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December 22, 2020

Mr. Tracy A. Smith  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
625 Broadway  
Albany, New York 12233-7016

**RE: Revised SYW-12 2019 Groundwater Investigation Report (Site no. 734075)**

Dear Mr. Smith:

The enclosed comment responses to both the April 29, 2020 and November 25, 2020 comments and the revised SYW-12 2019 Groundwater Investigation Report were prepared by Ramboll Americas Engineering Solutions, Inc. on behalf of Honeywell for your review. Please contact Tom Conklin of Ramboll (315-956-6408 and Tom.Conklin@Ramboll.com) or me if you have any questions regarding this report.

Sincerely,

Stephen J. Miller, P.E.  
Syracuse Remediation Program Manager

Attachment (electronic copy [ec])

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On April 29, 2020 the New York State Department of Environmental Conservation (NYSDEC) sent comments regarding the Revised Wastebed B/Harbor Brook Site SYW-12 2019 Groundwater Investigation Report dated April 9, 2020. Below are the responses to those comments.

**Comment 1. Please note that comments from Clare were included in the text file.**

Response: Noted, comments will be removed in final comment response document.

**Comment 2. Section 2.1. Second sentence of Section 2.1 text should be revised to "The SYW-12 Property is an operable unit of the Wastebed B/Harbor Brook Site, which is itself a sub-site of the Onondaga Lake Superfund Site." Also, please confirm the 40.7 acres is the area between the tracks and lake and revise/clarify as necessary.**

Response: Text will be revised as noted above. The final sentence of the paragraph will be revised as follows, "The area is approximately 23.5 acres (approximately 13.1 acres is delineated as wetland) and is currently owned by Onondaga County."

**Comment 3. Section 2.2.3. Revise the second to last sentence to include the well IDs if they are the National Grid wells. If so the sentence can read "Three shallow groundwater monitoring wells (HB-B-04W, HB-B-08W, HB-B-10W) were installed at the Property."**

Response: Text will be revised as noted.

**Comment 4. Pages 8-10, Section 2.3; Tables 1-3. It is not clear if the analytical data presented here include the results from throughout the SYW-12 area or from just within the area lakeward of the rail lines. If it is the latter, it is recommended that the scope of the data presented be revised to include all of the SYW-12 area. Please revise accordingly.**

Response: The data presented includes data collected from both inside and outside the tracks at the SYW-12 Area. The first sentence of the section will be revised as follows to clarify this "A brief overview of the analytical data collected at the SYW-12 Area, including data from both the property inside the tracks and the adjacent areas outside the tracks, is provided below."

**Comment 5. Section 2.3.1. Only commercial SCOs are discussed in this section. Ecological and Protection of Groundwater SCOs should also be discussed.**

Response: Ecological and Protection of Groundwater SCOs will be discussed as requested.

**Comment 6. Section 2.3.2. Protection of Groundwater SCOs should also be discussed in this section.**

Response: Protection of Groundwater SCOs will be discussed in this section as requested.

**Comment 7. Page 13, first full paragraph. "Di-b-butyl phthalate" should be revised to "Di-n-butyl phthalate."**

Response: Text will be revised as noted.

**Comment 8. Pages 13-14, Table 4-2. It would be useful to include the groundwater standards on this table.**

Response: Groundwater standards will be included as requested.

**Comment 9. Section 5.8. In this section it states "This indicates that organic compounds detected within site soils during previous investigations (i.e., Remedial Investigation [OBG 2015] and Sources of Contamination investigation [OBG 2014]) are not impacting Site groundwater." The decision on whether or not to employ CSIA is not a basis for determining if contaminants in soil are impacting site groundwater. The last sentence in this section should be revised or deleted. Please revise accordingly.**

Response: The last sentence was deleted as requested.

**Comment 10. Page 18, Paragraph 3, Section 5.9. Please include some additional information on the degradation model in the discussion here. For example, does the basis for the naphthalene decay rate include the assumption that the source of naphthalene to groundwater has been removed? Also, while the estimated half-life for naphthalene in groundwater is said to range from a few days to 765 days, the decrease in naphthalene concentrations between 2012 (36.8 µg/L) and 2019 (23J µg/L [unfiltered], 14J µg/L [filtered]) at monitoring well MW-29 is less than it would be using the most conservative degradation rate (765 days). Some discussion of uncertainty on the estimated range of degradation rates for naphthalene should be included. Please revise accordingly.**

Response: The second paragraph in Section 5.9 will be revised as requested. Revised text is below.

Naphthalene was the one organic compound detected during the 2019 sampling above a NYS Class GA standard or guidance value that was also identified in previous investigations within the SYW-12 soils. A literature review was performed to evaluate the biodegradation and natural attenuation of naphthalene. Naphthalene can biodegrade in both aerobic (ATSDR, 2005; [USEPA 1999](#)) and anaerobic conditions (Aronson and Howard 1997; Meckenstock *et al.* 2004; Mihelcic and Luthy 1988). The reported half-life for naphthalene in the environment ranged from several days to 765 days (Environmental Agency 2005; [USEPA 1999](#)); however, the degradation studies referenced herein did not indicate whether the source of naphthalene had been removed. HB-MW-29 had a concentration of 36.8 µg/L in 2012 and a concentration of 23J µg/L (unfiltered) in April 2019. If this site specific decay rate is applied and if the more conservative half-life (765 days) is applied, the concentration of naphthalene at HB-MW-29 would theoretically reach the NYS Class GA guidance value of 10 µg/L in approximately 2.36.4 years (slower than the 765 day rate indicated in the literature). However, this is not unexpected. The slower naphthalene degradation rate is likely due to limited bioavailability of naphthalene (Environmental Agency 2002) at this low concentration. Overall, naphthalene concentrations are trending downward and natural attenuation appears to be occurring based site-specific information.

**Comment 11. Page 18, Paragraph 1, Sentence 4, Section 6. As some contaminants of concern are above Class GA standards or guidance values (e.g., naphthalene), the statement here that contaminated soils are not impacting site groundwater should be deleted. Please revise accordingly. (See also Comment #2.)**

Response: The text will be revised to read as follows: "This indicates that the impacted soils identified in previous investigations are having a minimal impact on Site groundwater."

**Comment 12. Figures 1 and 2. Not too important and it is ok if you leave it this way, but I wanted to let you know that Figure 1 includes Ramboll graphics and Figure 2 includes OBG graphics.**

Response: Figures will be updated so that each figure includes the Ramboll graphics.

Below are the responses to the NYSDEC comments provided via email on November 25, 2020.

1. Page 6, Paragraph 1, Section 2.1; Response to Comment #2. The information in the response and in the text, which includes the acreage of the SYW-12 property, does not appear to be consistent with the response to Comment #4 or the property acreage of 40.7 acres cited in the WBBHB RI Report. Also, the wetland acreage cited in the response and Section 2.1 does not appear to include the delineated wetlands WL2 (1.1 acres) and WL3 (0.26 acres) that were quantitatively delineated in 2008, as indicated in the RI Report. Please revise or clarify accordingly.

*Response: The 23.5 acres (13.1 acres of delineated wetlands) references the area inside of the railroad tracks, between the railroad tracks and the lake. This acreage is consistent with the current SYW-12 boundary as discussed with the NYSDEC and documented in the FS report. The 40.7 acres referenced in the Remedial Investigation report includes the areas outside of the Railroad tracks that were investigated during the Supplemental RI. WL2 and WL3 are not included in the wetland acreage (13.1 acres) provided in this Report since they are outside of the railroad tracks.*

*Comment #4 in the April 29, 2020 comments requested clarification on the historic data. This was addressed with the following statement at the beginning of Section 2.3: "A brief overview of the analytical data collected at the SYW-12 Area, including data from both the property inside the tracks and the adjacent areas outside the tracks, is provided below." This text will be modified as follows to further clarify this point: "A brief overview of the analytical data collected at the SYW-12 Area, including data from both the current SYW-12 property inside the tracks and the adjacent areas outside the tracks investigated during the RI, is provided below."*

2. Page 9, Paragraph 4, Sentence 2, Section 2.3.2. To be consistent with the prior paragraph and sentence, and the information presented in Table 5, it appears that the reference to SCOs for Protection of Ecological Resources given here should be revised to SCOs for Protection of Groundwater. Please revise accordingly.

*Response: Text will be revised as noted.*

3. Page 14, Paragraph 1, Sentence 2, Section 4.1; Table 8. It is indicated in the text here that naphthalene was detected at HB-MW-29 at 23J  $\mu\text{g}/\text{L}$  and 14J  $\mu\text{g}/\text{L}$  in the 2019 filtered and unfiltered samples, respectively. In Table 8 and in Response to Comment #10, however, it is indicated that naphthalene at HB-MW-29 was detected at 23J in the unfiltered sample and 14J in the filtered sample. Please revise accordingly.

*Response: The text in section 4.1 will be revised to state that the 23J  $\mu\text{g}/\text{L}$  was the unfiltered sample and the 14J  $\mu\text{g}/\text{L}$  was the filtered sample.*



4. Page 18, Paragraph 3, Section 5.9; Response to Comment #10. The highest level of naphthalene in subsurface soil (380,000 mg/kg, 12-14') was found at soil boring HB-SB-51 (from WBBHB RI Report Table 145) which is located within or in the vicinity of the former Onondaga Creek channel. This concentration is more than 30 times the SCO for Protection of Groundwater for naphthalene (12,000 mg/kg). In the response and in the text, the slower than anticipated rate of decline of naphthalene levels at monitoring well HB-MW-29 was indicated to likely be attributable to limited bioavailability of naphthalene when present at low concentrations. Please discuss if the slow rate of decline in the observed levels of naphthalene at HB-MW-29 may also be attributable to the presence of a potential continuing source of naphthalene migrating via groundwater from HB-SB-51, which appears to be approximately 300 ft upgradient of HB-MW-29. In addition, the statements regarding degradation of naphthalene should be qualified based on a limited number (2) of data points. Please discuss.

Response: Revised text for Section 5.9 is provided below.

Naphthalene was the one organic compound detected during the 2019 sampling above a NYS Class GA standard or guidance value that was also identified in previous investigations within the SYW-12 soils. A literature review was performed to evaluate the biodegradation and natural attenuation of naphthalene. Naphthalene can biodegrade in both aerobic (ATSDR, 2005; USEPA 1999) and anaerobic conditions (Aronson and Howard 1997; Meckenstock *et al.* 2004; Mihelcic and Luthy 1988). The reported half-life for naphthalene in the environment ranged from several days to 765 days (Environment Agency 2005; USEPA 1999); however, the degradation studies referenced herein did not indicate whether the source of naphthalene had been removed. HB-MW-29 had a concentration of 36.8 µg/L in 2012 and a concentration of 23J µg/L (unfiltered) in April 2019. If this site-specific decay rate based on these two data points is applied, the concentration of naphthalene at HB-MW-29 would theoretically reach the NYS Class GA guidance value of 10 µg/L in approximately 6.4 years (slower than the 765 day rate indicated in the literature). However, this is not unexpected. The slower naphthalene degradation rate is likely may be due to limited bioavailability of naphthalene (Environment Agency 2002) at this low concentration. The slow rate of decay could also be related to elevated soil concentrations leaching into groundwater or environmental conditions (e.g., initial concentrations, soil type, carbon content, previous microorganism exposure to PAHs) (USEPA 1999; Environment Agency 2003; Mihelcic and Luthy 1988). Overall, naphthalene concentrations are may be trending downward and natural attenuation appears to be occurring based on site-specific information.

5. Page 18, Paragraph 3, Section 5.9; Page 20, Section 7. The references to “Environmental Agency” should be revised to “Environment Agency”. Please revise accordingly.

*Response: Text will be revised as noted.*

6. Page 20, Section 7. References for Environmental Agency, 2003 and Kappel and Yager, 2008 are included here, but are not cited in the text. The reference to Kappel and Yager, 2007 in Section 4.2 is not included here. (Should the date for the Kappel and Yager, 2007 reference in Section 4.2 be 2008?) Correct typo in “Fact Sheeet” for USGS 2007 reference. Please revise accordingly.

*Response: References not included in the text will be removed. The Kappel and Yager reference in section 4.2 should be dated 2008 not 2007; this will be corrected. The typo noted will be corrected.*

7. Table 6. This table should be revised or another table added to include the recent groundwater data.

*Response: Table 6 is referenced in Section 2.3 which discusses historic groundwater. This table and section were added per comment #6 in the January 23, 2020 comments. The data associated with the 2019 investigation is discussed in section 4 of the report and provided in Tables 7 through 13. No new table is proposed for the report.*

8. Figure 1. Revise the legend for "MONITORING WELL (NOT LOCATED)" to "FORMER MONITORING WELL LOCATION" or something similar.

*Response: Figure will be revised as requested.*

9. Figure 2. Groundwater contour lines should be included on this figure. Also, change the groundwater elevation in the legend to represent an actual level on the figure.

*Response: The legend will be modified as requested. Groundwater contour lines will be included.*

Intended for  
**Honeywell**

Document type  
**Report**

Date  
**December 2020**

# **REVISED SYW-12 2019 GROUNDWATER INVESTIGATION REPORT**

# REVISED SYW-12 2019 GROUNDWATER INVESTIGATION REPORT [SUBJECT]

Project name **Revised SYW-12 2019 Groundwater Investigation Report**  
Project no. **1163.65696**  
Recipient **Honeywell**  
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Version **1**  
Date **December 22, 2020**  
Prepared by **Tom Conklin**  
Checked by **Clare Leary, Mark Harkness**  
Approved by **Honeywell**  
Description **Summary of 2019 SYW-12 Groundwater Sampling**

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## LIST OF ACRONYMS

CSIA	Compound Specific Isotope Analysis
DO	Dissolved Oxygen
FRE	Fiberglass Reinforced Epoxy
HDPE	High-Density Polyethylene
NTU	Nephelometric Turbidity Units
NYSDEC	New York State Department of Environmental Conservation
OBG	O'Brien & Gere
ORP	Oxidation Reduction Potential
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
TOC	Total Organic Carbon
VOCs	Volatile Organic Compounds

## 1. INTRODUCTION

This report presents the evaluation and characterization of the current subsurface groundwater conditions at the SYW-12 property (part of the Wastebed B/Harbor Brook Site) presented on **Figure 1**. The investigation was performed in accordance with the November 20, 2018 *Wastebed B/Harbor Brook SYW-12 Groundwater Sampling Work Plan* (OBG 2018) approved by the New York State Department of Environmental Conservation (NYSDEC) on December 7, 2018.



## 2. BACKGROUND

### 2.1 Property Description

The SYW-12 Property is located at the southern end of Onondaga Lake along the eastern shoreline of the lake (**Figure 1**). The SYW-12 Property is an operable unit of the Wastedbed B/Harbor Brook Site, which is itself a sub-site of the Onondaga Lake Superfund Site. The SYW-12 Property is bounded by the CSX railroad tracks and Destiny USA (formerly Carousel Mall) to the east, the Barge Canal to the south, and Onondaga Lake to the west (**Figure 1**). Ley Creek, a tributary to Onondaga Lake, flows across the northern portion of the SYW-12 Property. The area is approximately 23.5 acres (approximately 13.1 acres is delineated as wetland) and is currently owned by Onondaga County.

### 2.2 Previous Investigations

The approach, sampling techniques, and analytical methodology of previous investigations of the SYW-12 Property and nearby areas are summarized below. The investigations discussed below were completed to evaluate the nature and extent of constituents and extent wetlands at the SYW-12 Property.

#### 2.2.1 SYW-12 Wetlands Mitigation Sampling

Four hand-augered holes (M1A, M1B, M2A, and M2B) were advanced at the SYW-12 Property in 1995 (O'Brien & Gere, 1995). Three soil samples from these holes were submitted for Resource Conservation and Recovery Act (RCRA) Target Analyte List (TAL) metals analysis for arsenic, cadmium, chromium, lead, and mercury. This investigation was conducted to evaluate the wetland conditions at SYW-12.

#### 2.2.2 Onondaga Lake RI/FS Phase 2A

During the summer of 2000, wetland sediment samples were collected at the SYW-12 Property. Samples were collected at four locations (S387, S388, S389, and S390) at depths of 0 to 0.5 ft and 0.5 to 1.0 ft. Samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and inorganics. This investigation was completed to evaluate the nature and extent of constituents along the shoreline of the SYW-12 Property.

#### 2.2.3 Onondaga Wetlands Subsurface Investigation (SYW-12)

A Wetland Subsurface Investigation of the SYW-12 Property was performed in May 2000 (C&S Companies, 2001). Thirteen subsurface borings were advanced as part of this investigation. Each of the shallow borings was advanced utilizing a tripod mounted split spoon sampling apparatus. Borings were advanced to characterize subsurface soils and identify the potential existence of contamination. Soil samples were collected from three depth intervals and analyzed for Target Compound List (TCL) VOCs, SVOCs, PCBs, pesticides, TAL metals, pH, and total organic carbon (TOC). Three shallow groundwater monitoring wells (HB-B-04W, HB-B-08W, and HB-B-10W) were installed at the Property. The wells were sampled for TCL/TAL parameters and pH.

#### 2.2.4 Onondaga Lake Wetland/Floodplain Assessment (SYW-12)

The SYW-12 wetland was delineated, a wetland function and value assessment was performed, and an ecological survey was performed in 2004 as part of the Onondaga Lake Wetland/Floodplain Assessment Draft Report (O'Brien & Gere and Parsons, 2004). Additional

portions of the SYW-12 area located south of Ley Creek were added to the assessment in 2008 in accordance with the July 17, 2008 NYSDEC letter and subsequent conversations between the Site stakeholders (NYSDEC, 2008). These areas were also delineated and the wetland function and value assessment and an ecological survey were performed. The delineated wetland boundary generally matches the depicted New York State Freshwater Wetlands (NYSFW) mapped boundary for the southern portion of SYW-12. A complete discussion of the assessment is provided in the Onondaga Lake Wetland/Floodplain Assessment Final Report (O'Brien & Gere and Parsons, 2010).

### **2.2.5 2006 Supplemental RI**

The Supplemental Remedial Investigation (RI) was performed between November 2006 and March 2007 and included the investigation of NYSDEC-delineated wetland SYW-12, as well as further investigation on the Wastebed B/Harbor Brook Site. The SYW-12 Property investigation included:

- Advancing 25 soil borings to characterize subsurface soils and facilitate monitoring well installation with a soil sample collected from greater than 2 ft below ground surface (bgs).
- Collecting surface soil samples from 30 locations from the 0 to 6 inch, 6 to 12 inch, and the 12 to 24 inch depth intervals.
- Collecting groundwater samples from nine newly installed and existing wells during a time of high groundwater elevations.

These soil and groundwater samples were analyzed for TCL/TAL parameters for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide. The soil samples were also analyzed for total petroleum hydrocarbons/petroleum fingerprint, methyl mercury, TOC, and grain size, and samples collected at ten of the 30 locations were analyzed for polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDFs). The groundwater samples were also analyzed for hardness, alkalinity, ammonia, total Kjeldahl nitrogen (TKN), carbonaceous biochemical oxygen demand (CBOD), and major cations and anions. A full discussion of these samples is presented in the *Wastebed B/Harbor Brook Revised RI Report* (O'Brien & Gere, 2015).

### **2.2.6 2012 Sources of Contamination Investigation**

The SYW-12 Sources of Contamination Investigation (SCI) was conducted between June and August 2012 (O'Brien & Gere, 2014). As reported in the SCI Report (O'Brien & Gere, 2014) the purpose of the investigation was to delineate the location of the former Onondaga Creek channel and further evaluate sources of constituents in the former channel. The scope of this investigation included the following:

- Six test trenches were advanced to evaluate the horizontal extent of the former Onondaga Creek Channel and the physical and chemical characteristics of shallow subsurface soils/fill material (0 to 15 ft) used to fill the former channel. Samples were collected from three different media including soil, groundwater, and polytetrafluoroethylene (PTFE) sheen nets. Selected soil samples were analyzed for VOCs, SVOCs, PCBs, metals, mercury, cyanide, and TOC. Select soil, groundwater, and PTFE sheen nets were submitted for fingerprinting analyses (8270M: SVOCs and petroleum biomarkers; 8015C: total petroleum hydrocarbons and non-halogenated organics).

