Waite-Heindel
Environmental Management

June 27, 2018

Hugo Martinez Cazon
VT DEC
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704

Sent via email: hugo.martinez.cazon@vermont.gov

RE: Groundwater Monitoring Report: April 2018
Young Residence
28 North Williams Street
Burlington, VT 05401
SMS Site #2013-4436

Dear Hugo:

Waite-Heindel Environmental Management (WHEM) is pleased to present the *Groundwater Monitoring Report* for work conducted during April 2018 at the Young property at 28 North Williams Street in Burlington, Vermont. This is the fourth monitoring event following the CAP approval. This report also presents influent and effluent data to date from the sump treatment system activated in late July 2016.

Do not hesitate to contact me if you have questions. I can be reached at (802) 860-9400 ext. 101 or by email at mwaite@waiteenv.com

Sincerely,

Miles E. Waite, Ph.D.
Senior Hydrogeologist

Cc: Bill and Sally Young

Enclosure

GROUNDWATER MONITORING REPORT: APRIL 2018

Young Residence
28 N. Williams Street
Burlington, Vermont 05401

SMS SITE #2013-4436

June 27, 2018

Prepared for:

Hugo Martinez Cazon
VT DEC
Waste Management & Prevention Division
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704

Prepared by:

Waite - Heindel
Environmental Management

7 Kilburn Street, Suite 301
Burlington, Vermont 05401
P: (802) 860-9400
F: (802) 860-9440
www.waiteenv.com

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1.0 INTRODUCTION

Waite-Heindel Environmental Management (WHEM) of Burlington, Vermont conducted a round of groundwater quality monitoring and sump sampling on April 3, 2018 at the Young residence, located at 28 North Williams Street in Burlington, VT (SMS #2013-4436). WHEM collected samples of the sump treatment system's influent and effluent in conjunction with this monitoring event, as well as from Sump South (which is pumped to the treatment influent).

The work was performed in accordance with WHEM's Corrective Action Plan (CAP) dated August 14, 2015 (revised April 14, 2016), approved by the VT DEC via e-mail dated May 20, 2016. The approved plan included the installation of a groundwater treatment system and continued groundwater monitoring. The April 2018 monitoring event is the fourth round of groundwater monitoring since the CAP was approved, and the third round of groundwater monitoring since the activation of the sump treatment system in late July 2016. Due to diminishing VOC concentrations in groundwater observed in 2016 - 2017 and as continuously observed in the sump treatment system influent, WHEM reduced the frequency of groundwater sampling; the last sampling event was in July 2017.

This report also provides a summary of the sump treatment system data. Since the last report, WHEM has conducted twenty (20) discharge sampling events, with the most recent on June 1, 2018. Monthly discharge reports have been submitted to the VT DEC under separate cover.

Finally, WHEM conducted additional soil characterization in April 2017 to delineate the limits of NAPL in the soil around the source area and had recommended additional source area soil removal. However, after review the VT DEC decided not to pursue this work and focus instead on achieving site closure.

2.0 GROUNDWATER SAMPLING

2.1 Sump and System Monitoring

On April 3, 2018, WHEM conducted a sump sampling from Sump South and Sump North for VOC analysis via Method 8021B. Note that monthly samples have been collected from Sump North (Influent for treatment system) for VOC analysis via Method 8021B between July 2017 and June 2018, and that the Influent sample includes water pumped from Sump South, so it is no longer a discrete sampling location. Sump locations are shown on the Site Plan in Appendix 1. Both sumps were purged and allowed to recharge prior to sampling. Sump water at Sump North

produced a faint, stale petroleum odor with some iron flocculation; no sheen was observed. At Sump South, water produced a faint petroleum odor and had a faint sheen; no iron flocculation was observed. Sheen has typically been observed at Sump South, which is located near the former UST grave and source area, throughout the site's monitoring history. Samples were stored on ice and delivered to Endyne Laboratories for analysis on the day of sampling. Results are discussed in Section 2.3.

Sump pump usage is now measured via a totalizing flow meter on the influent side of the treatment system. Per the discharge permit, system flow is measured twice a month. Additionally, system effluent samples are collected twice a month, and influent samples are collected once monthly. System flow and water quality data collected to date are provided in Table 3 of Appendix A.

In its first year of operation, system flow was generally well below the anticipated flow rate of ~120 gallons per day (gpd), generally ranging from 1.9 to 17.8 gpd during dry conditions, to a peak of 3,981 gpd during a period of very high precipitation and snow melt in March 2017. Between this peak in March 2017 and the April 2018 monitoring event, flows have been consistently between 0 gpd and 40 gpd, averaging around 15 gpd. There does not appear to be any correlation between VOC concentrations and flow, as sampling during both high- and low-flow periods typically shows only very low levels of detectable petroleum VOCs in the influent. It has been noted that under extreme conditions, such as March 2017, the treatment system may need to be bypassed to prevent backup and possible basement flooding.

The SMS and the City of Burlington have been copied on all submitted discharge monitoring reports (DMRs) for the permitted discharge of treated petroleum-contaminated water into the City of Burlington sanitary sewer. Copies of the DMRs are not included in this report's Appendices.

2.2 Treatment System VOC Concentrations

Water quality data collected from the treatment system influent and effluent between July 2017 and June 2018 are included in Table 3. Several important trends in the data have been identified:

- Total petroleum VOC concentrations (MTBE, Benzene, Toluene, Ethylbenzene, Xylenes, Trimethylbenzenes, and Naphthalene) vary from non-detected to < 47.9 ug/L. No detected compounds have exceeded their respective VGES or permit standards; further, the influent concentrations reported to date are below the permit's **effluent** requirements.

- Influent concentrations did not appear to increase significantly during high water table events as had been expected.

- TPH has been generally non-detected, with some minor exceptions (December 19, 2017, March 23, 2018)

- VOCs have been generally non-detected in the system Effluent, except for a single low-level detection of 1,2,4-Trimethylbenzene on April 3, 2017 (with > 10 unidentified peaks). Occasionally, one (1) unidentified peak is detected in the effluent sample.

- TPH has been consistently non-detected in the Effluent.

- On April 3, the date of groundwater sampling, only low levels of VOCs were detected in the influent (1,3,5-Trimethylbenzene, 1.2 ug/L; 1,2,4-Trimethylbenzene, 1.6 ug/L; Naphthalene, 2.3 ug/L), all far below VGES. TPH was non-detected in the influent.

- VOCs and TPH were non-detected in the Effluent sample.

2.3 Groundwater Sampling

On April 3, 2018, WHEM sampled the two (2) remaining monitoring wells, identified on the Site Plan as MW-1 and MW-3. MW-2 was formally abandoned in Spring 2017 in order to repair the home's sewer effluent pipe. This well had been consistently free and clear of petroleum-related contamination, and is not proposed to be replaced.

Prior to sampling, wells were gauged for depth to groundwater, which measured 2.66 ft below top of casing (BTOC) in MW-1 to 3.41 ft BTOC in MW-3. Groundwater elevations, presented in Table 1 in Appendix 2, ranged from 97.34 ft (MW-1) to a low of 95.13 ft (MW-3). Groundwater elevations have been mapped and contoured as shown in Figure 2 in Appendix 1. The measured water table elevations were the highest observed to date. Historically, groundwater contours have shown a depression at MW-2, likely due to influence from the home's perimeter drain system. It is assumed, even without MW-2, that the same approximate groundwater contours were present during the April 2018 monitoring event. The site-wide horizontal hydraulic gradient is calculated at 0.065 ft/ft to the east-northeast, or 6.5% (calculated from MW-1 to MW-3). This is a shallower gradient than had been calculated when MW-2 was utilized as the furthest downgradient monitoring well, due to the apparent water table depression at MW-2.

Both wells were sampled via low-flow protocol, allowing the following geochemical parameters to stabilize prior to sampling: Temperature, Dissolved Oxygen, Specific Conductance, pH, Oxidation-Reduction Potential, and turbidity. Wells were sampled via peristaltic pump, at a rate of approximately 150-200 ml/min. Each of the aforementioned parameters was recorded every three minutes until each parameter was stable for three consecutive readings, or until the well was dry (as was the case with MW-1). Refer to the Field Sheets, provided in Appendix 4. Final parameter readings for both wells can be found in Table 5 in Appendix 2.

All wells were allowed to recharge prior to sampling. Samples were collected directly from the outlet of the peristaltic pump. Samples were delivered on ice following chain-of-custody procedures to Endyne Laboratories in Williston, Vermont, and submitted for analysis by 8021B for petroleum VOCs.

Purged groundwater from MW-1 had a faint petroleum odor and faint sheen. Groundwater from MW-3 at first possessed a very ephemeral petroleum odor, but quickly cleared and no further odor was detected. MW-1 displayed some odd trends during low-flow sampling; specifically, dissolved oxygen reached a low of 0.78 mg/L before working upwards, eventually up to very different conditions altogether (3.36 mg/L). Also, ORP in this well was as low as -176.0 mV, but began to ascend as dissolved oxygen increased, reaching -115.5 mV for the final reading. Since the well went dry, parameters never stabilized. It is possible that this is due to drawing-down of the water column rather than influent of fresh water to the well. Therefore, the well was allowed to rest for 10 minutes prior to sampling. Refer to the Field Sheets in Appendix 4 for more details.

2.3 Groundwater Results

The groundwater results are presented in Table 2 in Appendix 2. The full laboratory report is provided in Appendix 3. Charts depicting variation in Naphthalene concentrations in Sump North, Sump South, and MW-1 are also included in Appendix 2. Groundwater elevation in MW-1 has been added to each of these charts to show the relationship between water table elevation and concentrations at these three locations. All concentrations have been compared to the Vermont Groundwater Enforcement Standards (VGES). These results, shown in micrograms per liter (ug/L), are summarized below:

- VOCs were non-detected in MW-3, as has consistently been the case since the well was first sampled in August 2014.

- In MW-1, total VOC concentrations increased slightly from July 2017 (119.8 ug/L) to 123.7 ug/L. However, no VGES exceedances were reported. Benzene (3.2 ug/L) increased slightly, but remained below VGES. Ethylbenzene (18.1 ug/L) and Xylenes (40.7 ug/L) also increased, but remained below VGES. 1,2,3- and 1,2,4-Trimethylbenzene both decreased, and remained well below VGES. Naphthalene (16.6 ug/L), which typically exceeds VGES along with Benzene, was reported below VGES. This is the first time that no VGES exceedances have been reported in MW-1 since August 2014.

- The total VOC concentration in MW-1 (123.7 ug/L) is the third-lowest to date.

- As displayed in the Charts in Appendix 2, although there is some positive correlation at this site between water table elevation and Naphthalene concentrations, this has not been the case for the past three monitoring events. In July 2018, Naphthalene and other VOC concentrations were very low despite the highest water table elevation reported to date.

- There were no VGES exceedances at Sump South, though Sump South VOC concentrations were notably higher than Sump North ("Influent") concentrations on the date of sampling. This makes sense given Sump South's proximity to the source area, and is generally the case.

- This is the first monitoring event to date in which there were no VGES exceedances at any of the monitoring locations (monitoring wells and sumps).

- Based on the reported concentrations in groundwater at MW-1 and MW-3, it remains extremely unlikely that any VGES exceedances would occur in groundwater at the downgradient property line as a result from the fuel oil release at the Young residence.

