2015 OU2 GROUNDWATER INVESTIGATION
VPB157
NWIRP BETHPAGE, NY

SITE 1 OU2
BETHPAGE, NY

Prepared for:

Department of the Navy
Naval Facilities Engineering Command, Atlantic
9324 Virginia Avenue
Building Z-144
Norfolk, Virginia 23511

JANUARY 2016

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9324 Virginia Avenue
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List of Acronyms and Abbreviations

AOC	Area of Concern
bgs	below ground surface
COR	Continuously Operating Reference
DoD	Department of Defense
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency, United States
ft	feet
GOCO	Government-Owned Contractor-Operated
GPS	Global Positioning System
IDW	Investigation Derived Waste
IR	Installation Restoration
Katahdin	Katahdin Analytical Services
NAD	North American Datum
NAVD	North American Vertical Datum
NAVFAC	Naval Facilities Engineering Command
NG	Northrop Grumman
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
ONCT	On-site Containment Treatment System
OU	Operable Unit
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
SAP	Sampling and Analysis Plan
SVOC	Semivolatile Organic Compounds
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
UFP	United Federal Programs
VOC	Volatile Organic Compounds
VPB	Vertical Profile Boring

1.0 PROJECT BACKGROUND

Resolution Consultants has prepared this Data Summary Report for the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic under contract task order WE15 Contract N62470-11-D-8013. This report describes vertical profile boring (VPB) installation activities (specifically at the VPB 157 location) in 2015 for the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Operable Unit (OU) 2 Site 1 offsite plume. NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City (Figure 1).

1.1 Scope and Objectives

This data summary report provides information on the installation of VPB 157. The purpose of the VPB 157 investigation was to ascertain the presence and level of contamination in the vicinity of the On-site Containment Treatment system (ONCT), between recovery wells 17 and 18. VPB locations within the general vicinity of VPB 157 are shown in Figure 2. VPB 157 was completed to 890 feet (ft) below ground surface (bgs).

Field tasks were conducted in 2015 in accordance with the *United Federal Programs Sampling and Analysis Plan (UFP SAP)*, Bethpage, New York and the UFP SAP Addendum Installation of Vertical Profile Borings and Monitoring Wells (Resolution Consultants, 2013). The field investigation included completing one vertical profile boring, groundwater grab samples, geophysical logging and surveying.

Documentation of these activities is included in Appendix A of this report.

1.2 Site History

NWIRP Bethpage is in the Hamlet of Bethpage, Town of Oyster Bay, New York. Since its inception in 1941, the plant's primary mission was the research, prototyping, testing, design, engineering, fabrication, and primary assembly of military aircraft. The facilities at NWIRP included four plants used for assembly and prototype testing, a group of quality control laboratories, two warehouse complexes (north and south), a salvage storage area, water recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings.

The Navy's property originally totaled 109.5 acres and was formerly a Government-Owned Contractor-Operated (GOCO) facility that was operated by Northrop Grumman (NG) until September 1998. Prior to 2002, the NWIRP property was bordered on the north, west, and south

by current or former NG facilities, and on the east by a residential neighborhood. By March 2008, approximately 100 acres of NWIRP property were transferred to Nassau County in three separate actions. The remaining 9 acres and access easements were retained by the Navy to continue remedial efforts at Installation Restoration (IR) Site 1 – Former Drum Marshalling Area and Site 4 – Former Underground Storage Tanks (Area of Concern [AOC] 22). A parcel of land connecting the two sites was also retained. Currently, the 9-acre parcel of NWIRP is bordered on the east by the residential neighborhood and on the north, south, and west by Steel Equities; however, a small portion near Sites 2 and 3 is still owned by Nassau County. Access to the NWIRP is from South Oyster Bay Road.

1.3 Geology and Hydrogeology

Overburden at the site consists of well over 1,000 ft of unconsolidated deposits overlying crystalline bedrock of the Hartland Formation. Overburden is divided into four geologic units: the upper Pleistocene deposits, the Magothy Formation, the clay member of the Raritan Formation ("Raritan Clay") and the Lloyd Sand member of the Raritan Formation ("Lloyd Sand") (Geraghty and Miller, 1994).

The upper Pleistocene ranges in thickness from approximately 50 to 100 ft and consists of till and outwash deposits of medium to coarse sand and gravel with lenses of fine sand, silt and clay (Smolensky and Feldman, 1990); these deposits form the Upper Glacial Aquifer. Directly underlying this unit is the Magothy Formation with a thickness of 650 to 900 ft and lower extent of 700 to 1000 ft below ground surface (bgs) observed onsite. The Magothy is characterized by fine to medium sands and silts interbedded with zones of clays, silty sands and sandy clays. Sand and gravel lenses are found in some areas between depths of 600 and 880 ft bgs; these deposits form the main producing zones of the Magothy Aquifer.

Investigations performed by the Navy since 2012 indicate that the bottom of the Magothy (top of the Raritan Clay) can extend to depths of 700 to greater than 1,000 ft bgs. The top of the Raritan Clay deepens to the south southeast, as evidenced by clay depths of 1,000 ft bgs (or more) in borings installed offsite. The Raritan Clay Unit is of continental origin and consists of clay, silty clay, clayey silt, and fine silty sand. This member acts as a confining layer over the Lloyd Sand Unit. The Lloyd Sand Unit is also of continental origin, having been deposited in a large fresh water lacustrine environment. The material consists of fine to coarse-grained sands, gravel, inter-bedded clay, and silty sand. These deposits form the Lloyd Aquifer.

The Upper Glacial Aquifer and the Magothy Aquifer comprise the aquifers of interest at the NWIRP. Regionally, these formations are generally considered to form a common, interconnected aquifer as the coarse nature of each unit near their contact and the lack of any regionally confining clay unit allows for the unrestricted flow of groundwater between the formations.

The Magothy Aquifer is the major source of public water in Nassau County. The most productive water bearing zones are the discontinuous lenses of sand and gravel that occur within the siltier matrix. The major water-bearing zones are coarse sand and gravel lenses located in the lower portion of the Magothy. The Magothy Aquifer is commonly regarded to function overall as an unconfined aquifer at shallow depths and a confined aquifer at deeper depths. The drilling program at the NWIRP has revealed that clay zones beneath the facility are common but laterally discontinuous. No confining clay units of facility-wide extent have been encountered. This is also the case for borings installed offsite.

Groundwater is encountered at a depth of approximately 50 ft bgs at the facility. Historically, because of pumping and recharge at the facility, groundwater depths have been measured to range from 40 to 60 ft bgs. The groundwater flow in the area is to the south-southeast.

2.0 FIELD PROGRAM

Field investigation activities at VPB 157 consisted of drilling, sampling, soil/groundwater analysis, geophysical logging, and surveying. Drilling during this investigation was performed by Delta Well and Pump Company of Ronkonkoma, New York. A description of these tasks is provided below.

2.1 Vertical Profile Borings

One vertical profile boring (VPB 157) was completed during this field effort between May 18, 2015 and June 11, 2015. The total depth of VPB 157 was 890 ft. The location is shown in Figure 2 and details are summarized in Table 1.

2.1.1 Drilling

VPB 157 was installed by drilling an 8-inch diameter hole using mud rotary drilling techniques. Drilling mud consisted of potable water and polymer-free sodium bentonite or equivalent. Drilling mud was contained and re-circulated in baffled, high capacity mud tubs. A sand separator was used intermittently to remove fines from circulation.

2.1.2 Sampling

A total of ten split spoon samples were collected from ground surface to the bottom of the boring. A change in geology was observed by the field geologist at 878 ft bgs and three split spoon samples were subsequently collected to confirm the presence of the Raritan Clay. Samples were logged by the field geologist and screened for Volatile Organic Compounds (VOCs) utilizing a photoionization detector (PID). A detailed boring log for VPB 157 is included in Appendix A.

