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Quarterly Groundwater Monitoring Report First Quarter (Q1) 2015

# Sag Harbor Former MGP Site

Village of Sag Harbor Suffolk County, Long Island, NY Site ID No. 1-52-159

#### Submitted to:

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## 1. Sag Harbor Site and Adjacent Offsite Areas

### First Quarter (Q1) 2015 Groundwater Monitoring Event Summary

Event Date: March 17 and 18, 2015

Site Phase: Quarterly groundwater monitoring

Location: The location of the Sag Harbor Former MGP site is depicted on Figure 1.

#### **Monitoring Program**

Criteria to reduce the scope of the groundwater monitoring program based on historical and future analytical results were proposed, and subsequently approved by the New York State Department of Environmental Conservation (NYSDEC) on March 21, 2014. The criteria and the resulting reductions to the program were detailed in a follow-up letter to NYSDEC dated May 13, 2014. NYSDEC has required that several monitoring wells in the intermediate zone be exempt from reduction criteria and be sampled annually. These wells include SHMW-03I, SHMW-05I, and SHMW-08I.

Based on the established criteria, eight wells in the intermediate or deep zones were eliminated from the sampling program and five shallow wells were reduced to annual sampling. The reductions in the scope of work are shown in the table below. Going forward, the sampling list will be re-evaluated on a quarterly basis, with changes made, as appropriate.

	Sampling	Frequency		Samplin	g Frequency
Monitoring Well	Former	Current	Monitoring Well	Former	Current
SHMW-01SR	Quarterly	Annual	SHMW-02DR	Annual	Eliminated
SHMW-02S	Quarterly	Annual	SHMW-07IR	Annual	Eliminated
SHMW-03S	Quarterly	Annual	SHMW-10I	Annual	Eliminated
SHMW-10S	Quarterly	Annual	SHMW-11I	Annual	Eliminated
SHMW-13S	Quarterly	Annual	SHMW-12I	Annual	Eliminated
SHMW-01IR	Annual	Eliminated	SHMW-13I	Annual	Eliminated
SHMW-01D	Annual	Eliminated			

Implementation of the reduced sampling scope began in Q2 2014. Based on a review of seasonal data trends, the annual sampling rounds are to be conducted during the third quarter of each year. Seven wells were included in the Q1 2015 quarterly sampling list.



#### **Monitoring Well Network**

A total of 25 monitoring wells are currently located at or in the vicinity of the site (**Figure 2**). MW-05 was destroyed sometime between March and June 2007. Monitoring wells MW-01, MW-02, MW-03, MW-04, MW-06, SHMW-01S, SHMW-01I, SHMW-02I, SHMW-02D, SHMW-04S, SHMW-04I, SHMW-05S, SHMW-05I, SHMW-06S, and SHMW-06I were abandoned prior to the Q4 2008 sampling event due to the remediation activities being conducted at the site. Seven of the monitoring wells, including SHMW-01SR, SHMW-01IR, SHMW-02IR, SHMW-02DR, SHMW-04SR, SHMW-05SR, and SHMW-05IR were replaced as part of the post-remediation monitoring well replacement/installation program in Q4 2010.

Monitoring wells SHMW-02IR and SHMW-04SR were installed as larger diameter wells for potential dense non-aqueous phase liquid (DNAPL) recovery. In addition to the installation of the replacement monitoring wells listed above, new monitoring wells SHMW-01D and SHMW-02S were also installed as part of this program. Monitoring wells SHMW-07S and SHMW-07I, which were damaged presumably during the remedial activities, were abandoned during the replacement well installation program and reinstalled.

#### **Hydrological Data**

Groundwater levels were measured on March 17, 2015 at 22 of the 25 monitoring wells, during low and high tides. Monitoring well SHMW-02IR was repaired during Q3 2011, altering the survey point. As a result, a groundwater level measurement was not taken. Depth to groundwater and calculated groundwater elevations are provided in **Table 1**. Shallow and intermediate groundwater contours for high and low tidal conditions are depicted on **Figures 3** through **6**.

The groundwater flow direction was generally to the west towards Sag Harbor Cove. The ranges in depth to water and water table elevation data, as well as calculated hydraulic gradients for the shallow and intermediate portions of the aquifer in Q1 2015, are provided in the following table:

Depth Zone		High Tide		Low Tide			
	Ran	ige	0 " (2	Ra	•		
	DTW <sup>1</sup>	WLE <sup>2</sup>	Gradient <sup>3</sup>	DTW <sup>1</sup>	WLE <sup>2</sup>	Gradient <sup>3</sup>	
Shallow	0.00 - 3.75	1.00 - 3.69	0.0053	0.00 - 5.14	0.18 - 3.69	0.0064	
Intermediate	0.00 - 4.20	1.43 – 2.67	0.0011	0.00 - 5.29	0.16 - 2.37	0.0036	

Notes:

- 1: Depth to water Measured as feet below top of casing
- 2: Water level elevation Calculated as feet above mean sea level
- 3: Feet/Feet

#### **NAPL Thickness Data**

**Table 2** provides a summary of historical non-aqueous phase liquid (NAPL) data. In Q1 2015, 23 monitoring wells were monitored for NAPL as part of the groundwater monitoring program. Evidence of light non-aqueous phase liquid (LNAPL) or DNAPL in the monitoring



wells during Q1 2015 was limited to approximately 1.5 inches of DNAPL observed at well SHMW-04SR DNAPL monitorina and approximately 14 inches of SHMW-02IR.

#### **Chemical Data**

In Q1 2015, a total of seven wells were sampled for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tert-butyl ether (MTBE) by Environmental Protection Agency (EPA) Method 8260, and for polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270. Well sampling was performed on March 18, 2015 and included all wells on the reduced quarterly sampling list.

Chemical data for Q1 2015 (**Table 3**) indicate:

- Total BTEX concentrations ranged from below method detection limits (ND) in two of the seven wells sampled to 369 micrograms per liter (µg/L) in SHMW-04SR.
- Total PAH concentrations ranged from ND in one of the seven wells sampled to 571 μg/L in monitoring well SHMW-04SR.
- Total MTBE concentrations were ND in all of the wells sampled.

#### **Data Trend Analysis**

In general, total BTEX and total PAH concentrations (see historical data in **Tables 4** and **5**) have been generally decreasing in shallow groundwater on and adjacent to the site. An analysis of the current and historical data is presented in the table below.

Shallow Zone	Historical*		Q3 2014		Q4 2014**		Q1 2015**	
Shallow Zone	Max	Average	Max	Average	Max	Average	Max	Average
Total BTEX	25,860	1,306	3,508	385	840	195	369	81
Total PAHs	12,876	1,000	12,876	1,412	904	329	571	198
Notoo:	1		1					1

Concentrations in µg/L

- Includes data from wells on current sampling list only
- \*\* Includes data from the reduced quarterly sampling list

Concentrations of BTEX and total PAHs were identified in five and six of the seven shallow monitoring wells sampled in Q1 2015, respectively. The BTEX and total PAH concentrations in monitoring wells SHMW-07SR were ND. The concentrations in SHMW-07SR decreased significantly in Q1 2015 compared to historic BTEX concentrations. The BTEX and total PAH concentrations in SHMW-11S were ND and 2 µg/L, respectively. BTEX concentrations in monitoring wells SHMW-05SR (12 µg/L), and SHMW-08S (10 µg/L) were near detection levels. The Q1 2015 detections in these wells were near or below their respective historical mean concentrations.