Quality Assurance/Quality Control (QA/QC) samples included a Trip Blank, which was prepared at WHEM using de-ionized water obtained from Endyne Laboratories in Williston. No contaminants were detected in the Trip Blank. A duplicate sample was collected from MW-1; duplicate results showed excellent parity, with relative percent difference (RPD) ranging from 1.21% to 4.52% for detected compounds. Results of the QA/QC sampling, included as Table 4 in Appendix 2 and in the lab report in Appendix 3.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results presented in this report, WHEM reaches the following conclusions:

1. The Sump Treatment System is performing as intended, preventing the intrusion of petroleum-contaminated groundwater from entering the basement and stripping sump water of petroleum-related VOCs prior to discharge into the City of Burlington's sanitary sewer system. The SMS has been copied on all Discharge Monitoring Reports to date. The system has operated continuously since its activation in late July 2016; a leak that developed in late February 2017 was repaired, and no issues have developed since.

2. VOC concentrations in System Influent samples collected monthly since system activation indicate that no petroleum VOCs are present in exceedance of influent limits. Further, **influent concentrations have been consistently been below VGES and treated system effluent requirements**. These data suggest that ongoing treatment of sump water prior to discharge into the sanitary sewer may not be necessary going forward.

3. Compared to July 2017, an overall upward trend in VOC concentrations was observed. Despite the increasing trend in several VOCs at MW-1 and Sump South, there were no VGES exceedances reported; this is because Naphthalene, which narrowly exceeded the VGES in MW-1 in July 2017, decreased to 16.6 ug/L (VGES = 20.0 ug/L) in April 2018. This is the first monitoring event in which no VGES exceedances were reported in MW-1 since 2014.

4. Low concentrations of VOCs were detected in Sump North and Sump South; the April 2018 data show some of the lowest concentrations observed to date. There were no VGES exceedances in either sump.

5. No petroleum VOCs were detected in MW-3, as has historically been the case.

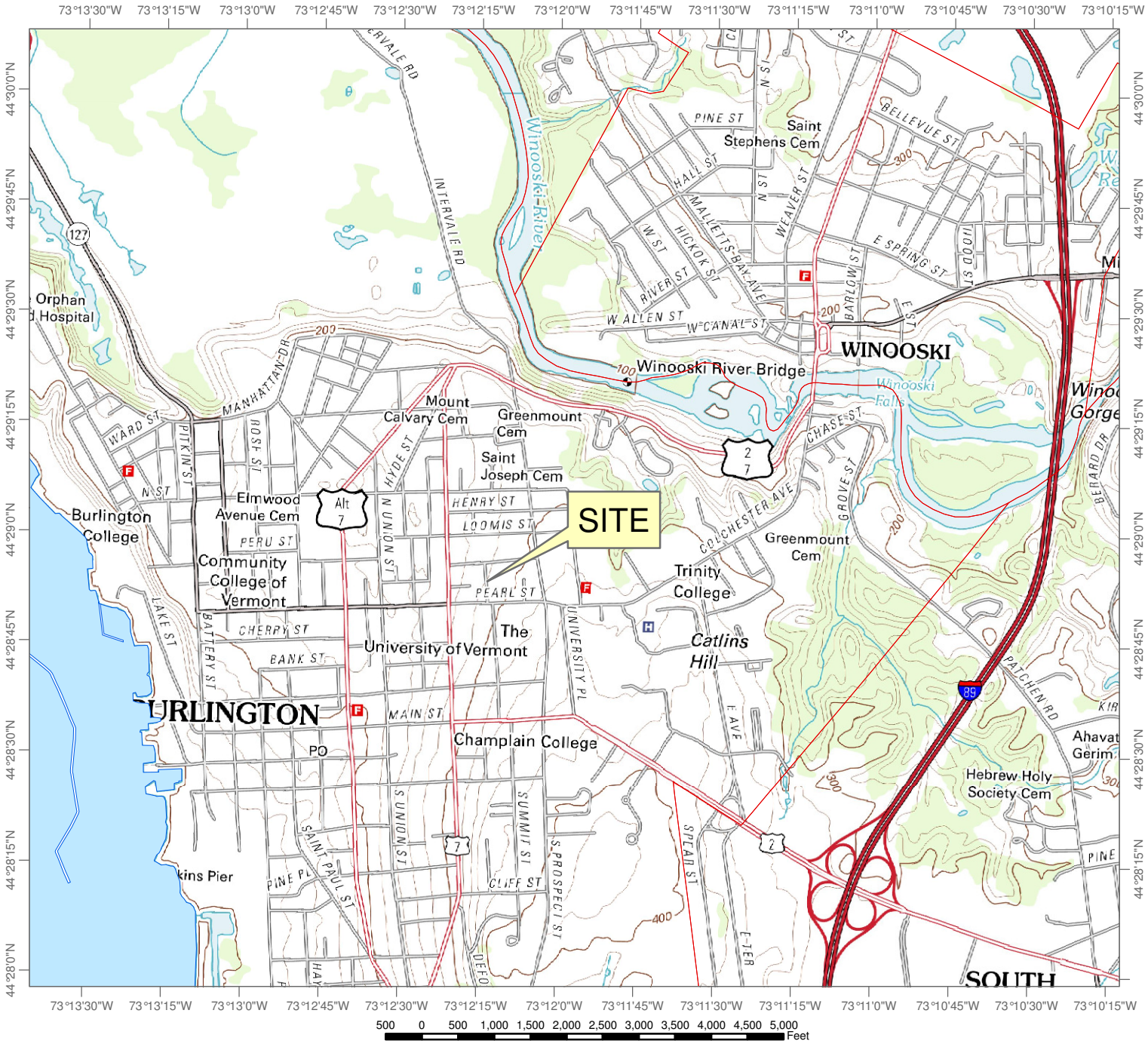
6. April 2018 is the first event in which no VGES exceedances were observed at any monitoring location.

7. Based on groundwater data to date, it is highly unlikely that there are any impacts to groundwater quality at the downgradient property line.

Based on recent data collected from the site, including groundwater quality, soil quality, and ongoing sump sampling results, WHEM recommends that the site be considered for Sites Management Activities Complete (SMAC) designation. Based on the presence of shallow soil contamination in the immediate vicinity of the tank grave, a notice to land records may be required. Prior to SMAC designation, the granular activated carbon (GAC) filter will need to be removed and properly disposed of, both remaining monitoring wells will need to be abandoned, and the sump treatment system will need to be re-plumbed for metered discharge directly to the sanitary sewer system. To remain compliant with City of Burlington rules, the system must remain plumbed to a radio-read totalizing flow meter.

APPENDIX 1

FIGURES



USGS

Young Property
28 N. Williams Street
Burlington, Vermont

October 1, 2013
Map produced by:
C:\Users\MILESW~1\AppData\Local\Temp\~DFE51841EF9C75B4E3.TMP

Subject Area
Town Boundary

Site Coordinates:
Geographic (Degrees Minutes Seconds):
Northing: 0
Easting: 0
VT State Plane Meters:

Circle Radius: 0.5 mile(s)

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• Water and Wastewater Design •
Burlington, Vermont • (802) 860-9400

References:

United States Geological Survey xxxx Vermont Quadrangle. Computer file, USGS. Distributed through Vermont Center for Geographic Information, April 2007.
Town boundary, best sources. Computer file, bndhash, Vermont Center for Geographic Information, Waterbury, VT. Distributed through Vermont Center for Geographic Information, Inc. 2007.

GARAGE

NEW (JULY 2016)
GROUNDWATER
TREATMENT SYSTEM

AS
OUTDOOR

JANUARY 2014
EXCAVATION LIMITS

ASPHALT
DRIVEWAY

ADDITION:
SLAB ON GRADE

STUDY

SIDEWALK

RELICT U.S.T. REMOVED
SEPTEMBER 2013

SEPTEMBER 2013 EXCAVATION
LIMITS

CRAWL SPACE

HA-5 HA-6 HA-3
HA-8 HA-1 HA-2
HA-7 HA-4 HA-1

MW-1

FRENCH DRAIN

SUMP SOUTH

KITCHEN (1ST FLOOR)

SUMP NORTH

DISCHARGE TO
SANITARY SEWER

AS
BASEMENT
POOL TABLE
(BASEMENT)

BASEMENT
FLOOR ELEV. APPROX: 92 FT

LIVING ROOM
(1ST FLOOR)

AS
FIRST FLOOR

YOUNG RESIDENCE
28 N. WILLIAMS STREET
SITE #2013-4436

EXISTING CLEANOUT IN
FLOOR HATCH

UNUSED A.S.T. REMOVED
IN JANUARY 2014

HUDDLE RESIDENCE
34 N. WILLIAMS STREET
SITE #2011-4316

20 N. WILLIAMS STREET

MW-2
ABANDONED

MW-3

WATER LINE (APPROX)

SEWER LINE (APPROX)

ASPHALT DRIVE

SIDEWALK

N. WILLIAMS STREET

N

LEGEND

- PROPERTY LINE FROM TAX MAP (APPROX)
- SUMP PUMP INSTALLED BY OWNER
- MW-1 MONITORING WELL INSTALLED BY WHEM
- AS AIR SAMPLE LOCATION (NOVEMBER 2014)
- HA-1 HAND AUGER SOIL SAMPLE BY WHEM (APRIL 2017)

0 5 10 20
GRAPHIC SCALE: 1"=10'

NOTES:
1. BASE PLAN IS ORIGINAL BLUEPRINT OF HOUSE PROVIDED BY OWNER.
2. ALL LOCATIONS APPROXIMATE. THIS IS NOT A SURVEYED PLAN.

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Burlington, Vermont • (802) 860-9400

1

DATE: 6/27/2018
PROJECT NO.
DRAWN BY: D.W.F.
PROJ. MGR: C.P.
APPROVED: M.E.W.