Groundwater grab samples were collected every 50 ft for the first 200 ft of borehole depth. After the first 200 ft, groundwater grab samples were collected approximately every 20 ft until the boring terminated in the Raritan. Groundwater grab samples were collected with a hydropunch sampler and analyzed for VOCs using Environmental Protection Agency (EPA) Method 8260C. The groundwater grab samples were analyzed by Katahdin Analytical Services (Katahdin), a Department of Defense (DoD), Environmental Laboratory Accreditation Program (ELAP), and New York State Department of Environmental Conservation (NYSDEC)-certified laboratory. During the collection of groundwater grab samples, field parameters were measured (pH, temperature, specific conductivity, oxidation reduction potential, dissolved oxygen, and turbidity). Data validation was performed by Resolution Consultants. Groundwater grab sample logs, data validation packages, and analytical data tables are included in Appendix A.

One soil sample was collected for laboratory analysis for total organic carbon (TOC) by EPA series SW-846 method 9060A. During drilling, air sampling was conducted under a Community Air Monitoring Plan. One air sample was collected per VPB using Summa canisters and submitted for laboratory analysis by EPA Method TO-15. All analyses were performed or sub-contracted by Katahdin. Data validation of both TOC and air data was performed by Resolution Consultants. Data validation packages and analytical data tables are included in Appendix A.

2.1.3 Geophysics

Borehole geophysical logs (gamma) were recorded after the borehole was drilled but prior to the removal of drill rods. A Mount Sopris Instrument model 2PGA-100 poly gamma was used. Starting at the top of the hole, the probe was advanced at a maximum rate of 12 ft per minute. A copy of the log was printed in the field for review once the probe reached the bottom of the borehole. The instrument was then raised to the top of the boring and a second log was generated and printed in the field. The down hole gamma log sheets and plots comparing the gamma log with trichloroethene (TCE) and tetrachloroethene (PCE) concentrations from hydropunch samples are included in Appendix A.

2.2 Decontamination and Investigation Derived Waste (IDW)

Resolution Consultants utilized dedicated and disposable sampling equipment when possible to avoid the potential for cross-contamination of samples. The sampling equipment included dedicated plastic scoops, disposable Teflon or polyethylene tubing, disposable gloves, and laboratory supplied sample bottles. Hand held equipment, split spoons, and the hydropunch were decontaminated using Liquinox and water wash, a potable water rinse, followed by a distilled water rinse. Water was collected in 5-gallon pails or 55-gallon drums.

As part of the IDW management practices and in accordance with the SAP, the investigation waste (consisting of soil cuttings, drilling muds, IDW fluids, and personal protective equipment [PPE]) generated during the boring installation was containerized and staged at NWIRP Bethpage. IDW solids were characterized and disposed of properly. Representative samples from each roll off were submitted to Katahdin for analysis of:

- Target Compound List (TCL) VOCs
- TCL Semi-volatile Organic Compounds (SVOCs)
- Toxicity Characteristic Leaching Procedure (TCLP) Metals

- Polychlorinated Biphenyls (PCBs)
- Total petroleum hydrocarbons
- Corrosivity
- Ignitability
- Reactive Cyanide
- Reactive Sulfide
- Paint Filter

IDW water was containerized in frac tanks and stored at NWIRP Bethpage for characterization and ultimate disposal to the Publicly Owned Treatment Works (POTW), in accordance with the facilities existing discharge permit. A representative water sample was collected from each frac tank and submitted to Katahdin for analysis of VOCs via Method SW 624, pH via Method SW 9040B, PCBs via Method 8082 and Total Metals via Method SW 846. To the extent feasible, soil and water were not mixed. All analytical criteria were met for disposal of soil and water.

2.3 Surveying

A survey of the boring location was conducted at the end of fieldwork by C. T. Male, Inc., of Latham, NY, under the direct supervision of Resolution Consultants. The location was tied into the existing base map developed for this investigation. The survey elevation is referenced to the North American Vertical Datum (NAVD) 1988 and has a vertical accuracy of 0.01 foot. Vertical control is based on observations of Continuously Operating Reference (COR) Stations Queens and Central Islip. The horizontal location is referenced to the North American Datum (NAD) 1983 (2011) N.Y. Long Island Zone 3104 and has an accuracy of 0.1 foot. Local horizontal and vertical control is based on Global positioning System (GPS) observations using the NYS Net Real Time Network.

A table of survey data (ground, latitude/longitude and northing/easting) and a survey map is included in Appendix A.

3.0 REFERENCES

Geraghty and Miller, Inc., 1994. *Remedial Investigation Report, Grumman Aerospace Corporation, Bethpage, New York*. Revised September 1994.

Naval Facilities Engineering Command (NAVFAC), 2003. *Record of Decision Naval Weapons Industrial Reserve Plant Bethpage, New York, Operable Unit 2 – Groundwater*, NYS Registry: 1-30-003B. April.

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Resolution Consultants, 2013. UFP SAP Addendum*, Installation of Vertical Profile Borings and Monitoring Wells.* December.

Smolensky, D., and Feldman, S., 1990. *Geohydrology of the Bethpage-Hicksville-Levittown Area, Long Island, New York, U.S*. Geological Survey Water-Resourced Investigations Report 88-4135, 25 pp.

Tables

Vertical Profile Boring 157

TABLE 1
VERTICAL PROFILE BORING SUMMARY
2015 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

BORING	BORING START DATE	BORING COMPLETION DATE	GROUND ELEVATION (MSL)	TOTAL DEPTH (ft bgs)	SURFACE CASING SET AT (ft bgs)	NO. OF SPOON SAMPLES	GAMMA LOG (ft bgs)	NO. GW SAMPLES COLLECTED/DUPLICATES/ATTEMPED	TOC SAMPLES (ft bgs)	DATE OF AIR SAMPLE	MONITORING WELLS INSTALLED AT LOCATION
VPB157	5/18/2015	6/11/2015	106.01	890	53	10	888	30/2/8	823 - 825 ft bgs	6/10/2015	RE123D1, RE123D2, RE123D3

