Honeywell
301 Plainfield Road
Suite 330
Syracuse, NY 13212
315-552-9700
315-552-9780 Fax

January 28, 2013

To: Diane Carlton, NYSDEC, Region 7 (1 PDF)
Holly Sammon, Onondaga County Public Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Joseph J. Heath, Esq., Onondaga Nation (1 bound)

Re: Letter of Transmittal – Wastebed B – Harbor Brook RI/FS Repository Addition

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- SYW-12 Sources of Contamination Investigation Work Plan dated May 2012

Sincerely,

John P. McAuliffe by CCC

John P. McAuliffe, P.E.
Program Director, Syracuse

Enc.

cc: Tracy Smith – NYSDEC Manager

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D, 12th Floor
625 Broadway, Albany, New York 12233-7013
Phone: (518) 402-9676 • **Fax:** (518) 402-9020
Website: www.dec.ny.gov

Joe Martens
Commissioner

May 8, 2012

Mr. John P. McAuliffe, P.E.
Honeywell International, Inc.
301 Plainfield Road
Suite 330
Syracuse, NY 13212

Re: Sources of Contamination to SYW-12

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the work plan submitted by Honeywell entitled "SYW-12 Sources of Contamination Investigation" (work plan) submitted with your letter dated May 4, 2012. Based on our review, the work plan is approved. Please note that this letter and work plan were submitted to NYSDEC for review and approval and, as stated in the work plan, the data collected during the investigation will be submitted as an addendum to the RI Report. If you have any questions, please contact me at 518-402-9796.

Sincerely,

Tracy A. Smith

Tracy A. Smith

ecc: J. Gregg, NYSDEC
H. Kuhl
T. Joyal, Esq.
G. Laccetti, NYSDOH
F. Kirshner
R. Nunes, USEPA
J. Shenandoah
A. Lowry
C. Waterman
H. Warner, NYSDEC
M. Sergott, NYSDOH
J. Heath, Esq.
T. Blum, NYSDEC
D. Hesler, NYSDEC
T. Blum, NYSDEC

Honeywell
301 Plainfield Road
Suite 330
Syracuse, NY 13212
315-552-9700
315-552-9780 Fax

May 4, 2012

Mr. Tracy A. Smith
New York State Department of Environmental Conservation
Remedial Bureau D
625 Broadway
Albany, New York 12233-7016

Re: Sources of Contamination to SYW-12

Dear Mr. Smith:

This attached SYW-12 Sources of Contamination Investigation letter work plan was prepared by O'Brien & Gere on behalf of Honeywell and is being submitted to the NYSDEC for informational purposes. This investigation is being conducted to identify historical sources of contamination to SYW-12. Data collected during this investigation will be provided to the Department, if requested.

Please contact Tom Conklin of O'Brien & Gere (Tom.Conklin@obg.com or 315-956-6408) or me if you have any questions regarding this report.

Sincerely,

John P. McAuliffe by CCC

John P. McAuliffe, P.E.
Syracuse Program Director

Attachments

cc:	Brian D. Israel, Esq.	Arnold & Porter (ec or CD)
	Mr. William Hague	Honeywell (ec)
	Mr. Thomas Conklin	O'Brien & Gere (ec ltr only)
	Mr. Christopher Calkins	O'Brien & Gere (ec ltr only)

This Work Plan presents the proposed scope of work for the sources of contamination investigation on the SYW-12 property (the Property). The purpose of this work is to delineate the former Onondaga Creek channel on site and further evaluate potential sources of constituents in the former channel.

PROJECT BACKGROUND

The SYW-12 property is located along the northeastern shoreline of Onondaga Lake and to the north and south of Ley Creek (**Figure 1**). The area is bounded by railroad tracks to the east and the Lake to the west (**Figure 2**). The area is approximately 40.7 acres (approximately 18.4 acres is delineated as wetland) and is currently owned by Onondaga County.

SYW-12 SOURCES OF CONTAMINATION FIELD INVESTIGATION AND SAMPLING PLAN

The NYSDEC-approved site specific Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) for the Harbor Brook site dated August 2002 and October 2002 respectively will be used to support this work. The proposed tasks and analytical methods for the investigation at the Property are presented below.