- Fourteen soil borings were advanced to evaluate the vertical extent of fill material within the former channel and characterize subsurface geologic strata and subsurface soil constituent concentrations. Thirteen subsurface soil samples were analyzed for TCL/TAL parameters (listed above) and three subsurface soil samples were submitted for fingerprinting analyses (listed above).
- Two monitoring wells were installed to evaluate the hydraulic potential of shallow groundwater in the buried former Onondaga Creek channel and to assess the shallow groundwater chemistry.
- Hydraulic conductivity tests were conducted in the two newly installed monitoring wells and one existing well to estimate the horizontal hydraulic conductivity.
- Groundwater samples were collected from the two newly installed wells and one existing well and analyzed for TCL/TAL parameters and fingerprinting analyses listed above.

A full discussion of the investigation and results is provided in the *Revised SYW-12 Sources of Contamination Investigation Revised Report* (O'Brien & Gere, 2014).

### 2.3 Analytical Data Review

A brief overview of the analytical data collected at the SYW-12 Area, including data from both the current SYW-12 property inside the tracks and the adjacent areas outside the tracks investigated during the RI, is provided below. The data is discussed in three sections including surface soils, subsurface soils, and groundwater. More complete discussions of the analytical data are provided in both the *Revised Wastebed B/Harbor Brook RI Report* (O'Brien & Gere, 2015) and the *Revised SYW-12 Sources of Contamination Investigation Report* (O'Brien & Gere, 2014).

#### 2.3.1 Surface Soils

Surface soil (0-2 ft bgs) sample results were compared to the NYSDEC Part 375-6 Commercial, Protection of Ecological Resources, and Protection of Groundwater Soil Clean-up Objectives (SCOs). A summary of the detected TCL/TAL surface soil constituents compared to Commercial, Protection of Ecological Resources, and Protection of Groundwater SCOs are provided as **Tables 1, 2, and 3**, respectively. No VOCs were detected in surface soil samples at concentrations above the NYCRR Part 375-6 Commercial Use Protection of Ecological Resources, or Protection of groundwater SCOs. Detected VOCs in surface soils at SYW-12 were chlorinated benzenes, benzene, toluene, ethylbenzene and xylene (BTEX), carbon disulfide, and 2-butanone.

Six SVOCs were detected at concentrations above NYCRR Part 375-6 Commercial Use SCOs, which consisted of PAHs (benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, benzo(a)anthracene, indeno(1,2,3,-CD)pyrene, and chrysene). Three SVOCs (benzo(a)pyrene, fluorene, and acenaphthene) were detected at concentrations above NYCRR Part 375-6 Protection of Ecological Resources SCOs. Seven SVOCs were detected at concentrations above NYCRR Part 375-6 Protection of Groundwater SCOs including benzo(a)pyrene, benzo(b)fluoranthene, benzo(a)anthracene, indeno(1,2,3,-CD)pyrene, benzo(k)fluoranthene, chrysene, and 4-methylphenol. PAHs were detected in every surface soil sample collected at SYW-12. The highest concentration (1,122,800 $\mu$ g/kg) of total PAHs was detected at location HB-WSD-27 adjacent to Ley Creek.

The petroleum hydrocarbon analysis indicates that petroleum residues in several carbon ranges are present in surface soils at the SYW-12 Property. No pesticides were detected at concentrations exceeding the NYCRR Part 375-6 Commercial Use or Protection of Groundwater SCOs. Five pesticides were detected above their respective NYCRR Part 375-6 Protection of Ecological Resources SCOs including 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, dieldrin, and endrin. PCBs (Aroclor 1254 and Aroclor 1260) were also detected in a majority of surface soil samples; however, less than 10% of the samples were detected at concentrations above the NYCRR Part 375-6 Commercial Use Ecological Resources, and Protection of Groundwater SCOs. PCDD/PCDFs were detected in each of the surface soil samples analyzed for these constituents.

Concentrations of inorganics including cadmium, mercury, copper, and arsenic exceeded NYCRR Part 375-6 Commercial Use SCOs at the Property. Nine inorganic compounds including mercury, manganese, nickel, copper, cadmium, chromium, silver, beryllium, and arsenic were detected above their respective NYCRR Part 375-6 Protection of Ecological Resources SCO at the Property. In addition, five inorganic compounds had concentrations that were greater than their respective NYCRR Part 375-6 Protection of Groundwater SCO at the Property including cadmium, mercury, arsenic, chromium, and silver.

### **2.3.2 Subsurface Soils**

Subsurface soil (>2 ft bgs) sample results were compared to the NYSDEC Part 375-6 Commercial Use and Protection of Groundwater SCOs. Summaries of the detected TCL/TAL subsurface soil constituents compared to Commercial Use and Protection of Groundwater SCOs are provided as **Tables 4** and **5**, respectively. There was no clear pattern of distribution of VOC chemical parameters within subsurface soil at the SYW-12 Property. Concentration results were highly variable between locations. No VOCs were detected at concentrations above NYCRR Part 375-6 Commercial Use SCOs. Five VOCs were detected above their respective NYCRR Part 375-6 Protection of Groundwater SCOs including ethylbenzene, acetone, xylenes (total), 2-butanone, and methylene chloride.

Six SVOCs were detected at concentrations above NYCRR Part 375-6 Commercial Use SCOs and nine SVOCs were detected at concentrations above the NYCRR Part 375-6 Protection of Groundwater SCOs. The six SVOCs above Commercial Use SCOs and eight of the nine SVOCs above the Protection of Groundwater SCOs consisted of PAHs. PAHs were primarily present in the shallower subsurface soils (2 to 14 ft bgs) at the SYW-12 Property and were from sample intervals where stained soils and/or coal tar/petroleum odors were observed. HB-SB-251 and HB-SB-260 were the only exceptions, with elevated PAHs but no observed staining or odor; these samples are located near the former Onondaga Creek channel. PAHs were only detected in the deeper subsurface samples (>14 ft bgs) at one 2012 sample location (HB-SB-256 [14 to 16 ft bgs]). The samples collected in 2012 were analyzed using 8270M for extended SVOCs and petroleum biomarkers. The extended SVOCs included alkyl PAHs. Both the alkyl PAHs and petroleum biomarkers were present in the subsurface soil samples at the SYW-12 Property. The petroleum hydrocarbon analysis indicates that petroleum residues in several carbon range constituents are present in subsurface soils.

No pesticides were detected at concentrations exceeding the NYCRR Part 375-6 Commercial Use or Protection of Groundwater SCOs. PCBs were detected in subsurface soils between 2 and 10 ft

bgs. PCBs were not detected in deeper subsurface soils. PCBs (Aroclor 1254 and Aroclor 1260) were detected in approximately 5% of the subsurface soil samples at concentrations above the NYCRR Part 375-6 Commercial Use SCOs. No PCBs were detected at concentrations exceeding the NYCRR Part 375-6 Protection of Groundwater SCOs.

Concentrations of inorganics were detected throughout the SYW-12 Property in subsurface soils. Inorganics including cadmium, copper, mercury, and arsenic exceeded the NYCRR Part 375-6 Commercial Use SCOs at the Property. Inorganics exceeding the NYCRR Part 375-6 Protection of Groundwater SCOs at the Property include mercury, chromium, arsenic, cadmium, and silver.

### **2.3.3 Groundwater**

Groundwater results were compared to NYS Class GA standards and guidance values (NYSDEC, 1998) and a summary of the detected TCL/TAL groundwater constituents is provided in **Table 6**. There are few exceedances of the groundwater Class GA standards and guidance values for the organic constituents suggesting that organic constituents detected in surface and subsurface soils are generally not mobilizing to groundwater. The wells with the highest concentration of BTEX and PAHs were HB-B-04W located in the center portion of the Property adjacent to Onondaga Lake and well HB-MW-29 located in the former Iron Pier area adjacent to Onondaga Lake. It should be noted that monitoring well HB-B-04W has been removed. Inorganics detected in shallow groundwater at the SYW-12 Property include sodium and chloride, and the highest concentrations of sodium and chloride were detected at HB-MW-23 near the lakeshore. Other inorganics detected above the Class GA values consisted of iron, manganese, magnesium, barium, chromium, lead, and bromide. The inorganic groundwater chemistry at the Property suggests that the area is typical fresh groundwater with a varying native halite brine influence which is supported by historic upgradient salt production (USGS 2000).

### 3. FIELD INVESTIGATION

#### 3.1 Monitoring Well Redevelopment

The existing seven monitoring wells (HB-MW-22 through HB-MW-26, HB-MW-28 and HB-MW-29) were developed to remove fines that may be built up on the well and/or screen pack. Three of the proposed locations (HB-B-04W, HB-B-08W, HB-B-10W) could not be located during the redevelopment and were removed from the sampling program. It appears that these wells were abandoned by National Grid in 2008. Water levels were collected from these wells in December 2007 but these wells could not be located in August of 2008. **Table 3-1** below summarizes the redevelopment details for each monitoring well location. A geologist documented the development on well development logs (**Attachment 1**).

**Table 3-1 Monitoring Well Redevelopment**

Location ID	Date Redeveloped	Redevelop Method	No. Well volumes	Final Turbidity (NTU)
HB-MW-22	12/19/2018	Peristaltic	4	45.9
HB-MW-23	6/25/2018	Watterra w/ footvalve	10	Overrange
HB-MW-24	6/25/2018	Watterra w/ footvalve	6	34.1
HB-MW-25	6/25/2018	Watterra w/ footvalve	5	32.0
HB-MW-26	6/25/2018	Watterra w/ footvalve	10	1,378
HB-MW-28	12/19/2018	Peristaltic	3	24.4
HB-MW-29	9/6/2018	Hand purge w/ footvalve	10	Overrange

**Note: Locations were redeveloped using high-density polyethylene (HDPE) tubing.**

#### 3.2 Groundwater Elevation Monitoring

Groundwater elevations were collected from the seven existing monitoring wells HB-MW-22 through HB-MW-26, HB-MW-28 and HB-MW-29 on April 1, 2 and 3, 2019. Groundwater levels were collected using a water level indicator. The depth to water was measured from the top of the FRE well casing. Groundwater elevations are presented on **Figure 2**.

#### 3.3 Groundwater Sampling

Groundwater samples were collected using low flow sampling techniques from seven existing on-site wells (HB-MW-22 through HB-MW-26, HB-MW-28 and HB-MW-29) (**Figure 1**). Low flow purging involved dedicated tubing, flexible silicon tubing, and a peristaltic pump. The dedicated tubing was lowered to the midpoint of the screened interval and water was purged from the well at a maximum rate of 0.5 L/min. During purging, groundwater levels were monitored to document stabilization. In addition, groundwater quality parameters including pH, conductivity, temperature, oxidation-reduction potential (ORP), turbidity, and dissolved oxygen (DO) were monitored continuously using an in-line meter (In-Situ SmarTROLL meter). Ferrous Iron and Specific Gravity readings were collected at the end of stabilization. The field parameters collected during the groundwater purging were recorded on Low Flow Sampling logs (**Attachment 2**). Subsequent to purging at a monitoring well, the unfiltered groundwater sample was collected and then a single use 0.45 micron filter was attached to the discharge end of the tubing and a filtered groundwater sample was collected. **Table 3-2** below summarizes the final field parameter readings for each monitoring well location.

**Table 3-2 Field Water Quality Parameters Summary**

Location	Sampling Date	pH (S.U.)	Specific Conductivity (mS/cm)	Temp (°C)	Dissolved Oxygen (mg/L)	ORP (mV)	Turb. (NTU)	Ferrous Iron (mg/L)	Specific Gravity
HB-MW-22	4/3/2019	6.75	10.17	7.9	0.44	-99.9	0.66	4.0	1.002
HB-MW-23	4/3/2019	6.58	28.86	9.1	0.12	-213.6	13.3	0.5	1.010
HB-MW-24	4/1/2019	6.71	21.13	9.1	0.54	-292.1	6.68	<0.5	1.006
HB-MW-25	4/1/2019	7.02	2.67	7.4	0.61	-82.3	Clear*	4.5	1.000
HB-MW-26	4/2/2019	6.75	3.18	9.1	0.42	-102.6	9.34	3.0	1.000
HB-MW-28	4/1/2019	6.90	7.92	9.0	0.33	-107.6	2.84	3.0	1.002
HB-MW-29	4/3/2019	6.51	32.63	9.3	0.31	-110.8	14.0	3.0	1.012

Clear\* - Hach 2100Q was not working properly. Water noted as clear.

The groundwater samples from each well were submitted to a New York State-certified laboratory for analysis. The groundwater samples were analyzed for the parameters listed in the sample summary matrix provided below as **Table 3-3**.

**Table 3-3 Groundwater Sample Summary Matrix**

Analysis	Method
TCL VOCs <sup>1</sup>	SW8260C
TCL SVOCs <sup>1,2</sup>	SW8270D
TCL Pesticides <sup>1</sup>	SW8081B
TCL PCBs <sup>1</sup>	SW8082A
TAL Metals <sup>1</sup>	SW6010C
Mercury <sup>1</sup>	SW7470A
Cations/Anions <sup>1,3</sup>	SW6010C/E300
Methane, Ethane, and Ethene <sup>4</sup>	RSK175
TOC <sup>1</sup>	Lloyd Kahn
Alkalinity (total, bicarbonate, and carbonate) <sup>1</sup>	SM2320
Sulfide <sup>1</sup>	SM4500
TDS <sup>1</sup>	Method 106.1
Notes:	
1 - These analyses were performed on both filtered and unfiltered samples.	
2 - The extended 28 PAH list (includes the 16 priority pollutant PAHs) was requested for this analysis. In addition, 1-methylnaphthalene and 2-methylnaphthalene were requested.	
3 - Cations/Anions include Calcium, Sodium, Potassium, Magnesium, Bromide, Chloride, Fluoride, Nitrate, Nitrite, ortho-Phosphate, and Sulfate.	
4 - These analyses were performed on unfiltered samples only.	

## 4. ANALYTICAL RESULTS

Groundwater sample results were compared to New York State Class GA Groundwater Standards. A summary of the analytical results is provided below including a comparison of filtered and unfiltered sample results.

### 4.1 Groundwater Analytical Results

Analytical results from the 2019 groundwater monitoring event are provided on **Tables 7 through 13** for VOCs, SVOCs, pesticides, PCBs, dissolved gases, inorganic compounds, and other data.

Generally, filtered and unfiltered analytical results were similar with two notable exceptions: 1) pesticide detections were more numerous in filtered samples than the unfiltered samples; and 2) significant concentration differences were observed for sodium at HB-MW-24 (1,370 vs 3,300 mg/L) and HB-MW-28 (1,110 vs 2,650 mg/L).

Concentrations were generally lower in April 2019 samples compared to previous data (2007 and 2012 samples) with two notable exceptions, sulfate at HB-MW-26 and magnesium at HB-MW-29. Significant differences, samples with approx. 1 order of magnitude or greater difference between filtered and unfiltered samples, are presented below in **Table 4-1**

**Table 4-1 Significant Analytical Concentration Differences Between 2019 Data and Previously Collected Data**

Location	Parameter	Class GA	Units	March 2007 Unfiltered	August 2012 Unfiltered	April 2019 Unfiltered	April 2019 Filtered
HB-MW-23	Calcium	NA	mg/L	970	NS	111	112
HB-MW-24	Iron	0.3 (S)	mg/L	[6.7]	NS	[0.35]	0.29
HB-MW-24	Manganese	0.3 (S)	mg/L	[0.35]	NS	0.086B	0.090B
HB-MW-25	Zinc	2 (G)	mg/L	0.039	NS	0.0031J	0.0025J
HB-MW-26	Chloride	250 (S)	mg/L	[1000]	[1520]	[544]	[597]
HB-MW-26	Sulfate	250 (S)	mg/L	10U	10U	46	45.6
HB-MW-28	Chloride	250 (S)	mg/L	NS	[5200]	[1800]	[1880]
HB-MW-28	Acenaphthene	20 (G)	µg/L	NS	17	7.6	7.9
HB-MW-29	Calcium	NA	mg/L	NS	518	3	6
HB-MW-29	Magnesium	35 (G)	mg/L	NS	[63.1]	[176]	[175]

Notes: NS – Not sampled; NA – Not available; J or B=Approximate value since the result is less than the RL and greater than the MDL; S – Standard; G – Guidance value; [ ] = concentration greater than NYS Class GA value.

The only detections for VOCs were acetone and cyclohexane. VOC concentrations did not exceed New York State Class GA Groundwater Standards. The acetone concentrations at HB-MW-22



(unfiltered) and at HB-MW-25 (unfiltered) were 7.2J µg/L and 6.6J, respectively. The cyclohexane concentration at HB-MW-25 (unfiltered) was 6.6J µg/L. It should be noted that well HB-B-04W contained a total BTEX concentration of 33 µg/L during the 2007 event; however, HB-B-04W could not be sampled during the 2019 event because the well was removed as discussed in Section 3.1 and, therefore, the current groundwater concentrations could not be measured in this area.

Sporadic SVOC detections included: 1-methylnaphthalene, 2,4-dichlorophenol, 4-methylphenol, acenaphthene, anthracene, Di-n-butyl phthalate, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. Naphthalene exceeded New York State Class GA Groundwater Guidance Value at HB-MW-29 for both the unfiltered (23J µg/L) and filtered (14J µg/L) samples; however, the concentrations were lower than the 2012 result (36.8 µg/L). No other SVOCs were above NYS Class GA Standards. It should be noted that well HB-B-04W contained a naphthalene concentration of 170 µg/L during the 2007 event; however, HB-B-04W could not be sampled during the 2019 event because the well was removed as discussed in Section 3.1 and, therefore, the current groundwater concentrations could not be measured in this area.

Pesticide detections include: 4,4'-DDD, 4,4'-DDT, aldrin, endosulfan I, alpha-BHC, gamma-BHC (Lindane), heptachlor, and heptachlor epoxide. Alpha-BHC exceeded New York State Class GA Groundwater Standards at HB-MW-29 with a concentration of 0.027J µg/L (filtered). Most pesticide detections occurred on filtered samples suggesting possible filter contamination. There were no PCBs detected in SYW-12 groundwater. It should be noted that both the method detection limit and reporting limit for PCBs were above the NYS Class GA standard.

Dissolved gases were analyzed for the unfiltered samples. Ethane and ethene dissolved gases were not detected at SYW-12. Methane was detected at all locations with the lowest concentration at HB-MW-24 (2,000 µg/L) and the highest concentration at HB-MW-22 (13,000 µg/L).

Inorganic concentrations that exceed New York State Class GA Groundwater Standards include barium, iron, magnesium, manganese, and sodium. Mercury was not detected at any of the sample locations. **Table 4-2** below summarizes these exceedances.

**Table 4-2 Groundwater Inorganic Exceedances**

Location	Barium (mg/L)	Iron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Sodium (mg/L)
NYS Class GA Standards/Guidance Values	1 (S)	0.6 (S)	35 (G)	0.3 (S)	20 (G)
HB-MW-22		3.7		0.86	1,570
HB-MW-22 (F)	1.0	3.6		0.84	1,550
HB-MW-23	2.0	0.64	137J	0.74	460
HB-MW-23 (F)	2.0	0.34	137J	0.74	457
HB-MW-24		0.35	104		3,300
HB-MW-24 (F)			109		1,370
HB-MW-25		10.6		0.51	408

Location	Barium (mg/L)	Iron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Sodium (mg/L)
NYS Class GA Standards/Guidance Values	1 (S)	0.6 (S)	35 (G)	0.3 (S)	20 (G)
HB-MW-25 (F)		12.1		0.54	430
HB-MW-26		17.6		0.41	360
HB-MW-26 (F)		17.1		0.40	408
HB-MW-28		12.7	38.2	0.50	2,650
HB-MW-28 (F)		13.7	38.6	0.54	1,110
HB-MW-29	1.1	62.3	176J	2.1	556
HB-MW-29 (F)	1.1	61.5	175J	2.1	574
Notes: Cells left blank if concentration did not exceed New York State Class GA Groundwater Standards; (F)= Filtered sample; J=Approximate value since the result is less than the RL and greater than the MDL. New State Class GA standards provided in table header (S) – Class GA standard value (G) – Class GA guidance value					

#### 4.2 Groundwater Type Discussion

Groundwater data were reviewed to evaluate the groundwater type (i.e., fresh water, brine, leachate) at SYW-12. Data evaluated consisted of pH, TDS, sodium, calcium, bromide, chloride, and the sodium to calcium ratio. The 2019 SYW-12 groundwater data were compared to nearby sites (i.e., Wastebeds 1-8, Wastebeds 9-15) and to United States Geologic Survey (USGS) data (Yager *et al.* 2007). The data are presented on **Table 14**. The data indicate that there are two groundwater types present at the SYW-12 property consisting of freshwater and dilute native halite brine. The native halite brine may be related to historic salt production in the area (USGS 2000) or natural upwelling of halite brine groundwater (Kappel and Miller 2005; Kappel and Yager 2008).

