont ANR Department of Environmental Conservation
Waste Management and Prevention Division
1 National Life Drive, Davis 1
Montpelier, VT 05620-3704
Tel: 802-522-5729

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

WaiteHeindel Environmental Mgt	100675
7 Kilburn Street	
Suite 301	
Burlington, VT 05406	
Atten: Miles Waite	

PROJECT: Blaise-Shoreham
WORK ORDER: **1407-14648**
DATE RECEIVED: July 25, 2014
DATE REPORTED: August 05, 2014
SAMPLER: Stefan

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

CLIENT: WaiteHeindel Environmental Mgt
PROJECT: Blaise-Shoreham
REPORT DATE: 8/5/2014

WORK ORDER: **1407-14648**
DATE RECEIVED: 07/25/2014

TEST METHOD: EPA 8021B

001 Site: Trip Blank Date Sampled: 7/25/14 08:30 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	111	%	N		Unidentified Peaks	0		N	

TEST METHOD: EPA 8021B

002 Site: MW-2 Date Sampled: 7/25/14 10:45 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	106	%	N		Unidentified Peaks	>10		N	

TEST METHOD: EPA 8021B

003 Site: MW-3 Date Sampled: 7/25/14 11:20 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	104	%	N		Unidentified Peaks	>10		N	

TEST METHOD: EPA 8021B

004 Site: MW-4 Date Sampled: 7/25/14 11:40 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	24.2	ug/L	N		Benzene	15.4	ug/L	N	
Toluene	16.3	ug/L	N		Ethylbenzene	120	ug/L	N	
Xylenes, Total	439	ug/L	N		1,3,5-Trimethylbenzene	27.6	ug/L	N	
1,2,4-Trimethylbenzene	168	ug/L	N		Naphthalene	54.0	ug/L	N	
Surr. 1 (Bromobenzene)	94	%	N		Unidentified Peaks	> 10		N	

TEST METHOD: EPA 8021B

005 Site: MW-5 Date Sampled: 7/25/14 12:05 Analysis Date: 8/1/14 W SJM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	61.5	ug/L	N	AN1	Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	100	%	N		Unidentified Peaks	4		N	

CLIENT: WaiteHeindel Environmental Mgt
PROJECT: Blaise-Shoreham
REPORT DATE: 8/5/2014

WORK ORDER: **1407-14648**
DATE RECEIVED: 07/25/2014

TEST METHOD: EPA 8021B

006 Site: MW-6 Date Sampled: 7/25/14 11:00 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	105	%	N		Unidentified Peaks	0		N	

TEST METHOD: EPA 8021B

007 Site: Sump Date Sampled: 7/25/14 12:25 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	< 1.0	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	< 1.0	ug/L	N	
Xylenes, Total	< 2.0	ug/L	N		1,3,5-Trimethylbenzene	< 1.0	ug/L	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	N		Naphthalene	< 2.0	ug/L	N	
Surr. 1 (Bromobenzene)	107	%	N		Unidentified Peaks	0		N	

TEST METHOD: EPA 8021B

008 Site: Duplicate Date Sampled: 7/25/14 Analysis Date: 7/31/14 W MHM

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	22.2	ug/L	N		Benzene	15.5	ug/L	N	
Toluene	16.7	ug/L	N		Ethylbenzene	123	ug/L	N	
Xylenes, Total	455	ug/L	N		1,3,5-Trimethylbenzene	29.4	ug/L	N	
1,2,4-Trimethylbenzene	178	ug/L	N		Naphthalene	59.3	ug/L	N	
Surr. 1 (Bromobenzene)	96	%	N		Unidentified Peaks	> 10		N	

Report Summary of Qualifiers and Notes

AN1: Disparate results were observed between replicate sample vials submitted for analysis. The MTBE result in the replicate vial was 40.6 ug/L.

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

№ 69635

Special Reporting Instructions/PO#: _____

Project Name: Blaise-Shoreham	Client/Contact Name: WHEM Stefan Christie	Sampler Name: Stefan Christie
State of Origin: VT ✓ NY __ NH __ Other __	Phone #: WHEM	Phone #: 607-342-3659
Endyne WO # 1407-14648	Mailing Address: WHEM	Billing Address: WHEM

Sample Location	Matrix	GRAB	COMP	Date/Time Sampled	Sample Containers No.	Sample Containers Type/Size	Sample Preservation	Analysis Required	FieldResults/Remarks	Due Date
Trip Blank	H2O	✓		7/25/14@0830	2	40mg/kg	HCl	19	8021(B)	
MW-2				1045						
MW-3				1120						
MW-4				1140						
MW-5				1205						
MW-6				1100	✓					
Sump				1225	1					
Duplicate	✓	✓		—	2	✓	✓	✓	✓	

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
Stefan Christie	7/25/14@1425			Eileen Conway	7/25/14 @ 14:25

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	8082 PCB
4	Nitrite N	9	BOD	14	Turbidity	19	VT PCF	24	8260B	29	PP13 Metals
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Halocarbons	25	8270 B/N or Acid	30	Total RCRA8
31	Metals (Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Tl, U, V, Zn										
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other				
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other				
38	Other										

LAB USE ONLY
Delivery: Client
Temp: 0.5
Comment:

(White - Laboratory / Yellow - Client)

Page ____ of ____