Access Agreements

The area is currently owned by Onondaga County and is encompassed by CSX railroad tracks. There is an access agreement in place with Onondaga County for the property as part of the Wastebed B/Harbor Brook Remedial Investigation (RI). Onondaga County will be notified regarding the proposed investigation work. A CSX agreement is also in place for work conducted as part of the Wastebed B/Harbor Brook RI. CSX will be notified and arrangements for a flagman will be made.

Marking of Subsurface Utilities

Dig Safely New York will be contacted prior to the initiation of intrusive work at the project area. A date and time will be established for the various utility companies to meet an O'Brien & Gere representative and mark the locations of subsurface utilities in the areas of proposed work.

Marking of Final Sampling Locations in the Field

Subsequent to the marking of subsurface utilities, the placement of the final test trench and boring locations will be performed by an O'Brien & Gere representative. Proposed investigation locations are presented on **Figure 3** for the investigation.

Test Trenches

Objective: Test trenches will be 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 Onondaga Creek Channel.

Approach: Up to four tests trenches will be advanced using a tracked excavator. The approximate locations of the tests are presented on **Figure 3**. Actual locations may be adjusted based on field conditions such as topography or underground utilities. Test trenches will be advanced until native materials are encountered, or to a maximum depth of 15 ft. The test trenching will be overseen by a scientist/geologist who will complete a test trench log to document encountered subsurface strata and other pertinent observations (*i.e.*, staining, description of fill/debris). A photoionization detector (PID) will be used to screen the breathing zone during the excavation, as well as soils being removed from the test trench. The supervising scientist/geologist will take photographs of the excavations and these photographs will be attached to the test trench log. Once the supervising scientist/geologist has finished his field log and taking photographs the material excavated from the test trench will be placed back into the trench.

One soil sample per test trench will be obtained using the excavator bucket. Samples will be selected based on visual observation (*i.e.*, stained materials) and PID readings and additional samples may be collected based visual observation. Soils will be transferred from the bucket to a dedicated aluminum pan and homogenized using a dedicated plastic scoop. Prior to homogenization, a sample will be collected and containerized for VOC

analysis. Subsequent to homogenization, soils will be transferred to the appropriate laboratory containers for the remainder of the analyses and placed in a cooler containing ice.

Soil samples will be submitted to a New York State-certified laboratory for analyses by USEPA SW846 methods (USEPA, 2004). These samples will be analyzed for TCL/TAL parameters using methods 8260B, extended 8270D, 8082A, 6010C, 7471A, 9010C/9014, E418.1, and 8015 for VOCs, SVOCs (including aromatics, alkylated aromatics, and unresolved complex mixtures), PCBs, metals, mercury, cyanide, total petroleum hydrocarbons, non-halogenated organics, respectively. Soil samples will also be submitted for analysis using method 8100 for petroleum biomarkers such as hopanes and strearanes. Soil samples will also be analyzed for total organic carbon (TOC) using the Lloyd Kahn method. A sample summary matrix is provided as **Table 1**.

Soil Borings

Objective: Fifteen soil borings will be advanced to the top of the first encountered native material (marl) to evaluate the vertical extent of the fill material within the former channel, and to characterize subsurface geologic strata and subsurface soil constituent concentrations.

Approach: The soil borings will be advanced subsequent to the completion of the test trenches. The borings will be advanced within and possibly adjacent to, the footprint of the former Onondaga Creek Channel/Iron Pier footprint. The proposed locations may be adjusted based on the findings of the test trenches. The proposed boring locations are presented on **Figure 3**.

Soil borings will be installed using conventional hollow stem auger drilling techniques. Samples will be collected continuously throughout the boring(s) in accordance with ASTM Method D1586-84 using a 140-lb hammer and 2 inch diameter split barrel samplers. When the terminal depth of the borehole is reached, the borehole will be filled to grade with Portland cement/bentonite grout through a tremie pipe.