## 5. NATURAL ATTENUATION POTENTIAL

The geochemistry data discussed below indicates that there is potential for natural attenuation for certain constituents to occur at the site. A discussion of natural attenuation for constituents of interest at the site (present in soil/groundwater at the site), is provided in Section 4.8. The SYW-12 wells were sampled using low-flow methods, with field measurements of pH, DO, and ORP<sup>1</sup> to help guide the geochemical evaluation. In addition, samples were collected from the groundwater wells for the field measurement of ferrous iron and laboratory analyses for cations (calcium, magnesium, potassium, and sodium), anions (bromide, chloride, fluoride, nitrate, nitrite, orthophosphate, and sulfate), wet chemistry parameters (alkalinity [total, bicarbonate, and carbonate], sulfide, TDS, and TOC, and dissolved gases<sup>2</sup>. These data augment the field measurements and are also important for the geochemical evaluation.

Table 5-1 summarizes the geochemistry data for the natural attenuation discussion provided below.

**Table 5-1 Geochemistry Data Summary**

Well ID	pH (S.U.)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Ferrous Iron (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (mg/L)
MW-22	6.75	10.17	0.44	-99.9	ND	4.0	ND	ND	13.0
MW-23	6.58	28.86	0.12	-213.6	ND	0.5	81.1	2.0	9.2
MW-24	6.71	21.13	0.54	-292.1	ND	<0.5	75.1	17.2	2.0
MW-25	7.02	2.67	0.61	-82.3	ND	4.5	9.2	ND	5.6
MW-26	6.75	3.18	0.40	-102.6	0.3	3.0	46	ND	2.9
MW-28	6.90	7.92	0.33	-107.6	ND	3.0	77.5	ND	5.8
MW-29	6.51	32.63	0.31	-110.8	ND	3.0	ND	ND	12.0

**Notes:**

ORP – oxidation-reduction potential

DO -dissolved oxygen

ND – Non-detect

### 5.1 pH

The SYW-12 groundwater had no pH results less than 6, and 100% of the data within the 6 to 8 range generally considered ideal for biotic activity.

<sup>1</sup> Temperature, specific conductance, and turbidity were also measured.

<sup>2</sup> Methane, ethane, and ethene were quantified.

## 5.2 Dissolved Oxygen

The dissolved oxygen (DO) data within the SYW-12 groundwater wells are low, despite DO measurements often being biased high, even when collected in a flow-through cell during low flow sampling. As presented above in Table 4-1 the DO was below 1 milligram per liter (mg/L).

## 5.3 Oxidation-Reduction Potential

The ORP was less than 0 millivolts (mV) in all seven of the SYW-12 wells. These ORP data suggest the presence of iron-reducing conditions.<sup>3</sup> There were a two ORP values below -200 mV, which suggest sulfate-reducing and even carbon dioxide-reducing conditions.

## 5.4 Nitrate

Nitrate was not detectable in six of the seven wells. Nitrate was detected at 0.3 mg/L in one well (HB-MW-26).<sup>4</sup> As stated above, the ORP data suggest the presence of iron-reducing conditions under which little or no nitrate would be expected. Therefore, the nitrate data are consistent with the ORP data.

## 5.5 Ferrous Iron

The ferrous iron results for the seven groundwater wells ranged from not detectable to approximately 4.5 mg/L. As stated above, the ORP data suggest the presence of iron-reducing conditions, under which the iron would be reduced (ferrous) and not oxidized (ferric). The results of the ferrous iron measurements support the ORP measurements.

## 5.6 Sulfate and Sulfide

Sulfate was detected in 5 of the 7 samples at concentrations up to 81.1 mg/L. The concentrations of sulfide ranged from not detectable to 17.2 mg/L. The presence of sulfide suggests that sulfate-reducing conditions and sulfate-reducing bacteria are present in some areas<sup>5</sup>. The presence of sulfate in the groundwater is as expected based on the ORP measurements, and the presence of sulfide in the two wells with ORP values below -200 mV suggest the presence of sulfate-reducing conditions at these two groundwater wells.

## 5.7 Methane

Methane concentrations in the SYW-12 groundwater samples ranged from 1.8 mg/L to 12.0 mg/L. As stated above, the ORP data suggest the presence of iron-reducing conditions; only a few of the ORP measurements were sufficiently negative to suggest the presence of carbon dioxide-reducing conditions. The presence of methane suggests that methanogenic conditions and methanogenic bacteria are present at SYW-12. Further, similar to sulfide, the number of detections of methane suggest that methanogenic conditions are present to a greater extent than suggested by the ORP data.

<sup>3</sup> Oxygen and manganese should also be reduced, and the former is supported by the DO data.

<sup>4</sup> It is worth noting that the only well containing detectable nitrate was in well that had an ORP value of less than -100 mV. These ORP and nitrate data are incompatible and suggest that the ORP and/or the nitrate results are inaccurate for this well.

<sup>5</sup> Sulfide can react with iron to produce iron sulfide minerals (*e.g.*, mackinawite, pyrite, *etc.*). The presence of sulfide is even more noteworthy given the presence of ferrous iron in many of the groundwater samples.

### 5.8 Compound Specific Isotope Analysis

Compound specific isotope analysis (CSIA) was not performed on the samples collected during the 2019 investigation. The concentrations in groundwater were too low to perform the analysis even for the primary organic compound of interest, naphthalene.

### 5.9 Natural Attenuation Discussion

The geochemical data indicate that the SYW-12 groundwater is neutral pH and deeply reducing (low DO, ORP, and nitrate), indicating the presence of natural biological activity. This conclusion is further supported by moderate levels of dissolved iron, variable levels of sulfate, the presence of hydrogen sulfide at two locations, and significant methane production (**Table 4-1**). These deeply reducing conditions are highly supportive of the reduction of cadmium and chromium (present in soil at SYW-12), which effectively immobilizes these compounds by removing them from the aqueous phase. This should also be effective at immobilizing mercury (also present in soil at SYW-12). The biodegradation of naphthalene can occur under anaerobic conditions, particularly under iron or sulfate reducing conditions. PCBs and higher ringed PAH compounds are typically strongly sorbed to the soil phase and not found in groundwater. There is little evidence that higher-ring PAHs degrade under anaerobic conditions; however, these higher-ring PAHs were not detected in SYW-12 groundwater above NYS Class GA standards. PCBs may undergo limited reductive dechlorination under deeply reducing conditions, but this does not typically result in complete destruction of the molecule. It should be noted that no PCBs were detected in SYW-12 groundwater during the 2019 investigation.

Naphthalene was the one organic compound detected during the 2019 sampling above a NYS Class GA standard or guidance value that was also identified in previous investigations within the SYW-12 soils. A literature review was performed to evaluate the biodegradation and natural attenuation of naphthalene. Naphthalene can biodegrade in both aerobic (ATSDR, 2005; USEPA 1999) and anaerobic conditions (Aronson and Howard 1997; Meckenstock *et al.* 2004; Mihelcic and Luthy 1988). The reported half-life for naphthalene in the environment ranged from several days to 765 days (Environment Agency 2005; USEPA 1999); however, the degradation studies referenced herein did not indicate whether the source of naphthalene had been removed. HB-MW-29 had a concentration of 36.8 µg/L in 2012 and a concentration of 231 µg/L (unfiltered) in April 2019. If this site-specific decay rate based on these two data points is applied, the concentration of naphthalene at HB-MW-29 would theoretically reach the NYS Class GA guidance value of 10 µg/L in approximately 6.4 years (slower than the 765 day rate indicated in the literature). However, this is not unexpected. The slower naphthalene degradation rate may be due to limited bioavailability of naphthalene (Environment Agency 2002) at this low concentration. The slow rate of decay could also be related to elevated soil concentrations leaching into groundwater or environmental conditions (*e.g.*, initial concentrations, soil type, carbon content, previous microorganism exposure to PAHs) (USEPA 1999; Environment Agency 2003; Mihelcic and Luthy 1988). Overall, naphthalene concentrations may be trending downward and natural attenuation appears to be occurring based on site-specific information.

## 6. CONCLUSIONS

The constituents detected in site groundwater during the 2019 sampling generally had similar or lower concentrations than the 2007 or 2012 sampling events. Also, there was generally little to no difference between filtered and unfiltered sample concentrations for the 2019 data. There were no VOCs or SVOCs detected above corresponding New York State Class GA Groundwater standards and naphthalene, detected in one monitoring well, was the only SVOC with a concentration above the corresponding Class GA guidance value. This indicates that the impacted soils identified in previous investigations are having a minimal impact on Site groundwater. It should be noted that naphthalene was detected historically at well HB-B-04W that has been removed and could not be sampled in 2019. The nearby wells do not have elevated concentrations and the relatively neutral groundwater gradient indicate that the naphthalene is not readily mobile. The elevated inorganics may be naturally occurring. The elevated sodium concentrations may be related to natural brine influences, which is supported by the presence of bromide, in this area or former salt manufacturing upgradient of this area. The geochemistry data suggests that the conditions are present for natural attenuation of inorganics compounds such as cadmium, chromium, and mercury by immobilizing them and degradation of organic compounds such as VOCs and SVOCs to occur. The presence of methane indicates that natural attenuation of organic compounds such as naphthalene is likely occurring. In addition, the concentrations of the PAHs, such as acenaphthene and naphthalene, have decreased from previous events indicating that natural attenuation of PAHs is likely occurring.

## 7. REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). 2005. Toxicological Profile for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene. Atlanta, GA. August 2005.
- Aronson, D. and P.H. Howard. 1997. *Anaerobic Biodegradation of Organic Chemicals in Groundwater: A Summary of Field and Laboratory Studies*. Syracuse Research Corporation. North Syracuse, NY.
- Environment Agency. 2002. *The Effects of Contaminant Concentration on Potential for Natural Attenuation*. Bristol, UK. 2002.
- Environment Agency. 2003. *Review of the Fate and Transport of Selected Contaminants in the Soil Environment*. Bristol, UK. September 2003.
- Environment Agency. 2005. *Soil Guideline Values for Naphthalene Contamination*. Department for Environment, Food, and Rural Affairs. Bristol, UK. November 2005.
- C&S Companies (C&S). 2001. Transmittal to Ms. Susan Benjamin of the NYSDEC with copies of an August 3, 2000 memorandum titled "Summary of Wetland Subsurface Investigation Analytical Data" prepared by C&S. C&S, Syracuse, New York.
- Kappel, W.M. and T.S. Miller. 2005. *Hydrogeology of the Valley-fill Aquifer in the Onondaga Trough, Onondaga County, New York*. U.S. Geologic Survey. Scientific Investigations Report 2005-5007. 14 pp. February 2005.
- Kappel, W.M. and R.M. Yager. 2008. *Ground-water-flow Modeling of a Freshwater and Brine-Filled Aquifer in the Onondaga Trough, Onondaga County, New York – A Summary of Findings*. U.S. Geologic Survey. Open File Report 2007-1409. 12 pp. March 2008.
- Meckenstock, R.U., M. Safinowski, and C. Griebler. 2004. *Anaerobic Degradation of Polycyclic Aromatic Hydrocarbons*. FEMS Microbiology Ecology. Vol. 49, pp. 27-36.
- Mihelcic, J.R. and R.G. Luthy. 1988. *Microbial Degradation of Acenaphthene and Naphthalene under Denitrification Conditions in Soil-Water Systems*. Applied and Environmental Microbiology. Vol. 54, No.5. pp 1188-1198.
- NYSDEC. 2008. Letter from Donald J. Hesler of the NYSDEC to John McAuliffe of Honeywell on July 17, 2008 regarding comments on Draft Wetlands/Floodplains Assessment.
- NYSDEC. 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Division of Water Technical and Operational Guidance Series (1.1.1). June 1998.
- OBG. 2018. *Wastebed B/Harbor Brook SYW-12 Groundwater Sampling Work Plan*. O'Brien & Gere Engineers, Inc. Syracuse, New York. November 2018.
- O'Brien & Gere. 2015. *Revised Wastebed B/Harbor Brook Remedial Investigation Report*. O'Brien & Gere, Syracuse, New York. March 2015.
- O'Brien & Gere. 2014. *SYW-12 Sources of Contamination Investigation Revised Report*. O'Brien & Gere, Syracuse, New York. March 2014.
- O'Brien & Gere. 1995. *SYW-12 Wetlands Mitigation Sampling*. O'Brien & Gere Engineers, Inc., Syracuse, New York.

O'Brien & Gere and Parsons. 2010. *Onondaga Lake Wetland/Floodplain Assessment Final Report*. O'Brien & Gere and Parsons, Syracuse, New York.

O'Brien & Gere and Parsons. 2004. *Onondaga Lake Wetland/Floodplain Assessment Draft Report*. O'Brien & Gere and Parsons, Syracuse, New York.

United States Environmental Protection Agency (USEPA). 1999. *Aerobic Biodegradation of Organic Chemicals in Environmental Media: A summary of Field and Laboratory Studies*. Syracuse Research Corporation, North Syracuse, NY.

United States Geological Survey (USGS). 2000. *Salt Production in Syracuse, New York ("The Salt City") and the Hydrogeology of the Onondaga Creek Valley*. Department of the Interior, USGS. Fact Sheet. FS 139-00. November 2000.

Yager, R.M., W.M. Kappel, and L.N. Plummer. 2007. *Halite brine in the Onondaga Trough near Syracuse, New York: characterization and simulation of variable-density flow*. : U.S. Geological Survey. Scientific Investigations Report 2007-5058. 40 pp.



## **TABLES**

**Table 1**  
**Honeywell**  
**SYW-12 Commercial SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**  
**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Commercial SCOs
<b>Volatile Organic Compounds</b>									
1,4-DICHLOROBENZENE	µg/kg	88	31	0.69	2.2	8.7	1.5	0	130000
XYLENES, TOTAL	µg/kg	88	27	0.77	1.9	7.3	1.2	0	500000
TOLUENE	µg/kg	88	25	0.58	1.4	3.8	1.1	0	500000
CHLOROBENZENE	µg/kg	88	23	0.64	2.3	5.8	1.8	0	500000
1,2-DICHLOROBENZENE	µg/kg	88	7	0.9	1.5	2.3	1.2	0	500000
ETHYLBENZENE	µg/kg	88	6	0.74	0.9	1	0.925	0	390000
2-BUTANONE	µg/kg	88	4	2.1	2.3	2.5	2.3	0	500000
BENZENE	µg/kg	88	3	0.73	2.0	4.3	0.86	0	44000
ACETONE	µg/kg	88	2	14	16.5	19	16.5	0	500000
METHYLENE CHLORIDE	µg/kg	88	2	9.3	9.6	9.9	9.6	0	500000
TETRACHLOROETHENE	µg/kg	88	2	0.6	2.4	4.1	2.35	0	150000
1,3-DICHLOROBENZENE	µg/kg	88	1	1.1	1.1	1.1	1.1	0	280000
CIS-1,2-DICHLOROETHENE	µg/kg	88	1	1.4	1.4	1.4	1.4	0	500000
TRICHLOROETHENE	µg/kg	88	1	4.3	4.3	4.3	4.3	0	200000
CARBON DISULFIDE	µg/kg	88	12	0.72	1.6	3.2	1.45	NA	NC
<b>Semivolatile Organic Compounds</b>									
BENZO(A)PYRENE	µg/kg	88	83	52	3,691	49,000	2,000	60	1000
BENZO(B)FLUORANTHENE	µg/kg	88	83	98	5,277	67,000	3,000	17	5600
DIBENZO(A,H)ANTHRACENE	µg/kg	88	73	50	488	5,300	290	15	560
BENZO(A)ANTHRACENE	µg/kg	88	83	53	4,327	91,000	1,800	12	5600
INDENO(1,2,3-CD)PYRENE	µg/kg	88	80	52	1,037	13,000	580	2	5600
CHRYSENE	µg/kg	88	83	94	4,589	89,000	2,000	1	56000
FLUORANTHENE	µg/kg	88	85	69	7,795	220,000	2,700	0	500000
PYRENE	µg/kg	88	84	70	8,110	190,000	3,600	0	500000
PHENANTHRENE	µg/kg	88	83	73	5,166	200,000	1,800	0	500000
BENZO(K)FLUORANTHENE	µg/kg	88	81	63	1,831	24,000	990	0	56000
BENZO(G,H,I)PERYLENE	µg/kg	88	80	77	1,481	15,000	925	0	500000
ANTHRACENE	µg/kg	88	79	47	2,207	88,000	640	0	500000
ACENAPHTHYLENE	µg/kg	88	76	46	1,247	15,000	665	0	500000
NAPHTHALENE	µg/kg	88	71	41	878	4,200	590	0	500000
FLUORENE	µg/kg	88	68	51	993	37,000	260	0	500000
ACENAPHTHENE	µg/kg	88	61	48	994	31,000	180	0	500000
DIBENZOFURAN	µg/kg	88	57	61	796	20,000	150	0	350000
4-METHYLPHENOL	µg/kg	88	20	40	159	1,300	92	0	500000
HEXACHLOROBENZENE	µg/kg	88	17	48	118	240	110	0	6000
PHENOL	µg/kg	88	4	48	59	71	59	0	500000
2-METHYLNAPHTHALENE	µg/kg	88	69	46	782	16,000	400	NA	NC
CARBAZOLE	µg/kg	88	61	47	400	6,200	200	NA	NC
1-PHENYL-1-(2,4-DIMETHYLPHENYL) ETHANE	µg/kg	88	59	49	1,586	8,000	1,100	NA	NC
1-PHENYL-1-(4-METHYLPHENYL) ETHANE	µg/kg	88	54	60	1,004	5,300	645	NA	NC
ACETOPHENONE	µg/kg	88	44	48	172	760	120	NA	NC
1,1'-BIPHENYL	µg/kg	88	40	47	271	4,900	115	NA	NC
BENZALDEHYDE	µg/kg	88	40	47	249	1,700	140	NA	NC
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	88	31	41	493	2,200	440	NA	NC
BUTYLBENZYL PHTHALATE	µg/kg	88	8	51	227	1,200	73	NA	NC
4-CHLOROANILINE	µg/kg	88	3	59	110	200	71	NA	NC
CAPROLACTAM	µg/kg	88	3	57	74	93	71	NA	NC
DI-N-BUTYL PHTHALATE	µg/kg	88	1	150	150	150	150	NA	NC
<b>Pesticides</b>									
4,4'-DDT	µg/kg	88	29	2.5	39	350	18	0	47000
ALPHA-CHLORDANE	µg/kg	88	26	3.6	23	63	14	0	24000
4,4'-DDD	µg/kg	88	12	0.43	30	73	26	0	92000
DIELDRIN	µg/kg	88	10	4.9	12.9	30.0	11.0	0	1400
ENDOSULFAN II	µg/kg	88	8	8.3	23.4	50	17.5	0	200000
4,4'-DDE	µg/kg	88	5	0.5	4.2	14.0	2.2	0	62000
ALPHA-BHC	µg/kg	88	2	0.45	0.5	0.5	0.5	0	3400
ENDRIN	µg/kg	88	1	26	26	26	26	0	89000
ENDOSULFAN I	µg/kg	88	1	2.5	2.5	2.5	2.5	0	200000
GAMMA-BHC (LINDANE)	µg/kg	88	1	2.8	2.8	2.8	2.8	0	9200
ENDRIN KETONE	µg/kg	88	4	5	7.2	9.3	7.2	NA	NC
HEPTACHLOR EPOXIDE	µg/kg	88	1	47	47	47	47	NA	NC