Figures

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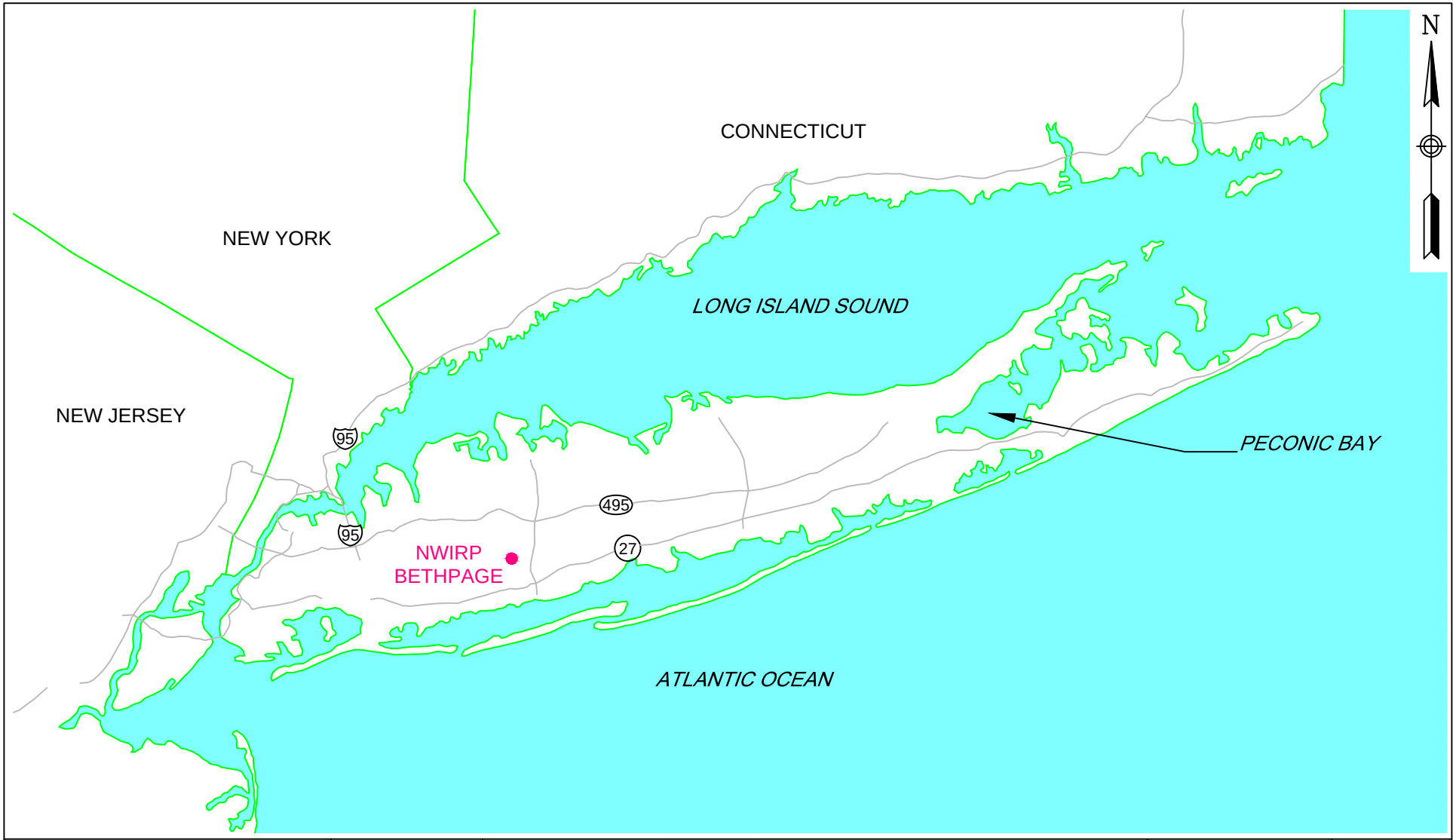


0 15 30

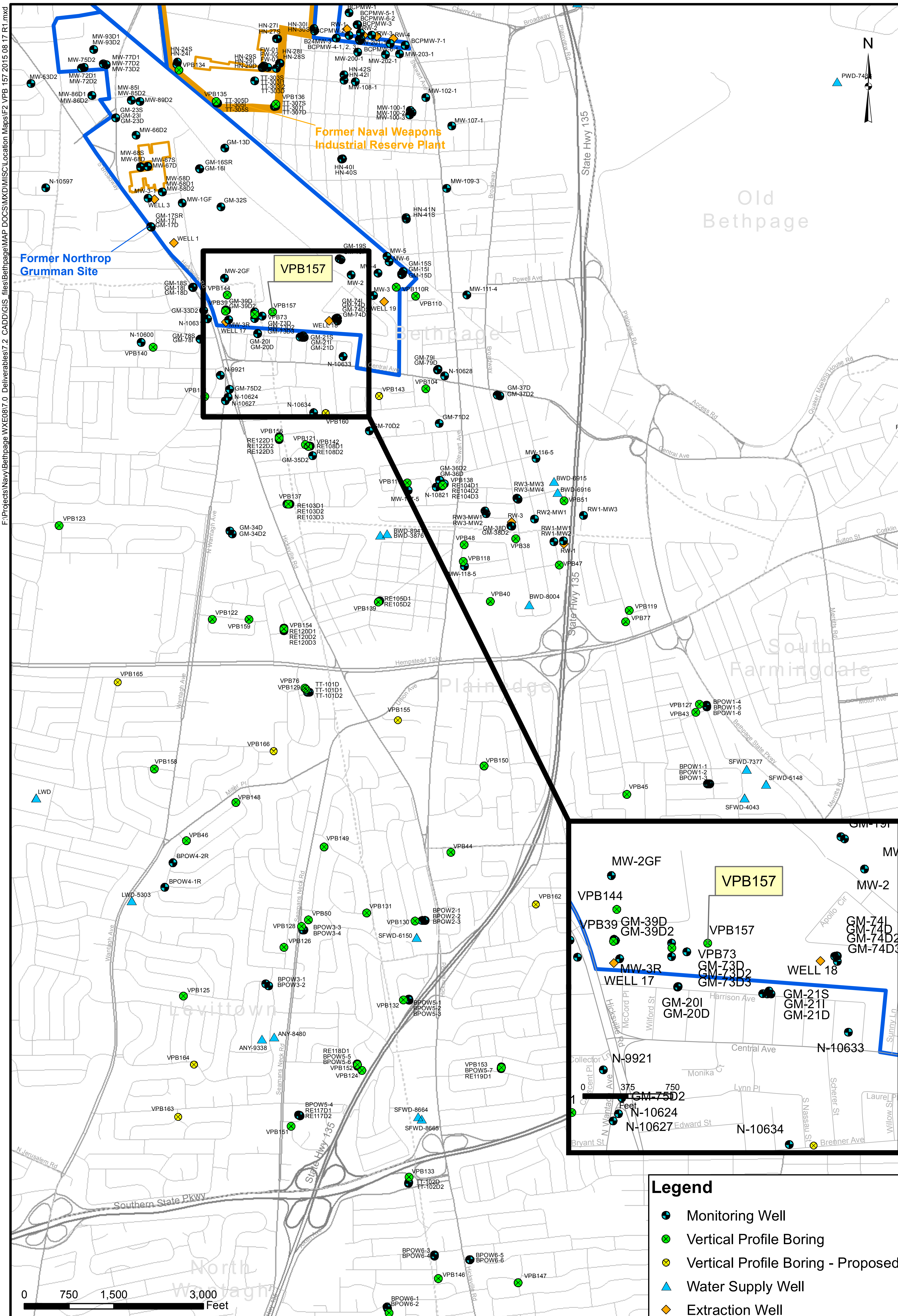
SCALE IN MILES

NAVFAC

GENERAL LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

CONTRACT NUMBER	CTO NUMBER
N62470-11-D-8013	WE15
APPROVED BY --	DATE --
APPROVED BY --	DATE --
FIGURE NO. 1	REV 0

F:\Projects\Navy\Bethpage WXE0817.0 Deliverables\7.2 CADD\GIS_files\Bethpage\MAP DOCS\MXD\MISC\Location Maps\F2 VPB 157 2015 08 17 R1.mxd



NAVFAC

VPB157 LOCATION MAP
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

CONTRACT NUMBER	CTO NUMBER
N62470-11-D8013	WE15
APPROVED BY PS	DATE 9/17/2015
APPROVED BY __	DATE __
FIGURE NO. 2	REV 0

Appendix A

VPB 157

Section 1

VPB 157 Boring and Gamma Logs

Resolution Consultants

Boring Log

BORING #: VPB157

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		**Logged By:** Mike Zobel
Location: Sunbeam Avenue, Bethpage, NY	**Northing:** 209889.90 **Easting:** 1124858.22	**Drilling Company:** Delta Well & Pump
Project #: 60266526	**Ground Elevation (ft amsl):** 106.01	**Well Screen Interval (ft):** NA
Start Date: 5/18/2015	**Drilling Method:** Auger (0-50' bgs) Mud Rotary (>50' bgs)	**Water Level (ft):** NA
Finish Date: 6/11/2015		**Total Depth (ft):** 890.0

Mud Rotary Drilling Note: Unless denoted by a splitspoon sample (indicated by the presence of a PID reading), boundaries between strata are approximate only and may be transitional because they are based on screened wash samples collected during mud rotary drilling at 5 ft. intervals.