A total of seven samples will be collected from the fifteen borings from the fill material. However, additional samples may be collected based on visual observation or field screening measurements. Soil boring samples will be submitted to a New York State-certified laboratory for analyses by USEPA SW846 methods (USEPA, 2004). These samples will be analyzed for TCL/TAL parameters using methods 8260B, extended 8270D, 8082A, 6010C, 7471A, 9010C/9014, E418.1, and 8015 for VOCs, SVOCs (including aromatics, alkylated aromatics, and unresolved complex mixtures), PCBs, metals, mercury, cyanide, total petroleum hydrocarbons, non-halogenated organics, respectively. Soil samples will also be submitted for analysis using method 8100 for petroleum biomarkers such as hopanes and strearanes. Soil samples will also be analyzed for total organic carbon (TOC) using the Lloyd Kahn method. A sample summary matrix is provided as **Table 1**.

Monitoring Well Installation

Two monitoring wells will be installed using the following method. For the proposed locations, the first encountered groundwater will be screened by the monitoring wells. The actual screen depths will be selected in the field based on depth of the saturated formation and screening results. Overburden well construction details are presented on **Figure 4**.

When the terminal depth for the borehole is reached, a 2-inch diameter well consisting of a 10-ft length of 0.020-inch slot screen flush-threaded to riser casing will be lowered through the 4¼ -inch auger string. Polyvinyl chloride (PVC) will be used for the well screen and riser casing. The screen slot size may be modified based upon the nature of the subsurface material. The riser casing will be extended approximately 2 ft above ground surface to facilitate installation of a steel guard pipe. A sandpack suitable for use with the screen slot size will be installed in the annular space between the borehole and the well. The sandpack will extend from the bottom of the well to 2 to 5 ft above the top of the well screen. A 3-ft thick bentonite seal will be installed in the annular space above the sand pack to prevent water from moving vertically along the borehole. The remaining annular space will be filled with a Portland cement/bentonite grout through a tremie pipe to a maximum depth of 5-ft below grade. To protect the well and prevent unauthorized access, a steel guard pipe or a flush mount with a cover and pad lock will be installed around each well. A concrete pad will be installed around the guard pipe to direct precipitation away from the borehole. A vented cap will be added to the well.

Following installation of the wells and prior to collection of groundwater samples, each well will be developed to remove material which may settle in and around the well screen. Development will consist of the removal of ten well volumes using either a bailer or centrifugal pump. A goal of 50 Ntu has been established. If this cannot be achieved, the contractor, Honeywell, and NYSDEC will coordinate to establish a mutually agreeable development volume. Development water will be contained in a 500-gallon polyethylene tank located on-Site for subsequent off-site disposal. The method of disposal will be selected based on groundwater analytical results.

Groundwater Sampling

Objective: Evaluate if site constituents are present within the former channel extent in dissolved form, mobile, and potentially impacting down gradient areas.

Approach: The round of groundwater sampling will be conducted a minimum of seven days after development. Samples will be collected using low flow purging techniques from the two newly installed wells and existing well HB-MW-26. If the hydrogeologic unit will not produce sufficient water to allow for low flow purging, a bailer will be used to purge the well and collect a sample once a sufficient amount of water enters the well. Low flow purging involves inserting a stainless steel Grundfos pump (Rediflow) and dedicated polyethylene tubing within the screened interval of the well and purging at a maximum rate of 0.5 L/min. During purging, groundwater levels will be monitored to ensure stabilization and groundwater quality parameters including pH, conductivity, temperature, eH, turbidity, and dissolved oxygen will be monitored continuously using an in-line meter. Once the groundwater quality parameters have stabilized or after the removal of three well volumes, samples will be collected directly from the tubing. Specific gravity will be measured in the field via hydrometer. The field parameters collected during the groundwater sampling will be presented within the Investigation Letter Report. Additionally, synoptic groundwater elevation measurements will be collected prior to the groundwater sampling.

The pump will be decontaminated between wells in accordance with the procedures set forth in the QAPP. Purge water will be contained in a 500-gallon polyethylene tank located on-site for subsequent disposal.