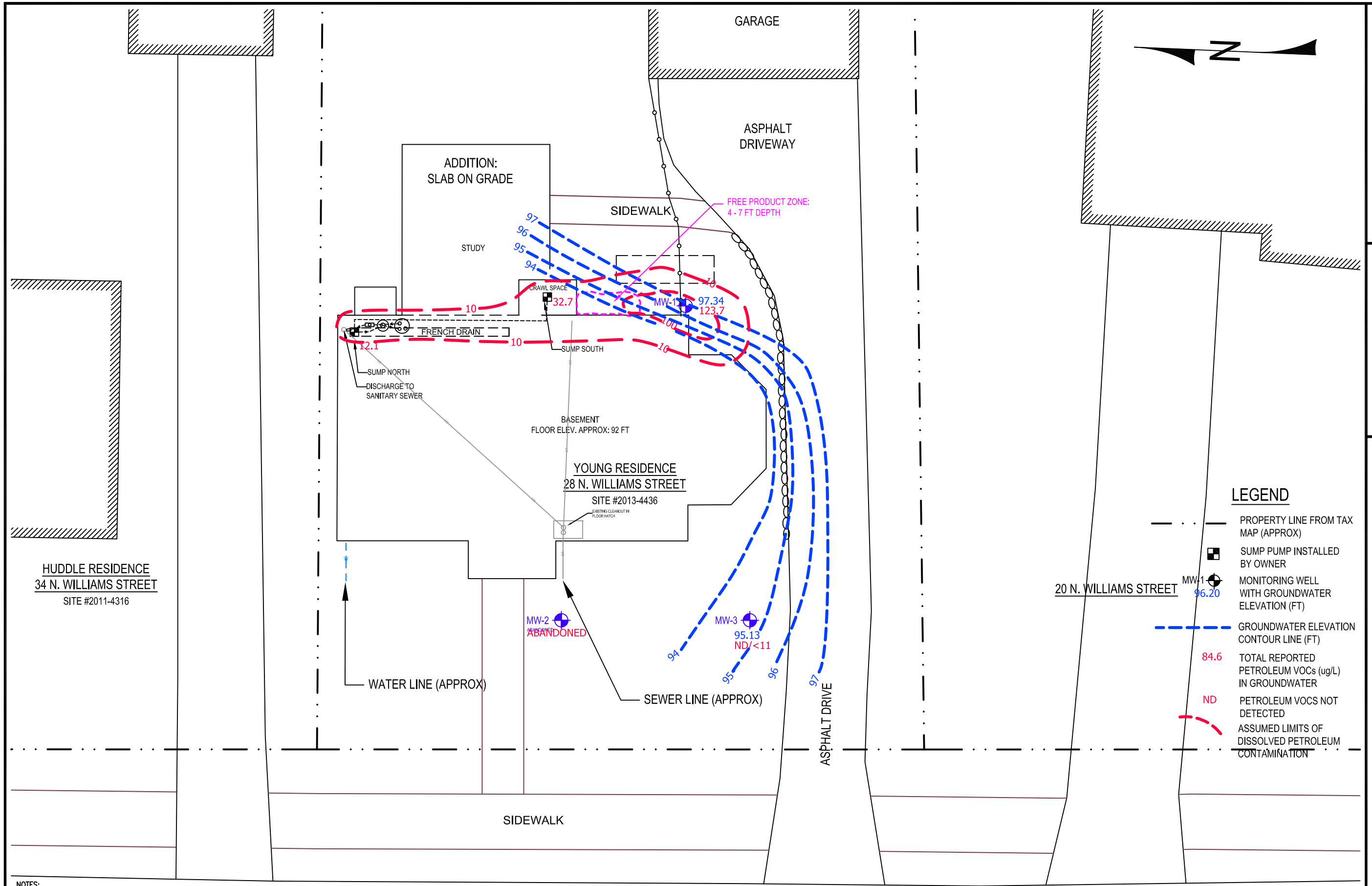
☐ DRAFT ☒ FINAL

YOUNG
28 NORTH WILLIAMS STREET
BURLINGTON, VERMONT

SITE PLAN

FILE: Young Williams Street.dwg

SCALE: 1" = 10'



NOTES:
1. GROUNDWATER ELEVATIONS ARE RELATIVE TO THE ELEVATION OF THE TOP-OF-CASING (TOC) OF WELL MW-1, ABRITRARILY SET AT 100.0 FT. SURVEY CONDUCTED BY WHEM IN DECEMBER 2013.
2. GROUNDWATER ELEVATIONS ARE FROM APRIL 3, 2018.
3. TOTAL PETROLEUM VOCS IS CALCULATED AS SUM OF CONCENTRATIONS OF THE COMPOUNDS BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, TRIMETHYLBENZENES, NAPTHALENE, AND MTBE. SAMPLES COLLECTED ON APRIL 3, 2018 AND ANALYZED BY METHOD 8021B.

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• Water and Wastewater Design •
Burlington, Vermont • (802) 860-9400

2

DATE: 6/27/2018
PROJECT NO.
DRAWN BY: D.W.F.
PROJ. MGR: C.P.
APPROVED: M.E.W.

☐ DRAFT ☒ FINAL

YOUNG
28 NORTH WILLIAMS STREET
BURLINGTON, VERMONT (SITE #2013-4436)

GROUNDWATER ELEVATION AND CONTAMINANT CONCENTRATION MAP - APRIL 2018

FILE: Young Williams Street.dwg

SCALE: 1" = 10'

APPENDIX 2

TABLES AND CHARTS

TABLE 1.0
Groundwater Elevation Measurements:
Young Residence
28 N. Williams Street, Burlington
SMS Site #2013-4436

Well ID	Measuring Point (ft)	Measuring Point Elevation (ft)	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft)
MW-1	TOC	100.00	12/23/13	3.80	96.20
			8/11/14	3.10	96.90
			11/18/14	2.81	97.19
			2/19/15	3.45	96.55
			7/28/15	3.12	96.88
			12/2/15	2.73	97.27
			7/1/16	3.13	96.87
			10/18/16	3.40	96.60
			7/7/17	2.98	97.02
			4/3/18	2.66	97.34
MW-2	TOC	99.20	12/23/13	7.28	91.92
			8/11/14	7.04	92.16
			11/18/14	6.96	92.24
			2/19/15	7.10	92.10
			7/28/15	7.33	91.87
			12/2/15	7.02	92.18
			7/1/16	6.43	92.77
			10/18/16	7.21	91.99
			7/7/17	Well	Destroyed
			4/3/18	Well	Destroyed
MW-3	TOC	98.54	12/23/13	4.08	94.46
			8/11/14	3.87	94.67
			11/18/14	3.60	94.94
			2/19/15	4.35	94.19
			7/28/15	3.58	94.96
			12/2/15	3.36	95.18
			7/1/16	3.88	94.66
			10/18/16	4.40	94.14
			7/7/17	3.65	94.89
			4/3/18	3.41	95.13

Notes:
-All elevations are in feet, relative to arbitrary benchmark (MW-1 top of casing)
-"<"= less than bottom elevation of well, signifiying that the well dry during monitoring event; "NA" = not available; blank = not sampled.

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TABLE 2.0
Groundwater Quality Data
Young Residence
28 N. Williams St, Burlington, Vermont

Sump South												
Sample Date	Units	VGES	4/29/2014	8/11/2014	11/18/2014	2/19/2015	7/28/2015	12/2/2015	7/1/2016	10/18/2016	7/7/2017	4/3/2018
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)												
MTBE	ug/L (ppb)	40	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 4.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0	**2.5**	ND / < 5.0	ND / < 1.0	ND / < 1.0	ND / < 2.0	**2.3**	**1.2**	**1.5**	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 2.0	**1.1**	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700	**13.6**	**16.9**	**3.4**	**11.8**	**10.3**	**21.4**	**8.5**	**12.8**	ND / < 1.0	**2.3**
Xylenes	ug/L (ppb)	10,000	**22.9**	**14.0**	**3.3**	**13.2**	**30.8**	**67.1**	**12.8**	**11.5**	ND / < 2.0	**7.0**
1,3,5-Trimethylbenzene	ug/L (ppb)	350	**22.8**	**8.0**	**1.4**	**3.9**	**5.4**	**19.3**	**3.3**	**11.8**	ND / < 1.0	**5.7**
1,2,4-Trimethylbenzene	ug/L (ppb)		**27.0**	**26.4**	**4.1**	**16.1**	**16.2**	**46.4**	**5.7**	**7.8**	ND / < 1.0	**4.8**
Naphthalene	ug/L (ppb)	20	**70.1**	**38.3**	**7.0**	**13.9**	**24.6**	**47.8**	**10.1**	**4.8**	ND / < 2.0	**8.9**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--	***156.4***	***103.6***	***19.2***	***58.9***	***87.3***	***202.0***	***44.6***	***53.2***	*ND / < 11.0*	***< 32.7***
Unidentified Peaks	#	--	>10	>10	>10	>10	>10	>10	>10	>10	0	>10
NON-PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260)												
Acetone	ug/L (ppb)	700				ND / < 10.0						
Bromodichloromethane	ug/L (ppb)	80				ND / < 0.5						
Chloroform	ug/L (ppb)					ND / < 1.0						
2-Butanone	ug/L (ppb)	4200				ND / < 10.0						
Tetrachloroethene	ug/L (ppb)	5.0				ND / < 1.0						
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)												
TPH-DRO	mg/L (ppm)											

Sump North (System Influent)												
Sample Date	Units	VGES	4/29/2014	8/11/2014	11/18/2014	2/19/2015	7/28/2015	12/2/2015	7/1/2016	10/18/2016	7/7/2017	4/3/2018
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)												
MTBE	ug/L (ppb)	40	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0	**1.6**	**2.1**	**1.3**	ND / < 1.0	**1.3**	**1.6**	**1.4**	ND / < 1.0	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700	**8.6**	**11.2**	**6.7**	**7.2**	**4.9**	**9.3**	**3.0**	**6.4**	ND / < 1.0	ND / < 1.0
Xylenes	ug/L (ppb)	10,000	**25.3**	**26.4**	**10.3**	**6.3**	**7.3**	**14.2**	**7.8**	**6.0**	ND / < 2.0	ND / < 2.0
1,3,5-Trimethylbenzene	ug/L (ppb)	350	**11.6**	**9.8**	**5.3**	**3.5**	**3.6**	**7.4**	**3.0**	**3.9**	ND / < 1.0	**1.2**
1,2,4-Trimethylbenzene	ug/L (ppb)		**20.0**	**28.1**	**25.8**	**12.8**	**10.5**	**17.0**	**8.3**	**10.2**	ND / < 1.0	**1.6**
Naphthalene	ug/L (ppb)	20	**29.6**	**24.5**	**23.4**	**3.9**	**7.4**	**13.7**	**8.8**	**9.4**	ND / < 2.0	**2.3**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--	***96.7***	***102.1***	***72.8***	***33.7***	***35.0***	***63.2***	***35.3***	***39.9***	*ND / < 11.0*	***< 12.1***
Unidentified Peaks	#	--	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10
NON-PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260)												
Acetone	ug/L (ppb)	700				ND / < 10.0						
Bromodichloromethane	ug/L (ppb)	80				ND / < 0.5						
Chloroform	ug/L (ppb)					ND / < 1.0						
2-Butanone	ug/L (ppb)	4200				ND / < 10.0						
Tetrachloroethene	ug/L (ppb)	5.0				ND / < 1.0						
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)												
TPH-DRO	mg/L (ppm)											ND / <0.60

MW-1												
Sample Date	Units	VGES	4/29/2014	8/11/2014	11/18/2014	2/19/2015	7/28/2015	12/2/2015	7/1/2016	10/18/2016	7/7/2017	4/3/2018
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)												
MTBE	ug/L (ppb)	40		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 10.0	ND / < 10.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0		ND / < 5.0	**4.6**	**5.1**	**5.1**	**7.5**	**4.6**	**6.7**	**2.6**	**3.2**
Toluene	ug/L (ppb)	1,000		**5.4**	**1.8**	**1.0**	ND / < 5.0	ND / < 5.0	ND / < 1.0	**1.5**	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700		**10.6**	**13.2**	**16.8**	**25.6**	**28.5**	**22.3**	**31.5**	**17.1**	**18.1**
Xylenes	ug/L (ppb)	10,000		**34.7**	**40.5**	**42.1**	**70.7**	**93**	**65.8**	**85.2**	**32.4**	**40.7**
1,3,5-Trimethylbenzene	ug/L (ppb)	350		**7.9**	**8.6**	**9.7**	**12.1**	**19.1**	**11.6**	**17.2**	**9.4**	**8.9**
1,2,4-Trimethylbenzene	ug/L (ppb)			**15.9**	**23.2**	**26.5**	**33.4**	**48.5**	**34.7**	**45.5**	**34.4**	**33.2**
Naphthalene	ug/L (ppb)	20		**10.3**	**24.3**	**30.1**	**27.5**	**35.3**	**24.5**	**35.4**	**20.9**	**16.6**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		***84.8***	***116.2***	***131.3***	***174.4***	***231.9***	***166.5***	***225.0***	***119.8***	***123.7***
Unidentified Peaks	#	--		>10	>10	>10	>10	>10	>10	>10	>10	>10
NON-PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260)												
Acetone	ug/L (ppb)	700				**11.3**						
Bromodichloromethane	ug/L (ppb)	80				ND / < 0.5						
Chloroform	ug/L (ppb)					ND / < 1.0						
2-Butanone	ug/L (ppb)	4200				ND / < 10.0						
Tetrachloroethene	ug/L (ppb)	5.0				ND / < 1.0						
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)												
TPH-DRO	mg/L (ppm)											