DEPTH (ft)	Gamma Ray (30 60 90)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Upper Glacial			fill
6						SW		Brown (10YR 5/3) Well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
12						SW		Brownish yellow (10YR 6/6) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
16						SW		Brownish yellow (10YR 6/6) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
22						SW		Brownish yellow (10YR 6/6) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
26						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
32						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
36						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
42						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
46						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
52						SW		Brownish yellow (10YR 6/8) well graded fine to coarse subangular SAND with fine to medium subrounded Gravel, trace silt
54						SP-SC		

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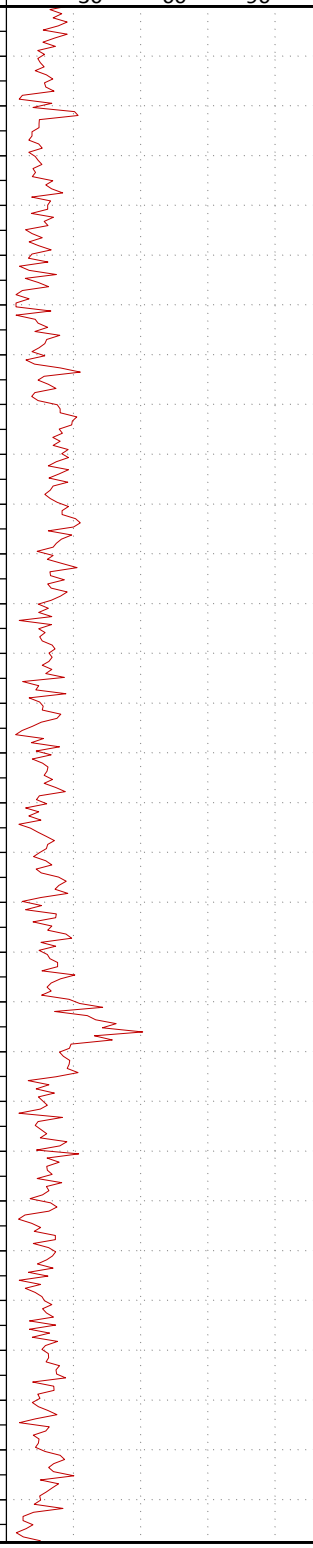
Resolution Consultants

Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
54				Upper Glacial	SP-SC		Brownish yellow (10YR 6/6) poorly graded medium subangular SAND with medium fat Clay, trace fine subrounded gravel *(continued)*
56–58							
58–60		0.45	< 0.50		SP-SC		Brownish yellow (10YR 6/6) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace fine subrounded gravel
60–62							
62–64							
64–66					SP-SM		Brownish yellow (10YR 6/6) poorly graded fine to medium subangular SAND with Silt, trace medium fat clay, trace fine subrounded gravel
66–68							
68–70							
70–72					SP-SM		Brownish yellow (10YR 6/6) poorly graded fine to medium subangular SAND with Silt, trace medium fat clay, trace fine subrounded gravel
72–74							
74–76					SP-SM		Brownish yellow (10YR 6/6) poorly graded fine to medium subangular SAND with Silt, trace iron nodules, trace medium fat clay, trace fine subrounded gravel
76–78							
78–80	0				SP-SM		Light gray (10YR 7/2) and brownish yellow (10YR 6/8) mottled poorly graded fine to medium subangular SAND with Silt, few iron nodules, trace medium fat clay, trace fine subrounded gravel
80–82					SP-SM		Light yellowish brown (2.5Y 6/3) poorly graded fine to medium subangular SAND with Silt, few iron nodules, trace medium fat clay
82–84							
84–86					SP-SM		Light yellowish brown (2.5Y 6/3) poorly graded fine to medium subangular SAND with Silt, trace iron nodules, trace medium fat clay
86–88							
88–90					SP-SC		Light brownish gray (2.5Y 6/2) poorly graded fine SAND with medium fat Clay, few iron nodules, trace silt
90–92							
92–94					SP-SM		Light brownish gray (2.5Y 6/2) poorly graded fine SAND with Silt, few iron nodules, trace medium fat clay
94–96							
96–98							
98–100		0.46	< 0.50		SP-SM		Light brownish gray (2.5Y 6/2) poorly graded fine SAND with Silt, few iron nodules, trace medium fat clay
100–102				Magothy			
102–104					SP-SM		Grayish brown (2.5Y 5/2) poorly graded fine to medium subangular SAND with Silt, trace iron nodules, trace loose fat clay
104–106							
106–108							
108–110					SP-SM		Grayish brown (2.5Y 5/2) poorly graded fine to medium subangular SAND with Silt, trace iron nodules, trace loose fat clay
110–112							
112–114					SP-SM		Grayish brown (2.5Y 5/2) poorly graded fine to medium subangular SAND with Silt, trace loose fat clay

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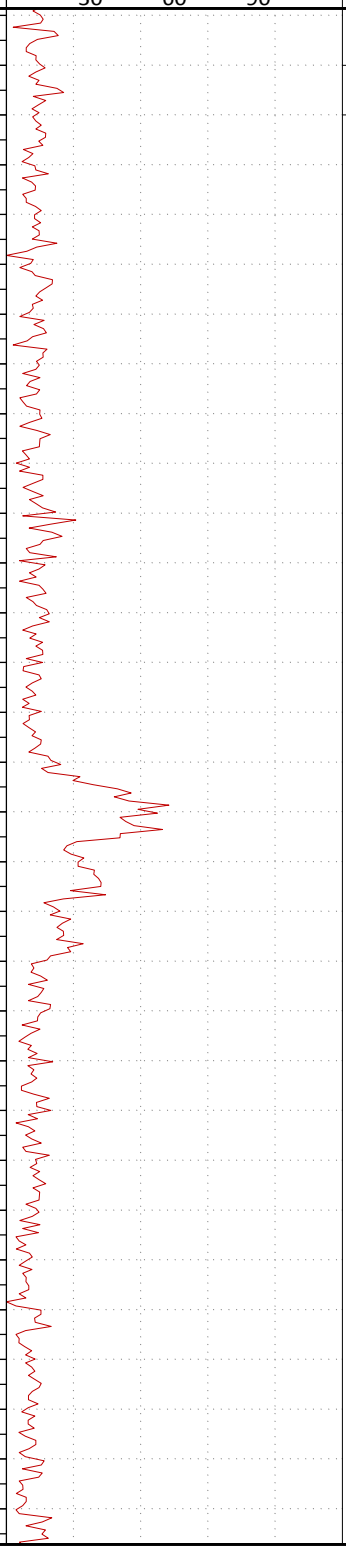
Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
116				Magothy	SP-SM		Grayish brown (2.5Y 5/2) poorly graded fine to medium subangular SAND with Silt, trace loose fat clay *(continued)*
118					SP-SM		Grayish brown (2.5Y 5/2) mottled poorly graded fine to medium subangular SAND with Silt, trace loose fat clay
120	0				SP-SM		Grayish brown (2.5Y 5/2) poorly graded fine to medium subangular SAND with Silt, trace loose fat clay, trace iron nodules
122					SP-SM		Light yellowish brown (2.5Y 6/3) poorly graded fine to medium subangular SAND with Silt, trace loose fat clay, trace iron nodules
124					SP-SC		Light yellowish brown (2.5Y 6/3) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
126					SP-SC		Light brownish gray (2.5Y 6/2) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
128					SP-SC		Light yellowish brown (2.5Y 6/3) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
130					SC		Gray (2.5Y 6/1) medium fat Clayey fine to medium subangular SAND, trace silt, trace iron nodules
132					SP-SC		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
134					SC		Gray (2.5Y 6/1) medium fat Clayey fine to medium subangular SAND, trace silt, trace iron nodules
136					SC		Gray (2.5Y 6/1) medium fat Clayey fine to medium subangular SAND, trace silt, trace iron nodules
138					SP-SC		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
140					SP-SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
142					SP-SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt
144							
146							
148							
150		0.54	< 0.50				
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							
176							