**Table 1**  
**Honeywell**  
**SYW-12 Commercial SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**  
**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Commercial SCOs
<b>Dioxins/Furans</b>									
TOTAL TEQ (MAMMAL)	ng/Kg	30	30	0.24	24.3	185	10.4	NA	NC
1,2,3,4,6,7,8-HPCDD	ng/Kg	30	30	6.86	330	2,653	189	NA	NC
1,2,3,4,6,7,8-HPCDF	ng/Kg	30	30	2.38	70.2	469	30.7	NA	NC
1,2,3,4,7,8-HXCDF	ng/Kg	30	30	0.28	12.8	79.0	6.74	NA	NC
1,2,3,6,7,8-HXCDD	ng/Kg	30	30	0.67	23.3	196	10.3	NA	NC
OCDD	ng/Kg	30	30	48.7	2,370	15,854	1,397	NA	NC
OCDF	ng/Kg	30	30	3.13	168	1,313	75.6	NA	NC
1,2,3,6,7,8-HXCDF	ng/Kg	30	28	0.19	4.04	24.4	2.39	NA	NC
1,2,3,7,8,9-HXCDD	ng/Kg	30	28	0.41	13.2	83.1	7.99	NA	NC
1,2,3,7,8-PECDF	ng/Kg	30	28	0.47	8.34	49.6	3.78	NA	NC
2,3,4,7,8-PECDF	ng/Kg	30	28	0.39	15.0	97.1	3.78	NA	NC
1,2,3,7,8-PECDD	ng/Kg	30	27	0.21	7.83	58.2	4.89	NA	NC
2,3,7,8-TCDF	ng/Kg	30	27	0.58	12.8	64.7	7.39	NA	NC
1,2,3,4,7,8,9-HPCDF	ng/Kg	30	26	0.54	5.94	37.9	2.73	NA	NC
1,2,3,4,7,8-HXCDD	ng/Kg	30	24	0.30	4.01	28.8	2.56	NA	NC
2,3,4,6,7,8-HXCDF	ng/Kg	30	24	0.31	2.77	13.8	1.35	NA	NC
2,3,7,8-TCDD	ng/Kg	30	18	0.32	3.17	18.1	1.82	NA	NC
1,2,3,7,8,9-HXCDF	ng/Kg	30	15	0.06	0.84	2.97	0.58	NA	NC
<b>PCBs</b>									
AROCLOR-1254	µg/kg	88	73	22.7	446	2,110	308.0	8	1000
AROCLOR-1260	µg/kg	88	71	11.8	337	1,360	261.0	3	1000
<b>Inorganic Compounds</b>									
CADMIUM	mg/kg	88	81	0.38	12.48	52	8.6	36	9.3
MERCURY	mg/kg	88	88	0.0047	1.50	8.6	0.97	13	2.8
COPPER	mg/kg	88	88	3.7	101	370	73	5	270
ARSENIC	mg/kg	88	85	0.77	5.6	20	4.7	2	16
ZINC	mg/kg	88	88	15	246	780	205	0	10000
LEAD	mg/kg	88	88	2.1	139	390	115	0	1000
CHROMIUM	mg/kg	88	88	4.2	102	410	59	0	1500
NICKEL	mg/kg	88	88	2.6	29	87	22	0	310
BARIUM	mg/kg	88	88	11	150	320	135	0	400
BERYLLIUM	mg/kg	88	88	0.077	0	0.77	0.32	0	590
MANGANESE	mg/kg	88	88	170	319	630	305	0	10000
SELENIUM	mg/kg	88	81	0.27	1	2.6	0.96	0	1500
SILVER	mg/kg	88	66	0.13	3.4	13	2.1	0	1500
CYANIDE	mg/kg	88	14	0.83	1.44	2.3	1.4	0	27
ALUMINUM	mg/kg	88	88	620	4,802	14,000	4,700	NA	NC
CALCIUM	mg/kg	88	88	22,000	158,148	370,000	140,000	NA	NC
COBALT	mg/kg	88	88	0.4	5.1	13	5.15	NA	NC
IRON	mg/kg	88	88	2,200	12,307	31,000	12,000	NA	NC
MAGNESIUM	mg/kg	88	88	2,600	8,816	27,000	8,100	NA	NC
VANADIUM	mg/kg	88	88	1.6	13	53	11	NA	NC
POTASSIUM	mg/kg	88	86	170	872	2,300	810	NA	NC
SODIUM	mg/kg	88	62	120	397	2,000	275	NA	NC
METHYL MERCURY	mg/kg	88	58	0.00035	0.00	0.0135	0.00321	NA	NC
ANTIMONY	mg/kg	88	34	0.19	0.54	2.1	0.39	NA	NC
<b>Other Compounds</b>									
LUBRICATING OIL	mg/kg	88	49	24	483	2900	300	NA	NC
PETROLEUM HYDROCARBONS AS #6 FUEL OIL	mg/kg	88	6	230	3268	10000	1360	NA	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC Part 375 Restricted Commercial Soil Use Cleanup Objectives (2006).									

**Table 2**  
**Honeywell**  
**SYW-12 Protection of of Ecological Resources SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**  
**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Ecological Resources SCOs
<b>Volatile Organic Compounds</b>									
1,4-DICHLOROBENZENE	µg/kg	88	31	0.69	2.2	8.7	1.5	0	20000
XYLENES, TOTAL	µg/kg	88	27	0.77	1.9	7.3	1.2	0	260
TOLUENE	µg/kg	88	25	0.58	1.4	3.8	1.1	0	36000
CHLOROBENZENE	µg/kg	88	23	0.64	2.3	5.8	1.8	0	40000
2-BUTANONE	µg/kg	88	4	2.1	2.3	2.5	2.3	0	100000
BENZENE	µg/kg	88	3	0.73	2.0	4.3	0.86	0	70000
ACETONE	µg/kg	88	2	14	16.5	19	16.5	0	2200
METHYLENE CHLORIDE	µg/kg	88	2	9.3	9.6	9.9	9.6	0	12000
TETRACHLOROETHENE	µg/kg	88	2	0.6	2.4	4.1	2.35	0	2000
TRICHLOROETHENE	µg/kg	88	1	4.3	4.3	4.3	4.3	0	2000
CARBON DISULFIDE	µg/kg	88	12	0.72	1.6	3.2	1.45	NA	NC
1,2-DICHLOROBENZENE	µg/kg	88	7	0.9	1.5	2.3	1.2	NA	NC
ETHYLBENZENE	µg/kg	88	6	0.74	0.9	1	0.925	NA	NC
1,3-DICHLOROBENZENE	µg/kg	88	1	1.1	1.1	1.1	1.1	NA	NC
CIS-1,2-DICHLOROETHENE	µg/kg	88	1	1.4	1.4	1.4	1.4	NA	NC
<b>Semivolatile Organic Compounds</b>									
BENZO(A)PYRENE	µg/kg	88	83	52	3,691	49,000	2,000	29	2600
FLUORENE	µg/kg	88	68	51	993	37,000	260	1	30000
ACENAPHTHENE	µg/kg	88	61	48	994	31,000	180	1	20000
PHENOL	µg/kg	88	4	48	59	71	59	0	30000
FLUORANTHENE	µg/kg	88	85	69	7,795	220,000	2,700	NA	NC
PYRENE	µg/kg	88	84	70	8,110	190,000	3,600	NA	NC
BENZO(B)FLUORANTHENE	µg/kg	88	83	98	5,277	67,000	3,000	NA	NC
BENZO(A)ANTHRACENE	µg/kg	88	83	53	4,327	91,000	1,800	NA	NC
CHRYSENE	µg/kg	88	83	94	4,589	89,000	2,000	NA	NC
PHENANTHRENE	µg/kg	88	83	73	5,166	200,000	1,800	NA	NC
BENZO(K)FLUORANTHENE	µg/kg	88	81	63	1,831	24,000	990	NA	NC
INDENO(1,2,3-CD)PYRENE	µg/kg	88	80	52	1,037	13,000	580	NA	NC
BENZO(G,H,I)PERYLENE	µg/kg	88	80	77	1,481	15,000	925	NA	NC
ANTHRACENE	µg/kg	88	79	47	2,207	88,000	640	NA	NC
ACENAPHTHYLENE	µg/kg	88	76	46	1,247	15,000	665	NA	NC
DIBENZO(A,H)ANTHRACENE	µg/kg	88	73	50	488	5,300	290	NA	NC
NAPHTHALENE	µg/kg	88	71	41	878	4,200	590	NA	NC
2-METHYLNAPHTHALENE	µg/kg	88	69	46	782	16,000	400	NA	NC
CARBAZOLE	µg/kg	88	61	47	400	6,200	200	NA	NC
1-PHENYL-1-(2,4-DIMETHYLPHENYL) ETHANE	µg/kg	88	59	49	1,586	8,000	1,100	NA	NC
DIBENZOFURAN	µg/kg	88	57	61	796	20,000	150	NA	NC
1-PHENYL-1-(4-METHYLPHENYL) ETHANE	µg/kg	88	54	60	1,004	5,300	645	NA	NC
ACETOPHENONE	µg/kg	88	44	48	172	760	120	NA	NC
1,1'-BIPHENYL	µg/kg	88	40	47	271	4,900	115	NA	NC
BENZALDEHYDE	µg/kg	88	40	47	249	1,700	140	NA	NC
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	88	31	41	493	2,200	440	NA	NC
4-METHYLPHENOL	µg/kg	88	20	40	159	1,300	92	NA	NC
HEXACHLOROBENZENE	µg/kg	88	17	48	118	240	110	NA	NC
BUTYLBENZYL PHTHALATE	µg/kg	88	8	51	227	1,200	73	NA	NC
4-CHLOROANILINE	µg/kg	88	3	59	110	200	71	NA	NC
CAPROLACTAM	µg/kg	88	3	57	74	93	71	NA	NC
DI-N-BUTYL PHTHALATE	µg/kg	88	1	150	150	150	150	NA	NC
<b>Pesticides</b>									
4,4'-DDT	µg/kg	88	29	2.5	39	350	18	28	3.3
4,4'-DDD	µg/kg	88	12	0.43	30.0	73	26	10	3.3
DIELDRIN	µg/kg	88	10	4.9	12.9	30	11	9	6
4,4'-DDE	µg/kg	88	5	0.5	4	14	2.2	2	3.3
ENDRIN	µg/kg	88	1	26	26.0	26	26	1	14
ALPHA-CHLORDANE	µg/kg	88	26	3.6	23	63	14	0	1300
ALPHA-BHC	µg/kg	88	2	0.45	0.5	0.49	0.47	0	40
GAMMA-BHC (LINDANE)	µg/kg	88	1	2.8	2.8	2.8	2.8	0	6000
ENDOSULFAN II	µg/kg	88	8	8.3	23	50	17.5	NA	NC
ENDRIN KETONE	µg/kg	88	4	5	7.2	9.3	7.2	NA	NC
ENDOSULFAN I	µg/kg	88	1	2.5	2.5	2.5	2.5	NA	NC
HEPTACHLOR EPOXIDE	µg/kg	88	1	47	47	47	47	NA	NC

**Table 2**  
**Honeywell**  
**SYW-12 Protection of of Ecological Resources SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**  
**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Ecological Resources SCOs
<b>Dioxins/Furans</b>									
TOTAL TEQ (MAMMAL)	ng/Kg	30	30	0.24	24.3	185	10.4	NA	NC
1,2,3,4,6,7,8-HPCDD	ng/Kg	30	30	6.86	330	2,653	189	NA	NC
1,2,3,4,6,7,8-HPCDF	ng/Kg	30	30	2.38	70.2	469	30.7	NA	NC
1,2,3,4,7,8-HXCDF	ng/Kg	30	30	0.28	12.8	79.0	6.74	NA	NC
1,2,3,6,7,8-HXCDD	ng/Kg	30	30	0.67	23.3	196	10.3	NA	NC
OCDD	ng/Kg	30	30	48.7	2,370	15,854	1,397	NA	NC
OCDF	ng/Kg	30	30	3.13	168	1,313	75.6	NA	NC
1,2,3,6,7,8-HXCDF	ng/Kg	30	28	0.19	4.04	24.4	2.39	NA	NC
1,2,3,7,8,9-HXCDD	ng/Kg	30	28	0.41	13.2	83.1	7.99	NA	NC
1,2,3,7,8-PECDF	ng/Kg	30	28	0.47	8.34	49.6	3.78	NA	NC
2,3,4,7,8-PECDF	ng/Kg	30	28	0.39	15.0	97.1	3.78	NA	NC
1,2,3,7,8-PECDD	ng/Kg	30	27	0.21	7.83	58.2	4.89	NA	NC
2,3,7,8-TCDF	ng/Kg	30	27	0.58	12.8	64.7	7.39	NA	NC
1,2,3,4,7,8,9-HPCDF	ng/Kg	30	26	0.54	5.94	37.9	2.73	NA	NC
1,2,3,4,7,8-HXCDD	ng/Kg	30	24	0.30	4.01	28.8	2.56	NA	NC
2,3,4,6,7,8-HXCDF	ng/Kg	30	24	0.31	2.77	13.8	1.35	NA	NC
2,3,7,8-TCDD	ng/Kg	30	18	0.32	3.17	18.1	1.82	NA	NC
1,2,3,7,8,9-HXCDF	ng/Kg	30	15	0.06	0.84	2.97	0.58	NA	NC
<b>PCBs</b>									
AROCLOR-1254	µg/kg	88	73	22.7	446	2,110	308.0	8	1000
AROCLOR-1260	µg/kg	88	71	11.8	337	1,360	261.0	3	1000
<b>Inorganic Compounds</b>									
MERCURY	mg/kg	88	88	0.0047	1	8.6	0.97	71	0.18
MANGANESE	mg/kg	88	88	170	319	630	305	70	109
NICKEL	mg/kg	88	88	2.6	29	87	22	65	63
COPPER	mg/kg	88	88	3.7	101	370	73	56	50
CADMIUM	mg/kg	88	81	0.38	12.48	52	8.6	56	4
CHROMIUM	mg/kg	88	88	4.2	102.2	410	59	52	41
SILVER	mg/kg	88	66	0.13	3	13	2.1	33	2
BERYLLIUM	mg/kg	88	88	0.077	0	0.77	0.32	31	30
ARSENIC	mg/kg	88	85	0.77	6	20	4.7	4	13
ZINC	mg/kg	88	88	15	246.02	780	205	0	433
LEAD	mg/kg	88	88	2.1	139	390	115	0	10
BARIUM	mg/kg	88	88	11	150.3	320	135	0	1600
SELENIUM	mg/kg	88	81	0.27	1	2.6	0.96	0	3.9
ALUMINUM	mg/kg	88	88	620	4,802	14,000	4,700	NA	NC
CALCIUM	mg/kg	88	88	22,000	158,148	370,000	140,000	NA	NC
COBALT	mg/kg	88	88	0.4	5.1	13	5.15	NA	NC
IRON	mg/kg	88	88	2,200	12,307	31,000	12,000	NA	NC
MAGNESIUM	mg/kg	88	88	2,600	8,816	27,000	8,100	NA	NC
VANADIUM	mg/kg	88	88	1.6	13	53	11	NA	NC
POTASSIUM	mg/kg	88	86	170	872	2,300	810	NA	NC
SODIUM	mg/kg	88	62	120	397	2,000	275	NA	NC
METHYL MERCURY	mg/kg	88	58	0.00035	0.00	0.0135	0.00321	NA	NC
ANTIMONY	mg/kg	88	34	0.19	0.54	2.1	0.39	NA	NC
CYANIDE	mg/kg	88	14	0.83	1.44	2.3	1.4	NA	NC
<b>Other Compounds</b>									
LUBRICATING OIL	mg/kg	88	49	24	483	2900	300	NA	NC
PETROLEUM HYDROCARBONS AS #6 FUEL OIL	mg/kg	88	6	230	3268	10000	1360	NA	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC Part 375 Protection of Ecological Resources Soil Use Cleanup Objectives (2006).									

**Table 3**  
**Honeywell**  
**SYW-12 Protection of Groundwater SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**

**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Groundwater SCOs
<b>Volatile Organic Compounds</b>									
1,4-DICHLOROBENZENE	µg/kg	88	31	0.69	2.2	8.7	1.5	0	1800
XYLENES, TOTAL	µg/kg	88	27	0.77	1.9	7.3	1.2	0	1600
TOLUENE	µg/kg	88	25	0.58	1.4	3.8	1.1	0	700
CHLOROBENZENE	µg/kg	88	23	0.64	2.3	5.8	1.8	0	1100
1,2-DICHLOROBENZENE	µg/kg	88	7	0.9	1.5	2.3	1.2	0	1100
ETHYLBENZENE	µg/kg	88	6	0.74	0.9	1	0.925	0	1000
2-BUTANONE	µg/kg	88	4	2.1	2.3	2.5	2.3	0	120
BENZENE	µg/kg	88	3	0.73	2.0	4.3	0.86	0	60
ACETONE	µg/kg	88	2	14	16.5	19	16.5	0	50
METHYLENE CHLORIDE	µg/kg	88	2	9.3	9.6	9.9	9.6	0	50
TETRACHLOROETHENE	µg/kg	88	2	0.6	2.4	4.1	2.35	0	1300
1,3-DICHLOROBENZENE	µg/kg	88	1	1.1	1.1	1.1	1.1	0	2400
CIS-1,2-DICHLOROETHENE	µg/kg	88	1	1.4	1.4	1.4	1.4	0	250
TRICHLOROETHENE	µg/kg	88	1	4.3	4.3	4.3	4.3	0	470
CARBON DISULFIDE	µg/kg	88	12	0.72	1.6	3.2	1.45	NS	NC
<b>Semivolatile Organic Compounds</b>									
CHRYSENE	µg/kg	88	83	94	4,589	89,000	2,000	61	1000
BENZO(B)FLUORANTHENE	µg/kg	88	83	98	5,277	67,000	3,000	59	1700
BENZO(A)ANTHRACENE	µg/kg	88	83	53	4,327	91,000	1,800	59	1000
BENZO(K)FLUORANTHENE	µg/kg	88	81	63	1,831	24,000	990	20	1700
BENZO(A)PYRENE	µg/kg	88	83	52	3,691	49,000	2,000	2	22000
INDENO(1,2,3-CD)PYRENE	µg/kg	88	80	52	1,037	13,000	580	2	8200
4-METHYLPHENOL	µg/kg	88	20	40	159	1,300	92	1	330
FLUORANTHENE	µg/kg	88	85	69	7,795	220,000	2,700	0	1000000
PYRENE	µg/kg	88	84	70	8,110	190,000	3,600	0	1000000
PHENANTHRENE	µg/kg	88	83	73	5,166	200,000	1,800	0	1000000
BENZO(G,H,I)PERYLENE	µg/kg	88	80	77	1,481	15,000	925	0	1000000
ANTHRACENE	µg/kg	88	79	47	2,207	88,000	640	0	1000000
ACENAPHTHYLENE	µg/kg	88	76	46	1,247	15,000	665	0	107000
DIBENZO(A,H)ANTHRACENE	µg/kg	88	73	50	488	5,300	290	0	1000000
NAPHTHALENE	µg/kg	88	71	41	878	4,200	590	0	12000
FLUORENE	µg/kg	88	68	51	993	37,000	260	0	386000
ACENAPHTHENE	µg/kg	88	61	48	994	31,000	180	0	98000
DIBENZOFURAN	µg/kg	88	57	61	796	20,000	150	0	210000
HEXACHLOROBENZENE	µg/kg	88	17	48	118	240	110	0	3200
PHENOL	µg/kg	88	4	48	59	71	59	0	330
2-METHYLNAPHTHALENE	µg/kg	88	69	46	782	16,000	400	NA	NC
CARBAZOLE	µg/kg	88	61	47	400	6,200	200	NA	NC
1-PHENYL-1-(2,4-DIMETHYLPHENYL) ETHANE	µg/kg	88	59	49	1,586	8,000	1,100	NA	NC
1-PHENYL-1-(4-METHYLPHENYL) ETHANE	µg/kg	88	54	60	1,004	5,300	645	NA	NC
ACETOPHENONE	µg/kg	88	44	48	172	760	120	NA	NC
1,1'-BIPHENYL	µg/kg	88	40	47	271	4,900	115	NA	NC
BENZALDEHYDE	µg/kg	88	40	47	249	1,700	140	NA	NC
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	88	31	41	493	2,200	440	NA	NC
BUTYLBENZYL PHTHALATE	µg/kg	88	8	51	227	1,200	73	NA	NC
4-CHLOROANILINE	µg/kg	88	3	59	110	200	71	NA	NC
CAPROLACTAM	µg/kg	88	3	57	74	93	71	NA	NC
DI-N-BUTYL PHTHALATE	µg/kg	88	1	150	150	150	150	NA	NC
<b>Pesticides</b>									
4,4'-DDT	µg/kg	88	29	2.50	39	350	18	0	136000
ALPHA-CHLORDANE	µg/kg	88	26	3.60	23	63	14	0	1300
4,4'-DDD	µg/kg	88	12	0.43	30.0	73.0	26.0	0	14000
DIELDRIN	µg/kg	88	10	4.90	12.9	30.0	11.0	0	100
ENDOSULFAN II	µg/kg	88	8	8.30	23	50	18	0	102000
4,4'-DDE	µg/kg	88	5	0.50	4	14	2	0	17000
ALPHA-BHC	µg/kg	88	2	0.45	0.5	0	0.5	0	20
ENDRIN	µg/kg	88	1	26.00	26.0	26.0	26.0	0	102000
ENDOSULFAN I	µg/kg	88	1	2.50	2.5	2.5	2.5	0	60
GAMMA-BHC (LINDANE)	µg/kg	88	1	2.80	2.8	2.8	2.8	0	100
ENDRIN KETONE	µg/kg	88	4	5.00	7.2	9.3	7.2	NA	NC
HEPTACHLOR EPOXIDE	µg/kg	88	1	47.00	47	47	47	NA	NC