Waite - Heindel

TABLE 2.0
Groundwater Quality Data
Young Residence
28 N. Williams St, Burlington, Vermont

MW-2												
Sample Date	Units	VGES		8/11/2014	11/18/2014	2/19/2015	7/28/2015	12/2/2015	7/1/2016	10/18/2016	7/7/2017	4/3/2018
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)												
MTBE	ug/L (ppb)	40		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0		
Benzene	ug/L (ppb)	5.0		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0		
Toluene	ug/L (ppb)	1,000		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0		
Ethylbenzene	ug/L (ppb)	700		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0		
Xylenes	ug/L (ppb)	10,000		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0		
1,3,5-Trimethylbenzene	ug/L (ppb)	350		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0		
1,2,4-Trimethylbenzene	ug/L (ppb)			ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0		
Naphthalene	ug/L (ppb)	20		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0		
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	**Well Destroyed**	**Well Destroyed**
Unidentified Peaks	#	--		1	0	2	1	>10	0	0		
NON-PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260)												
Acetone	ug/L (ppb)	700				**22.5**						
Bromodichloromethane	ug/L (ppb)	80				ND / < 0.5						
Chloroform	ug/L (ppb)					ND / < 1.0						
2-Butanone	ug/L (ppb)	4200				ND / < 10.0						
Tetrachloroethene	ug/L (ppb)	5.0				ND / < 1.0						
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)												
TPH-DRO	mg/L (ppm)											

MW-3												
Sample Date	Units	VGES		8/11/2014	11/18/2014	2/19/2015	7/28/2015	12/2/2015	7/1/2016	10/18/2016	7/7/2017	4/3/2018
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)												
MTBE	ug/L (ppb)	40		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Xylenes	ug/L (ppb)	10,000		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
1,3,5-Trimethylbenzene	ug/L (ppb)	350		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
1,2,4-Trimethylbenzene	ug/L (ppb)			ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Naphthalene	ug/L (ppb)	20		ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*	*ND / < 11.0*
Unidentified Peaks	#	--		1	0	0	0	0	0	0	0	0
NON-PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260)												
Acetone	ug/L (ppb)	700				ND / < 10.0						
Bromodichloromethane	ug/L (ppb)	80				ND / < 0.5						
Chloroform	ug/L (ppb)					ND / < 1.0						
2-Butanone	ug/L (ppb)	4200				ND / < 10.0						
Tetrachloroethene	ug/L (ppb)	5.0				ND / < 1.0						
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)												
TPH-DRO	mg/L (ppm)											

NOTES:
1. ND = not detected above any of the estimated reporting limits.
2. VGES = Vermont Groundwater Enforcement Standards, February 2005.
3. Results reported above the method detection limit are indicated in bold.
5. Shaded results are above guideline.
6. NA = Compound not analyzed

Waite - Heindel E M

TABLE 3.0
Sump Treatment System Data
Young Residence
28 N. Williams St, Burlington, Vermont

INFLUENT																		
Sample Date	Units	VGES	**8/2/2016**	**8/16/2016**	**9/6/2016**	**9/20/2016**	**10/5/2016**	**10/18/2016**	**11/1/2016**	**11/15/2016**	**12/8/2016**	**12/23/2016**	**1/3/2017**	**1/19/2017**	**2/7/2017**	**2/21/2017**	**3/7/2017**	**3/21/2017**
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)																		
MTBE	ug/L (ppb)	40		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0
Benzene	ug/L (ppb)	5.0		**1.2**		ND / < 0.5		ND / < 1.0		**1.2**		**0.7**		ND / < 1.0		ND / < 1.0		ND / < 1.0
Toluene	ug/L (ppb)	1,000		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0
Ethylbenzene	ug/L (ppb)	700		**7.1**		ND / < 1.0		**6.4**		**7.1**		**5.2**		**2.8**		**3.4**		**2.4**
Xylenes	ug/L (ppb)	10,000		**7.9**		ND / < 2.0		**6.0**		**12.1**		**10.5**		**6.8**		**8.1**		**5.2**
1,3,5-Trimethylbenzene	ug/L (ppb)	350		**3.7**		**1.0**		**3.9**		**9.6**		**6.1**		**5.7**		**6.9**		**2.5**
1,2,4-Trimethylbenzene	ug/L (ppb)			**9.0**		ND / < 1.0		**10.2**		**12.1**		**11.0**		**9.1**		**11.2**		**4.1**
Naphthalene	ug/L (ppb)	20		**5.8**		ND / < 2.0		**9.4**		**7.0**		**7.4**		**8.8**		**8.9**		**3.4**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		***34.7***		***1.0***		***35.9***		***47.9***		***40.2***		***33.2***		***38.5***		***17.6***
Unidentified Peaks	#	--		>10		5		>10		>10		>10		>10		>10		>10
Total Flow (Calculated from Totalizer)	Gallons		0	80	171	211	239	265	345	526	907	1,124	1,308	1,538	1,918	2,130	2,633	58,369
Flow Over Period	Gallons		NA	80	91	40	28	26	79	182	381	217	184	230	380	212	503	55,736
Daily Flow Over Period	GPD		NA	5.7	4.3	2.9	1.9	2.0	5.7	13.0	16.6	14.5	16.7	14.4	20.0	15.2	35.9	3,981.1
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)																		
TPH-DRO	mg/L (ppm)			**3.4**		ND / < 0.4		**0.67**		ND / < 0.4		**1.7**		ND / < 0.4		ND / < 0.4		ND / < 1.2

EFFLUENT																		
Sample Date	Units	VGES	**8/2/2016**	**8/16/2016**	**9/6/2016**	**9/20/2016**	**10/5/2016**	**10/18/2016**	**11/1/2016**	**11/15/2016**	**12/8/2016**	**12/23/2016**	**1/3/2017**	**1/19/2017**	**2/7/2017**	**2/21/2017**	**3/7/2017**	**3/21/2017**
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs) (EPA Method 8260/8021B)																		
MTBE	ug/L (ppb)	40	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Xylenes	ug/L (ppb)	10,000	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
1,3,5-Trimethylbenzene	ug/L (ppb)	350	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
1,2,4-Trimethylbenzene	ug/L (ppb)		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Naphthalene	ug/L (ppb)	20	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***
Unidentified Peaks	#	--	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE ORGANICS (EPA Method 8015B)																		
TPH-DRO	mg/L (ppm)		ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 0.4	ND / < 1.2

TABLE 3.0
Sump Treatment System Data
Young Residence
28 N. Williams St, Burlington, Vermont

INFLUENT																
Sample Date	Units	VGES	4/3/2017	4/19/2017	5/9/2017	5/19/2017	6/6/2017	6/20/2017	7/7/2017	7/18/2017	8/9/2017	8/22/2017	9/5/2017	9/19/2017	10/2/2017	10/17/2017
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs)																
MTBE	ug/L (ppb)	40		ND / < 2.0		ND / < 2.0		ND / < 2.0	ND / < 2.0			ND / < 2.0		ND / < 2.0		ND / < 2.0
Benzene	ug/L (ppb)	5.0		ND / < 1.0		ND / < 1.0		ND / < 1.0	ND / < 1.0			**1.0**		**0.7**		ND / < 1.0
Toluene	ug/L (ppb)	1,000		ND / < 1.0		ND / < 1.0		ND / < 1.0	ND / < 1.0			ND / < 1.0		ND / < 1.0		ND / < 1.0
Ethylbenzene	ug/L (ppb)	700		**2.6**		ND / < 1.0		**4.1**	ND / < 1.0			**9.5**		**3.4**		**2.2**
Xylenes	ug/L (ppb)	10,000		**8.9**		ND / < 2.0		**8.1**	ND / < 2.0			**13.1**		**7.3**		**4.7**
1,3,5-Trimethylbenzene	ug/L (ppb)	350		**5.7**		**1.4**		**2.8**	ND / < 1.0			**3.8**		**3.2**		**3.4**
1,2,4-Trimethylbenzene	ug/L (ppb)			**9.9**		**2.3**		**6.0**	ND / < 1.0			**9.8**		**6.4**		**6.9**
Naphthalene	ug/L (ppb)	20		**10.4**		**2.4**		**6.8**	ND / < 2.0			**12.4**		**7.7**		**5.8**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		***37.5***		***< 9.1***		***27.8***	*ND / < 5.0*			***49.6***		***28.7***		***23.0***
Unidentified Peaks	#	--		>10		>10		>10	>10			>10		>10		>10
Total Flow (Calculated from Totalizer)	Gallons		59,084	60,394	60,931	61,245	61,470	61,752	62,679	62,872	63,052	63,199	63,475	63,692	63,769	63,885
Flow Over Period	Gallons		715	1,310	537	314	225	282	927	193	180	147	276	217	77	116
Daily Flow Over Period	GPD		55.0	81.9	26.8	31.4	12.5	20.1	54.5	17.6	8.2	11.3	19.7	15.5	5.9	7.8
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE																
TPH-DRO	mg/L (ppm)			ND / < 0.58		ND / < 0.58		ND / < 0.59	ND / < 0.58			ND / < 0.60		ND / < 0.58		ND / < 0.59

EFFLUENT																
Sample Date	Units	VGES	4/3/2017	4/19/2017	5/9/2017	5/19/2017	6/6/2017	6/20/2017	7/7/2017	7/18/2017	8/9/2017	8/22/2017	9/5/2017	9/19/2017	10/2/2017	10/17/2017
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs)																
MTBE	ug/L (ppb)	40	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 0.5	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Xylenes	ug/L (ppb)	10,000	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
1,3,5-Trimethylbenzene	ug/L (ppb)	350	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
1,2,4-Trimethylbenzene	ug/L (ppb)		**1.5**	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Naphthalene	ug/L (ppb)	20	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***
Unidentified Peaks	#	--	**>10**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	**1**
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE																
TPH-DRO	mg/L (ppm)		ND / < 0.57	ND / < 0.56	ND / < 0.55	ND / < 0.57	ND / < 0.56	ND / < 0.59	ND / < 0.58	ND / < 0.58	ND / < 0.58	ND / < 0.58	ND / < 0.57	ND / < 0.58	ND / < 0.59	ND / < 0.59

Waite - Heindel E M

TABLE 3.0
Sump Treatment System Data
Young Residence
28 N. Williams St, Burlington, Vermont