Elevated BTEX concentrations were identified in the remaining shallow wells in Q1 2015 including, SHMW-04SR (369 μg/L), SHMW-09S (92 μg/L), and SHMW-12S (82 μg/L). The Q1 2015 concentrations in SHMW-04SR, and SHMW-09S increased relative to Q4 2014 and



the concentration in SHWM-12S decreased relative to Q4 2014. The concentrations in each of these wells are significantly below their respective historical means.

Elevated detections of total PAHs were identified in five of the seven shallow monitoring wells sampled during Q1 2015. The total PAH concentrations in SHMW-04SR (571  $\mu$ g/L), and SHMW-09S (529  $\mu$ g/L) increased relative to Q4 2014, but remained below their respective historical means. The total PAH concentrations in SHMW-05SR (94  $\mu$ g/L), SHMW-08S (116  $\mu$ g/L), and SHMW-12S (76  $\mu$ g/L), all decreased relative to Q4 2014 and were similar to, or below their respective historical means. Similar to BTEX concentrations, the total PAH concentrations in SHMW-07SR have decreased significantly in Q1 2015 compared to historic PAH concentrations.

#### **DNAPL Occurrence**

The historical NAPL data (**Table 2**) indicates that measurable quantities of NAPL have primarily been found in two onsite shallow monitoring wells (MW-02 and MW-05), one onsite intermediate well (SHMW-02I), and one offsite shallow well (SHMW-04S). Non-measurable (trace) amounts of NAPL have historically been found in two onsite shallow wells, MW-03 and MW-04, as well as in offsite shallow well SHMW-06S, and was intermittently found in SHMW-07S. All of the wells identified above in which NAPL has been historically detected were either destroyed or abandoned prior to, or during, remedial activities.

No measurable amounts of LNAPL and DNAPL were found in replacement monitoring wells SHMW-04SR and SHMW-07SR during the first three monitoring events following the installation of these wells. To date, no significant evidence of NAPL has been found in these monitoring wells or any of the remaining monitoring wells since Q2 2011, with the following exceptions: approximately six inches of DNAPL were measured in well SHMW-02IR during Q4 2013 and 14 inches of DNAPL were measured in the same well during Q1 2015. As mentioned above, SHMW-02IR was installed to replace SHMW-02I, which was abandoned prior to the Q4 2008 sampling event due to the remediation activities being conducted at the site. DNAPL thicknesses in SHMW-02I reached a maximum of approximately 4 feet immediately prior to abandonment during the Q3 2008 monitoring event. SHMW-02IR was installed as a larger diameter well for potential DNAPL recovery. DNAPL observations in SHMW-02IR have been sporadic and variable in recent sampling events. Thicknesses in this well will continue to be monitored and evaluated during future sampling events.

#### **Future Plans**

- Continue quarterly groundwater and NAPL monitoring at onsite and offsite monitoring wells.
- Consider initiating product recovery from SHMW-02IR.



# **Tables**



Table 1. Water Level Measurements and Calculated Groundwater Elevations Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Top of Casing			3/17	//2015	
Well ID	Elevation (ft)*	Tide	Time	Depth to	Groundwater	Notes
	Elevation (II)			Water (ft)	Elevation (ft)	
SHMW-01SR	3.71	High	0829	1.49	2.22	Well replaced in Q4 2010
SHIVIVY-013K	3.71	Low	1447	1.35	2.36	Well replaced in Q4 2010
SHMW-01IR	3.81	High	0834	1.84	1.97	Well replaced in Q4 2010
SI IIVIVV-0 I IIX	3.01	Low	1446	2.35	1.46	Well replaced III Q4 2010
SHMW-01D	3.67	High	0837	1.19	2.48	Well installed in Q4 2010
SHIVIVV-01D	3.07	Low	1448	2.09	1.58	Well ilistalled ill Q4 2010
SHMW-02S	3.95	High	0828	1.64	2.31	Well installed in Q4 2010
3HWW-023	3.93	Low	1439	1.45	2.50	Well installed in Q4 2010
SHMW-02IR	3.92	High	NM	NM	NC	Survey point altered
SHIVIVV-UZIK	3.92	Low	NM	NM	NC	Survey point aftered
SHMW-02DR	3.66	High	0828	1.54	2.12	Well replaced in Q4 2010
SHIVIVV-UZDK	3.00	Low	1440	2.41	1.25	Well replaced III Q4 2010
CLIMAN OOC	2.02	High	0852	2.55	1.28	
SHMW-03S	3.83	Low	1456	2.85	0.98	
SHMW-03I	3.85	High	0847	1.48	2.37	
3F1WWV-031	3.00	Low	1457	2.64	1.21	
SHMW-04SR	3.90	High	0841	2.43	1.47	Well replaced in Q4 2010
SHIVIVV-045K	3.90	Low	1448	2.33	1.57	well replaced in Q4 2010
SHMW-05SR	5.03	High	0844	2.90	2.13	Well replaced in O4 2010
SHIVIVY-USSK	5.03	Low	1454	3.21	1.82	Well replaced in Q4 2010
CLIMAN OF ID	4.06	High	0843	2.99	1.97	Well replaced in O4 2010
SHMW-05IR	4.96	Low	1451	3.45	1.51	Well replaced in Q4 2010
SHMW-07SR	3.48	High	0909	1.01	2.47	
SHIVIW-U/SK	3.40	Low	1519	0.30	3.18	
SHMW-07IR	3.38	High	0910	1.17	2.21	
SHIVIVY-U/IK	3.30	Low	1520	1.01	2.37	
SHMW-08S	3.69	High	0914	0.00	3.69	
3HWW-003	3.09	Low	15.21	0.00	3.69	
SHMW-08I	3.79	High	0912	1.12	2.67	
SHIVIVV-001	3.79	Low	15.21	1.80	1.99	
SHMW-09S	3.06	High	0903	0.04	3.02	
31111111-093	3.00	Low	1516	0.20	2.86	
SHMW-09I	2.82	High	0902	0.81	2.01	
31 11VIVV -091	2.02	Low	1505	1.40	1.42	
SHMW-10S	4.75	High	0854	3.75	1.00	
O1 11V1VV - 103	4.70	Low	1459	4.31	0.44	
SHMW-10I	4.75	High	0855	2.66	2.09	
OI 11V1VV - 101	4.70	Low	1500	4.59	0.16	
SHMW-11S	5.32	High	0858	3.70	1.62	
31 110100 - 1 13	3.32	Low	1503	5.14	0.18	
SHMW-11I	5.63	High	0857	4.20	1.43	
OI IIVIVV-I II	5.05	Low	1500	5.29	0.34	
SHMW-12S	1.98	High	0906	0.00	1.98	
GI 11010 V - 123	1.30	Low	1512	0.00	1.98	
SHMW-12I	1.99	High	0905	0.00	1.99	
OI IIVIVV-121	1.33	Low	1514	0.00	1.99	
SHMW-13S	3.36	High	1448	NM	NC	Covered by ice and snow
OI 11V1VV - 133	3.30	Low	0903	NM	NC	Covered by Ice and Silow
SHMW-13I	3.50	High	1447	NM	NC	Covered by ice and snow
OI 110100 - 131	3.30	Low	0902	NM	NC	Covered by Ice and Silow

General Notes:

\* Elevations were re-surveyed in November 2010.