The groundwater samples from each well will be submitted to a New York State-certified laboratory for analysis by USEPA SW846 methods (USEPA 2004). The samples will be analyzed for TCL/TAL parameters using Methods 8260B, 8270D (extended), 6010C, 7470A, and 9010C/9014, for VOCs, SVOCs (including aromatics, alkylated aromatics, and unresolved complex mixtures), metals, mercury, and cyanide, respectively. Also, major anions/cations (Ca, Mg, Na, K, Cl, Br, SO4, CO3, HCO3) will be analyzed for using methods 6010C/E300/2320B. Groundwater samples will also be submitted for analysis using method 8100 for petroleum biomarkers such as hopanes and strearanes. A sample summary matrix is provided as **Table 1**.

Hydraulic Conductivity Testing

Objective: Evaluate horizontal conductivity within the screened zone of the newly installed monitoring wells.

Approach: Hydraulic conductivity tests will be performed at each of newly installed monitoring wells to estimate the horizontal hydraulic conductivity of materials surrounding the well screen. Rising and falling head measurements will be obtained following both insertion and removal of a PVC slug into the well. The groundwater elevation measurements will be recorded using an electronic data logger. The data collected will be analyzed using the Bouwer and Rice (1976) method with the software AquiferWin®. Graphs of the hydraulic conductivity-test curves will be generated.

Site Survey

A sample location survey will be performed by a NYS-licensed surveyor following the completion of the test trenching and boring installations. The New York State Plane coordinates (NAD 83) will be determined, and the ground surface elevation will be surveyed to a vertical of 0.01 ft at sampling locations to allow for the development of Site cross sections. A limited number of pertinent site features will be surveyed to allow for accurate placement of sampling locations on existing maps.

DATA MANAGEMENT

The laboratory-generated data will be entered into the laboratory database management system and presented in data packages. The laboratory will perform the data review process described in the QAPP.

Analytical and field data will be managed in the Locus Technologies EIM™ environmental data management system (EDMS) which is a relational database management system. Laboratory analytical data will be provided in electronic data deliverable (EDD) format for direct upload into EIM™ EDMS. Associated field data will be entered into EIM™ EDMS using the appropriate electronic upload format. Data validation qualifiers will be entered into EIM™ EDMS manually and checked independently. The EIM™ EDMS will be used to provide custom data queries and tables to support data analysis and report preparation; data tables containing the validated sample data will be included in an addendum to the RI report.

Records will be incorporated into the final project files. Field logs, data packages, and records will be included in an addendum to the RI Report as appropriate. In addition, the data will be submitted to the NYSDEC in accordance with the NYSDEC-approved electronic data deliverable format.

DATA VALIDATION

Analytic data will be validated in accordance with applicable United States Environmental Protection Agency (USEPA) and NYSDEC guidance as discussed in the QAPP (O'Brien & Gere, 2011). In accordance with the agreement between Honeywell and the NYSDEC, 10% of the analytic data will be validated and 100% of the calibration data will be validated.

Full validation will be performed on additional data to further investigate the issue in the event of major systematic excursions (*i.e.*, excursions pertaining to the laboratory calculation and target analyte identification, *etc.*) are detected during the validation process. The data validator will evaluate the impact the excursion would have on the data and determine if additional full validation would be warranted based on the severity of the excursion. The Project Manager and Investigation Manager will be informed about the systematic excursion. The results of the data validation effort and a corrective action addressing the issue will be discussed with the Project Manager, Investigation Manager, and the laboratory.

Subsequent to validation, the data will be uploaded to the Locus Technologies EIM™ environmental data management system (EIM™ EDMS) as discussed above. A data validation report (DVR) will be included in as an appendix to the investigation report or under separate cover based on discussions with the NYSDEC.

REPORT

Subsequent to completion of the field program described above, a data summary report will be submitted to the NYSDEC.