INFLUENT																
Sample Date	Units	VGES	**11/7/2017**	**11/29/2017**	**12/5/2017**	**12/19/2017**	**1/12/2018**	**1/23/2018**	**2/5/2018**	**2/20/2018**	**3/15/2018**	**3/23/2018**	**4/3/2018**	**4/16/2018**	**5/7/2018**	**6/1/2018**
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs)																
MTBE	ug/L (ppb)	40		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0		ND / < 2.0	ND / < 2.0			ND / < 2.0
Benzene	ug/L (ppb)	5.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0	ND / < 1.0			ND / < 1.0
Toluene	ug/L (ppb)	1,000		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0		ND / < 1.0	ND / < 1.0			ND / < 1.0
Ethylbenzene	ug/L (ppb)	700		**6.0**		**4.2**		**2.3**		**1.0**		ND / < 1.0	ND / < 1.0			**3.2**
Xylenes	ug/L (ppb)	10,000		**7.9**		ND / < 2.0		**4.2**		**2.6**		**2.3**	ND / < 2.0			**6.0**
1,3,5-Trimethylbenzene	ug/L (ppb)	350		**5.4**		ND / < 1.0		**1.7**		**1.8**		**1.6**	**1.2**			**3.9**
1,2,4-Trimethylbenzene	ug/L (ppb)			**9.3**		ND / < 1.0		**2.3**		**2.8**		**2.4**	**1.6**			**5.8**
Naphthalene	ug/L (ppb)	20		**13.9**		ND / < 2.0		**3.1**		**3.2**		**2.2**	**2.3**			**9.2**
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--		***42.5***		***10.2***		***13.6***		***11.4***		***8.5***	***5.1***			***28.1***
Unidentified Peaks	#	--		>10		>10		>10		>10		>10	>10			
Total Flow (Calculated from Totalizer)	Gallons		64,130	64,388	64,388	64,388	64,620	64,620	65,098	65,117	65,984	66,189	66,437	66,595	67,324	67,628
Flow Over Period	Gallons		245	258	0	0	232	0	478	19	867	205	248	158	728	305
Daily Flow Over Period	GPD		11.7	11.7	0.0	0.0	9.7	0.0	36.7	1.3	37.7	25.6	22.6	12.2	34.7	12.2
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE																
TPH-DRO	mg/L (ppm)			ND / < 0.59		**3.0**		ND / < 0.58		ND / < 0.58		**0.68**	ND / < 0.60			ND / < 0.58

EFFLUENT																
Sample Date	Units	VGES	**11/7/2017**	**11/29/2017**	**12/5/2017**	**12/19/2017**	**1/12/2018**	**1/23/2018**	**2/5/2018**	**2/20/2018**	**3/15/2018**	**3/23/2018**	**4/3/2018**	**4/16/2018**	**5/7/2018**	**6/1/2018**
PETROLEUM VOLATILE ORGANIC COMPOUNDS (VOCs)																
MTBE	ug/L (ppb)	40	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
Benzene	ug/L (ppb)	5.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Toluene	ug/L (ppb)	1,000	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Ethylbenzene	ug/L (ppb)	700	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Xylenes	ug/L (ppb)	10,000	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
1,3,5-Trimethylbenzene	ug/L (ppb)	350	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
1,2,4-Trimethylbenzene	ug/L (ppb)		ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0	ND / < 1.0
Naphthalene	ug/L (ppb)	20	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0	ND / < 2.0
TOTAL PETROLEM VOCS	*ug/L (ppb)*	--	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***	***ND***
Unidentified Peaks	#	--	0	0	0	0	**1**	0	0	**1**	0	**1**	0	**1**	0	0
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE																
TPH-DRO	mg/L (ppm)		ND / < 0.58	ND / < 0.59	ND / < 0.59	ND / < 0.57	ND / < 0.59	ND / < 0.59	ND / < 0.58	ND / < 0.59	ND / < 0.59	ND / < 0.58	ND / < 0.58	ND / < 0.58	ND / < 0.59	ND / < 0.58

TABLE 4.0
Quality Assurance / Quality Control Data
Young Residence
28 N. Williams Street, Burlington, Vermont

Sample Location		Trip Blank	MW-1	Duplicate	RPD
Sample Date		4/3/2018	4/3/2018	4/3/2018	
Benzene	ug/L (ppb)	ND / 1.0	**3.2**	**3.1**	**3.17%**
Toluene	ug/L (ppb)	ND / 1.0	ND / < 1.0	ND / < 1.0	0.00%
Ethylbenzene	ug/L (ppb)	ND / 1.0	**18.1**	**17.3**	**4.52%**
Xylenes	ug/L (ppb)	ND / 2.0	**40.7**	**39.9**	**1.99%**
1,3,5-Trimethylbenzene	ug/L (ppb)	ND / 1.0	**8.9**	**8.7**	**2.27%**
1,2,4-Trimethylbenzene	ug/L (ppb)	ND / 1.0	**33.2**	**31.8**	**4.31%**
Naphthalene	ug/L (ppb)	ND / 2.0	**16.6**	**16.4**	**1.21%**
MTBE	ug/L (ppb)	ND / 2.0	ND / < 2.0	ND / < 2.0	0.00%

Notes:
1. The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. The RPD is defined as 100 times the difference in reported concentration between sample and duplicate, divided by the mean of the two samples. A small RPD indicates good correlation between sample and duplicate. RPD values cannot be calculated ("na") for undetected compounds.

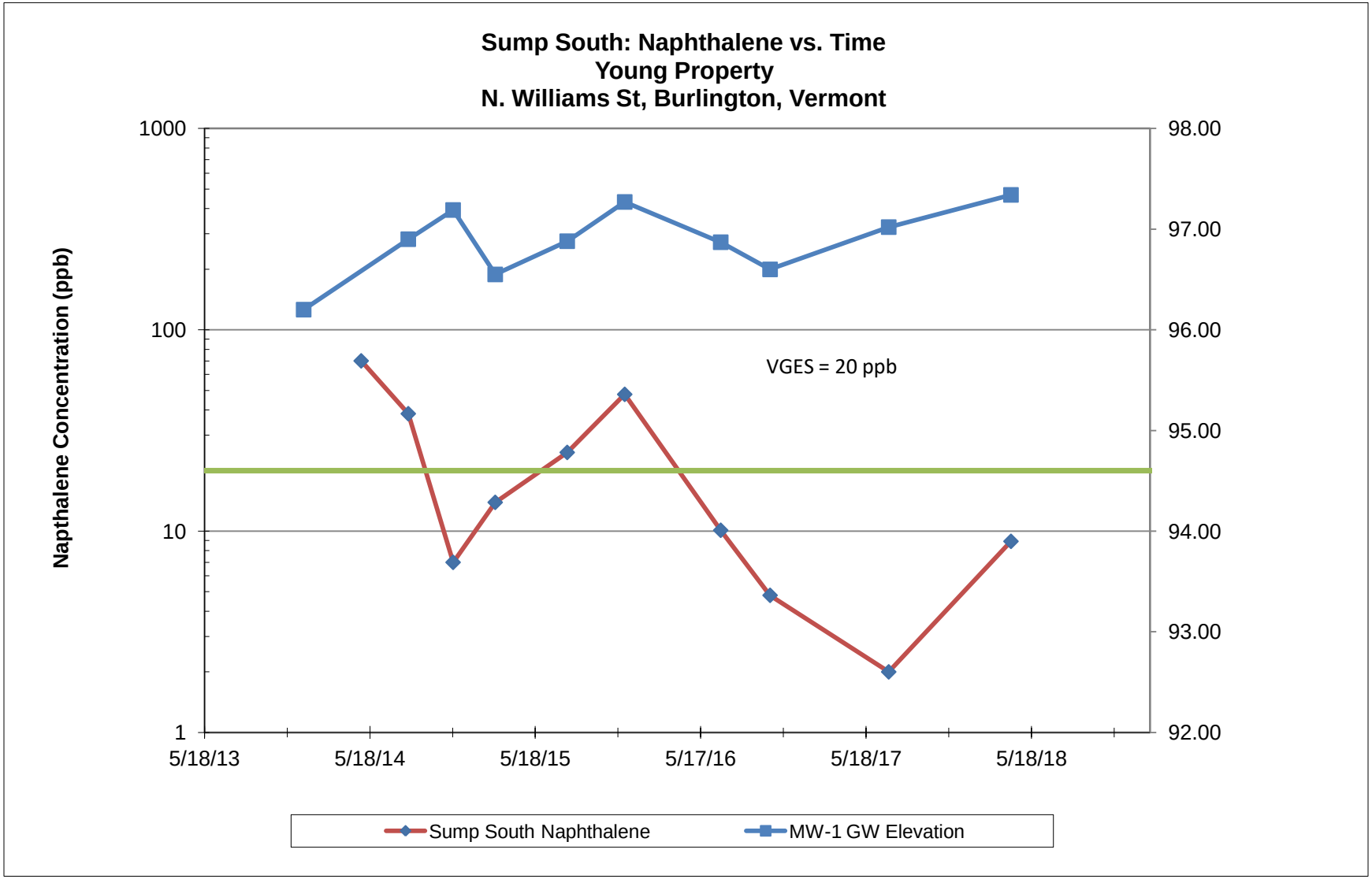
TABLE 5.0
Groundwater Geochemical Data
Young Residence
28 N. Williams Street, Burlington, Vermont