NM = Not Measured

NC = Not Calculated

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	May 2002 Observations	May 2004 Observations	Aug 2004 Observations	Oct 2004 Observations	Nov 2004 Observations	Dec 2004 Observations	Jan 2005 Observations	Feb 2005 Observations	Mar 2005 Observations
MW-01	None Observed	Odor	None Observed	Not Checked	NR	NR	NR	NR	NR
MW-02	Approx. 0.16' of DNAPL, sheen on surface	Approx. 0.15' of DNAPL, sheen on surface	Approx. 0.29' of DNAPL	Approx. 0.2' of DNAPL	Approx. 0.01' of DNAPL, 1.0' intermittent DNAPL	Approx. 0.1' of DNAPL	Approx. 0.11' of DNAPL	Approx. 0.16' of DNAPL	Approx. 0.15' of DNAPL
MW-03	Intermittent DNAPL for 1.5'	Approx. 0.03' of DNAPL, naphthalene-like odor	NR	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape
MW-04	None Observed	Approx. 0.02' of DNAPL, naphthalene- like odor	NR	Trace DNAPL at bottom of tape	None Observed	None Observed	Trace DNAPL at bottom of tape	Not Checked (under snow pile)	None Observed
MW-05	Blebs of LNAPL	Approx. 1.0' of DNAPL, naphthalene- like odor	Approx. 0.75' of DNAPL	Approx. 4.5' of LNAPL/NAPL	Approx. 0.35' of DNAPL, 3.6' intermittent DNAPL	Trace DNAPL at bottom of tape, bubbles in WC	Trace DNAPL at bottom of tape	Approx. 0.6' of DNAPL, approx. 0.02' of LNAPL	Sporadic DNAPL, approx. 0.1' of LNAPL
MW-06	None Observed	Slight naphthalene- like odor	NR	NR	NR	NR	NR	NR	NR
SHMW-01S/01SR	None Observed	Slight naphthalene- like odor	NR	NR	NR	NR	NR	NR	NR
SHMW-01I/01IR	None Observed	None Observed	NR	NR	NR	NR	NR	NR	NR
SHMW-01D	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02S	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02I/02IR	None Observed	Approx. 4.9' of DNAPL, sheen	Approx. 4.7' of DNAPL	Approx. 4.9' of DNAPL	Approx. 1.0' of DNAPL, 3.0' intermittent DNAPL	Approx. 0.6' of DNAPL	Approx. 0.65' of DNAPL	Approx. 0.5' of DNAPL	Approx. 0.45' of DNAPL
SHMW-02D/02DR	None Observed	None Observed	NR	NR	NR	NR	NR	NR	NR
SHMW-03S	None Observed	Odor	NR	NR	NR	NR	NR	NR	NR
SHMW-03I	None Observed	None Observed	NR	NR	NR	NR	NR	NR	NR
SHMW-04S/04SR	None Observed	Approx. 0.6' of DNAPL, naphthalene- like odor	NR	Approx. 0.7' of DNAPL, 2.3' intermittent DNAPL	Approx. 0.55' of DNAPL	Approx. 0.29' of DNAPL	Approx. 0.35' of DNAPL	Approx. 0.22' of DNAPL	Approx. 0.25' of DNAPL
SHMW-04I	None Observed	None Observed	NR	NR	NR	NR	NR	NR	NR
SHMW-05S/05SR	None Observed	Blebs of DNAPL in purge water, odor	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	May 2002 Observations	May 2004 Observations	Aug 2004 Observations	Oct 2004 Observations	Nov 2004 Observations	Dec 2004 Observations	Jan 2005 Observations	Feb 2005 Observations	Mar 2005 Observations
SHMW-05I/05IR	None Observed	None Observed	NR						
SHMW-06S	Slight sheen and naphthalene-like odor	Naphthalene-like odor	NR						
SHMW-06I	None Observed	None Observed	NR						
SHMW-07S/07SR	Sheen and naphthalene-like odor	Slight odor	NR						
SHMW-07I/07IR	None Observed	None Observed	NR						
SHMW-08S	None Observed	None Observed	NR						
SHMW-08I	None Observed	None Observed	NR						
SHMW-09S	None Observed	Slight naphthalene- like odor	NR						
SHMW-09I	None Observed	None Observed	NR						
SHMW-10S	None Observed	None Observed	NR						
SHMW-10I	None Observed	None Observed	NR						
SHMW-11S	None Observed	None Observed	NR						
SHMW-11I	None Observed	None Observed	NR						
SHMW-12S	None Observed	Sheen, strong sulfur- like odor	NR						
SHMW-12I	None Observed	None Observed	NR						
SHMW-13S	None Observed	None Observed	NR						
SHMW-13I	None Observed	None Observed	NR						

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Apr/Q1 2005 Observations	Jun/Q2 2005 Observations	Sep/Q3 2005 Observations	Dec/Q4 2005 Observations	Mar/Q1 2006 Observations	Jun/Q2 2006 Observations	Sep/Q3 2006 Observations	Dec/Q4 2006 Observations	Mar/Q1 2007 Observations
MW-01	NR	NR	NR	NR	NR	NR	NR	NR	NR
MW-02	Approx. 0.15' of DNAPL	Trace DNAPL at bottom of tape	Approx. 0.13' of DNAPL	Approx. 0.09' DNAPL, naphthalene-like odor	Approx. 0.01' DNAPL	Approx. 0.12 ' of DNAPL	Approx. 0.15' DNAPL	Approx. 0.10' DNAPL	Approx.0.20' DNAPL
MW-03	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	None, naphthalene- like odor	No DNAPL observed	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)	No DNAPL observed	Trace DNAPL (coating on tubes)
MW-04	None Observed	None Observed	Trace DNAPL at bottom of tape	Trace DNAPL at bottom of tape	Trace DNAPL	Trace DNAPL	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)
MW-05	Sporadic DNAPL, approx. 0.1' of LNAPL.	Approx. 3.0' of DNAPL	Approx. 0.75' of DNAPL, approx. 0.12' of LNAPL	DNAPL blebs in purge H2O, 0.5' DNAPL coating on tubes	Approx. 0.15' of DNAPL, approx. 0.1' of LNAPL	Approx. 0.22' DNAPL; 0.05' of LNAPL	Approx. 0.55' DNAPL; 0.06' of LNAPL	Trace LNAPL; DNAPL in purge water (not measurable)	Trace LNAPL; DNAPL in purge water (not measurable)
MW-06	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-01S/01SR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-01I/01IR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-01D	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02S	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02I/02IR	Approx. 1.1' of DNAPL	Approx. 0.75' of DNAPL	Approx. 0.4' of DNAPL	Approx. 1.3' of DNAPL, naphthalene- like odor	Approx. 0.35' of DNAPL	Approx. 0.43' of DNAPL	Approx. 0.5' of DNAPL	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)
SHMW-02D/02DR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-03S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-03I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-04S/04SR	Approx. 0.25' of DNAPL	Approx. 0.90' of DNAPL	Approx. 0.26' of DNAPL	Approx. 0.5' DNAPL, naphthalene-like odor	Approx. 0.25' of DNAPL	Approx. 0.5' of DNAPL	Approx. 0.25' of DNAPL	Approx. 0.30' of DNAPL	Approx.0.40' DNAPL
SHMW-04I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-05S/05SR	None Observed	None Observed	None Observed	None Observed	No DNAPL observed	None Observed	None Observed	None Observed	None Observed