**Table 3**  
**Honeywell**  
**SYW-12 Protection of Groundwater SCO Comparison**  
**Surface Soils (< 2 ft) - SYW-12**  
**Surface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Groundwater SCOs
<b>Dioxins/Furans</b>									
TOTAL TEQ (MAMMAL)	ng/Kg	30	30	0.24	24.3	185	10.4	NA	NC
1,2,3,4,6,7,8-HPCDD	ng/Kg	30	30	6.86	330	2,653	189	NA	NC
1,2,3,4,6,7,8-HPCDF	ng/Kg	30	30	2.38	70.2	469	30.7	NA	NC
1,2,3,4,7,8-HXCDF	ng/Kg	30	30	0.28	12.8	79.0	6.74	NA	NC
1,2,3,6,7,8-HXCDD	ng/Kg	30	30	0.67	23.3	196	10.3	NA	NC
OCDD	ng/Kg	30	30	48.7	2,370	15,854	1,397	NA	NC
OCDF	ng/Kg	30	30	3.13	168	1,313	75.6	NA	NC
1,2,3,6,7,8-HXCDF	ng/Kg	30	28	0.19	4.04	24.4	2.39	NA	NC
1,2,3,7,8,9-HXCDD	ng/Kg	30	28	0.41	13.2	83.1	7.99	NA	NC
1,2,3,7,8-PECDF	ng/Kg	30	28	0.47	8.34	49.6	3.78	NA	NC
2,3,4,7,8-PECDF	ng/Kg	30	28	0.39	15.0	97.1	3.78	NA	NC
1,2,3,7,8-PECDD	ng/Kg	30	27	0.21	7.83	58.2	4.89	NA	NC
2,3,7,8-TCDF	ng/Kg	30	27	0.58	12.8	64.7	7.39	NA	NC
1,2,3,4,7,8,9-HPCDF	ng/Kg	30	26	0.54	5.94	37.9	2.73	NA	NC
1,2,3,4,7,8-HXCDD	ng/Kg	30	24	0.30	4.01	28.8	2.56	NA	NC
2,3,4,6,7,8-HXCDF	ng/Kg	30	24	0.31	2.77	13.8	1.35	NA	NC
2,3,7,8-TCDD	ng/Kg	30	18	0.32	3.17	18.1	1.82	NA	NC
1,2,3,7,8,9-HXCDF	ng/Kg	30	15	0.06	0.84	2.97	0.58	NA	NC
<b>PCBs</b>									
AROCLOR-1254	µg/kg	88	73	22.7	446	2,110	308.0	8	3200
AROCLOR-1260	µg/kg	88	71	11.8	337	1,360	261.0	3	3200
<b>Inorganic Compounds</b>									
CHROMIUM	mg/kg	88	88	4.2	102.2	410	59	66	19
MERCURY	mg/kg	88	88	0.0047	1	8.6	0.97	49	0.73
CADMIUM	mg/kg	88	81	0.38	12.48	52	8.6	45	7.5
SILVER	mg/kg	88	66	0.13	3	13	2.1	7	8.3
ARSENIC	mg/kg	88	85	0.77	6	20	4.7	2	16
BARIUM	mg/kg	88	88	11	150.3	320	135	0	2000
BERYLLIUM	mg/kg	88	88	0.077	0	0.77	0.32	0	130
COPPER	mg/kg	88	88	3.7	101	370	73	0	1720
CYANIDE	mg/kg	88	14	0.83	1.44	2.3	1.4	0	40
LEAD	mg/kg	88	88	2.1	139	390	115	0	47
MANGANESE	mg/kg	88	88	170	319	630	305	0	2480
NICKEL	mg/kg	88	88	2.6	29	87	22	0	450
SELENIUM	mg/kg	88	81	0.27	1	2.6	0.96	0	4
ZINC	mg/kg	88	88	15	246.02	780	205	0	820
ALUMINUM	mg/kg	88	88	620	4,802	14,000	4,700	NS	NC
CALCIUM	mg/kg	88	88	22,000	158,148	370,000	140,000	NS	NC
COBALT	mg/kg	88	88	0.4	5.1	13	5.15	NS	NC
IRON	mg/kg	88	88	2,200	12,307	31,000	12,000	NS	NC
MAGNESIUM	mg/kg	88	88	2,600	8,816	27,000	8,100	NS	NC
VANADIUM	mg/kg	88	88	1.6	13	53	11	NS	NC
POTASSIUM	mg/kg	88	86	170	872	2,300	810	NS	NC
SODIUM	mg/kg	88	62	120	397	2,000	275	NS	NC
METHYL MERCURY	mg/kg	88	58	0.00035	0.00	0.0135	0.00321	NS	NC
ANTIMONY	mg/kg	88	34	0.19	0.54	2.1	0.39	NS	NC
<b>Other Compounds</b>									
LUBRICATING OIL	mg/kg	88	49	24	483	2900	300	NA	NC
PETROLEUM HYDROCARBONS AS #6 FUEL OIL	mg/kg	88	6	230	3268	10000	1360	NA	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC Part 375 Protection of Groundwater Soil Use Cleanup Objectives (2006).									

**Table 4**  
**Honeywell**  
**SYW-12 Commercial SCO Comparison**  
**Subsurface Soils (> 2 ft) - SYW-12**  
**Subsurface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Commercial SCOs
<b>Volatile Organic Compounds</b>									
2-BUTANONE	µg/kg	44	25	3.1	32	220	12.6	0	500000
TOLUENE	µg/kg	44	25	0.29	98	449	46.3	0	500000
XYLENES, TOTAL	µg/kg	44	25	0.96	1,550	15,300	28	0	500000
ETHYLBENZENE	µg/kg	44	22	1.2	1,975	11,200	462.5	0	390000
ACETONE	µg/kg	44	15	14.2	171	730	90.7	0	500000
BENZENE	µg/kg	44	8	0.42	15	55.8	3.1	0	44000
1,2-DICHLOROBENZENE	µg/kg	44	4	2.8	20	50.8	13.85	0	500000
1,4-DICHLOROBENZENE	µg/kg	44	4	2.2	78	210	49.4	0	130000
1,3-DICHLOROBENZENE	µg/kg	44	2	46	98	150	98	0	280000
CHLOROBENZENE	µg/kg	44	2	24	51	77	50.5	0	500000
METHYLENE CHLORIDE	µg/kg	19	2	5.3	43	80	42.65	0	500000
CARBON DISULFIDE	µg/kg	44	26	0.54	7	26	5.2	NA	NC
ISOPROPYLBENZENE	µg/kg	44	25	0.36	708	4090	234	NA	NC
METHYLCYCLOHEXANE	µg/kg	44	9	0.95	58	154	67.7	NA	NC
METHYL ACETATE	µg/kg	44	5	1.1	5	13	2.2	NA	NC
1,2,4-TRICHLOROBENZENE	µg/kg	44	2	20	50	79	49.5	NA	NC
4-METHYL-2-PENTANONE	µg/kg	44	1	1.9	2	1.9	1.9	NA	NC
CYCLOHEXANE	µg/kg	44	1	95	95	95	95	NA	NC
ETHYL ACETATE	µg/kg	44	1	33	33	33	33	NA	NC
STYRENE	µg/kg	44	1	0.55	1	0.55	0.55	NA	NC
<b>Semivolatile Organic Compounds</b>									
BENZO(A)PYRENE	µg/kg	44	34	307	9,019	46,000	5,355	31	1000
DIBENZO(A,H)ANTHRACENE	µg/kg	44	32	67	1,332	4,220	895	20	560
BENZO(A)ANTHRACENE	µg/kg	44	34	161	8,963	53,000	4,505	15	5600
BENZO(B)FLUORANTHENE	µg/kg	44	34	236	8,405	45,000	4,855	12	5600
INDENO(1,2,3-CD)PYRENE	µg/kg	44	34	160	2,820	8,350	2,235	5	5600
CHRYSENE	µg/kg	44	34	201	9,530	59,000	5,270	1	56000
ACENAPHTHYLENE	µg/kg	44	34	92	4,237	26,000	1,920	0	500000
ANTHRACENE	µg/kg	44	34	117	10,588	86,700	3,515	0	500000
BENZO(G,H,I)PERYLENE	µg/kg	44	34	160	3,679	16,000	2,695	0	500000
BENZO(K)FLUORANTHENE	µg/kg	44	34	97	2,867	9,500	2,065	0	56000
FLUORANTHENE	µg/kg	44	34	109	13,980	91,000	7,410	0	500000
PHENANTHRENE	µg/kg	44	34	65	30,912	280,000	11,400	0	500000
PYRENE	µg/kg	44	34	279	21,638	140,000	10,200	0	500000
ACENAPHTHENE	µg/kg	44	33	53	18,840	210,000	2,800	0	500000
FLUORENE	µg/kg	44	33	48	9,793	86,000	1,900	0	500000
NAPHTHALENE	µg/kg	44	33	43	25,872	380,000	1,440	0	500000
DIBENZOFURAN	µg/kg	44	20	79	624	2,530	415	0	350000
4-METHYLPHENOL	µg/kg	25	8	84	628	1,800	410	0	500000
3&4-METHYLPHENOL	µg/kg	19	1	90	90	90	90	0	500000
2-METHYLNAPHTHALENE	µg/kg	44	33	41	28,886	400,000	1,300	NA	NC
1,1'-BIPHENYL	µg/kg	44	25	49	5,020	58,000	1,300	NA	NC
CARBAZOLE	µg/kg	44	24	48	664	5,700	225	NA	NC
1-PHENYL-1-(2,4-DIMETHYLPHENYL) ETHANE	µg/kg	25	12	76	7,784	44,000	1,150	NA	NC
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	44	10	76	474	1,500	239	NA	NC
1-PHENYL-1-(4-METHYLPHENYL) ETHANE	µg/kg	25	8	65	4,413	22,000	190	NA	NC
ACETOPHENONE	µg/kg	44	4	52	151	430	61	NA	NC
BENZALDEHYDE	µg/kg	44	1	110	110	110	110	NA	NC
DIMETHYL PHTHALATE	µg/kg	44	1	871	871	871	871	NA	NC
<b>Pesticides</b>									
4,4'-DDT	µg/kg	25	3	4.9	18.6	31.0	20.0	0	47000
ALPHA-CHLORDANE	µg/kg	25	2	0.7	2.4	4.1	2.4	0	24000
4,4'-DDD	µg/kg	25	1	4.4	4.4	4.4	4.4	0	92000
DIELDRIN	µg/kg	25	1	2	2.0	2.0	2.0	0	1400
ENDOSULFAN II	µg/kg	25	1	0.21	0.2	0.2	0.2	0	200000
<b>PCBs</b>									
AROCLOR-1254	µg/kg	44	6	7.88	546	1,530	99.1	2	1000
AROCLOR-1248	µg/kg	44	1	1110	1,110	1,110	1110.0	1	1000
AROCLOR-1260	µg/kg	44	7	12.2	159	853	39.7	0	1000
AROCLOR-1242	µg/kg	44	1	28.8	29	29	28.8	0	1000



**Table 4**  
**Honeywell**  
**SYW-12 Commercial SCO Comparison**  
**Subsurface Soils (> 2 ft) - SYW-12**  
**Subsurface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Commercial SCOs
<b>Inorganic Compounds</b>									
MERCURY	mg/kg	44	44	0.0069	1.07	6	0.67	4	2.8
ARSENIC	mg/kg	44	41	1	6.53	19.7	5.2	2	16
CADMIUM	mg/kg	44	32	0.053	5.86	100	2	2	9.3
COPPER	mg/kg	44	44	2.8	93.9	450	78.9	1	270
BARIUM	mg/kg	44	44	33	146	330	130	0	400
CHROMIUM	mg/kg	44	44	3	37.7	470	17.9	0	1500
LEAD	mg/kg	44	44	1.5	152	437	154.5	0	1000
MANGANESE	mg/kg	44	44	170	266	410	269.5	0	10000
NICKEL	mg/kg	44	44	3.6	34.4	116	25.4	0	310
ZINC	mg/kg	44	44	10	237	1200	182	0	10000
BERYLLIUM	mg/kg	44	42	0.11	0.36	0.75	0.36	0	590
SILVER	mg/kg	44	28	0.23	3.25	13	2.55	0	1500
SELENIUM	mg/kg	44	19	0.32	0.82	1.6	0.74	0	1500
CYANIDE	mg/kg	44	10	0.43	1.30	3	1.18	0	27
ALUMINUM	mg/kg	44	44	730	5,537	13,800	4,950	NA	NC
CALCIUM	mg/kg	44	44	38,800	130,530	400,000	100,000	NA	NC
IRON	mg/kg	44	44	3,200	13,146	25,000	13,350	NA	NC
MAGNESIUM	mg/kg	44	44	3,800	10,554	21,400	9,845	NA	NC
VANADIUM	mg/kg	44	42	1.8	11.8285714	27.8	11.15	NA	NC
POTASSIUM	mg/kg	44	35	370	1194	3100	950	NA	NC
SODIUM	mg/kg	44	34	250	2,796	15,000	1,750	NA	NC
COBALT	mg/kg	44	27	0.62	4.71	12.1	4.4	NA	NC
ANTIMONY	mg/kg	44	14	0.28	0.57	0.94	0.495	NA	NC
THALLIUM	mg/kg	44	2	1.1	1.1	1.1	1.1	NA	NC
<b>Other Compounds</b>									
LUBRICATING OIL	mg/kg	25	9	28	3792	13000	1200	NA	NC
PETROLEUM HYDROCARBONS AS #6 FUEL OIL	mg/kg	25	4	3500	17975	60000	4200	NA	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC Part 375 Restricted Commercial Soil Use Cleanup Objectives (2006).									

**Table 5**  
**Honeywell**  
**SYW-12 Protection of Groundwater SCO Comparison**  
**Subsurface Soils (> 2 ft) - SYW-12**  
**Subsurface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Groundwater SCOs
<b>Volatile Organic Compounds</b>									
ETHYLBENZENE	µg/kg	44	22	1.2	1,975	11,200	462.5	9	1000
ACETONE	µg/kg	44	15	14.2	171	730	90.7	9	50
XYLENES, TOTAL	µg/kg	44	25	0.96	1,550	15,300	28	5	1600
2-BUTANONE	µg/kg	44	25	3.1	32	220	12.6	1	120
METHYLENE CHLORIDE	µg/kg	19	2	5.3	43	80	42.65	1	50
TOLUENE	µg/kg	44	25	0.29	98	449	46.3	0	700
BENZENE	µg/kg	44	8	0.42	15	55.8	3.1	0	60
1,2-DICHLOROBENZENE	µg/kg	44	4	2.8	20	50.8	13.85	0	1100
1,4-DICHLOROBENZENE	µg/kg	44	4	2.2	78	210	49.4	0	1800
1,3-DICHLOROBENZENE	µg/kg	44	2	46	98	150	98	0	2400
CHLOROBENZENE	µg/kg	44	2	24	51	77	50.5	0	1100
CARBON DISULFIDE	µg/kg	44	26	0.54	7	26	5.2	NS	NC
ISOPROPYLBENZENE	µg/kg	44	25	0.36	708	4090	234	NS	NC
METHYLCYCLOHEXANE	µg/kg	44	9	0.95	58	154	67.7	NS	NC
METHYL ACETATE	µg/kg	44	5	1.1	5	13	2.2	NS	NC
1,2,4-TRICHLOROBENZENE	µg/kg	44	2	20	50	79	49.5	NS	NC
4-METHYL-2-PENTANONE	µg/kg	44	1	1.9	2	1.9	1.9	NS	NC
CYCLOHEXANE	µg/kg	44	1	95	95	95	95	NS	NC
ETHYL ACETATE	µg/kg	44	1	33	33	33	33	NS	NC
STYRENE	µg/kg	44	1	0.55	1	0.55	0.55	NS	NC
<b>Semivolatile Organic Compounds</b>									
BENZO(A)ANTHRACENE	µg/kg	44	34	161	8,963	53,000	4,505	31	1000
CHRYSENE	µg/kg	44	34	201	9,530	59,000	5,270	31	1000
BENZO(B)FLUORANTHENE	µg/kg	44	34	236	8,405	45,000	4,855	27	1700
BENZO(K)FLUORANTHENE	µg/kg	44	34	97	2,867	9,500	2,065	20	1700
NAPHTHALENE	µg/kg	44	33	43	25,872	380,000	1,440	6	12000
BENZO(A)PYRENE	µg/kg	44	34	307	9,019	46,000	5,355	4	22000
4-METHYLPHENOL	µg/kg	25	8	84	628	1,800	410	4	330
ACENAPHTHENE	µg/kg	44	33	53	18,840	210,000	2,800	2	98000
INDENO(1,2,3-CD)PYRENE	µg/kg	44	34	160	2,820	8,350	2,235	1	8200
ACENAPHTHYLENE	µg/kg	44	34	92	4,237	26,000	1,920	0	107000
ANTHRACENE	µg/kg	44	34	117	10,588	86,700	3,515	0	1000000
BENZO(G,H,I)PERYLENE	µg/kg	44	34	160	3,679	16,000	2,695	0	1000000
FLUORANTHENE	µg/kg	44	34	109	13,980	91,000	7,410	0	1000000
PHENANTHRENE	µg/kg	44	34	65	30,912	280,000	11,400	0	1000000
PYRENE	µg/kg	44	34	279	21,638	140,000	10,200	0	1000000
FLUORENE	µg/kg	44	33	48	9,793	86,000	1,900	0	386000
DIBENZO(A,H)ANTHRACENE	µg/kg	44	32	67	1,332	4,220	895	0	1000000
DIBENZOFURAN	µg/kg	44	20	79	624	2,530	415	0	210000
3&4-METHYLPHENOL	µg/kg	19	1	90	90	90	90	0	330
2-METHYLNAPHTHALENE	µg/kg	44	33	41	28,886	400,000	1,300	NS	NC
1,1'-BIPHENYL	µg/kg	44	25	49	5,020	58,000	1,300	NS	NC
CARBAZOLE	µg/kg	44	24	48	664	5,700	225	NS	NC
1-PHENYL-1-(2,4-DIMETHYLPHENYL) ETHANE	µg/kg	25	12	76	7,784	44,000	1,150	NS	NC
BIS(2-ETHYLHEXYL)PHTHALATE	µg/kg	44	10	76	474	1,500	239	NS	NC
1-PHENYL-1-(4-METHYLPHENYL) ETHANE	µg/kg	25	8	65	4,413	22,000	190	NS	NC
ACETOPHENONE	µg/kg	44	4	52	151	430	61	NS	NC
BENZALDEHYDE	µg/kg	44	1	110	110	110	110	NS	NC
DIMETHYL PHTHALATE	µg/kg	44	1	871	871	871	871	NS	NC
<b>Pesticides</b>									
4,4'-DDT	µg/kg	25	3	4.9	18.6	31.0	20.0	0	14000
ALPHA-CHLORDANE	µg/kg	25	2	0.7	2.4	4.1	2.4	0	136000
4,4'-DDD	µg/kg	25	1	4.4	4.4	4.4	4.4	0	2900
DIELDRIN	µg/kg	25	1	2	2.0	2.0	2.0	0	100
ENDOSULFAN II	µg/kg	25	1	0.21	0.2	0.2	0.2	0	102000
<b>PCBs</b>									
AROCLOR-1254	µg/kg	44	6	7.88	546	1,530	99.1	0	3200
AROCLOR-1248	µg/kg	44	1	1110	1,110	1,110	1110.0	0	3200
AROCLOR-1260	µg/kg	44	7	12.2	159	853	39.7	0	3200
AROCLOR-1242	µg/kg	44	1	28.8	29	29	28.8	0	3200