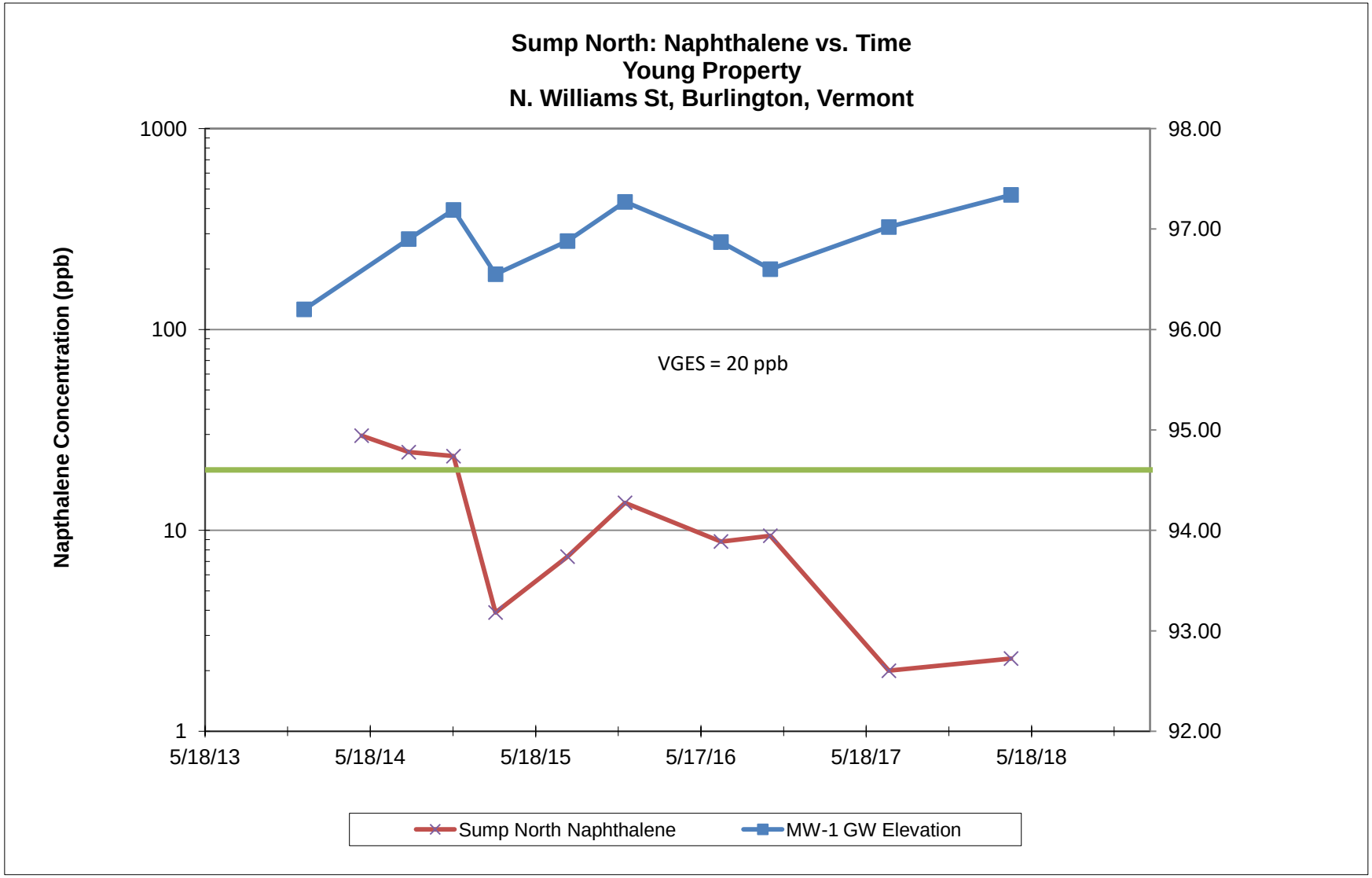
Measurement Date: 12/23/13						
Well I.D.	**Temp.** (deg C)	**Specific Cond.** (us/cm)	**DO** (mg/L)	**pH**	**ORP** (mv)	**Turbidity** (NTU)
MW-1	10.18	2221	2.02	6.78	37.1	11.80
MW-2	10.76	1829	2.35	6.67	-79.6	46.10
MW-3	7.69	2950	2.86	6.71	248.9	12.10

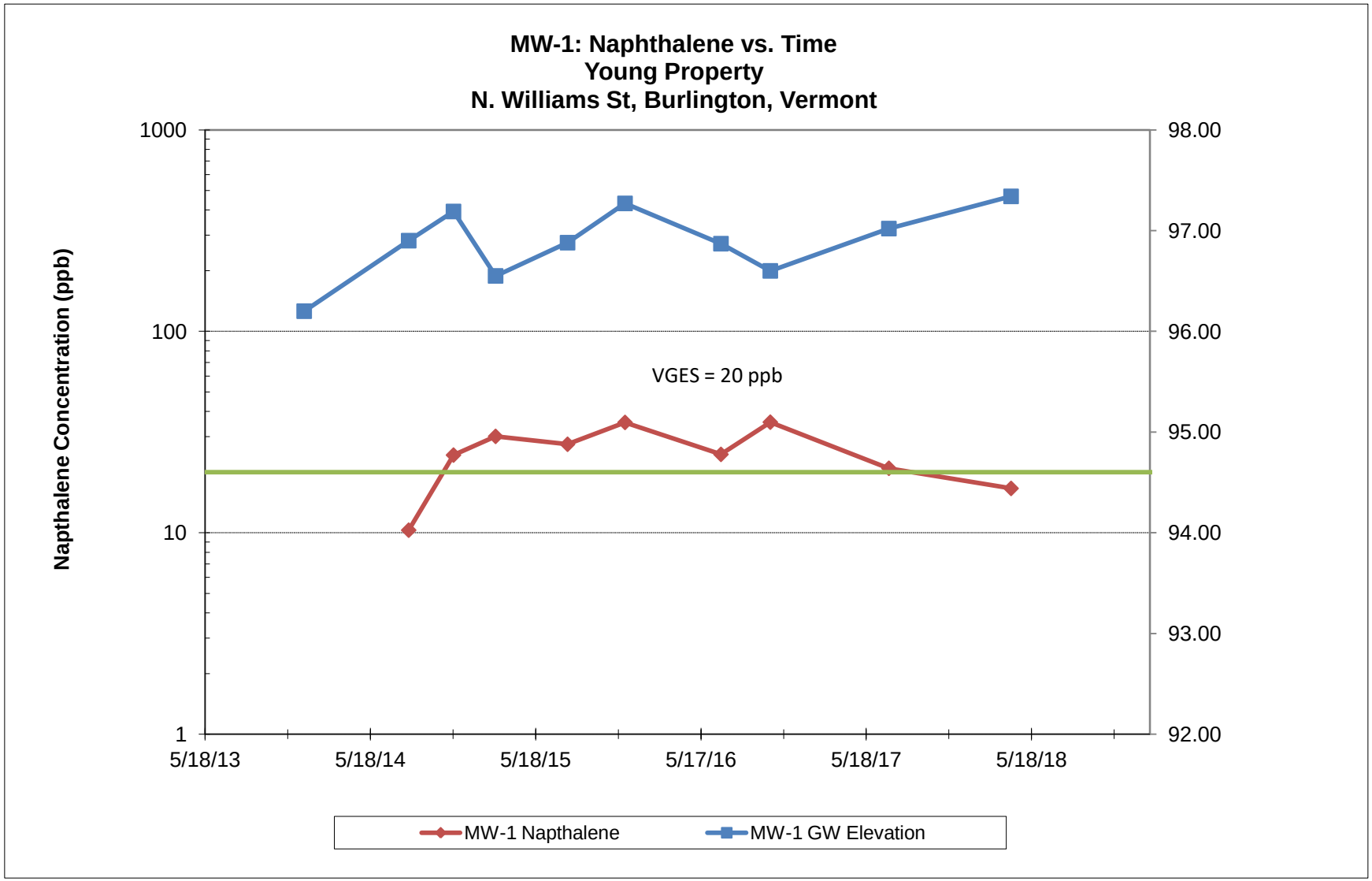
Measurement Date: 11/18/14						
Well I.D.	**Temp.** (deg C)	**Specific Cond.** (us/cm)	**DO** (mg/L)	**pH**	**ORP** (mv)	**Turbidity** (NTU)
MW-1	13.67	1721	2.80	6.78	-125.4	128.60
MW-2	13.04	2031	3.28	6.63	-41.0	82.59
MW-3	11.63	3010	1.42	6.75	-12.4	10.50

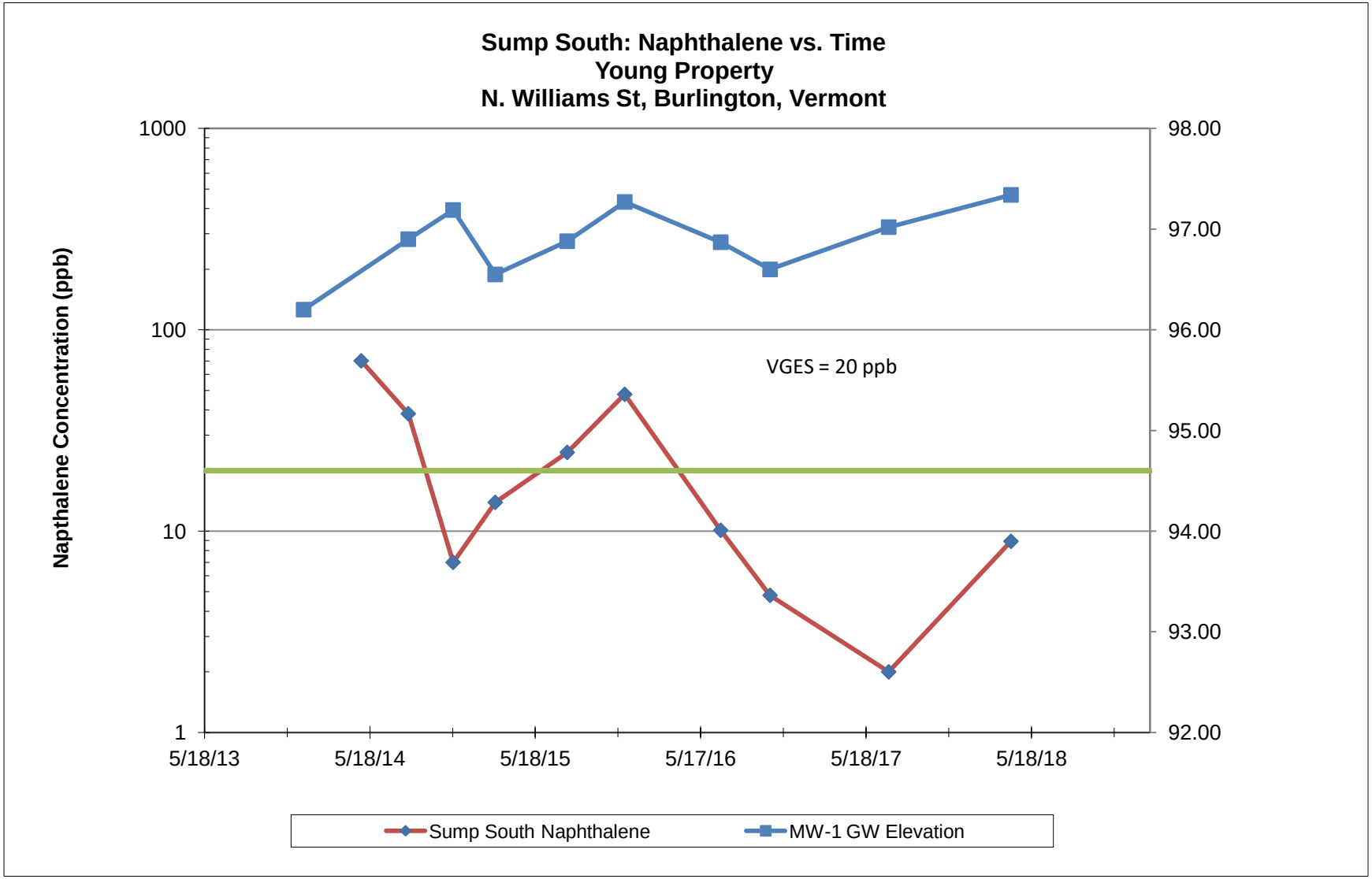
Measurement Date: 4/3/18						
Well I.D.	**Temp.** (deg C)	**Specific Cond.** (us/cm)	**DO** (mg/L)	**pH**	**ORP** (mv)	**Turbidity** (NTU)
MW-1	9.24	1144	3.36	7.28	-115.5	94.81
MW-2	Well Destroyed					
MW-3	5.28	6607	0.77	6.85	-53.8	2.45