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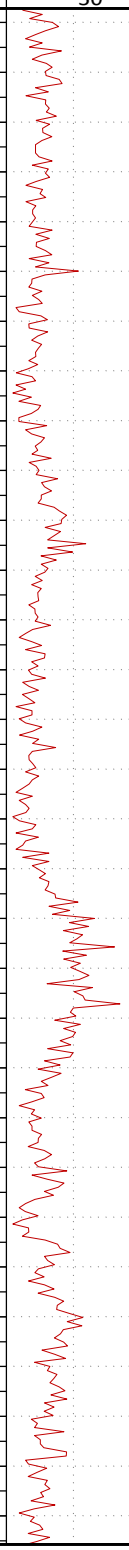
Resolution Consultants

Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
178				Magothy			
180					SP-SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt
182							
184					SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey fine to medium subangular SAND, trace silt, trace lignite
186							
188					SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey fine to medium subangular SAND, trace silt, trace iron nodules, trace lignite
190							
192					SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey fine to medium subangular SAND, trace silt, trace lignite
194							
196					SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey fine to medium subangular SAND, trace silt
198							
200		0.46	< 0.50		SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay, trace silt, trace iron nodules
202							
204					SP-SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey medium subangular SAND, trace silt
206							
208					SC		Light yellowish brown (2.5Y 6/4) medium fat Clayey medium subangular SAND, trace silt
210							
212					SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay
214							
216					SP-SC		Light yellowish brown (2.5Y 6/4) poorly graded fine to medium subangular SAND with medium fat Clay
218							
220		0.49	< 0.50		SP-SC		Grayish brown (2.5Y 5/2) medium fat Clayey fine SAND, trace medium sand, trace silt, trace iron nodules
222							
224					SC		Grayish brown (2.5Y 5/2) medium fat Clayey fine SAND, trace medium sand, trace silt, trace iron nodules
226							
228					SC		
230							
232					SC		
234							
236					SC		
238		0.40	< 0.50				

(Continued Next Page)

Resolution Consultants

Boring Log

BORING #: VPB157

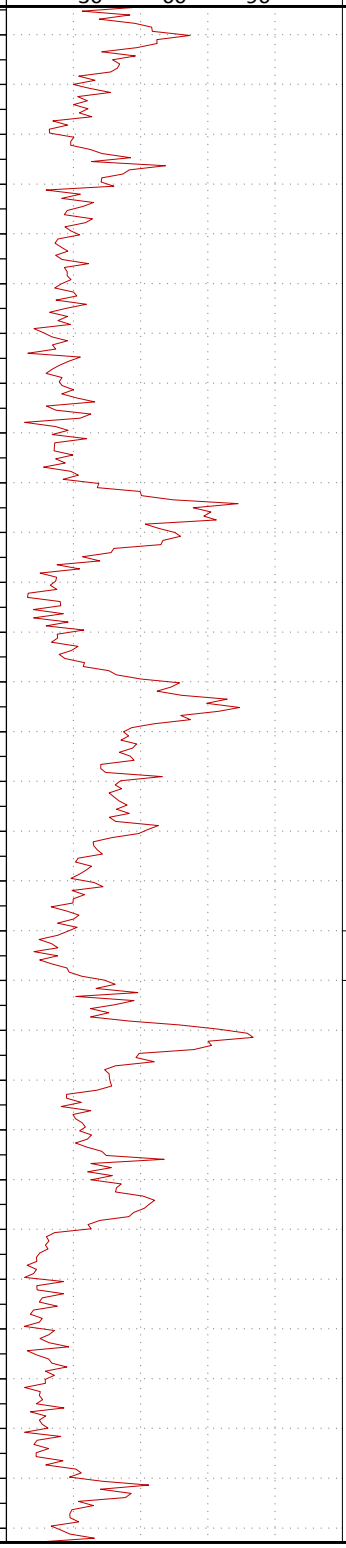
DEPTH (ft)	Gamma Ray (30 60 90)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
240			0.40	< 0.50	Magothy	SC		Grayish brown (2.5Y 5/2) medium fat Clayey fine SAND, trace medium sand, trace silt *(continued)*
242								
244						SC		Gray (2.5Y 5/1) medium fat Clayey fine SAND, trace medium sand, trace silt
246								
248								
250						SC		Gray (2.5Y 5/1) medium fat Clayey fine SAND, trace medium sand, trace silt
252								
254						CH		Gray (2.5Y 5/1) fine to medium Sandy medium fat CLAY, trace iron nodules
256								
258								
260			0.86	< 0.50		CH		Gray (2.5Y 5/1) fine Sandy medium fat CLAY with silt, trace iron nodules, trace pyrite
262								
264						CH		Gray (2.5Y 5/1) fine Sandy medium fat CLAY with silt, trace iron nodules, trace pyrite
266								
268								
270						CH		Gray (2.5Y 5/1) fine Sandy medium fat CLAY, trace silt, trace iron nodules, trace pyrite
272								
274						CH		Gray (2.5Y 5/1) fine to medium Sandy medium fat CLAY, trace iron nodules
276								
278								
280			< 0.50	< 0.50		CH		Dark gray (2.5Y 4/1) fine to medium Sandy medium fat CLAY, trace iron nodules
282								
284						SP-SC		Grayish brown (2.5Y 5/2) poorly graded fine SAND with medium fat CLAY, trace silt, trace iron nodules
286								
288								
290						SP-SC		Grayish brown (2.5Y 5/2) poorly graded fine SAND with medium fat CLAY, trace silt, trace iron nodules
292								
294						SP-SC		Olive gray (5Y 5/2) poorly graded fine SAND with medium fat CLAY, trace silt, trace iron nodules
296								
298								
300			42	1.2		CH		Olive gray (5Y 5/2) fine Sandy medium fat CLAY, trace iron nodules, trace pyrite

(Continued Next Page)

Resolution Consultants

Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
302				Magothy	CH		Olive gray (5Y 5/2) fine Sandy medium fat CLAY, trace iron nodules, trace pyrite *(continued)*
304							
306					CH		Gray (5Y 5/1) fine Sandy medium fat CLAY, trace iron nodules, trace pyrite
308							
310					SP-SC		Gray (5Y 5/1) poorly graded fine SAND with soft fat CLAY, trace silt, trace iron nodules
312							
314					CH		Gray (5Y 5/1) fine Sandy medium fat CLAY, trace iron nodules
316							
318							
320		0.45	< 0.50		CH		Gray (5Y 5/1) fine Sandy medium fat CLAY, trace iron nodules, trace silt
322							
324					CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt, trace pyrite
326							
328							
330					CH		Gray (Gley1 5/N) stiff fat CLAY with fine Sand, trace silt
332							
334					CH		Gray (Gley1 5/N) stiff fat CLAY with fine Sand, trace silt
336							
338							
340	0	0.37	< 0.50		SP-SC		Gray (5Y 5/1) fine SAND with medium fat Clay, trace silt
342					CH		Gray (5Y 5/1) fine Sandy medium fat CLAY, trace silt
344							
346					CH		Gray (5Y 5/1) fine Sandy medium fat CLAY, trace silt
348							
350					CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt
352							
354					SP-SC		Gray (5Y 5/1) fine SAND with medium fat Clay, trace silt
356							
358							
360		< 0.50	< 0.50		SP-SM		Light yellowish brown (2.5Y 6/3) fine SAND with Silt, trace medium fat clay
362							