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Apr/Q1 2005 Observations	Jun/Q2 2005 Observations	Sep/Q3 2005 Observations	Dec/Q4 2005 Observations	Mar/Q1 2006 Observations	Jun/Q2 2006 Observations	Sep/Q3 2006 Observations	Dec/Q4 2006 Observations	Mar/Q1 2007 Observations
SHMW-05I/05IR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-06S	NR	NR	Trace DNAPL at bottom of tape	Approx. 0.10' DNAPL, naphthalene-like odor	Trace DNAPL	Approx. 0.2' of DNAPL	Approx. 0.2' of DNAPL	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)
SHMW-06I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-07S/07SR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-07I/07IR	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-08S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-08I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-09S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-09I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-10S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-10I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-11S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-11I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-12S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-12I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-13S	NR	NR	NR	NR	NR	NR	NR	NR	None Observed
SHMW-13I	NR	NR	NR	NR	NR	NR	NR	NR	None Observed

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Jun/Q2 2007 Observations	Sep/Q3 2007 Observations	Dec/Q4 2007 Observations	Mar/Q1 2008 Observations	Jun/Q2 2008 Observations	Sep/Q3 2008 Obsevations	Dec/Q4 2008 Obsevations	Mar/Q1 2009 Observations	Jun/Q2 2009 Observations
MW-01	NR	NR	None Observed	None Observed	Trace DNAPL	Trace DNAPL (at bottom of tubing)	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
MW-02	Approx.0.07' DNAPL	Approx. 0.11' DNAPL	Approx. ~0.08'	Trace DNAPL	Moderate DNAPL; not measureable	Trace DNAPL	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
MW-03	None Observed	Trace DNAPL (coating on tubes)	Trace	Trace DNAPL (On bottom 1.5' of tubes)	Trace DNAPL	Trace DNAPL (0.05' at bottom of tubing)	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
MW-04	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)	Approx. ~0.02'	NR	Trace DNAPL	Trace DNAPL (at bottom of tubing)	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
MW-05	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed
MW-06	NR	NR	None Observed	None Observed	None Observed	None Observed	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-01S/01SR	NR	NR	None Observed	None Observed	None Observed	None Observed	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-01I/01IR	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-01D	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02S	NI	NI	NI	NI	NI	NI	NI	NI	NI
SHMW-02I/02IR	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)	Approx. ~0.60'	Approx. 3' DNAPL	Approx. 1.5' DNAPL	Approx. 4' DNAPL	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-02D/02DR	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-03S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-03I	NR	NR	None Observed	NR	NR	NR	None Observed	NR	None Observed
SHMW-04S/04SR	Approx.0.50' DNAPL	Approx. 0.5' DNAPL	Approx. ~0.61'	Approx. 1.05' DNAPL	Approx.0.6' DNAPL	Approx.0.75' DNAPL	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-04I	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-05S/05SR	None Observed	NR	None Observed	None Observed	None Observed	None Observed	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Jun/Q2 2007 Observations	Sep/Q3 2007 Observations	Dec/Q4 2007 Observations	Mar/Q1 2008 Observations	Jun/Q2 2008 Observations	Sep/Q3 2008 Obsevations	Dec/Q4 2008 Obsevations	Mar/Q1 2009 Observations	Jun/Q2 2009 Observations
SHMW-05I/05IR	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-06S	Trace DNAPL (coating on tubes)	Trace DNAPL (coating on tubes)	Trace	Trace DNAPL (on tubing)	Trace DNAPL	Trace DNAPL (on tubing)	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-06I	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Abandoned	Well Abandoned
SHMW-07S/07SR	NR	NR	Trace	NR	NR	Trace DNAPL (on side of tubing approx 1' off bottom)	Well Inaccessible or Abandoned	Well Inaccessible	None Observed
SHMW-07I/07IR	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Inaccessible	None Observed
SHMW-08S	NR	NR	None Observed	None Observed	None Observed	None Observed	Well Inaccessible or Abandoned	Well Inaccessible	None Observed
SHMW-08I	NR	NR	None Observed	NR	NR	NR	Well Inaccessible or Abandoned	Well Inaccessible	None Observed
SHMW-09S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	Well Inaccessible	None Observed
SHMW-09I	NR	NR	None Observed	NR	NR	NR	NR	NR	NR
SHMW-10S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-10I	NR	NR	None Observed	NR	NR	NR	NR	NR	NR
SHMW-11S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-11I	NR	NR	None Observed	NR	NR	NR	NR	NR	NR
SHMW-12S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-12I	NR	NR	None Observed	NR	NR	NR	NR	NR	NR
SHMW-13S	NR	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-13I	NR	NR	None Observed	NR	NR	NR	NR	NR	NR

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Sep/Q3 2009 Observations	Dec/Q4 2009 Observations	Mar/Q1 2010 Observations	Jun/Q2 2010 Observations	Sep/Q3 2010 Observations	Dec/Q4 2010 Observations	Mar/Q1 2011 Observations	Jun/Q2 2011 Observations	Sep/Q3 2011 Observations
MW-01	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
MW-02	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
MW-03	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
MW-04	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
MW-05	Well Destroyed	Well Destroyed	Well Destroyed	Well Destroyed					
MW-06	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
SHMW-01S/01SR	Well Abandoned	None Observed	None Observed	None Observed	None Observed				
SHMW-01I/01IR	Well Abandoned	None Observed	None Observed	None Observed	None Observed				
SHMW-01D	NI	NI	NI	NI	NI	None Observed	None Observed	None Observed	None Observed
SHMW-02S	NI	NI	NI	NI	NI	None Observed	None Observed	None Observed	None Observed
SHMW-02I/02IR	Well Abandoned	None Observed	Well Damaged	Well Damaged	Well Damaged				
SHMW-02D/02DR	Well Abandoned	None Observed	None Observed	None Observed	None Observed				
SHMW-03S	None Observed	None Observed	None Observed	None Observed					
SHMW-03I	NR	None Observed	None Observed	None Observed	None Observed				
SHMW-04S/04SR	Well Abandoned	Trace LNAPL - DNAPL observed on tubing	Trace LNAPL - DNAPL observed on tubing	Trace LNAPL - DNAPL observed on tubing	None Observed				
SHMW-04I	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned					
SHMW-05S/05SR	Well Abandoned	None Observed	None Observed	None Observed	None Observed				

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Sep/Q3 2009 Observations	Dec/Q4 2009 Observations	Mar/Q1 2010 Observations	Jun/Q2 2010 Observations	Sep/Q3 2010 Observations	Dec/Q4 2010 Observations	Mar/Q1 2011 Observations	Jun/Q2 2011 Observations	Sep/Q3 2011 Observations
SHMW-05I/05IR	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	None Observed	None Observed	None Observed	None Observed
SHMW-06S	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned
SHMW-06I	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned	Well Abandoned
SHMW-07S/07SR	Trace DNAPL (on side of tubing)	None Observed	None Observed	Well Inaccessible	Well Inaccessible	Trace LNAPL - DNAPL observed on tubing	Trace LNAPL - DNAPL observed on tubing	Trace LNAPL - DNAPL observed on tubing	None Observed
SHMW-07I/07IR	NR	None Observed (approximately 10 feet of sand present in well)	None Observed (approximately 10 feet of sand present in well)	Well Inaccessible	Well Inaccessible	None Observed	None Observed	None Observed	None Observed
SHMW-08S	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-08I	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-09S	None Observed	None Observed	Well Inaccessible	None Observed	None Observed	No access	No access	No access	No access
SHMW-09I	NR	None Observed	None Observed	None Observed	None Observed	No access	No access	No access	No access
SHMW-10S	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-10I	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-11S	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-11I	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-12S	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-12I	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-13S	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed
SHMW-13I	NR	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed	None Observed