Table 1
Honeywell
Sources of Contamination at SYW-12 Investigation

Analytical Summary								
Matrix/Analysis	**Method**	**Samples**	**MS**	**MSD**	**Field Duplicates**	**Equipment Blanks**	**Trip Blanks**	**Total Samples**
Soil samples (12 locations; 1 sample per location)								
TCL VOCs	8260B	11	1	1	1	1	1	16
Extended SVOCs (including PXE and PTE)[1,2]	Ext. 8270D	11	1	1	1	1	0	15
PCBs (including Aroclor 1268)	8082A	11	1	1	1	1	0	15
TAL Metals	6010C	11	1	1	1	1	0	15
Mercury	7471B	11	1	1	1	1	0	15
Cyanide	9010C/9014	11	1	1	1	1	0	15
Petroleum Biomarkers[2]	8100	11	1	1	1	1	0	15
Total Petroleum Hydrocarbons	E418.1	11	1	1	1	1	0	15
Fingerprinting - Non-halogenated Organics	8015C	11	1	1	1	1	0	15
Total Organic Carbon (TOC)	Lloyd Kahn	11	1	1	1	1	0	15
Water samples (3 locations; 1 sample per location)								
TCL VOCs	8260B	3	0	0	0	0	1	4
Extended SVOCs (including PXE and PTE)[1,2]	Ext. 8270D	3	0	0	0	0	0	3
TAL Metals	6010C	3	0	0	0	0	0	3
Mercury	1631	3	0	0	0	0	0	3
Cyanide	9010C/9014	3	0	0	0	0	0	3
Petroleum Biomarkers[2]	8100	3	0	0	0	0	0	3
Total Petroleum Hydrocarbons	E418.1	3	0	0	0	0	0	3
Fingerprinting - Non-halogenated Organics	8015C	3	0	0	0	0	0	3
Anions/Cations	6010C/E300/2320B	3	0	0	0	0	0	3
Total Cost								

Notes:

All analyses will be performed in accordance with USEPA SW846 methods.

Additional samples may be collected based on field observations.

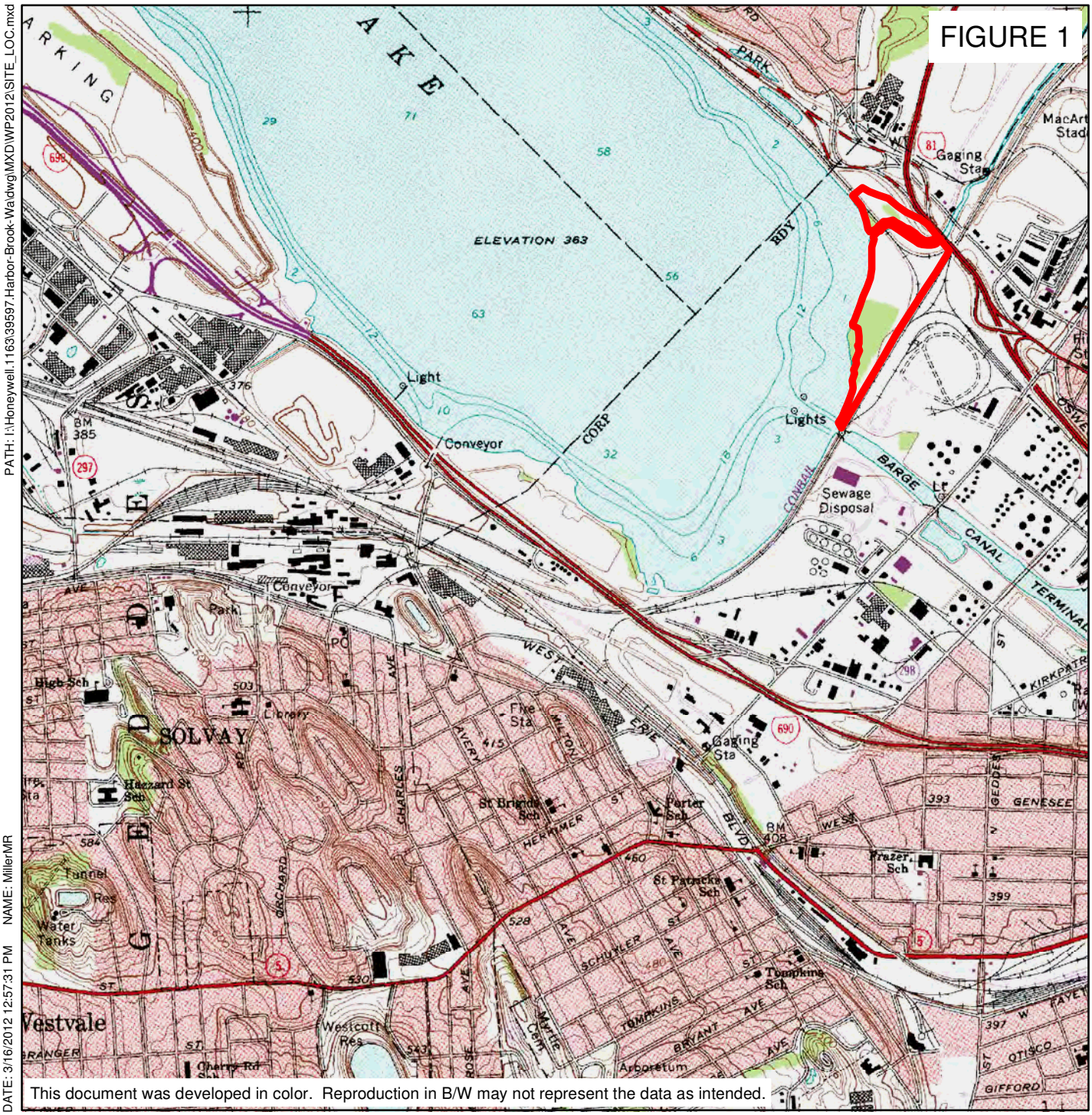
1 - Method 8270D will include 1-phenyl-1-[2,4-dimethylphenol]-ethane (PXE) and 1-phenyl-1-[4-methylphenyl] (PTE) in the analysis. The mass spectra for these compounds are available from Dr. John Hassett at SUNY ESF in Syracuse, NY. **The laboratory will need to aquire the mass spectra for these compounds**.