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Resolution Consultants

Boring Log

BORING #: VPB157

DEPTH (ft)	Gamma Ray (30 60 90)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
364					Magothy	SP-SM		Light yellowish brown (2.5Y 6/3) fine SAND with Silt, trace medium fat clay
366								
368								
370						SP-SC		Light brownish gray (2.5Y 6/2) fine SAND with medium fat Clay, trace silt
372								
374						SP-SC		Light brownish gray (2.5Y 6/2) fine SAND with medium fat Clay, trace silt
376								
378								
380			0.39	< 0.50		SP-SC		Light brownish gray (2.5Y 6/2) fine SAND with medium fat Clay, trace silt
382								
384						SP-SC		Light brownish gray (2.5Y 6/2) fine SAND with medium fat Clay, trace silt, trace iron nodules
386								
388								
390						SP-SC		Light brownish gray (2.5Y 6/2) fine SAND with medium fat Clay, trace silt, trace iron nodules
392								
394						SC		Gray (2.5Y 6/1) soft fat Clayey fine SAND, trace silt
396								
398								
400			0.86	< 0.50		SC		Gray (2.5Y 6/1) soft fat Clayey fine SAND, trace silt
402								
404						SC		Gray (2.5Y 6/1) soft fat Clayey fine SAND, trace silt
406								
408								
410						SP-SC		Gray (2.5Y 6/1) fine SAND with medium fat Clay, trace silt, trace iron nodules
412								
414						SP-SC		Gray (2.5Y 6/1) fine SAND with medium fat Clay, trace silt, trace iron nodules
416								
418								
420			5.4	< 0.50		SP-SC		Gray (2.5Y 6/1) with medium fat Clay, trace silt, trace lignite
422								
424						SP-SC		

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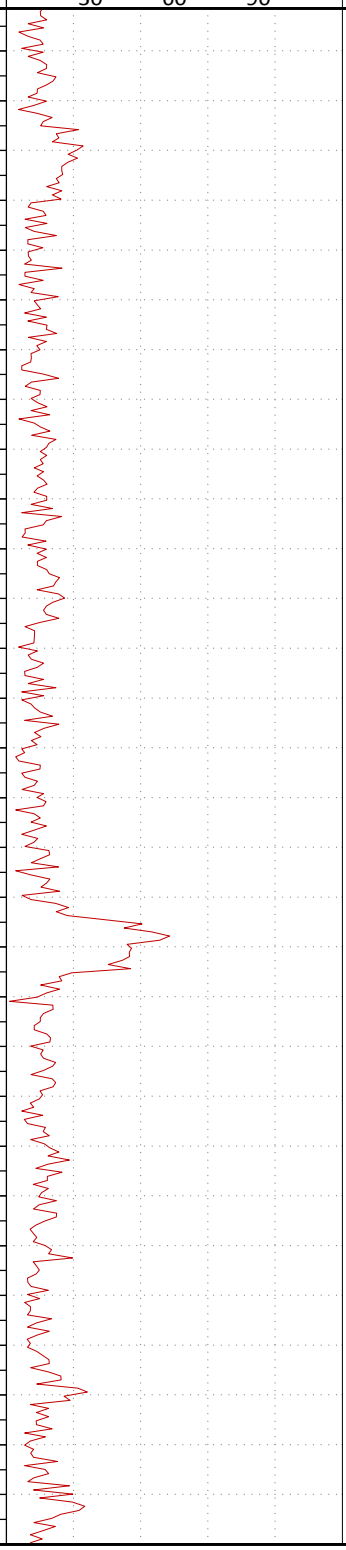

DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
426				Magothy	SP-SC		Gray (2.5Y 6/1) fine SAND with medium fat Clay, trace silt, trace lignite *(continued)*
428							
430					SP-SC		Gray (2.5Y 6/1) fine SAND with medium fat Clay, trace silt
432							
434					SP-SC		Gray (2.5Y 6/1) fine SAND with medium fat Clay, trace silt, trace lignite
436							
438							
440		1.5	< 0.50		SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay
442							
444					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay
446							
448							
450					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace iron nodules
452							
454					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace iron nodules
456							
458							
460		130	0.53		SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand, trace iron nodules
462							
464					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand, trace iron nodules
466							
468							
470					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand, trace iron nodules
472							
474					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
476							
478							
480		2.8	< 2.0		SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
482							
484					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
486							

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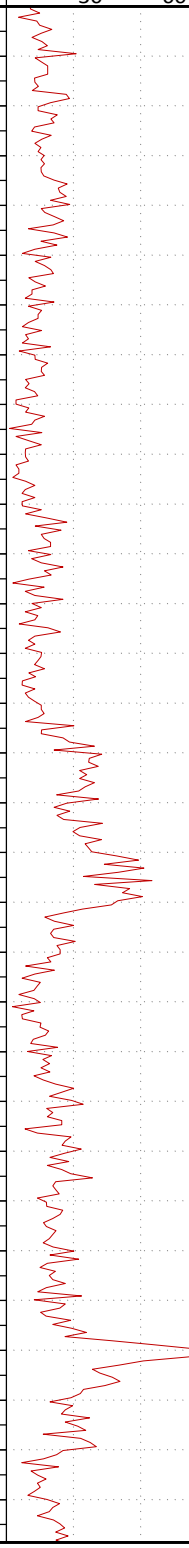
Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
486				Magothy	SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand *(continued)*
488							
490					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand, trace iron nodules
492							
494					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand, trace iron nodules
496							
498					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
500		5.1	0.86				
502					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
504							
506					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
508							
510					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
512							
514					SC		Gray (2.5Y 6/1) soft fat Clayey fine to medium subangular SAND, trace coarse subangular sand
516							
518							
520		54	1.3		SC		Gray (2.5Y 6/1) soft fat Clayey fine to medium subangular SAND, trace coarse subangular sand
522							
524					SC		Gray (2.5Y 6/1) soft fat Clayey fine to medium subangular SAND, trace coarse subangular sand
526							
528							
530					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
532							
534					SW		Light gray (2.5Y 7/1) well graded fine to medium subangular SAND, trace soft fat Clay, trace coarse subangular sand
536							
538							
540		21	3.4		SC		Gray (2.5Y 6/1) soft fat Clayey fine to medium subangular SAND, trace coarse subangular sand
542							
544					SP-SC		Gray (2.5Y 6/1) well graded fine to medium subangular SAND with soft fat Clay, trace coarse subangular sand
546							