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Dec/Q4 2011 Observations	Mar/Q1 2012 Observations	Jun/Q2 2012 Observations	Sep/Q3 2012 Observations	Dec/Q4 2012 Observations	Mar/Q1 2013 Observations	Jun/Q2 2013 Observations	Sep/Q3 2013 Observations	Dec/Q4 2013 Observations
MW-01	Well Abandoned								
MW-02	Well Abandoned								
MW-03	Well Abandoned								
MW-04	Well Abandoned								
MW-05	Well Destroyed								
MW-06	Well Abandoned								
SHMW-01S/01SR	None Observed								
SHMW-01I/01IR	None Observed								
SHMW-01D	None Observed								
SHMW-02S	None Observed								
SHMW-02I/02IR	None Observed	Approx. 6" of DNAPL							
SHMW-02D/02DR	None Observed								
SHMW-03S	None Observed								
SHMW-03I	None Observed								
SHMW-04S/04SR	None Observed								
SHMW-04I	Well Abandoned								
SHMW-05S/05SR	None Observed								

Table 2. Summary of Historical NAPL Observations Sag Harber Former MGP Site Groundwater Monitoring Program - Q1 2015

Well ID	Dec/Q4 2011 Observations	Mar/Q1 2012 Observations	Jun/Q2 2012 Observations	Sep/Q3 2012 Observations	Dec/Q4 2012 Observations	Mar/Q1 2013 Observations	Jun/Q2 2013 Observations	Sep/Q3 2013 Observations	Dec/Q4 2013 Observations
SHMW-05I/05IR	None Observed								
SHMW-06S	Well Abandoned								
SHMW-06I	Well Abandoned								
SHMW-07S/07SR	None Observed								
SHMW-07I/07IR	None Observed								
SHMW-08S	None Observed								
SHMW-08I	None Observed								
SHMW-09S	No access	None Observed	None Observed	None Observed					
SHMW-09I	No access	None Observed	None Observed	None Observed					
SHMW-10S	None Observed								
SHMW-10I	None Observed								
SHMW-11S	None Observed								
SHMW-11I	None Observed								
SHMW-12S	None Observed								
SHMW-12I	None Observed								
SHMW-13S	None Observed								
SHMW-13I	None Observed								

Well ID	Mar/Q1 2014 Observations	Jun/Q2 2014 Observations	Sep/Q3 2014 Observations	Dec/Q4 2014 Observations	Mar/Q1 2015 Observations
MW-01	Well Abandoned				
MW-02	Well Abandoned				
MW-03	Well Abandoned				
MW-04	Well Abandoned				
MW-05	Well Destroyed				
MW-06	Well Abandoned				
SHMW-01S/01SR	None Observed				
SHMW-01I/01IR	None Observed				
SHMW-01D	None Observed				
SHMW-02S	None Observed				
SHMW-02I/02IR	None Observed	None Observed	None Observed	None Observed	Approx. 14" of DNAPL
SHMW-02D/02DR	None Observed				
SHMW-03S	None Observed				
SHMW-03I	None Observed				
SHMW-04S/04SR	None Observed	None Observed	None Observed	None Observed	Approx. 1.5" of DNAPL
SHMW-04I	Well Abandoned				
SHMW-05S/05SR	None Observed				

Well ID	Mar/Q1 2014 Observations	Jun/Q2 2014 Observations	Sep/Q3 2014 Observations	Dec/Q4 2014 Observations	Mar/Q1 2015 Observations
SHMW-05I/05IR	None Observed				
SHMW-06S	Well Abandoned				
SHMW-06I	Well Abandoned				
SHMW-07S/07SR	None Observed	DNAPL Blebs on tubing	DNAPL Blebs on tubing	Approx. 1" of DNAPL	None Observed
SHMW-07I/07IR	None Observed				
SHMW-08S	None Observed				
SHMW-08I	None Observed				
SHMW-09S	None Observed				
SHMW-09I	None Observed				
SHMW-10S	None Observed				
SHMW-10I	None Observed				
SHMW-11S	None Observed				
SHMW-11I	None Observed				
SHMW-12S	None Observed				
SHMW-12I	None Observed				
SHMW-13S	None Observed	None Observed	None Observed	None Observed	NM
SHMW-13I	None Observed	None Observed	None Observed	None Observed	NM

General Notes:

DNAPL = Dense Non-aqueous Phase Liquid
LNAPL = Light Non-aqueous Phase Liquid
WC = Water Column NR = Gauging Not Required
NI = Not Installed NM = Not Measured

Table 3. Summary of BTEX, MTBE and PAH Results **Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015** 

		Sample Name Depth (feet) Sample Date	SHMW-04SR 2-12 3/18/2015	SHMW-05SR 2-12 3/18/2015	SHMW-07SR 1-11 3/18/2015	SHMW-08S 1-7 3/18/2015	SHMW-09S 2-12 3/18/2015	Duplicate of: SHMW-09S 2-12 3/18/2015	SHMW-11S 3.5-13.5 3/18/2015	SHMW-12S 1.5-6.5 3/18/2015
Analyte	Units	NYS AWQS								
BTEX	μg/L									
Benzene		1	62	7	1 U	8	61	62	1 U	70
Toluene		5	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene		5	140	2	1 U	1 U	13	13	1 U	3
Total Xylene		5	160	3	1 U	2	18	18	1 U	9
Total BTEX		NE	369	12	ND	10	92	93	ND	82
Other VOCs	μg/L									
Methyl tert-butyl ether (MTBE)		10*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NYSDEC PAH17	μg/L									
Acenaphthene		20*	39	20	10 U	17	58	49	10 U	2 J
Acenaphthylene		NE	1 J	10 U	10 U	10 U	10 U	10 U	2 J	10 U
Anthracene		50*	3 J	10 U	10 U	2 J	2 J	2 J	10 U	10 U
Benzo(a)anthracene		0.002*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene		0.002*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene		0.002*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene		NE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene		ND	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene		0.002*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene		NE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene		50*	2 J	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Fluorene		50*	11	6 J	10 U	8 J	10	11	10 U	10 U
Indeno(1,2,3-cd)pyrene		0.002*	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene		NE	47	6 J	10 U	5 J	9 J	8 J	10 U	10 U
Naphthalene		10*	450	59	10 U	65	440	380	10 U	74
Phenanthrene		50*	15	3 J	10 U	15	10	10	10 U	10 U
Pyrene		50*	3 J	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Total PAH		NE	571	94	ND	116	529	460	2	76

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## Table 3. Summary of BTEX, MTBE and PAH Results Sag Harbor Former MGP Site **Groundwater Monitoring Program - Q1 2015**

#### Notes:

μg/L = micrograms per liter or parts per billion (ppb)

BTEX = benzene, toluene, ethylbenzene, and xylenes PAHs = polycyclic aromatic hydrocarbons VOCs = volatile organic compounds

Total BTEX and Total PAHs are calculated using detects only.