**Table 5**  
**Honeywell**  
**SYW-12 Protection of Groundwater SCO Comparison**  
**Subsurface Soils (> 2 ft) - SYW-12**  
**Subsurface Soil Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Maximum Detect	Median Detect	No. of Exceedances	NYSDEC Part 375.6 <sup>1</sup> Protection of Groundwater SCOs
<b>Inorganic Compounds</b>									
MERCURY	mg/kg	44	44	0.0069	1.07	6	0.67	20	0.73
CHROMIUM	mg/kg	44	44	3	37.7	470	17.9	20	19
ARSENIC	mg/kg	44	41	1	6.53	19.7	5.2	2	16
CADMIUM	mg/kg	44	32	0.053	5.86	100	2	2	7.5
SILVER	mg/kg	44	28	0.23	3.25	13	2.55	1	8.3
COPPER	mg/kg	44	44	2.8	93.9	450	78.9	0	1720
BARIUM	mg/kg	44	44	33	146	330	130	0	820
LEAD	mg/kg	44	44	1.5	152	437	154.5	0	450
MANGANESE	mg/kg	44	44	170	266	410	269.5	0	2000
NICKEL	mg/kg	44	44	3.6	34.4	116	25.4	0	130
ZINC	mg/kg	44	44	10	237	1200	182	0	2480
BERYLLIUM	mg/kg	44	42	0.11	0.36	0.75	0.36	0	47
SELENIUM	mg/kg	44	19	0.32	0.82	1.6	0.74	0	4
CYANIDE	mg/kg	44	10	0.43	1.30	3	1.18	0	40
ALUMINIUM	mg/kg	44	44	730	5,537	13,800	4,950	NS	NC
CALCIUM	mg/kg	44	44	38,800	130,530	400,000	100,000	NS	NC
IRON	mg/kg	44	44	3,200	13,146	25,000	13,350	NS	NC
MAGNESIUM	mg/kg	44	44	3,800	10,554	21,400	9,845	NS	NC
VANADIUM	mg/kg	44	42	1.8	11.8285714	27.8	11.15	NS	NC
POTASSIUM	mg/kg	44	35	370	1194	3100	950	NS	NC
SODIUM	mg/kg	44	34	250	2,796	15,000	1,750	NS	NC
COBALT	mg/kg	44	27	0.62	4.71	12.1	4.4	NS	NC
ANTIMONY	mg/kg	44	14	0.28	0.57	0.94	0.495	NS	NC
THALLIUM	mg/kg	44	2	1.1	1.1	1.1	1.1	NS	NC
<b>Other Compounds</b>									
LUBRICATING OIL	mg/kg	25	9	28	3792	13000	1200	NS	NC
PETROLEUM HYDROCARBONS AS #6 FUEL OIL	mg/kg	25	4	3500	17975	60000	4200	NS	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC Part 375 Protection of Groundwater Soil Use Cleanup Objectives (2006).									

**Table 6  
Honeywell  
SYW-12**

**Shallow Groundwater - Historic Samples  
Summary Statistics for Detected Constituents and Comparison to Standards and Guidance Values**

Parameter Name	Report Units	No. of Records	No. of Detects	Minimum Detect	Mean Detect	Median Detect	Maximum Detect	No. of Exceedances	NYSDEC Class GA Stds. & Guidance Values
<b>Volatile Organic Compounds</b>									
XYLENES, TOTAL	µg/L	12	5	0.45	5.83	3.00	15.2	2	5(S)
ETHYLBENZENE	µg/L	12	3	0.48	7.43	7.00	14.8	2	5(S)
ISOPROPYLBENZENE	µg/L	12	5	0.23	1.99	1.70	5.25	1	5(G)
O-XYLENE	µg/L	3	2	2.10	4.70	4.70	7.30	1	5(S)
1,2-DICHLOROBENZENE	µg/L	12	4	0.12	0.16	0.15	0.21	0	3(S)
CHLOROBENZENE	µg/L	12	4	0.17	0.25	0.27	0.30	0	5(S)
ACETONE	µg/L	12	3	1.31	1.44	1.43	1.57	0	50(S)
TOLUENE	µg/L	12	3	0.25	1.45	1.10	3.00	0	5(S)
1,4-DICHLOROBENZENE	µg/L	12	2	0.10	0.22	0.22	0.34	0	3(S)
BENZENE	µg/L	12	2	0.36	0.37	0.37	0.37	0	1(S)
CARBON DISULFIDE	µg/L	12	2	0.11	0.12	0.12	0.12	0	60(G)
METHYL TERT-BUTYL ETHER	µg/L	12	2	0.23	0.29	0.29	0.35	0	10(G)
XYLENES, M & P	µg/L	3	2	0.93	1.82	1.82	2.70	0	5(S)
1,1-DICHLOROETHANE	µg/L	12	1	0.10	0.10	0.10	0.10	0	5(S)
CYCLOHEXANE	µg/L	12	1	0.55	0.55	0.55	0.55	NA	NC
<b>Semivolatile Organic Compounds</b>									
NAPHTHALENE	µg/L	12	3	1.60	69.5	36.8	170	2	10(G)
ACENAPHTHENE	µg/L	12	8	1.40	11.5	7.50	41.0	1	20(G)
4-METHYLPHENOL	µg/L	9	1	2.00	2.00	2.00	2.00	1	1(S)
4-NITROPHENOL	µg/L	12	1	1.10	1.10	1.10	1.10	1	1(S)
ANTHRACENE	µg/L	12	5	0.72	1.44	1.20	3.00	0	50(G)
FLUORENE	µg/L	12	5	0.86	4.27	2.70	12.0	0	50(G)
PHENANTHRENE	µg/L	12	5	1.20	6.34	4.70	17.0	0	50(G)
PYRENE	µg/L	12	5	0.78	1.09	0.95	1.90	0	50(G)
FLUORANTHENE	µg/L	12	4	0.68	1.00	0.82	1.70	0	50(G)
BIS(2-ETHYLHEXYL)PHTHALATE	µg/L	12	2	1.10	1.20	1.20	1.30	0	5(S)
1,1'-BIPHENYL	µg/L	12	3	0.57	3.79	1.90	8.90	NA	NC
2-METHYLNAPHTHALENE	µg/L	12	3	0.70	5.23	3.80	11.2	NA	NC
CARBAZOLE	µg/L	12	3	0.60	1.60	0.69	3.50	NA	NC
DIBENZOFURAN	µg/L	12	3	0.51	1.09	0.57	2.20	NA	NC
<b>Pesticides</b>									
4,4'-DDT	µg/L	9	1	0.02	0.02	0.02	0.02	0	0.2(S)
<b>Inorganic Compounds</b>									
IRON	mg/L	12	12	3.80	15.0	13.0	32.7	12	0.3(S)
SODIUM	mg/L	12	12	250	1,579	1,384	3,400	12	20(S)
MANGANESE	mg/L	12	12	0.27	0.67	0.54	1.38	11	0.3(S)
MAGNESIUM	mg/L	12	12	23.0	52.6	45.0	110	7	35(G)
BARIUM	mg/L	12	12	0.12	0.53	0.40	1.30	2	1(S)
CHROMIUM	mg/L	12	4	0.009	0.05	0.01	0.16	1	0.05(S)
LEAD	mg/L	12	4	0.005	0.02	0.01	0.04	1	0.025(S)
COPPER	mg/L	12	5	0.002	0.008	0.007	0.01	0	0.2(S)
MERCURY	mg/L	12	5	0.000001	0.00005	0.00002	0.0001	0	0.0007(S)
ZINC	mg/L	12	3	0.02	0.03	0.03	0.04	0	2(G)
CADMIUM	mg/L	12	1	0.002	0.002	0.002	0.002	0	0.005(S)
SILVER	mg/L	12	1	0.001	0.001	0.001	0.001	0	0.05(S)
CALCIUM	mg/L	12	12	220	458	444	970	NA	NC
POTASSIUM	mg/L	12	12	9.00	27.3	24.1	69.0	NA	NC
NICKEL	mg/L	12	9	0.002	0.01	0.005	0.06	NA	NC
ALUMINUM	mg/L	12	8	0.04	0.64	0.17	1.80	NA	NC
VANADIUM	mg/L	12	4	0.002	0.003	0.003	0.003	NA	NC
<b>Other Parameters</b>									
CHLORIDE	mg/L	12	12	380	3,018	3,325	6,100	12	250
BROMIDE	mg/L	3	3	2.60	8.53	10.0	13.0	3	2(G)
SULFATE	mg/L	12	3	8.80	25.2	25.0	41.9	0	250
ALKALINITY, BICARBONATE (AS CaCO3)	mg/L	12	12	470	711	652	1,200	NA	NC
ALKALINITY, TOTAL	mg/L	12	12	470	712	653	1,200	NA	NC
HARDNESS (AS CaCO3)	mg/L	9	9	640	1,381	1,100	2,900	NA	NC
NITROGEN	mg/L	3	3	5.80	24.3	33.0	34.0	NA	NC
NITROGEN, AMMONIA (AS N)	mg/L	3	3	5.50	25.5	35.0	36.0	NA	NC
CARBONACEOUS BIOCHEMICAL OXYGEN DEMAND	mg/L	3	1	7.60	7.60	7.60	7.60	NA	NC
Notes:									
NA = not applicable; NC = no applicable criteria									
NYSDEC TOGS 1.1.1 Class GA Standards and Guidance Values.									

**Table 7**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
1,1,1-TRICHLOROETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,1,2,2-TETRACHLOROETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,1,2-Trichloro-1,2,2-Trifluoroethane	NC	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,1,2-TRICHLOROETHANE	1.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,1-DICHLOROETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,1-DICHLOROETHENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2,4-TRICHLOROBENZENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2-DIBROMO-3-CHLOROPROPANE	0.04 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2-DIBROMOETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2-DICHLOROETHANE	0.6 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,2-DICHLOROPROPANE	1.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,3-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
1,4-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
2-BUTANONE	50.0 (G)	µg/L	20U	40U	40U	40U	20U	20U
2-HEXANONE	50.0 (G)	µg/L	10U	20U	20U	20U	10U	10U
4-METHYL-2-PENTANONE	NC	µg/L	10U	20U	20U	20U	10U	10U
ACETONE	50.0 (G)	µg/L	7.2J	40U	40U	40U	20U	20U
BENZENE	1.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
BROMODICHLOROMETHANE	50.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
BROMOFORM	50.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
BROMOMETHANE	5.0 (S)	µg/L	2.0UJ	4.0UJ	4.0UJ	4.0UJ	2.0U	2.0U
CARBON DISULFIDE	60.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CARBON TETRACHLORIDE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CHLOROBENZENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CHLOROETHANE	5.0 (S)	µg/L	1.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CHLOROFORM	7.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CHLOROMETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CIS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CIS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
CYCLOHEXANE	NC	µg/L	0.59J	4.0U	4.0U	4.0U	2.0U	2.0U
DIBROMOCHLOROMETHANE	50.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
DICHLORODIFLUOROMETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
ETHYLBENZENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
ISOPROPYLBENZENE	NC	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
METHYL ACETATE	NC	µg/L	5.0U	10U	10U	10U	5.0U	5.0U
METHYL TERT-BUTYL ETHER	10.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 7**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
METHYLCYCLOHEXANE	NC	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
METHYLENE CHLORIDE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
STYRENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TETRACHLOROETHENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TOLUENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TRANS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TRANS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TRICHLOROETHENE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
TRICHLOROFLUOROMETHANE	5.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
VINYL CHLORIDE	2.0 (S)	µg/L	2.0U	4.0U	4.0U	4.0U	2.0U	2.0U
XYLENES, TOTAL	5.0 (S)	µg/L	4.0U	8.0U	8.0U	8.0U	4.0U	4.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 7**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
1,1,1-TRICHLOROETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,1,2,2-TETRACHLOROETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,1,2-Trichloro-1,2,2-Trifluoroethane	NC	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,1,2-TRICHLOROETHANE	1.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,1-DICHLOROETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,1-DICHLOROETHENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2,4-TRICHLOROBENZENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2-DIBROMO-3-CHLOROPROPANE	0.04 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2-DIBROMOETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2-DICHLOROETHANE	0.6 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,2-DICHLOROPROPANE	1.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,3-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
1,4-DICHLOROBENZENE	3.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
2-BUTANONE	50.0 (G)	µg/L	20U	20U	20U	20U	20U	20U
2-HEXANONE	50.0 (G)	µg/L	10UJ	10UJ	10U	10U	10U	10U
4-METHYL-2-PENTANONE	NC	µg/L	10U	10U	10U	10U	10U	10U
ACETONE	50.0 (G)	µg/L	6.6J	20U	20U	20U	20U	20U
BENZENE	1.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
BROMODICHLOROMETHANE	50.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
BROMOFORM	50.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
BROMOMETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CARBON DISULFIDE	60.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CARBON TETRACHLORIDE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CHLOROBENZENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CHLOROETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CHLOROFORM	7.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CHLOROMETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CIS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CIS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
CYCLOHEXANE	NC	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
DIBROMOCHLOROMETHANE	50.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
DICHLORODIFLUOROMETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
ETHYLBENZENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
ISOPROPYLBENZENE	NC	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
METHYL ACETATE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
METHYL TERT-BUTYL ETHER	10.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 7**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
METHYLCYCLOHEXANE	NC	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
METHYLENE CHLORIDE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
STYRENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TETRACHLOROETHENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TOLUENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TRANS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TRANS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TRICHLOROETHENE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
TRICHLOROFLUOROMETHANE	5.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
VINYL CHLORIDE	2.0 (S)	µg/L	2.0U	2.0U	2.0U	2.0U	2.0U	2.0U
XYLENES, TOTAL	5.0 (S)	µg/L	4.0U	4.0U	4.0U	4.0U	4.0U	4.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).