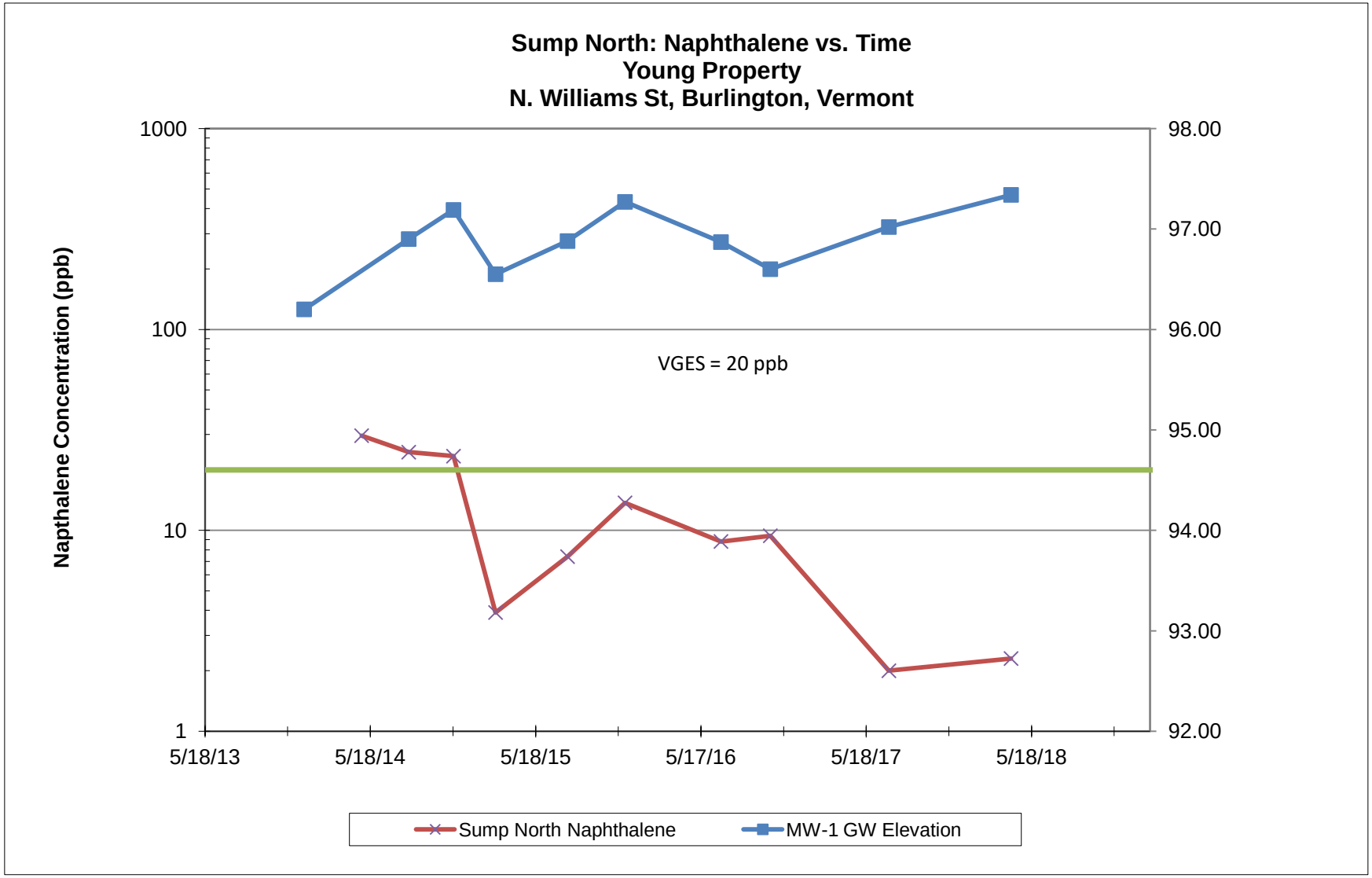
Notes:
1. Data from a YSI 556 calibrated to manufacturer's specifications on the morning prior to use. Data shown are stabilized values after completion of low-flow sampling.
2. us/cm = microsiemens per centimerter; mv=millivolts; mg/L= milligrams per liter; NTU = nephelometric turbidity units.
3. N/A = data not available.

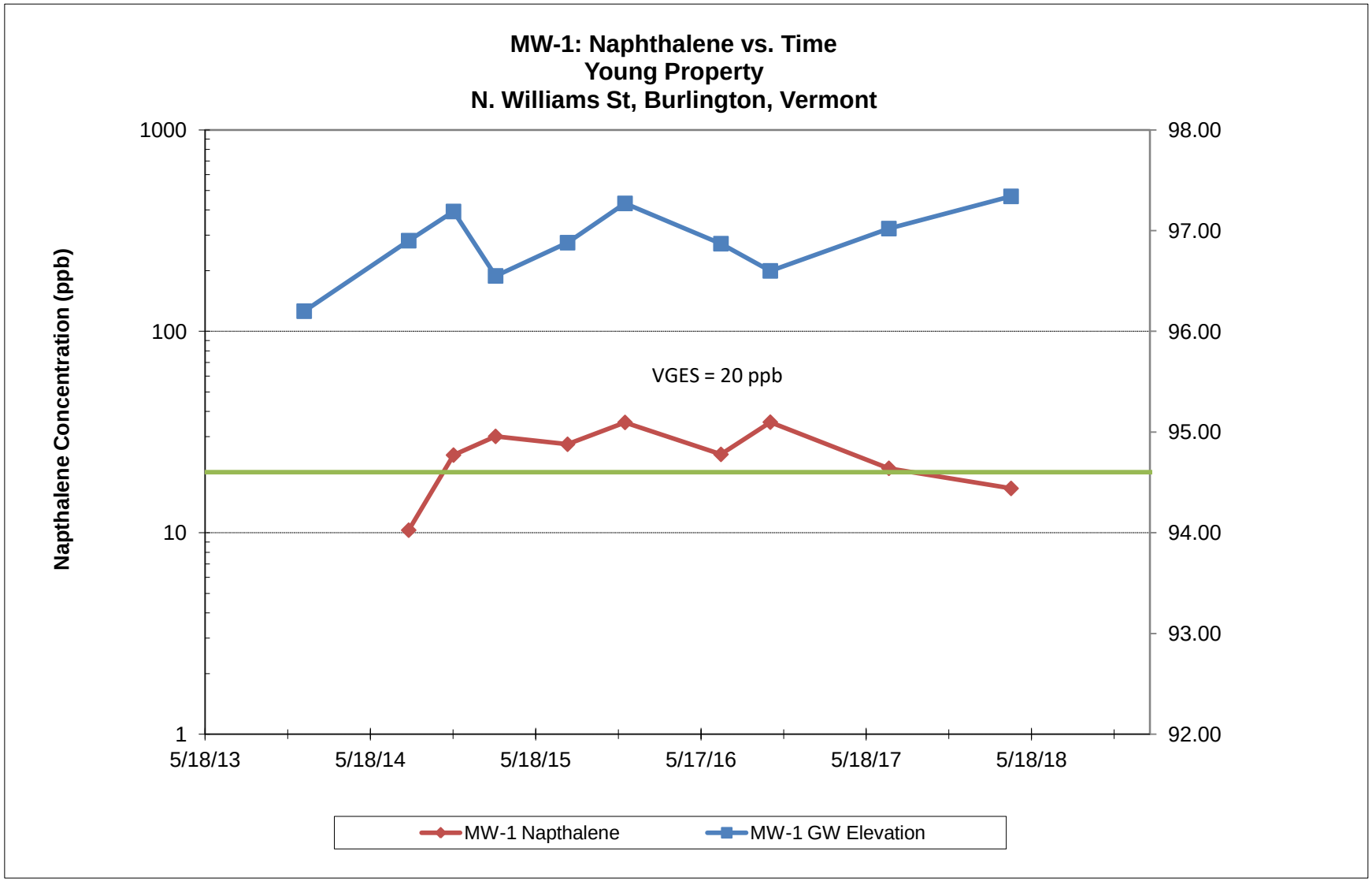

Sump South: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
Sump South Naphthalene
MW-1 GW Elevation


Sump North: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
Sump North Naphthalene
MW-1 GW Elevation


MW-1: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
MW-1 Napthalene
MW-1 GW Elevation


Sump South: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
Sump South Naphthalene
MW-1 GW Elevation


Sump North: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
Sump North Naphthalene
MW-1 GW Elevation


MW-1: Naphthalene vs. Time
Young Property
N. Williams St, Burlington, Vermont
Napthalene Concentration (ppb)
1000
100
10
1
98.00
97.00
96.00
95.00
94.00
93.00
92.00
VGES = 20 ppb
5/18/13
5/18/14
5/18/15
5/17/16
5/18/17
5/18/18
MW-1 Napthalene
MW-1 GW Elevation

APPENDIX 3

LABORATORY REPORTS

ENDYNE Inc.
Environmental Laboratories

Laboratory Report

Waite-Heindel Environmental	100675
7 Kilburn Street, Suite 301	
Burlington, VT 05406	
Atten: Miles Waite	

PROJECT: Young Groundwater
WORK ORDER: **1804-07260**
DATE RECEIVED: April 03, 2018
DATE REPORTED: April 09, 2018
SAMPLER: Chris Page

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: Waite-Heindel Environmental
PROJECT: Young Groundwater
REPORT DATE: 4/9/2018

WORK ORDER: **1804-07260**
DATE RECEIVED: 04/03/2018

TEST METHOD: EPA 8021B

001 Site: Trip Blank Date Sampled: 4/3/18 09:52 Analysis Date: 4/4/18 W TEL

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)	109	%	N		Unidentified Peaks	0		N	

TEST METHOD: EPA 8021B

002 Site: MW-3 Date Sampled: 4/3/18 12:04 Analysis Date: 4/4/18 W TEL

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)	109	%	N		Unidentified Peaks	0		N	

TEST METHOD: EPA 8021B

003 Site: MW-1 Date Sampled: 4/3/18 13:10 Analysis Date: 4/4/18 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	3.2	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	18.1	ug/L	N	
Xylenes, Total	40.7	ug/L	N		1,3,5-Trimethylbenzene	8.9	ug/L	N	
1,2,4-Trimethylbenzene	33.2	ug/L	N		Naphthalene	16.6	ug/L	N	
Surr. 1 (Bromobenzene)	107	%	N		Unidentified Peaks	>10		N	

TEST METHOD: EPA 8021B

004 Site: Duplicate Date Sampled: 4/3/18 Analysis Date: 4/4/18 W TEL

Parameter	Result	Unit	Nelac	Qual	Parameter	Result	Unit	Nelac	Qual
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	N		Benzene	3.1	ug/L	N	
Toluene	< 1.0	ug/L	N		Ethylbenzene	17.3	ug/L	N	
Xylenes, Total	39.9	ug/L	N		1,3,5-Trimethylbenzene	8.7	ug/L	N	
1,2,4-Trimethylbenzene	31.8	ug/L	N		Naphthalene	16.4	ug/L	N	
Surr. 1 (Bromobenzene)	106	%	N		Unidentified Peaks	>10		N	

TEST METHOD: EPA 8021B

005 Site: Sump South Date Sampled: 4/3/18 Analysis Date: 4/4/18 W TEL

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	2.3	ug/L	N	
Xylenes, Total	7.0	ug/L	N		1,3,5-Trimethylbenzene	5.7	ug/L	N	
1,2,4-Trimethylbenzene	4.8	ug/L	N		Naphthalene	8.9	ug/L	N	
Surr. 1 (Bromobenzene)	105	%	N		Unidentified Peaks	>10		N	