Total PAH16 is calculated using the EPA16 list of analytes: Acenaphthene, Acenaphthylene, Anthracene, Benz[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno[1,2,3-cd]pyrene, Naphthalene, Phenanthrene, and Pyrene Total PAH17 is calculated using the EPA16 list of analytes plus 2-Methylnaphthalene

NYS AWQS - New York State Ambient Water Quality Standards and Guidance Values for GA groundwater \* indicates the value is a guidance value and not a standard

MGP = Manufactured Gas Plant ND = not detected NE = not established NYSDEC = New York State Department of Environmental Conservation

Bolding indicates a detected result concentration Shading and bolding indicates that the detected concentration is above the NYS AWQS

#### Data Qualifiers:

J = estimated value U = indicates not detected to the reporting limit

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Table 4. Summary of Historical Total BTEX Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Screen								Total E	TEX Cond	centrations	s (µg/L)							
Well No.	Interval									Sampli	ng Date								
Well NO.	(feet)	1995	20	00	2002	20	04		20	05			20	06			20	07	
	(leet)	Nov	Mar	Apr	May	May	Aug	Mar/Apr	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec
MW-01	1.50 - 7.32	2,720	10	68	9	4	0	0	12	67	0	21	47	310	190	160	240	150	270
MW-02	0.50 - 7.25	5,429	8,840	7,940	5,840	13,287	8,740	7,333	13,010		13,720	7,591		14,174	12,267	8,678	12,810	15,181	98
MW-03	2.17 - 10.17	1,222	668	1,553	1,363	2,573		2,050	2,867	560	2,622	4,880	1,971	4,965	2,398	1,680	2,930	3,225	2,831
MW-04	1.25 - 6.81	864	35		10	208		0	0	225	299	268	193	181	101	0	51	89	66
MW-05	2.46 - 7.46	9,100	170	5	102	11,600	2,938	2,697	18,900								-		
MW-06	2.47 - 7.47	334	47	30	91	49		33	55	39	36	74	37	11	54	0	37	31	0
SHMW-01S/01SR	1.0 - 6.0	-		1,413	874	2,102		1,367	1,810	406	1,313	2,562	2,085	5,183	2,915	691	2,460	2,600	1,684
SHMW-01I/01IR	35.0 - 45.0			5	0	0					0				0	0	-		
SHMW-01D	65.0 - 75.0	-			-				-								1	-	
SHMW-02S	1.0 - 6.0																-		
SHMW-02I/02IR	35.0 - 45.0			26	0	1,179	16	20	20	19	25	0	0	0	0		11	12	15
SHMW-02D/02DR	65.0 - 75.0			5	4	0					0				0				0
SHMW-03S	2.0 - 12.0			63	0	110		48	53	46	75	131	67	97	13	122	80	12	50
SHMW-03I	35.0 - 45.0	-		0	52	0			-		0				0				0
SHMW-04S/04SR	2.0 - 12.0	-		7,940	3,154	12,180		9,369	17,730	8,960	21,920	25,860	9,361	18,398	10,489	6,883	20,488	16,120	10,378
SHMW-04I	35.0 - 45.0			5	0	0					0				0				0
SHMW-05S/05SR	2.0 - 12.0			37	69	83		107	282	2,960	115	202	45	43	26	35	458	676	98
SHMW-05I/05IR	35.0 - 45.0			0	0	0					0				0				0
SHMW-06S	2.0 - 6.0			2,392	2,463	3,057		2,630	1,950		2,910	2,622	1,702	4,289	2,196	1,475	2,285	2,162	1,565
SHMW-06I	35.0 - 45.0			0	0	0					0				0				0
SHMW-07S/07SR	1.0 - 11.0			2,011	1,562	414		1,482	3,340	2,458	1,722	1,400	1,060		1,137	185		2,139	726
SHMW-07I/07IR	35.0 - 45.0			0	0	0					0				0				0
SHMW-08S	1.0 - 7.0			5	2	9		0	14	0	15	11	0	19	0	0	0	0	12
SHMW-08I	35.0 - 45.0			0	0	0					0				0		-		0
SHMW-09S	2.0 - 12.0			1,024	506	1,100		500	1,000		920	1,130	770	768	500	418	1,240	178	600
SHMW-09I	35.0 -45.0			0	0	0					0				0		-		0
SHMW-10S	5.0 -15.0				0	0		0	0	0	0	0	0	0	0	0	0	0	0
SHMW-10I	35.5 - 45.5				0	0					0				0				0
SHMW-11S	3.5 - 13.5				0	0		0	0	0	0	0	0	0	0	0	0	0	0
SHMW-11I	35.0 - 45.0				0	0					0				0				0
SHMW-12S	1.5 - 6.5				0	344		142	930	69	290	140	463	581	182	85	623	81	0
SHMW-12I	35.0 - 45.0				0	0					0				0				23
SHMW-13S	1.5 - 6.5				0	0		0	0	0	0	0	0	0	0	0	0	0	0
SHMW-13I	35.0 - 45.0				0	0	-				0				0		-	-	0

Table 4. Summary of Historical Total BTEX Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Screen									Total E	STEX Cond	entrations	s (µg/L)								
Well No.											Sampli	ng Date									
well ivo.	Interval (feet)		20	008			20	009			20	)10			20	11			20	)12	
	(leet)	March	June	Sep	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec
MW-01	1.50 - 7.32	337	141	208											-						
MW-02	0.50 - 7.25	8,865	7,415	2,240																	
MW-03	2.17 - 10.17	2,842	2,241	2,875											-						
MW-04	1.25 - 6.81	-	15	79																	
MW-05	2.46 - 7.46	-																			
MW-06	2.47 - 7.47	1	33	7							-										
SHMW-01S/01SR	1.0 - 6.0	1,595	306	243							-		0	1	0	0	3	0	0	0	0
SHMW-01I/01IR	35.0 - 45.0												0				3				0
SHMW-01D	65.0 - 75.0	1	1								-		0			-	3				0
SHMW-02S	1.0 - 6.0		-										3	0	3	0	5	1	0	0	0
SHMW-02I/02IR	35.0 - 45.0	18	41	29									4	0			14				0
SHMW-02D/02DR	65.0 - 75.0		-										0				0				0
SHMW-03S	2.0 - 12.0	3	0	5	13	111	24	4	9	40	5	0	9	24	2	3	18	0	1	1	0
SHMW-03I	35.0 - 45.0				0		0		0				0		-		0				0
SHMW-04S/04SR	2.0 - 12.0	7,567	8,059	7,561							-		2,717	702	469	292	572	391	709	654	449
SHMW-04I	35.0 - 45.0	-																			
SHMW-05S/05SR	2.0 - 12.0	77	83	64									20	22	25	27	45	25	29	28	16
SHMW-05I/05IR	35.0 - 45.0												0				0				0
SHMW-06S	2.0 - 6.0	1,296	1,343	1,298																	
SHMW-06I	35.0 - 45.0																				
SHMW-07S/07SR	1.0 - 11.0		1,075	1,374			1,500	3,472	2,183	1,825	3,946		858	455	1,172	607	700	1,418	670	2,822	251
SHMW-07I/07IR	35.0 - 45.0												0				11				0
SHMW-08S	1.0 - 7.0	8	9	10			5	5	4	6	13	4	9	7	10	5	9	5	7	2	6
SHMW-08I	35.0 - 45.0	-					0		0				0				5				0
SHMW-09S	2.0 - 12.0	1,039	1,298	671	483		584	455	224											130	165
SHMW-09I	35.0 -45.0				0		0		0											0	0
SHMW-10S	5.0 -15.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHMW-10I	35.5 - 45.5	-	-		0		0		0				0				5				0
SHMW-11S	3.5 - 13.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
SHMW-11I	35.0 - 45.0				0		0		0				0				0				0
SHMW-12S	1.5 - 6.5	166	482	111	279	28	315	45	58	222	217	8	70	82	672	473	337	127	434	41	19
SHMW-12I	35.0 - 45.0		-		0				2	-	-		0				6				0
SHMW-13S	1.5 - 6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	12	0	0	0
SHMW-13I	35.0 - 45.0				0		0		0				0				0				0