**Table 7  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
1,1,1-TRICHLOROETHANE	5.0 (S)	µg/L	4.0U	4.0U
1,1,2,2-TETRACHLOROETHANE	5.0 (S)	µg/L	4.0U	4.0U
1,1,2-Trichloro-1,2,2-Trifluoroethane	NC	µg/L	4.0U	4.0U
1,1,2-TRICHLOROETHANE	1.0 (S)	µg/L	4.0U	4.0U
1,1-DICHLOROETHANE	5.0 (S)	µg/L	4.0U	4.0U
1,1-DICHLOROETHENE	5.0 (S)	µg/L	4.0U	4.0U
1,2,4-TRICHLOROBENZENE	5.0 (S)	µg/L	4.0U	4.0U
1,2-DIBROMO-3-CHLOROPROPANE	0.04 (S)	µg/L	4.0U	4.0U
1,2-DIBROMOETHANE	5.0 (S)	µg/L	4.0U	4.0U
1,2-DICHLOROBENZENE	3.0 (S)	µg/L	4.0U	4.0U
1,2-DICHLOROETHANE	0.6 (S)	µg/L	4.0U	4.0U
1,2-DICHLOROPROPANE	1.0 (S)	µg/L	4.0U	4.0U
1,3-DICHLOROBENZENE	3.0 (S)	µg/L	4.0U	4.0U
1,4-DICHLOROBENZENE	3.0 (S)	µg/L	4.0U	4.0U
2-BUTANONE	50.0 (G)	µg/L	40U	40U
2-HEXANONE	50.0 (G)	µg/L	20U	20U
4-METHYL-2-PENTANONE	NC	µg/L	20U	20U
ACETONE	50.0 (G)	µg/L	40U	40U
BENZENE	1.0 (S)	µg/L	4.0U	4.0U
BROMODICHLOROMETHANE	50.0 (G)	µg/L	4.0U	4.0U
BROMOFORM	50.0 (G)	µg/L	4.0U	4.0U
BROMOMETHANE	5.0 (S)	µg/L	4.0UJ	4.0UJ
CARBON DISULFIDE	60.0 (G)	µg/L	4.0U	4.0U
CARBON TETRACHLORIDE	5.0 (S)	µg/L	4.0U	4.0U
CHLOROBENZENE	5.0 (S)	µg/L	4.0U	4.0U
CHLOROETHANE	5.0 (S)	µg/L	4.0U	4.0U
CHLOROFORM	7.0 (S)	µg/L	4.0U	4.0U
CHLOROMETHANE	5.0 (S)	µg/L	4.0U	4.0U
CIS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	4.0U	4.0U
CIS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	4.0U	4.0U
CYCLOHEXANE	NC	µg/L	4.0U	4.0U
DIBROMOCHLOROMETHANE	50.0 (G)	µg/L	4.0U	4.0U
DICHLORODIFLUOROMETHANE	5.0 (S)	µg/L	4.0U	4.0U
ETHYLBENZENE	5.0 (S)	µg/L	4.0U	4.0U
ISOPROPYLBENZENE	NC	µg/L	4.0U	4.0U
METHYL ACETATE	NC	µg/L	10U	10U
METHYL TERT-BUTYL ETHER	10.0 (G)	µg/L	4.0U	4.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 7**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8260 Volatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
METHYLCYCLOHEXANE	NC	µg/L	4.0U	4.0U
METHYLENE CHLORIDE	5.0 (S)	µg/L	4.0U	4.0U
STYRENE	5.0 (S)	µg/L	4.0U	4.0U
TETRACHLOROETHENE	5.0 (S)	µg/L	4.0U	4.0U
TOLUENE	5.0 (S)	µg/L	4.0U	4.0U
TRANS-1,2-DICHLOROETHENE	5.0 (G)	µg/L	4.0U	4.0U
TRANS-1,3-DICHLOROPROPENE	0.4 (S)	µg/L	4.0U	4.0U
TRICHLOROETHENE	5.0 (S)	µg/L	4.0U	4.0U
TRICHLOROFLUOROMETHANE	5.0 (S)	µg/L	4.0U	4.0U
VINYL CHLORIDE	2.0 (S)	µg/L	4.0U	4.0U
XYLENES, TOTAL	5.0 (S)	µg/L	8.0U	8.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
1,1'-BIPHENYL	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
1-METHYLNAPHTHALENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4,5-TRICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4,6-TRICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4-DICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	0.53J	5.0U
2,4-DIMETHYLPHENOL	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4-DINITROPHENOL	10.0 (G)	µg/L	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ
2,4-DINITROTOLUENE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,6-DINITROTOLUENE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-CHLORONAPHTHALENE	10.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-CHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-METHYLNAPHTHALENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-METHYLPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
2-NITROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
3,3'-DICHLOROBENZIDINE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
3-METHYLCHOLANTHRENE	NC	µg/L	10U	10U	10U	10U	10U	10U
3-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4,6-DINITRO-2-METHYLPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4-BROMOPHENYL PHENYL ETHER	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-CHLORO-3-METHYLPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-CHLOROANILINE	5.0 (S)	µg/L	5.0UJ	5.0UJ	5.0UJ	5.0UJ	5.0U	5.0U
4-CHLOROPHENYL PHENYL ETHER	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-METHYLPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	0.4J	0.36J
4-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4-NITROPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
7,12-DIMETHYLBENZ(A)ANTHRACENE	NC	µg/L	10U	10U	10U	10U	10U	10U
ACENAPHTHENE	20.0 (G)	µg/L	5.0U	5.0U	0.53J	5.0U	5.0U	5.0U
ACENAPHTHYLENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ACETOPHENONE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ANTHRACENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ATRAZINE	7.5 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZALDEHYDE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(A)ANTHRACENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(A)PYRENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(B)FLUORANTHENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(G,H,I)PERYLENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
BENZO(K)FLUORANTHENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BIS(2-CHLOROETHOXY)METHANE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BIS(2-CHLOROETHYL)ETHER	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BIS(2-ETHYLHEXYL)PHTHALATE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BUTYLBENZYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CAPROLACTAM	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CARBAZOLE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CHRYSENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIBENZ(A,H)ACRIDINE	NC	µg/L	10U	10U	10U	10U	10U	10U
DIBENZO(A,H)ANTHRACENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIBENZOFURAN	NC	µg/L	10U	10U	10U	10U	10U	10U
DIETHYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIMETHYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DI-N-BUTYL PHTHALATE	50.0 (S)	µg/L	0.31J	0.55J	5.0U	1.2J	5.0U	1.3J
DI-N-OCTYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
FLUORANTHENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
FLUORENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROBENZENE	0.04 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROBUTADIENE	0.5 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROCYCLOPENTADIENE	5.0 (S)	µg/L	5.0UJ	5.0UJ	5.0UJ	5.0UJ	5.0U	5.0U
HEXACHLOROETHANE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
INDENO(1,2,3-CD)PYRENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ISOPHORONE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
NAPHTHALENE	10.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
NITROBENZENE	0.4 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
N-NITROSO-DI-N-PROPYLAMINE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
N-NITROSODIPHENYLAMINE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
PENTACHLOROPHENOL	1.0 (S)	µg/L	10UJ	10UJ	10UJ	10UJ	10U	10U
PHENANTHRENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
PHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
PYRENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
1,1'-BIPHENYL	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
1-METHYLNAPHTHALENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	8.3	8.9
2,4,5-TRICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4,6-TRICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4-DICHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4-DIMETHYLPHENOL	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,4-DINITROPHENOL	10.0 (G)	µg/L	10U	10U	10UJ	10UJ	10UJ	10UJ
2,4-DINITROTOLUENE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,6-DINITROTOLUENE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-CHLORONAPHTHALENE	10.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-CHLOROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-METHYLNAPHTHALENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-METHYLPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
2-NITROPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
3,3'-DICHLOROBENZIDINE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
3-METHYLCHOLANTHRENE	NC	µg/L	10U	10U	10U	10U	10U	10U
3-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4,6-DINITRO-2-METHYLPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4-BROMOPHENYL PHENYL ETHER	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-CHLORO-3-METHYLPHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-CHLOROANILINE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-CHLOROPHENYL PHENYL ETHER	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
4-METHYLPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4-NITROANILINE	5.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
4-NITROPHENOL	1.0 (S)	µg/L	10UJ	10UJ	10U	10U	10U	10U
7,12-DIMETHYLBENZ(A)ANTHRACENE	NC	µg/L	10U	10U	10U	10U	10U	10U
ACENAPHTHENE	20.0 (G)	µg/L	5.0U	5.0U	1.4J	1.8J	7.6	7.9
ACENAPHTHYLENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ACETOPHENONE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ANTHRACENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	0.97J	5.0U
ATRAZINE	7.5 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZALDEHYDE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(A)ANTHRACENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(A)PYRENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(B)FLUORANTHENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BENZO(G,H,I)PERYLENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
BENZO(K)FLUORANTHENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BIS(2-CHLOROETHOXY)METHANE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BIS(2-CHLOROETHYL)ETHER	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	µg/L	5.0UJ	5.0UJ	5.0U	5.0U	5.0U	5.0U
BIS(2-ETHYLHEXYL)PHTHALATE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
BUTYLBENZYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CAPROLACTAM	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CARBAZOLE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
CHRYSENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIBENZ(A,H)ACRIDINE	NC	µg/L	10U	10U	10U	10U	10U	10U
DIBENZO(A,H)ANTHRACENE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIBENZOFURAN	NC	µg/L	10U	10U	10U	10U	10U	10U
DIETHYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DIMETHYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
DI-N-BUTYL PHTHALATE	50.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	0.38J
DI-N-OCTYL PHTHALATE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
FLUORANTHENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	0.65J	5.0U
FLUORENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	1.5J	1.4J
HEXACHLOROBENZENE	0.04 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROBUTADIENE	0.5 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROCYCLOPENTADIENE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
HEXACHLOROETHANE	5.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
INDENO(1,2,3-CD)PYRENE	0.002 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ISOPHORONE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
NAPHTHALENE	10.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
NITROBENZENE	0.4 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
N-NITROSO-DI-N-PROPYLAMINE	NC	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
N-NITROSODIPHENYLAMINE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
PENTACHLOROPHENOL	1.0 (S)	µg/L	10U	10U	10U	10U	10U	10U
PHENANTHRENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	0.93J	5.0U
PHENOL	1.0 (S)	µg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
PYRENE	50.0 (G)	µg/L	5.0U	5.0U	5.0U	5.0U	0.76J	5.0U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
1,1'-BIPHENYL	NC	µg/L	25U	25U
1-METHYLNAPHTHALENE	NC	µg/L	18J	7.3J
2,4,5-TRICHLOROPHENOL	1.0 (S)	µg/L	25U	25U
2,4,6-TRICHLOROPHENOL	1.0 (S)	µg/L	25U	25U
2,4-DICHLOROPHENOL	1.0 (S)	µg/L	25U	25U
2,4-DIMETHYLPHENOL	50.0 (G)	µg/L	25U	25U
2,4-DINITROPHENOL	10.0 (G)	µg/L	50UJ	50UJ
2,4-DINITROTOLUENE	5.0 (S)	µg/L	25U	25U
2,6-DINITROTOLUENE	5.0 (S)	µg/L	25U	25U
2-CHLORONAPHTHALENE	10.0 (G)	µg/L	25U	25U
2-CHLOROPHENOL	1.0 (S)	µg/L	25U	25U
2-METHYLNAPHTHALENE	NC	µg/L	25U	25U
2-METHYLPHENOL	1.0 (S)	µg/L	25U	25U
2-NITROANILINE	5.0 (S)	µg/L	50U	50U
2-NITROPHENOL	1.0 (S)	µg/L	25U	25U
3,3'-DICHLOROBENZIDINE	NC	µg/L	25U	25U
3-METHYLCHOLANTHRENE	NC	µg/L	50U	50U
3-NITROANILINE	5.0 (S)	µg/L	50U	50U
4,6-DINITRO-2-METHYLPHENOL	1.0 (S)	µg/L	50U	50U
4-BROMOPHENYL PHENYL ETHER	5.0 (S)	µg/L	25U	25U
4-CHLORO-3-METHYLPHENOL	1.0 (S)	µg/L	25U	25U
4-CHLOROANILINE	5.0 (S)	µg/L	25UJ	25UJ
4-CHLOROPHENYL PHENYL ETHER	5.0 (S)	µg/L	25U	25U
4-METHYLPHENOL	1.0 (S)	µg/L	50U	50U
4-NITROANILINE	5.0 (S)	µg/L	50U	50U
4-NITROPHENOL	1.0 (S)	µg/L	50U	50U
7,12-DIMETHYLBENZ(A)ANTHRACENE	NC	µg/L	50U	50U
ACENAPHTHENE	20.0 (G)	µg/L	15J	4.0J
ACENAPHTHYLENE	NC	µg/L	25U	25U
ACETOPHENONE	NC	µg/L	25U	25U
ANTHRACENE	50.0 (G)	µg/L	3.0J	25U
ATRAZINE	7.5 (S)	µg/L	25U	25U
BENZALDEHYDE	NC	µg/L	25U	25U
BENZO(A)ANTHRACENE	0.002 (G)	µg/L	25U	25U
BENZO(A)PYRENE	NC	µg/L	25U	25U
BENZO(B)FLUORANTHENE	0.002 (G)	µg/L	25U	25U
BENZO(G,H,I)PERYLENE	NC	µg/L	25U	25U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 8**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8270 Semivolatile Organic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID	SYW12-040319-05	SYW12-040319-06
		Location	HB-MW-29	HB-MW-29
		Sample Date	04/03/2019	04/03/2019
		Filtered?	Not filtered	Filtered
		Sample Purpose	Regular Sample	Regular Sample
		Units		
BENZO(K)FLUORANTHENE	0.002 (G)	µg/L	25U	25U
BIS(2-CHLOROETHOXY)METHANE	5.0 (S)	µg/L	25U	25U
BIS(2-CHLOROETHYL)ETHER	1.0 (S)	µg/L	25U	25U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	µg/L	25U	25U
BIS(2-ETHYLHEXYL)PHTHALATE	5.0 (S)	µg/L	25U	25U
BUTYLBENZYL PHTHALATE	50.0 (G)	µg/L	25U	25U
CAPROLACTAM	NC	µg/L	25U	25U
CARBAZOLE	NC	µg/L	25U	25U
CHRYSENE	0.002 (G)	µg/L	25U	25U
DIBENZ(A,H)ACRIDINE	NC	µg/L	25U	50U
DIBENZO(A,H)ANTHRACENE	NC	µg/L	25U	25U
DIBENZOFURAN	NC	µg/L	50U	50U
DIETHYL PHTHALATE	50.0 (G)	µg/L	25U	25U
DIMETHYL PHTHALATE	50.0 (G)	µg/L	25U	25U
DI-N-BUTYL PHTHALATE	50.0 (S)	µg/L	1.9J	2.3J
DI-N-OCTYL PHTHALATE	50.0 (G)	µg/L	25U	25U
FLUORANTHENE	50.0 (G)	µg/L	2.4J	25U
FLUORENE	50.0 (G)	µg/L	7.4J	25U
HEXACHLOROBENZENE	0.04 (S)	µg/L	25U	25U
HEXACHLOROBUTADIENE	0.5 (S)	µg/L	25U	25U
HEXACHLOROCYCLOPENTADIENE	5.0 (S)	µg/L	25UJ	25UJ
HEXACHLOROETHANE	5.0 (S)	µg/L	25U	25U
INDENO(1,2,3-CD)PYRENE	0.002 (G)	µg/L	25U	25U
ISOPHORONE	50.0 (G)	µg/L	25U	25U
NAPHTHALENE	10.0 (G)	µg/L	[23J]	[14J]
NITROBENZENE	0.4 (S)	µg/L	25U	25U
N-NITROSO-DI-N-PROPYLAMINE	NC	µg/L	25U	25U
N-NITROSODIPHENYLAMINE	50.0 (G)	µg/L	25U	25U
PENTACHLOROPHENOL	1.0 (S)	µg/L	50UJ	50UJ
PHENANTHRENE	50.0 (G)	µg/L	12J	25U
PHENOL	1.0 (S)	µg/L	25U	25U
PYRENE	50.0 (G)	µg/L	2.4J	25U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria; ND = Non-detect based on TIC search.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).



**Table 9  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8081 Pesticide Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
4,4'-DDD	0.3 (S)	µg/L	0.05U	0.05U	0.05U	0.011J	0.05U	0.05U
4,4'-DDE	0.2 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
4,4'-DDT	0.2 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ALDRIN	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ALPHA-BHC	0.01 (S)	µg/L	0.05U	0.0087J	0.05U	0.05U	0.05U	0.05U
ALPHA-CHLORDANE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
BETA-BHC	0.04 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
BETA-CHLORDANE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
DELTA-BHC	0.04 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
DIELDRIN	0.004 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN I	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN II	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN SULFATE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN ALDEHYDE	0.5 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN KETONE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
GAMMA-BHC (LINDANE)	NC	µg/L	0.05U	0.014J	0.05U	0.017J	0.05U	0.05U
HEPTACHLOR	0.04 (S)	µg/L	0.028J	0.05U	0.05U	0.05U	0.05U	0.05U
HEPTACHLOR EPOXIDE	0.03 (S)	µg/L	0.05U	0.05U	0.05U	0.015J	0.05U	0.05U
METHOXYCHLOR	35.0 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
TOXAPHENE	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 6  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8081 Pesticide Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
4,4'-DDD	0.3 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
4,4'-DDE	0.2 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
4,4'-DDT	0.2 (S)	µg/L	0.05U	0.05U	0.018J	0.05U	0.012J	0.012J
ALDRIN	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ALPHA-BHC	0.01 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ALPHA-CHLORDANE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
BETA-BHC	0.04 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
BETA-CHLORDANE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
DELTA-BHC	0.04 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
DIELDRIN	0.004 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN I	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN II	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDOSULFAN SULFATE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN ALDEHYDE	0.5 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
ENDRIN KETONE	NC	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
GAMMA-BHC (LINDANE)	NC	µg/L	0.05U	0.013J	0.05U	0.05U	0.05U	0.05U
HEPTACHLOR	0.04 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
HEPTACHLOR EPOXIDE	0.03 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
METHOXYCHLOR	35.0 (S)	µg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
TOXAPHENE	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 9  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8081 Pesticide Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
4,4'-DDD	0.3 (S)	µg/L	0.05U	0.05U
4,4'-DDE	0.2 (S)	µg/L	0.05U	0.05U
4,4'-DDT	0.2 (S)	µg/L	0.05U	0.029J
ALDRIN	NC	µg/L	0.05U	0.04J
ALPHA-BHC	0.01 (S)	µg/L	0.05U	[0.027J]
ALPHA-CHLORDANE	NC	µg/L	0.05U	0.05U
BETA-BHC	0.04 (S)	µg/L	0.05U	0.05U
BETA-CHLORDANE	NC	µg/L	0.05U	0.05U
DELTA-BHC	0.04 (S)	µg/L	0.05U	0.05U
DIELDRIN	0.004 (S)	µg/L	0.05U	0.05U
ENDOSULFAN I	NC	µg/L	0.05U	0.02J
ENDOSULFAN II	NC	µg/L	0.05U	0.05U
ENDOSULFAN SULFATE	NC	µg/L	0.05U	0.05U
ENDRIN	NC	µg/L	0.05U	0.05U
ENDRIN ALDEHYDE	0.5 (S)	µg/L	0.05U	0.05U
ENDRIN KETONE	NC	µg/L	0.05U	0.05U
GAMMA-BHC (LINDANE)	NC	µg/L	0.05U	0.05U
HEPTACHLOR	0.04 (S)	µg/L	0.05U	0.034J
HEPTACHLOR EPOXIDE	0.03 (S)	µg/L	0.05U	0.05U
METHOXYCHLOR	35.0 (S)	µg/L	0.05U	0.05U
TOXAPHENE	0.09 (S)	µg/L	0.5U	0.5U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 10  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8082 PCB Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
AROCLOR-1016	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5UJ	0.5UJ
AROCLOR-1221	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1232	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1242	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1248	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1254	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1260	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 10  
Honeywell  
SYW-12  
April 2019 Groundwater  
Method 8082 PCB Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
AROCLOR-1016	0.09 (S)	µg/L	0.5UJ	0.5UJ	0.5UJ	0.5UJ	0.5UJ	0.5UJ
AROCLOR-1221	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1232	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1242	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1248	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1254	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
AROCLOR-1260	0.09 (S)	µg/L	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 10**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Method 8082 PCB Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
AROCLOR-1016	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1221	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1232	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1242	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1248	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1254	0.09 (S)	µg/L	0.64U	0.71U
AROCLOR-1260	0.09 (S)	µg/L	0.64U	0.71U

NOTES:

J = Approximate value since the result is less than the RL and greater than or equal to the MDL; U = Analyte not detected; R = Rejected value.

NA = Analyte not analyzed for; NC = No applicable criteria.

[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 11  
Honeywell  
SYW-12  
April 2019 Groundwater  
Dissolved Gases**

Parameter Name	NYS Class GA Standards and Guidance Values	Sample Purpose Units	Field Sample ID	SYW12-040319-01	SYW12-040319-03	SYW12-040219-07	SYW12-040119-01	SYW12-040219-01	SYW12-040219-05
			Location	HB-MW-22	HB-MW-23	HB-MW-24	HB-MW-25	HB-MW-26	HB-MW-28
		Filtered?	Sample Date	04/03/2019	04/03/2019	04/02/2019	04/02/2019	04/02/2019	04/02/2019
		Regular Sample	Regular Sample	Not filtered	Not filtered	Not filtered	Not filtered	Not filtered	Not filtered
		Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample
ETHANE	NC	µg/L	830U	1700U	660U	330U	830U	830U	
ETHENE	NC	µg/L	770U	1500U	620U	310U	770U	770U	
METHANE	NC	µg/L	13000	9200	2000	5600	2900J	5800	

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 11  
Honeywell  
SYW-12  
April 2019 Groundwater  
Dissolved Gases**

Parameter Name	NYS Class GA Standards and Guidance Values	Sample Purpose Units	Field Sample ID Location Sample Date Filtered? Regular Sample
ETHANE	NC	µg/L	SYW12-040319-05 HB-MW-29 04/03/2019 Not filtered Regular Sample
ETHENE	NC	µg/L	
METHANE	NC	µg/L	

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).



**Table 12  
Honeywell  
SYW-12  
April 2019 Groundwater  
Inorganic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			HB-MW-22 04/03/2019 Not filtered Regular Sample	HB-MW-22 04/03/2019 Filtered Regular Sample	HB-MW-23 04/03/2019 Not filtered Regular Sample	HB-MW-23 04/03/2019 Filtered Regular Sample	HB-MW-24 04/02/2019 Not filtered Regular Sample	HB-MW-24 04/02/2019 Filtered Regular Sample
ALUMINUM	NC	mg/L	0.2U	0.2U	0.31	0.2U	0.2U	0.2U
ANTIMONY	0.003 (S)	mg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U
ARSENIC	0.025 (S)	mg/L	0.015U	0.015U	0.015U	0.015U	0.015U	0.015U
BARIUM	1.0 (S)	mg/L	0.96	[1.0]	[2.0]	[2.0]	0.062	0.065
BERYLLIUM	0.003 (G)	mg/L	0.002U	0.002U	0.002U	0.002U	0.002U	0.002U
CADMIUM	0.005 (S)	mg/L	0.002U	0.002U	0.002U	0.002U	0.002U	0.00055J
CALCIUM	NC	mg/L	334	326	111	112	487	503
CHROMIUM	0.05 (S)	mg/L	0.004U	0.004U	0.004U	0.004U	0.004U	0.004U
COBALT	NC	mg/L	0.004U	0.004U	0.0013J	0.0012J	0.004U	0.004U
COPPER	0.2 (S)	mg/L	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
IRON	0.3 (S)	mg/L	[3.7]	[3.6]	[0.64]	[0.34]	[0.35]	0.29
LEAD	0.025 (S)	mg/L	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
MAGNESIUM	35.0 (G)	mg/L	32.1J	31.9J	[137J]	[137J]	[104]	[109]
MANGANESE	0.3 (S)	mg/L	[0.86]	[0.84]	[0.74]	[0.74]	0.086	0.09
MERCURY	0.00070 (S)	mg/L	0.0002U	0.0002U	0.0002U	0.0002U	0.0002U	0.0002U
NICKEL	0.1 (S)	mg/L	0.01U	0.01U	0.0015J	0.01U	0.01U	0.01U
POTASSIUM	NC	mg/L	28.5	27.9	34.1	34.3	72.3	76.8
SELENIUM	0.01 (S)	mg/L	0.025U	0.025U	0.025U	0.025U	0.025U	0.025U
SILVER	0.05 (S)	mg/L	0.006U	0.006U	0.006U	0.006U	0.006U	0.006U
SODIUM	20.0 (S)	mg/L	[1570]	[1550]	[460]	[457]	[3300]	[1370]
THALLIUM	0.00050 (G)	mg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U
VANADIUM	NC	mg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
ZINC	2.0 (G)	mg/L	0.0015J	0.002J	0.0022J	0.01U	0.01U	0.01U

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 12  
Honeywell  
SYW-12  
April 2019 Groundwater  
Inorganic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
ALUMINUM	NC	mg/L	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
ANTIMONY	0.003 (S)	mg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U
ARSENIC	0.025 (S)	mg/L	0.015U	0.015U	0.015U	0.015U	0.015U	0.015U
BARIUM	1.0 (S)	mg/L	0.26	0.27	0.3	0.31	0.36	0.39
BERYLLIUM	0.003 (G)	mg/L	0.002U	0.002U	0.002U	0.002U	0.002U	0.002U
CADMIUM	0.005 (S)	mg/L	0.002U	0.002U	0.002U	0.002U	0.0006J	0.002U
CALCIUM	NC	mg/L	220	229	224	223	345	344
CHROMIUM	0.05 (S)	mg/L	0.004U	0.004U	0.004U	0.004U	0.004U	0.004U
COBALT	NC	mg/L	0.004U	0.004U	0.004U	0.004U	0.004U	0.004U
COPPER	0.2 (S)	mg/L	0.01U	0.01U	0.01U	0.01U	0.0037J	0.01U
IRON	0.3 (S)	mg/L	[10.6]	[12.1]	[17.6]	[17.1]	[12.7]	[13.7]
LEAD	0.025 (S)	mg/L	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
MAGNESIUM	35.0 (G)	mg/L	21.6	23.1	17.2	17.7	[38.2]	[38.6]
MANGANESE	0.3 (S)	mg/L	[0.51]	[0.54]	[0.41]	[0.4]	[0.5]	[0.54]
MERCURY	0.00070 (S)	mg/L	0.0002U	0.0002U	0.0002U	0.0002U	0.0002U	0.0002U
NICKEL	0.1 (S)	mg/L	0.0016J	0.0017J	0.01U	0.01U	0.0023J	0.01U
POTASSIUM	NC	mg/L	9.2J	10.2	9.0	9.7	13.5	15.6
SELENIUM	0.01 (S)	mg/L	0.025U	0.025U	0.025U	0.025U	0.025U	0.025U
SILVER	0.05 (S)	mg/L	0.006U	0.006U	0.006U	0.006U	0.006U	0.006U
SODIUM	20.0 (S)	mg/L	[408]	[430]	[360]	[408]	[2650]	[1110]
THALLIUM	0.00050 (G)	mg/L	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U
VANADIUM	NC	mg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
ZINC	2.0 (G)	mg/L	0.0031J	0.0025J	0.01U	0.01U	0.01U	0.01U