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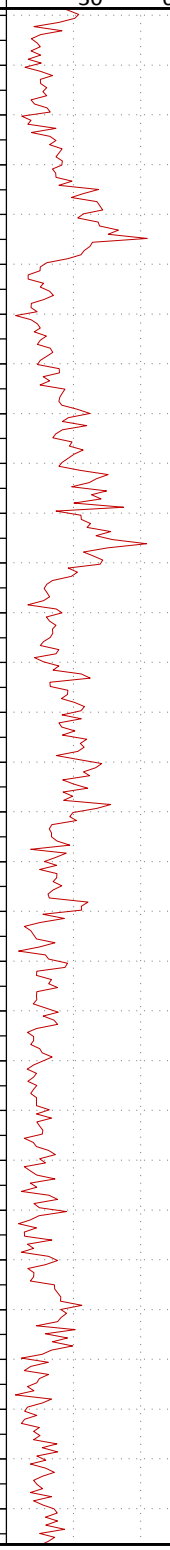
Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
548				Magothy			
550					SP-SC		Gray (2.5Y 6/1) well graded fine to medium subangular SAND with soft fat Clay, trace coarse subangular sand
552							
554					SP-SC		Gray (2.5Y 6/1) well graded fine to medium subangular SAND with soft fat Clay, trace coarse subangular sand
556							
558					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
560							
562							
564		9.7	8.0		SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
566							
568					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
570							
572					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
574							
576					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
578							
580		9.3	7.4		SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
582							
584					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace loose fat clay
586							
588					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace fine subangular gravel
590							
592					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace fine subangular gravel
594							
596					SM		Grayish brown (10YR 5/2) Silty fine to coarse subangular SAND, trace fine subangular gravel, trace loose fat clay
598							
600					SM		Grayish brown (2.5Y 5/1) Silty fine to coarse subangular SAND, trace fine subangular gravel, trace loose fat clay
602							
604					SM		
606							
608					SM		

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Boring Log

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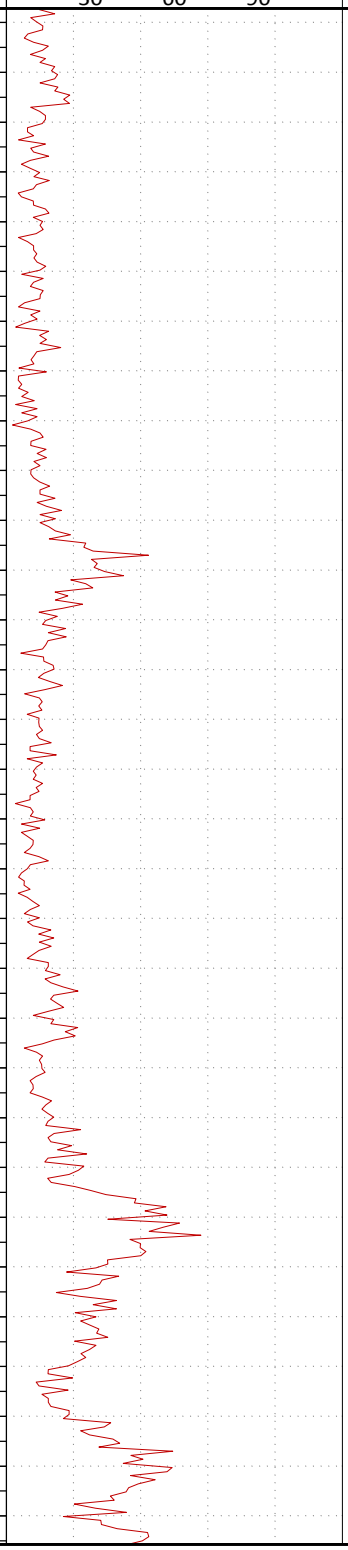

DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
610–612				Magothy	SM		Grayish brown (2.5Y 5/1) Silty fine to coarse subangular SAND, trace fine subangular gravel, trace loose fat clay *(continued)*
612–618					SW		White (2.5Y 8/1) well graded fine to coarse subangular SAND with fine subangular Gravel, trace medium fat clay
618–622		4.6	3.4		SW		White (2.5Y 8/1) well graded fine to coarse subangular SAND with fine subangular Gravel, trace medium fat clay
622–628					SW		White (2.5Y 8/1) well graded fine to coarse subangular SAND with fine subangular Gravel, trace medium fat clay
628–632					SP-SC		Pale brown (2.5Y 7/3) well graded fine to coarse subangular SAND with medium fat Clay, trace coarse subangular gravel
632–638					SP-SC		Pale brown (2.5Y 7/3) well graded fine to coarse subangular SAND with medium fat Clay, trace coarse subangular gravel
638–642					SW		White (2.5Y 8/1) well graded fine to coarse subangular SAND with fine subangular Gravel, trace medium fat clay
642–648					GW-GC		White (2.5Y 8/1) well fine subangular GRAVEL with fine to coarse subangular Sand, trace medium fat clay
648–652					GW-GC		White (2.5Y 8/1) well fine subangular GRAVEL with fine to coarse subangular Sand, trace medium fat clay
652–658					CH		Red (2.5 YR 4/6) fine subangular Gravelly medium fat CLAY, trace medium to coarse Sand
658–662					CH		Red (2.5 YR 4/6) fine subangular Gravelly medium fat CLAY, trace medium to coarse Sand
662–668					CH		Red (2.5 YR 4/6) stiff fat CLAY with fine to coarse subangular Sand
668–670					CH		Reddish brown (2.5YR 5/2) stiff fat CLAY, trace fine to coarse subangular SAND

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Boring Log

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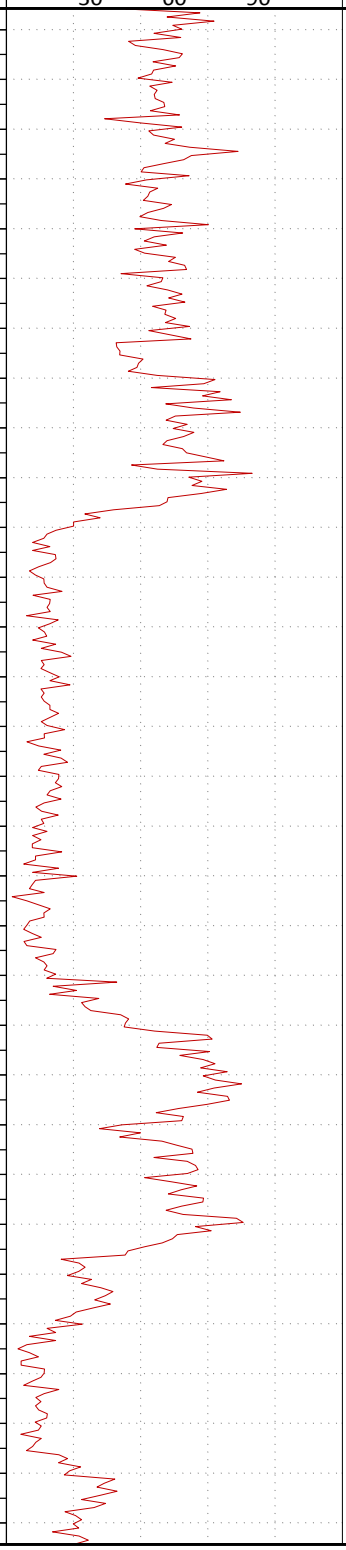

DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
672				Magothy	CH		Reddish brown (2.5YR 5/2) stiff fat CLAY, trace fine to coarse subangular SAND *(continued)*
674							
676					CH		Reddish brown (2.5YR 5/2) stiff fat CLAY, trace fine to coarse subangular SAND
678							
680					CH		Reddish brown (2.5YR 5/2) stiff fat CLAY, trace fine to coarse subangular SAND
682							
684					CH		Red (2.5 YR 4/6) stiff fat CLAY, trace fine to coarse subangular SAND
686							
688					CH		Red (2.5 YR 4/6) stiff fat CLAY, trace fine to coarse subangular SAND
690							
692					SC		Redish brown (2.5 YR 5/4) medium fat Clayey fine to medium subangular SAND
694							
696					SC		Redish brown (2.5 YR 5/4) medium fat Clayey fine to medium subangular SAND
698							
700					SC		Redish brown (2.5 YR 5/4) medium fat Clayey fine to medium subangular SAND
702							
704					CH		Redish brown (2.5 YR 5/4) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
706							
708					CH		Redish brown (2.5 YR 5/4) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
710							
712					CH		Gray (Gley1 5/N) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
714							
716					CH		Gray (Gley1 5/N) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
718							
720					CH		Redish brown (2.5 YR 5/4) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
722							
724							
726							
728							
730		< 4.0	< 4.0				
732							