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

CHAIN-OF-CUSTODY-RECORD

78579

Special Reporting Instructions/PO#: Young Groundwater

Project Name: Young Groundwater	Client/Contact Name: Chris Page, WHEM	Sampler Name: Chris Page, WHEM
State of Origin: VT X NY __ NH __ Other __	Phone #: 802 860 9400 x104	Phone #: 802 860 9400 x104
Endyne WO #	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	X		4/3/18 9:50	2	40mlsVOA	HCl	19		
MW-3	↓	↓		12:04	↓	↓	↓	↓		
MW-1				13:10						
Dup				—						
Sump South	↓	↓		—	↓	↓	↓	↓		

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
	4/3/18 1445				4/3/18 1445

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH Only	LAB USE ONLY
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	8081 Pest	Delivery: Client
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	8082 PCB	Temp: 7.5°C
4	Nitrite N	9	BOD	14	Turbidity	19	VT PCF	24	8260B	29	PP13 Metals	Comment: ON ICE
5	Nitrate N	10	Alkalinity	15	Conductivity	20	VOC Halocarbons	25	8270 E			
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, S											
32	TCLP (volatiles, semi-volatiles, metals, pesticides, herbicides)					33	Other					
34	Corrosivity	35	Ignitability	36	Reactivity	37	Other					

Other

1804-07260

1804-07260
Waite-Heindel Environmental
Young Groundwater

(White - Laboratory / Yellow - Clie

ENDYNE Inc.
Environmental Laboratories

Waite-Heindel Environmental	
7 Kilburn Street, Suite 301	100675
Burlington, VT 05406	
Atten: Miles Waite	

PROJECT: YOUNG
WORK ORDER: **1804-07275**
DATE RECEIVED: April 03, 2018
DATE REPORTED: April 10, 2018
SAMPLER: CP

Laboratory Report

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

Laboratory Report DATE REPORTED: 04/10/2018

CLIENT: Waite-Heindel Environmental
PROJECT: YOUNG

WORK ORDER: **1804-07275**
DATE RECEIVED 04/03/2018

001 Site: Influent **"Sump North"** Date Sampled: 4/3/18 Time: 13:35

Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual.
Vt Petroleum List 8021B							
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Benzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Toluene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Ethylbenzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Xylenes, Total	< 2.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
1,3,5-Trimethylbenzene	1.2	ug/L	EPA 8021B	4/4/18	W TEL	N	
1,2,4-Trimethylbenzene	1.6	ug/L	EPA 8021B	4/4/18	W TEL	N	
Naphthalene	2.3	ug/L	EPA 8021B	4/4/18	W TEL	N	
Surr. 1 (Bromobenzene)	106	%	EPA 8021B	4/4/18	W TEL	N	
Unidentified Peaks	>10		EPA 8021B	4/4/18	W TEL	N	
TPH DRO Package							
Extraction TPH-DRO	Completed		EPA 3511	4/9/18	W BLW	N	
C7-C10 TPH	< 0.60	mg/L	EPA 8015D	4/10/18	W DPD	U	
C10-C28 TPH-DRO	< 0.60	mg/L	EPA 8015D	4/10/18	W DPD	A	
C28-C40 TPH	< 0.60	mg/L	EPA 8015D	4/10/18	W DPD	U	
Tot. Petroleum Hydrocarbons	< 0.60	mg/L	EPA 8015D	4/10/18	W DPD	U	
Hydrocarbon Window	NA		EPA 8015D	4/10/18	W DPD	U	

002 Site: Effluent Date Sampled: 4/3/18 Time: 13:38

Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual.
Vt Petroleum List 8021B							
Methyl-t-butyl ether (MTBE)	< 2.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Benzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Toluene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Ethylbenzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Xylenes, Total	< 2.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
1,3,5-Trimethylbenzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
1,2,4-Trimethylbenzene	< 1.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Naphthalene	< 2.0	ug/L	EPA 8021B	4/4/18	W TEL	N	
Surr. 1 (Bromobenzene)	113	%	EPA 8021B	4/4/18	W TEL	N	
Unidentified Peaks	0		EPA 8021B	4/4/18	W TEL	N	
TPH DRO Package							
Extraction TPH-DRO	Completed		EPA 3511	4/9/18	W BLW	N	
C7-C10 TPH	< 0.58	mg/L	EPA 8015D	4/10/18	W DPD	U	
C10-C28 TPH-DRO	< 0.58	mg/L	EPA 8015D	4/10/18	W DPD	A	
C28-C40 TPH	< 0.58	mg/L	EPA 8015D	4/10/18	W DPD	U	
Tot. Petroleum Hydrocarbons	< 0.58	mg/L	EPA 8015D	4/10/18	W DPD	U	
Hydrocarbon Window	NA		EPA 8015D	4/10/18	W DPD	U	

Report Summary of Qualifiers and Notes

DRO values are based on the response and calibration of Diesel/#2 Fuel Oil.

Young

Endyne Inc. COC

Prepared: 9/27/16

1804-07275

1804-07275

Waite-Heindel Environmental
YOUNG

Bill to:	Report to:
Miles Waite	Miles Waite
WaiteHeindel Environmental Mgt	WaiteHeindel Environmental Mgt
7 Kilburn Street	7 Kilburn Street
Burlington VT 05406	Burlington VT 05406
Ph: 860-9400	mwaite@waiteenv.com;cheindel

Cust #

W-1006

Influent

Sampled Date/Time: 4 / 3 / 18 @ 1335 Sampler: CP

VOC Vt Petroleum List TPH DRO Package	4 - 40ml vials	<6C, HCl

Effluent

Sampled Date/Time: 4 / 3 / 18 @ 1338 Sampler: CP

VOC Vt Petroleum List TPH DRO Package	4 - 40ml vials	<6C, HCl

Relinquished by: [signature] 4/3/18 1445 Date Time

Accepted by:

Relinquished by: Date Time

Received by: [signature] 4/3/18 1445 Date Time

Sites/Parameters correct as listed. Client Initials CP

Client Authorization to use Subcontract lab Client Initials CP

Sample origin: VT ☒ NH ☐ NY ☐ Other ☐

Special reporting instructions: (PO#)

Requested Turnaround Time: Routine: Rush Due Date

Delv: Client
Temp C: 7.5°C
Comment: UNICE

Tmpl Ck
Log by

Lab use Only

ENDYNE Inc.
www.endynelabs.com

160 James Brown Dr.
Williston, VT 05495
Ph 802-879-4333
Fax 802-879-7103

56 Etna Road
Lebanon, NH 03766
Ph 603-678-4891
Fax 603-678-4893

315 New York Rd.
Plattsburgh, NY 12903
Ph 518-563-1720
Fax 518-563-0052

APPENDIX 4

FIELD SHEETS

Waite-Heindel
Environmental Management

SITE: Young/N. Williams St.
FIELD WATER COLLECTION SHEET

SAMPLING LOCATION	MW-1			Pump Intake Depth	~6.0'
Date	4/3/18			Pump Type	peri
Sampler	CP			Well Diameter	2"
Weather	RAINY			Well Depth	6.68
Water Type	(gw)	sw	supply	Initial Depth to Water	2.66
Sampling Method	bailer	(low flow)	grab	Traditional Purge Rate (ml/min / gpm)	150

LOW FLOW PURGING DATA

	within 3%	within 3%	within 10%	0.1 pH unit	10 mv	within 10%				
Time	Temp. (deg C)	Specific Cond. (us/cm)	DO (mg/L)	pH	ORP (mv)	Turbidity (NTU)	Depth to Water (ft btp)	Purge Rate (ml/min)		Notes
1221	8.83	1,227	7.31	7.27	-161.2	152.0	3.68	150		Heavy Iron flocculation
1224	8.82	1,169	1.76	7.29	-174.6	245.2	3.91			
1227	8.92	1,146	1.11	7.29	-172.3	262.0	4.28			
1230	9.00	1,109	0.87	7.28	-170.9	248.1	4.58			faint, stale petrol odor
1233	9.05	1,096	0.78	7.28	-174.0	208.1	4.89			
1236	9.06	1,099	0.79	7.28	-168.0	170.6	5.14			
1239	9.07	1,111	0.89	7.27	-156.5	123.1	5.49			
1242	9.08	1,115	0.91	7.27	-153.8	98.04	5.62			
1245	9.05	1,125	0.94	7.27	-149.4	85.54	5.78			
1248	9.22	1,130	2.05	7.20	-133.2	129.1	5.78			
1251	9.17	1,138	2.46	7.27	-129.6	105.4	5.82			
1254	9.22	1,141	3.39	7.27	-122.2	98.63	5.98			Moved intake to 6.3'
1257	9.27	1,140	3.53	7.28	-115.0	96.71	6.02			
1300	9.24	1,144	3.36	7.28	-115.5	94.81	6.02			High DO from drawdown?
SAMPLE COLLECTION	Temp.	Specific Cond.	DO	pH	ORP	Turbidity	Depth to Water	Purge Volume		
Final Measurements:	9.24	1,144	3.36	7.28	-115.5	94.81	6.02	1.3g		

Sample Description	Label	Type Container	# Container	Preservative	Analysis Method	Collection Time	COC #	
Sample	MW-1	40ml glass	2	HCl	8021	1310		
Additional								
Additional								
Field Duplicate	DUP	40 ml glass	2	HCl	8021	—		
MS/MSD								
Field Blank								

General Notes:

Purge volume (2 cup/500 ml = 1 mark)

Waite - Heindel
Environmental Management

SITE: Young / N. Williams St
FIELD WATER COLLECTION SHEET

SAMPLING LOCATION	MW-3			Pump Intake Depth	9.0
Date	4/3/18			Pump Type	Peri
Sampler	CP			Well Diameter	1"
Weather	Overcast/RAIN			Well Depth	9.7 ft bgs
Water Type	(gw)	sw	supply	Initial Depth to Water	3.41
Sampling Method	bailer	(low flow)	grab	Traditional Purge Rate (ml/min / gpm)	180

LOW FLOW PURGING DATA

Time	Temp. (deg C) within 3%	Specific Cond. (us/cm) within 3%	DO (mg/L) within 10%	pH 0.1 pH unit	ORP (mv) 10 mv	Turbidity (NTU) within 10%	Depth to Water (ft btp)	Purge Rate (ml/min)		Notes
1141	6.25	4,762	10.23	7.33	-57.4	21.97	4.07	180		
1144	5.52	5,262	2.35	6.70	-50.7	21.24	4.29	180		Reduced flow RATE
1147	5.51	5986	1.47	6.67	-51.9	13.48	4.35	150		
1150	5.50	6,272	1.12	6.70	-53.0	9.11	4.38	↓		
1153	5.36	6385	0.94	6.74	-55.1	3.91	4.49			ephemeral odor-petrol?
1156	5.29	6,489	0.82	6.78	-56.2	3.03	4.52			
1159	5.28	6,577	0.78	6.82	-55.6	2.78	4.53			No odor
1202	5.28	6,607	0.77	6.85	-53.8	2.45	4.55			All stable

SAMPLE COLLECTION	Temp.	Specific Cond.	DO	pH	ORP	Turbidity	Depth to Water	Purge Volume		
Final Measurements:	5.28	6,607	0.77	6.85	-53.8	2.45	4.55	0.8 gal		

Sample Description	Label	Type Container	# Container	Preservative	Analysis Method	Collection Time	COC #	
Sample	MW-3	40 ml glass	2	HCl	8021	1204		
Additional								
Additional								
Field Duplicate								
MS/MSD								
Field Blank								

General Notes:

Purge volume (2 cup/500 ml = 1 mark)