2 - The extended SVOCs and petroleum biomarkers analyses will be performed by Southern Petroleum Laboratories (SPL) or equivalent forensics laboratory. The extended SVOCs will include additional parameters, such as aromatics, alkylated aromatics, and unresolved complex mixtures. The additional paramters are being collected for fingerprinting purposes and statistical analysis.

MS/MSD - Matrix Spike/Matrix Spike Duplicate

The number of QA/QC samples presented in this table should be considered estimates. The actual number of QA/QC samples will be determined during performance of the investigation based on the actual number of samples and time period of collection.

Anions/Cations to include Ca, Mg, Na, K, Cl, Br, SO4, CO3, HCO3.



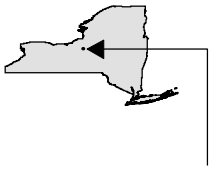
This document was developed in color. Reproduction in B/W may not represent the data as intended.

PATH: I:\Honeywell.1163\39597.Harbor-Brook-Waldwg\MXD\WP2012\SITE_LOC.mxd

NAME: MillerMR

DATE: 3/16/2012 12:57:31 PM

ADAPTED FROM: SYRACUSE WEST, NEW YORK USGS QUADRANGLE



QUADRANGLE LOCATION

HONEYWELL
SYW-12
SYRACUSE, NY

SITE LOCATION PLAN

N

SYW-12 Area

0 1,000 2,000 4,000 6,000 8,000

Feet

1:24,000

1163.39597

MARCH 2012

O'BRIEN & GERE
www.obg.com

PATH: I:\Honeywell.1163\39597-Harbor-Brook-Waldwg\MXD\WP2012\SYW-12_area.mxd

FIGURE 2

LEGEND

FORMER ONONDAGA CREEK CHANNEL LOCATION (Source: USGS Topo map 1898)

HONEYWELL
SYRACUSE, NY

SYW-12 SITE AREA

0 100 200 400
Feet

MARCH 2012
1163.39597

O'BRIEN & GERE
www.obg.com

This document was developed in color. Reproduction in B/W may not represent the data as intended.

DATE: 3/16/2012 1:01:19 PM NAME: MillerMR