Table 4. Summary of Historical Total BTEX Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Screen							centrations	s (µg/L)				
Well No.	Interval				S	ampling Da							
Well No.	(feet)		20	13			20	)14		2015	Min	Max	Mean
	(leet)	March	June	Sept	Dec	March	June	Sept	Dec	March			
MW-01	1.50 - 7.32										0	2,720	236
MW-02	0.50 - 7.25		-								98	15,181	9,129
MW-03	2.17 - 10.17		-								560	4,965	2,416
MW-04	1.25 - 6.81										0	864	149
MW-05	2.46 - 7.46										5	18,900	5,689
MW-06	2.47 - 7.47										0	334	50
SHMW-01S/01SR	1.0 - 6.0	1	8	0	0	0	-	0	-		0	5,183	958
SHMW-01I/01IR	35.0 - 45.0				1				-		0	5	1
SHMW-01D	65.0 - 75.0		1		0		-		-		0	3	1
SHMW-02S	1.0 - 6.0	0	5	0	0	0		0	-		0	5	1
SHMW-02I/02IR	35.0 - 45.0				11			0			0	1,179	61
SHMW-02D/02DR	65.0 - 75.0				0						0	5	1
SHMW-03S	2.0 - 12.0	6	0	0	2	3	-	5	1		0	131	31
SHMW-03I	35.0 - 45.0		-		4			0	-		0	52	4
SHMW-04S/04SR	2.0 - 12.0	158	14	949	1,846	145	504	900	302	369	14	25,860	6,691
SHMW-04I	35.0 - 45.0		-						-		0	5	1
SHMW-05S/05SR	2.0 - 12.0	16	683	17	21	13	12	15	9	12	9	2,960	185
SHMW-05I/05IR	35.0 - 45.0				0			0			0	0	0
SHMW-06S	2.0 - 6.0										1,296	4,289	2,214
SHMW-06I	35.0 - 45.0		-								0	0	0
SHMW-07S/07SR	1.0 - 11.0	1,289	852	972	1,305	769	1991	3,508	840	0	185	3,946	1,500
SHMW-07I/07IR	35.0 - 45.0				0						0	11	1
SHMW-08S	1.0 - 7.0	5	6	4	3	8	4	2	5	10	0	19	6
SHMW-08I	35.0 - 45.0				0			0			0	5	0
SHMW-09S	2.0 - 12.0	167	198	118	93	155	193	136	53	92	53	1,298	542
SHMW-09I	35.0 -45.0				2			4			0	4	0
SHMW-10S	5.0 -15.0	0	0	0	0	0		0			0	1	0
SHMW-10I	35.5 - 45.5		-		0				-		0	5	0
SHMW-11S	3.5 - 13.5	0	0	0	0	0	0	0	0	0	0	8	0
SHMW-11I	35.0 - 45.0				0						0	0	0
SHMW-12S	1.5 - 6.5	87	175	142	26	67	175	56	159	82	0	930	214
SHMW-12I	35.0 - 45.0	-			0				-		0	23	3
SHMW-13S	1.5 - 6.5	0	0	0	0	0	-	0			0	12	0
SHMW-13I	35.0 - 45.0	NOTES:			0						0	0	0

#### NOTES:

-- not analyzed or not applicable

μg/L - micrograms per liter

BTEX - benzene, toluene, ethylbenzene, and xylenes

Table 5. Summary of Historical Total PAH Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	C								Total I	PAH Conc	entrations	(µg/L)							
Well No.	Screen									Sampli	ng Date								
well no.	Interval (feet)	1995	20	000	2002	20	04		20	05			20	06			20	07	
	(leet)	Nov	Mar	Apr	May	May	Aug	Mar/Apr	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec
MW-01	1.50 - 7.32	4,906	1,548	257	402	30	24	0	61	200	0	0	0	97	95	0	54	87	39
MW-02	0.50 - 7.25	6,991	5,511	5,114	10,729	25,167	4,414	5,809	10,504		6,919	5,209		0	8,617	3,150	7,421	5,398	165
MW-03	2.17 - 10.17	7,034	3,065	3,433	3,774	3,522		2,272	4,557	516	92	1,256	565	4,831	6,212	349	489	463	2,904
MW-04	1.25 - 6.81	3,612	75		0	90		0	22	1,098	103	11	37	66	31	0	66	238	6
MW-05	2.46 - 7.46	16,386	779	101	1,160	431,600	2,049	918	188,200				-				-		
MW-06	2.47 - 7.47	5,416	894	653	258	33		90	79	204	0	22	0	0	645	35	46	17	0
SHMW-01S/01SR	1.0 - 6.0	-	-	4,147	2,663	2,424	-	1,989	2,185	840	0	42	115	3,989	3,874	0	1,058	1,691	42
SHMW-01I/01IR	35.0 - 45.0			32	0	0	-				0				0		-		
SHMW-01D	65.0 - 75.0																		
SHMW-02S	1.0 - 6.0	-											-				-		
SHMW-02I/02IR	35.0 - 45.0	-		266	0	580,200	41	185	124	271	30	74	32	91	89	0	10	175	32
SHMW-02D/02DR	65.0 - 75.0	-		308	76	89					0				0				15
SHMW-03S	2.0 - 12.0		1	422	0	295	-	79	130	117	339	0	0	147	118	430	191	12	154
SHMW-03I	35.0 - 45.0	-	-	2	320	0	-				0		-		0		-		0
SHMW-04S/04SR	2.0 - 12.0			4,275	5,107	5,965		3,959	6,669	4,684	5,879	2,364	3,572	4,196	6,250	2,632	3,999	4,693	4,305
SHMW-04I	35.0 - 45.0			18	0	0					0				0				0
SHMW-05S/05SR	2.0 - 12.0			13	170	94		82	91	26	53	17	11	11	110	0	0	14	8
SHMW-05I/05IR	35.0 - 45.0			0	17	0	-				0				0				0
SHMW-06S	2.0 - 6.0			4,130	4,694	3,024	-	3,162	2,366		4,157	120	201	3,900	4,062	1,703	3,574	4,368	380
SHMW-06I	35.0 - 45.0	-	-	2	0	0					0		-		0				0
SHMW-07S/07SR	1.0 - 11.0	-	-	7,211	6,585	2,708		3,224	4,604	6,187	3,507	2,004	3,119		3,721	0		3,902	4
SHMW-07I/07IR	35.0 - 45.0	-	-	0	0	0					0		-		2,212				0
SHMW-08S	1.0 - 7.0			110	71	94		25	70	33	83	112	57	77	99	13	90	10	13
SHMW-08I	35.0 - 45.0			13	0	0					0				0				0
SHMW-09S	2.0 - 12.0	-		1,787	2,472	1,697	-	1,463	1,600		2,609	94	1,935	1,138	2,737	48	206	2,246	130
SHMW-09I	35.0 -45.0	-		3	0	0	-			-	0		-		0		-		0
SHMW-10S	5.0 -15.0	-	-		22	6	-	0	0	0	0	0	0	0	0	0	0	0	1
SHMW-10I	35.5 - 45.5				0	0					0				0				0
SHMW-11S	3.5 - 13.5	-			0	3		173	0	0	0	0	0	0	0	0	0	0	0
SHMW-11I	35.0 - 45.0				0	0					0				0				4
SHMW-12S	1.5 - 6.5	-			60	218	-	71	600	230	260	110	470	310	280	15	560	0	155
SHMW-12I	35.0 - 45.0				0	0					0				0		-		20
SHMW-13S	1.5 - 6.5				0	0		0	0	0	0	0	0	0	0	0	0	0	0
SHMW-13I	35.0 - 45.0				0	0					0				0				0