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 12**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater**  
**Inorganic Compound Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
ALUMINUM	NC	mg/L	0.2U	0.2U
ANTIMONY	0.003 (S)	mg/L	0.02U	0.02U
ARSENIC	0.025 (S)	mg/L	0.015U	0.015U
BARIUM	1.0 (S)	mg/L	[1.1]	[1.1]
BERYLLIUM	0.003 (G)	mg/L	0.002U	0.002U
CADMIUM	0.005 (S)	mg/L	0.002U	0.002U
CALCIUM	NC	mg/L	103	106
CHROMIUM	0.05 (S)	mg/L	0.004U	0.004U
COBALT	NC	mg/L	0.0056	0.0057
COPPER	0.2 (S)	mg/L	0.01U	0.01U
IRON	0.3 (S)	mg/L	[62.3]	[61.5]
LEAD	0.025 (S)	mg/L	0.01U	0.01U
MAGNESIUM	35.0 (G)	mg/L	[176J]	[175J]
MANGANESE	0.3 (S)	mg/L	[2.1]	[2.1]
MERCURY	0.00070 (S)	mg/L	0.0004U	0.0002U
NICKEL	0.1 (S)	mg/L	0.0014J	0.0018J
POTASSIUM	NC	mg/L	59.0	59.4
SELENIUM	0.01 (S)	mg/L	0.025U	0.025U
SILVER	0.05 (S)	mg/L	0.006U	0.006U
SODIUM	20.0 (S)	mg/L	[556]	[574]
THALLIUM	0.00050 (G)	mg/L	0.02U	0.02U
VANADIUM	NC	mg/L	0.005U	0.005U
ZINC	2.0 (G)	mg/L	0.003J	0.01U

NOTES:  
J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
NA = Analyte not analyzed for; NC = No applicable criteria.  
[ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 13  
Honeywell  
SYW-12  
April 2019 Groundwater  
Other Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-01	SYW12-040319-02	SYW12-040319-03	SYW12-040319-04	SYW12-040219-07	SYW12-040219-08
			Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample	Regular Sample
ALKALINITY, BICARBONATE (AS CaCO3)	NC	mg/L	549	550	1160	1170	468	476
ALKALINITY, CARBONATE (AS CaCO3)	NC	mg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ALKALINITY, TOTAL	NC	mg/L	549	550	1160	1170	468	476
BROMIDE	2.0 (G)	mg/L	10U	10U	[12.3J]	[13.3J]	[11]	[12.1]
CHLORIDE	250.0 (S)	mg/L	[2770]	[2780]	[8490]	[8700]	[5610]	[5620]
FLUORIDE	1.5 (S)	mg/L	2.5U	2.5U	5.0U	5.0U	2.5U	2.5U
NITROGEN, NITRATE (AS N)	10.0 (S)	mg/L	0.05UJ	0.05UJ	0.05UJ	0.05UJ	0.05UJ	0.05UJ
NITROGEN, NITRATE-NITRITE	10.0 (S)	mg/L	0.05UJ	0.05UJ	0.05UJ	0.05UJ	0.05U	0.05U
NITROGEN, NITRITE	1.0 (S)	mg/L	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	NC	mg/L	0.64	0.63	1.6	1.6	0.13	0.17
SULFATE	250.0 (S)	mg/L	100U	100U	81.1J	71.1J	75.1J	75.7J
SULFIDE	NC	mg/L	1.0U	1.0U	2.0	2.0	17.2	17.6
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	NC	mg/L	5460	5350	15800	16400	10400	8960
TOTAL ORGANIC CARBON	NC	mg/L	8.2	7.9	13.7	16.3	6.2	6.2

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 13  
Honeywell  
SYW-12  
April 2019 Groundwater  
Other Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040119-01	SYW12-040119-04	SYW12-040219-01	SYW12-040219-03	SYW12-040219-05	SYW12-040219-06
			HB-MW-25 04/01/2019 Not filtered Regular Sample	HB-MW-25 04/01/2019 Filtered Regular Sample	HB-MW-26 04/02/2019 Not filtered Regular Sample	HB-MW-26 04/02/2019 Filtered Regular Sample	HB-MW-28 04/02/2019 Not filtered Regular Sample	HB-MW-28 04/02/2019 Filtered Regular Sample
ALKALINITY, BICARBONATE (AS CaCO3)	NC	mg/L	552	532	593	591	633	635
ALKALINITY, CARBONATE (AS CaCO3)	NC	mg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U
ALKALINITY, TOTAL	NC	mg/L	552	532	593	591	633	635
BROMIDE	2.0 (G)	mg/L	2.0U	2.0U	2.0U	2.0U	1.6J	1.7J
CHLORIDE	250.0 (S)	mg/L	[640]	[649]	[544]	[597]	[1800]	[1880]
FLUORIDE	1.5 (S)	mg/L	0.5U	0.5U	0.5U	0.5U	1.0U	1.0U
NITROGEN, NITRATE (AS N)	10.0 (S)	mg/L	0.05U	0.05U	0.3	0.28	0.05U	0.05UJ
NITROGEN, NITRATE-NITRITE	10.0 (S)	mg/L	0.05U	0.05U	0.3	0.28	0.05U	0.05U
NITROGEN, NITRITE	1.0 (S)	mg/L	0.05UJ	0.05U	0.05UJ	0.05UJ	0.05UJ	0.05U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	NC	mg/L	0.2	0.11	0.26J	0.38J	0.34	0.28
SULFATE	250.0 (S)	mg/L	9.2J	6.7J	46	45.6	77.5	67.9
SULFIDE	NC	mg/L	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	NC	mg/L	1760	1750	1610	1760	3990	4040
TOTAL ORGANIC CARBON	NC	mg/L	6.3	6.3	8.4	7.5	12.3	11.7

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 13  
Honeywell  
SYW-12  
April 2019 Groundwater  
Other Data**

Parameter Name	NYS Class GA Standards and Guidance Values	Field Sample ID Location Sample Date Filtered? Sample Purpose Units	SYW12-040319-05	SYW12-040319-06
			HB-MW-29 04/03/2019 Not filtered Regular Sample	HB-MW-29 04/03/2019 Filtered Regular Sample
ALKALINITY, BICARBONATE (AS CaCO3)	NC	mg/L	1290	1290
ALKALINITY, CARBONATE (AS CaCO3)	NC	mg/L	5.0U	5.0U
ALKALINITY, TOTAL	NC	mg/L	1290	1290
BROMIDE	2.0 (G)	mg/L	[16.6J]	[15.2J]
CHLORIDE	250.0 (S)	mg/L	[9940]	[9550]
FLUORIDE	1.5 (S)	mg/L	5.0U	5.0U
NITROGEN, NITRATE (AS N)	10.0 (S)	mg/L	0.05UJ	0.05UJ
NITROGEN, NITRATE-NITRITE	10.0 (S)	mg/L	0.05UJ	0.05UJ
NITROGEN, NITRITE	1.0 (S)	mg/L	0.05U	0.05U
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS PO4)	NC	mg/L	0.35	0.052
SULFATE	250.0 (S)	mg/L	200U	200U
SULFIDE	NC	mg/L	1.0U	1.0U
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	NC	mg/L	18200	17700
TOTAL ORGANIC CARBON	NC	mg/L	23.2	24.7

NOTES:  
 J = Approximate value since the result is less than the RL and greater than or equal to the MDL; +/- = Result may be biased high/low; U = Analyte not detected; R = Rejected value.  
 NA = Analyte not analyzed for; NC = No applicable criteria.  
 [ ] = Result exceeds Class GA standard (S) or guidance value (G).

**Table 14**  
**Honeywell**  
**SYW-12**  
**April 2019 Groundwater Investigation**  
**Groundwater Type Summary Table**

Location	Sample Date	Location	Geologic Unit	Groundwater Type	pH	TDS (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Sodium to Calcium Ratio
HB-MW-22	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.75	5,460	1,570	334	ND	2,770	4.70
HB-MW-22 (Filtered)	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.75	5,350	1,550	326	ND	2,780	4.75
HB-MW-23	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.58	15,800	460	111	12.3	8,490	4.14
HB-MW-23 (Filtered)	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.58	16,400	457	112	13.3	8,700	4.08
HB-MW-24	4/2/2019	SYW-12	Fill	Dilute Native Halite Brine	6.71	10,400	3,300	487	11.0	5,610	6.78
HB-MW-24 (Filtered)	4/2/2019	SYW-12	Fill	Dilute Native Halite Brine	6.71	8,960	1,370	503	12.1	5,620	2.72
HB-MW-25	4/1/2019	SYW-12	Fill	Fresh	7.02	1,760	408	220	ND	640	1.85
HB-MW-25 (Filtered)	4/1/2019	SYW-12	Fill	Fresh	7.02	1,750	430	229	ND	649	1.88
HB-MW-26	4/2/2019	SYW-12	Fill	Fresh	6.75	1,610	360	224	ND	544	1.61
HB-MW-26 (Filtered)	4/2/2019	SYW-12	Fill	Fresh	6.75	1,760	408	223	ND	597	1.83
HB-MW-28	4/2/2019	SYW-12	Fill	Dilute Native Halite Brine	6.9	3,990	2,650	345	1.6	1,800	7.68
HB-MW-28 (Filtered)	4/2/2019	SYW-12	Fill	Dilute Native Halite Brine	6.9	4,040	1,110	344	1.7	1,880	3.23
HB-MW-29	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.51	18,200	556	103	16.6	9,940	5.40
HB-MW-29 (Filtered)	4/3/2019	SYW-12	Fill	Dilute Native Halite Brine	6.51	17,700	574	106	15.2	9,550	5.42
WB18-MW-06S	8/8/2007	Wasetebeds 1-8	Solvay Waste	Leachate	12.56	NA	471	1,430	2.83	1,510	0.33
WB18-MW-07S	8/6/2007	Wasetebeds 1-8	Solvay Waste	Leachate	12.31	NA	249	1,210	1.78	1,280	0.21
		NMC Bank South of SB									
SB915-SP-48	6/18/2013	9/10	NMC Bank	Leachate	11.91	25,600	2,990	4,780	6	13,100	0.63
SB915-WB-10L	7/19/2012	South of SB 9/10	Deep Native	Brine Leachate Mix	6.25	96,000	11,000	15,000	ND	41,000	0.73
SB915-WB-10U	7/20/2012	South of SB 9/10	Shallow Native	Dilute Leachate	6.31	44,000	5,900	10,000	26	17,000	0.59
SB915-MW-42S	5/22/2014	SB 9/10	Solvay Waste	Leachate	11.92	35,000	4,900	8,000	ND	20,000	0.61
SB915-WB-07R	7/20/2012	Southeast of SB 11	Bedrock	Native Halite Brine	7.41	160,000	55,000	2,500	59	94,000	22.00
SB915-WB-01U	11/17/1997	Upgradient of SB 9-15	Shallow Native	Native Overburden/Fresh	7.69	1,700	220	230	NA	780	0.96
SB915-WB-01L	7/30/2012	Upgradient of SB 9-15	Deep Native	Native Overburden/Fresh	6.64	1,200	37	280	1.2	82	0.13
OD-1804 <sup>1</sup>	11/15/2002	Meachem Park	Deep Native	Native Halite Brine	6.70	NA	49,360	1,280	47	74,040	38.57
OD-1825 <sup>1</sup>	10/7/2003	Camillus	Deep Native	Dilute Native Halite Brine	7.50	NA	1,000	580	8.2	1,120	1.72
OD-1827 <sup>1</sup>	10/8/2003	Seneca River East	Bedrock	Saline Bedrock Water	7.30	NA	12,000	9,900	510	41,100	1.21
Tully Brine	1989	Tully, NY	NA	Native Halite Brine	NA	NA	121,030	2,014	NA	188,510	60.09

Notes:

ND - not detected, NA - not available

1 - Data from Yager, R.M., W.M. Kappel, and L.N. Plummer. 2007. Halite brine in the Onondaga Trough near Syracuse, New York: characterization and simulation of variable-density flow. : U.S. Geological Survey. Scientific Investigations Report 2007-5058. 40 pp.

## FIGURES





- ◆ MONITORING WELL (SAMPLED)
- ◆ FORMER MONITORING WELL LOCATION



### SYW-12 MONITORING WELLS

FIGURE 1

**HONEYWELL INTERNATIONAL INC.**  
 SYW-12  
 SYRACUSE, NEW YORK

O'BRIEN & GERE ENGINEERS, INC.  
 A RAMBOLL COMPANY







MONITORING WELL (SAMPLED)

HB-MW-22 ← MONITORING WELL ID  
 363.54 ← GROUNDWATER ELEVATION



**SYW-12 MW GROUND WATER ELEVATIONS FROM APRIL 1 TO APRIL 2 2019**

**FIGURE 2**

**HONEYWELL INTERNATIONAL INC.**  
 SYW-12  
 SYRACUSE, NEW YORK

O'BRIEN & GERE ENGINEERS, INC.  
 A RAMBOLL COMPANY





## ATTACHMENTS

## **ATTACHMENT 1 WELL DEVELOPMENT LOGS**









# Well Development Log

Well ID: HB-MW-25  
 Northing: \_\_\_\_\_  
 Easting: \_\_\_\_\_

Site Name: SPW-12 Development Method: Water Field Personnel: J. B. UAH  
 Site Location: \_\_\_\_\_ Equipment Used: Water Date: 6.25.18  
 Project #: \_\_\_\_\_ Pump/Controller ID#: \_\_\_\_\_ Weather: 75°F Sun

**Well information:**  
 Installed Depth of Well\*: \_\_\_\_\_ ft. bmp.  
 Measured Depth of Well\*: 16.51 ft. bmp.  
 Depth to Water\*: 4.75 ft. bmp.  
 Length of Water Column (LWC): 11.76 ft.  
 Well Diameter: 2 in.

**Well Volume Multipliers:**  
 1 in. = 0.041 gal/ft  
 2 in. = 0.163 gal/ft  
 4 in. = 0.653 gal/ft  
 6 in. = 1.469 gal/ft  
 8 in. = 2.611 gal/ft

\* Measurement Point:  
 Well Casing  
 Protective Casing  
 Other: \_\_\_\_\_  
 Well Volume: 1.91 gal.  
 Pump Intake Depth\*: \_\_\_\_\_ ft. bmp.

Start Purge Time: 1240  
 Initial: Color Dark Gray Odor Sulfur Sheen/Free Product No  
*indicate units*

Elapsed Time	Volume Purged	Temperature	pH	Conductivity	Other	
					DTG	Turb
Initial	0	18.54	6.53	26.83		
	1.91	14.10	6.96	17.41	8.60	Orange / Black
	2.82	12.54	7.11	17.78	Dry	" / Dark Gray
	5.73	12.46	7.22	16.17	1	2.719
	7.64	13.55	7.13	16.56		6.72
	9.55	12.25	7.16	15.10	Dry	15.32
	11.46	16.71	7.13	17.62	Dry	6.57
	13.37				4.85	34.1
	15.28					
	17.19					
	19.1					
	21.1					

End Purge Time: 1337 Total volume purged: 12 gal.  
 Final: Color V. light Gray/Choc Odor Sulfur Sheen/Free Product No

Notes:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Geologist Signature: \_\_\_\_\_



# Well Development Log

Well ID: HR-MW-25  
 Northing: \_\_\_\_\_  
 Easting: \_\_\_\_\_

Site Name: SW-72  
 Site Location: \_\_\_\_\_  
 Project #: \_\_\_\_\_

Development Method: Watena  
 Equipment Used: Watena  
 Pump/Controller ID#: \_\_\_\_\_

Field Personnel: V.B. CAH  
 Date: 6-25-18  
 Weather: -72°F Sunny

### Well information:

Installed Depth of Well\*: \_\_\_\_\_ ft. bmp.  
 Measured Depth of Well\*: 15.74 ft. bmp.  
 Depth to Water\*: 6.63 ft. bmp.  
 Length of Water Column (LWC): 9.11 ft.  
 Well Diameter: 2 in.

### Well Volume Multipliers:

1 in. = 0.041 gal/ft  
 2 in. = 0.163 gal/ft  
 4 in. = 0.653 gal/ft  
 6 in. = 1.469 gal/ft  
 8 in. = 2.611 gal/ft

### \* Measurement Point:

Well Casing  
 Protective Casing  
 Other: \_\_\_\_\_

Well Volume: 1.50 gal.  
 Pump Intake Depth\*: \_\_\_\_\_ ft. bmp.

Start Purge Time: 1151

Initial: Color Black Odor NO Sheen/Free Product NO

indicate units

Elapsed Time	Volume Purged	Temperature	pH	Conductivity	Other	
					DTW	Turb
Initial	0	11.98	7.38	3.48		
	1.5	13.71	7.00	3.73	7.75	Overrange / black
	3	12.13	6.94	3.77		"
	4.5	11.72	6.86	3.84	8.40	"
	6	11.86	6.85	3.87		28.00 2, 860
	7.5	<del>12.10</del> 11.47	6.97	3.87	8.00	7.62
	9					32.0
	10.5					
	12					
	13.5					
	15					

End Purge Time: 1206

Final: Color Clear Odor NO Sheen/Free Product NO

Total volume purged: 7.5 gal.

### Notes:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Geologist Signature:





# Well Development Log

Well ID: HB-MW-26

Northing: \_\_\_\_\_

Easting: \_\_\_\_\_

Site Name: Site 54W-12Development Method: WaterlineField Personnel: JWB, CAH

Site Location: \_\_\_\_\_

Equipment Used: WaterlineDate: 6-25-18

Project #: \_\_\_\_\_

Pump/Controller ID#: \_\_\_\_\_

Weather: 70°F Sun**Well information:**

Installed Depth of Well\*: \_\_\_\_\_ ft. bmp.

Measured Depth of Well\*: 16.63 ft. bmp.Depth to Water\*: 8.98 ft. bmp.Length of Water Column (LWC): 7.65 ft.Well Diameter: 1.25 in.**Well Volume Multipliers:**

1 in. = 0.041 gal/ft

2 in. = 0.163 gal/ft

4 in. = 0.653 gal/ft

6 in. = 1.469 gal/ft

8 in. = 2.611 gal/ft

**\* Measurement Point:** Well Casing Protective Casing Other: \_\_\_\_\_

Well Volume: \_\_\_\_\_ gal.

Pump Intake Depth\*: \_\_\_\_\_ ft. bmp.

Start Purge Time: 1055Initial: Color BlackOdor NoSheen/Free Product No

indicate units

Elapsed Time	Volume Purged	Temperature	pH	Conductivity	Other
			S.I. units	ms/cm	DTW } Turb
Initial	0	15.56	7.61	7.02	
	1.25	13.10	7.70	5.08	8.40
	2.50	12.00	7.46	5.36	"
	3.75	11.58	7.42	4.62	"
	5.00	11.49	7.34	4.72	8.22
	6.25	11.78	7.31	4.05	8.50
	7.5	11.44	7.20	3.99	1,731
	8.75	11.40	7.22	3.86	8.50
	10	11.02	6.99	4.19	8.60
	11.25	10.98	7.06	3.99	2,910
	12.50	11.07	7.06	3.85	8.85
					1,378

End Purge Time: 1115Total volume purged: 12.50 gal.Final: Color GrayOdor Slight organicSheen/Free Product No**Notes:**

Geologist Signature: \_\_\_\_\_





## **ATTACHMENT 2 LOW FLOW GROUNDWATER SAMPLING LOGS**

