Table 5. Summary of Historical Total PAH Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Screen									Total	PAH Conc	entrations	ω (μg/L)								
Well No.	Interval										Sampli	ing Date									
Well No.	(feet)		20	08			20	09			20	010			20	11			20	)12	
	(leet)	March	June	Sep	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec
MW-01	1.50 - 7.32	145	2	35																	
MW-02	0.50 - 7.25	400	3,455	3,488																-	-
MW-03	2.17 - 10.17	508	96	1,109																	-
MW-04	1.25 - 6.81		0	22																	
MW-05	2.46 - 7.46																				-
MW-06	2.47 - 7.47	0	0	10																	
SHMW-01S/01SR	1.0 - 6.0	0	0	0									0	0	0	0	4	7	21	0	0
SHMW-01I/01IR	35.0 - 45.0												0				0				0
SHMW-01D	65.0 - 75.0												0			-	0				0
SHMW-02S	1.0 - 6.0			-				I					0	0	0	0	0	5	0	0	0
SHMW-02I/02IR	35.0 - 45.0	8	42	209				-					9	3			0				56
SHMW-02D/02DR	65.0 - 75.0												0				0				0
SHMW-03S	2.0 - 12.0	0	0	17	29	0	20	0	0	0	22	0	0	2	7	25	22	6	10	22	2
SHMW-03I	35.0 - 45.0				0		0		0				0				0				0
SHMW-04S/04SR	2.0 - 12.0	0	1,328	1,868									3,598	1,440	978	811	942	581	1,296	1,195	639
SHMW-04I	35.0 - 45.0																				
SHMW-05S/05SR	2.0 - 12.0	2	0	31									0	4	167	273	131	309	219	420	20
SHMW-05I/05IR	35.0 - 45.0												0				0				0
SHMW-06S	2.0 - 6.0	0	44	5,848																	
SHMW-06I	35.0 - 45.0			-																	
SHMW-07S/07SR	1.0 - 11.0		54	3,252			2,919	4,722	5,286	3,410	4,547		1,456	0	1,736	885	955	927	444	4,342	419
SHMW-07I/07IR	35.0 - 45.0												0				4				0
SHMW-08S	1.0 - 7.0	14	21	55			59	60	112	129	201	34	3	11	185	195	35	152	111	113	182
SHMW-08I	35.0 - 45.0						1		0				0				0				0
SHMW-09S	2.0 - 12.0	0	92	485	503		68	39	389								-			787	690
SHMW-09I	35.0 -45.0				0		0		0											0	0
SHMW-10S	5.0 -15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		3	0	0
SHMW-10I SHMW-11S	35.5 - 45.5				0		0		0				0			- 0	0				0
SHMW-115 SHMW-11I	3.5 - 13.5 35.0 - 45.0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	6	0	0	0
SHMW-12S	1.5 - 6.5	9	137	259	280	0	332	4	216	177	585	3	0	0	584	739	513	154	361	217	104
SHMW-12I	35.0 - 45.0	<u></u>		259	280		332		0		303	3	0		584	739	2	154	361		0
SHMW-13S	1.5 - 6.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	2	0	0	0
SHMW-13I	35.0 - 45.0				0		0		0				0				1				0
SHIVIVV-13I	30.0 - 45.0				U		U		U				U								U

Table 5. Summary of Historical Total PAH Results Sag Harbor Former MGP Site Groundwater Monitoring Program - Q1 2015

	Screen					Total	PAH Conc	entrations	(µg/L)				
Well No.	Interval				S	ampling Da	ite						
Well No.	(feet)		20	13			20	)14		2015	Min	Max	Mean
	(leet)	March	June	Sept	Dec	March	June	Sept	Dec	March			
MW-01	1.50 - 7.32										0	4,906	380
MW-02	0.50 - 7.25										0	25,167	6,235
MW-03	2.17 - 10.17										92	7,034	2,352
MW-04	1.25 - 6.81						-				0	3,612	304
MW-05	2.46 - 7.46	-									101	431,600	80,149
MW-06	2.47 - 7.47	-									0	5,416	420
SHMW-01S/01SR	1.0 - 6.0	8	0	0	0	67		0			0	4,147	763
SHMW-01I/01IR	35.0 - 45.0				0						0	32	4
SHMW-01D	65.0 - 75.0				0						0	0	0
SHMW-02S	1.0 - 6.0	5	0	0	0	0		0			0	5	1
SHMW-02I/02IR	35.0 - 45.0				245			11			0	580,200	23,288
SHMW-02D/02DR	65.0 - 75.0				0						0	308	49
SHMW-03S	2.0 - 12.0	23	14	16	6	5		3			0	430	65
SHMW-03I	35.0 - 45.0				4		1	0			0	320	23
SHMW-04S/04SR	2.0 - 12.0	402	100	1,875	1,916	190	523	1,637	309	571	0	6,669	2,576
SHMW-04I	35.0 - 45.0						-				0	18	3
SHMW-05S/05SR	2.0 - 12.0	107	175	155	291	171	153	367	121	94	0	420	109
SHMW-05I/05IR	35.0 - 45.0				0		-	0			0	17	2
SHMW-06S	2.0 - 6.0										0	5,848	2,690
SHMW-06I	35.0 - 45.0						-				0	2	0
SHMW-07S/07SR	1.0 - 11.0	2,620	950	4,030	1,381	1733	5945	12,876	904	0	0	12,876	3,042
SHMW-07I/07IR	35.0 - 45.0				1		-				0	2,212	222
SHMW-08S	1.0 - 7.0	95	151	180	148	147	174	250	160	116	3	250	96
SHMW-08I	35.0 - 45.0				0			0			0	13	1
SHMW-09S	2.0 - 12.0	721	575	603	211	560	832	1,315	360	529	0	2,737	916
SHMW-09I	35.0 -45.0				2			2			0	3	1
SHMW-10S	5.0 -15.0	0	0	0	1	0	-	0			0	22	1
SHMW-10I	35.5 - 45.5				0						0	0	0
SHMW-11S	3.5 - 13.5	1	0	7	16	1	0	1	201	2	0	201	10
SHMW-11I	35.0 - 45.0				1		-				0	4	0
SHMW-12S	1.5 - 6.5	62	410	604	133	0	353	493	247	76	0	739	246
SHMW-12I	35.0 - 45.0				0						0	20	2
SHMW-13S	1.5 - 6.5	0	0	0	0	0	-	1			0	3	0
SHMW-13I	35.0 - 45.0				0						0	1	0

#### NOTES:

-- not analyzed or not applicable

μg/L - micrograms per liter

PAH - polycyclic aromatic hydrocarbons

# **Figures**