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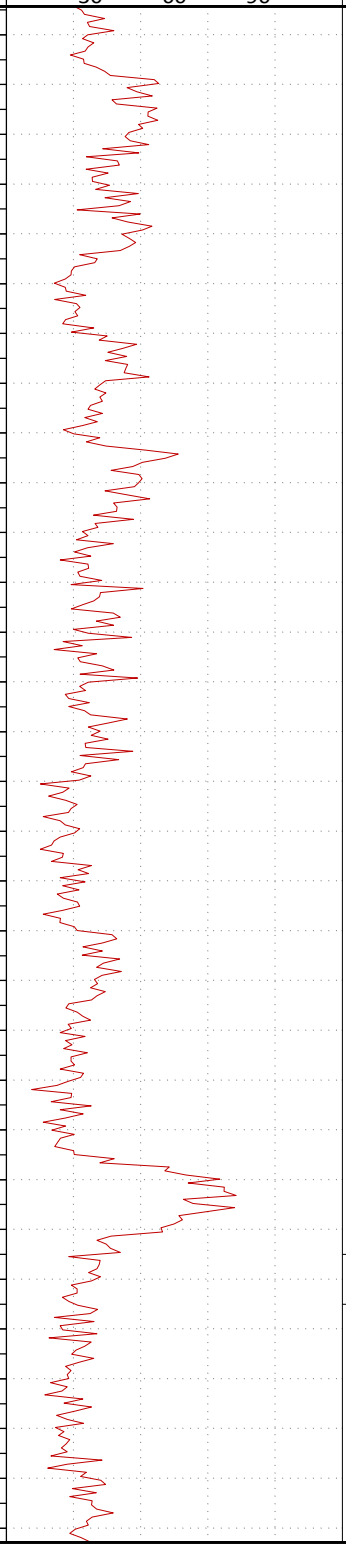
Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
734				Magothy	CH		Redish brown (2.5 YR 5/4) medium to coarse subangular Sandy stiff fat CLAY, trace fine subangular gravel
736							
738							
740		< 4.0	< 4.0		SC		Gray (Gley1 5/N) medium fat Clayey fine to medium subangular SAND, trace fine subrounded gravel
742							
744					SM		Gray (Gley1 6/N) Silty poorly graded fine SAND, trace soft fat Clay
746					SM		Gray (Gley1 6/N) Silty poorly graded fine SAND, trace soft fat Clay
748							
750					SM		Light gray (Gley1 7/N) Silty poorly graded fine SAND, trace soft fat Clay
752							
754					SM		Light gray (Gley1 7/N) Silty poorly graded fine SAND, trace soft fat Clay
756							
758							
760		< 0.50	< 0.50		SM		Gray (Gley1 6/N) Silty poorly graded fine SAND, trace soft fat Clay
762							
764					SM		Gray (Gley1 6/N) Silty poorly graded fine SAND, trace soft fat Clay
766							
768							
770					SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay
772							
774					SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay
776							
778							
780		< 0.50	< 0.50		SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay
782							
784	0				SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay
786							
788							
790					SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay
792							
794					SP-SM		

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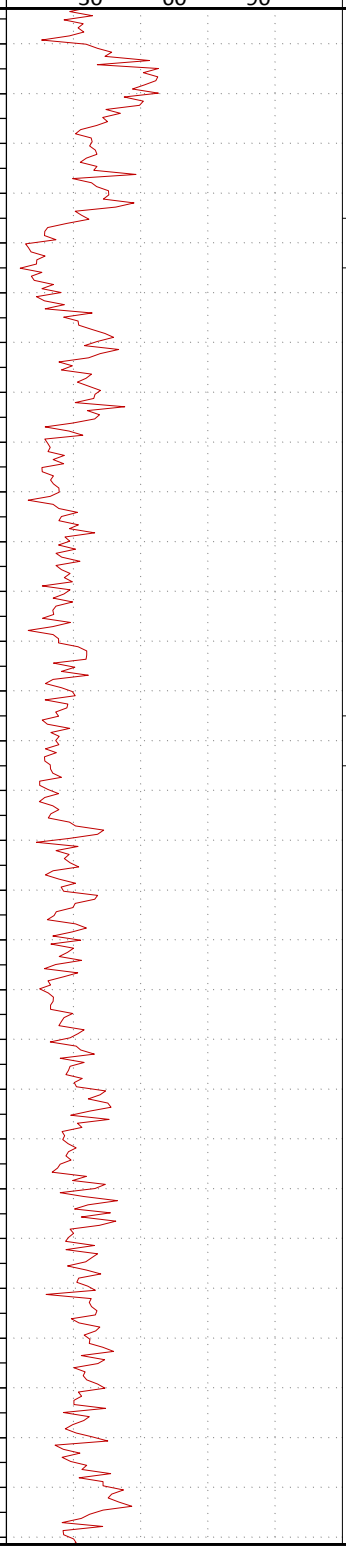
Boring Log

BORING #: VPB157



DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
796				Magothy	SP-SM		Light gray (Gley1 7/N) poorly graded fine SAND with Silt, trace soft fat clay *(continued)*
798							
800		< 1.0	< 1.0		CH		Gray (Gley1 6/N) fine Sandy soft fat CLAY, trace silt, trace coarse subangular sand
802							
804	0				CH		Gray (Gley1 6/N) fine Sandy soft fat CLAY, trace silt, trace coarse subangular sand
806					CH		Gray (Gley1 6/N) fine Sandy soft fat CLAY, trace silt, trace coarse subangular sand, trace lignite
808							
810					CH		Gray (Gley1 6/N) fine Sandy soft fat CLAY, trace silt, trace coarse subangular sand, trace lignite
812							
814					CH		Gray (Gley1 6/N) fine Sandy soft fat CLAY, trace silt, trace coarse subangular sand, trace lignite
816							
818							
820		< 0.50	< 0.50		SC		Gray (2.5Y 6/1) soft fat Clayey poorly graded fine SAND, trace medium subangular sand, trace lignite
822							
824	0				SP		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND, trace Clay, trace silt
826							
828							
830					SP		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND, trace Clay, trace silt
832							
834							
836					SP-SM		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with Silt, trace clay
838							
840		< 2.0	< 2.0		SP-SM		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with Silt, trace clay
842							
844					SP-SM		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with Silt, trace clay
846							
848							
850					SP-SC		Gray (2.5Y 6/1) poorly graded fine to medium subangular SAND with soft fat Clay, trace silt
852							
854					CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt
856							

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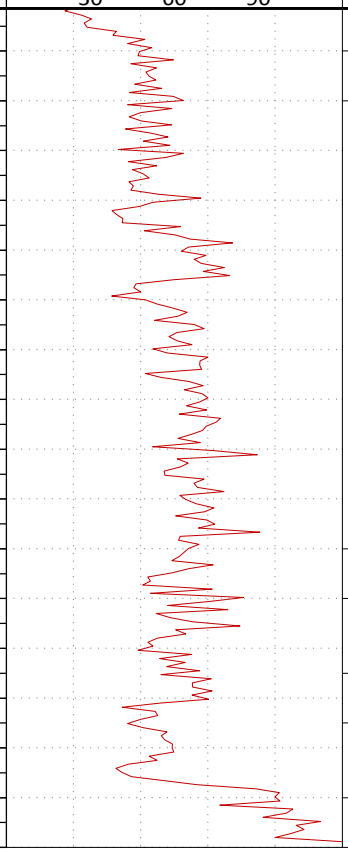
Boring Log

BORING #: VPB157

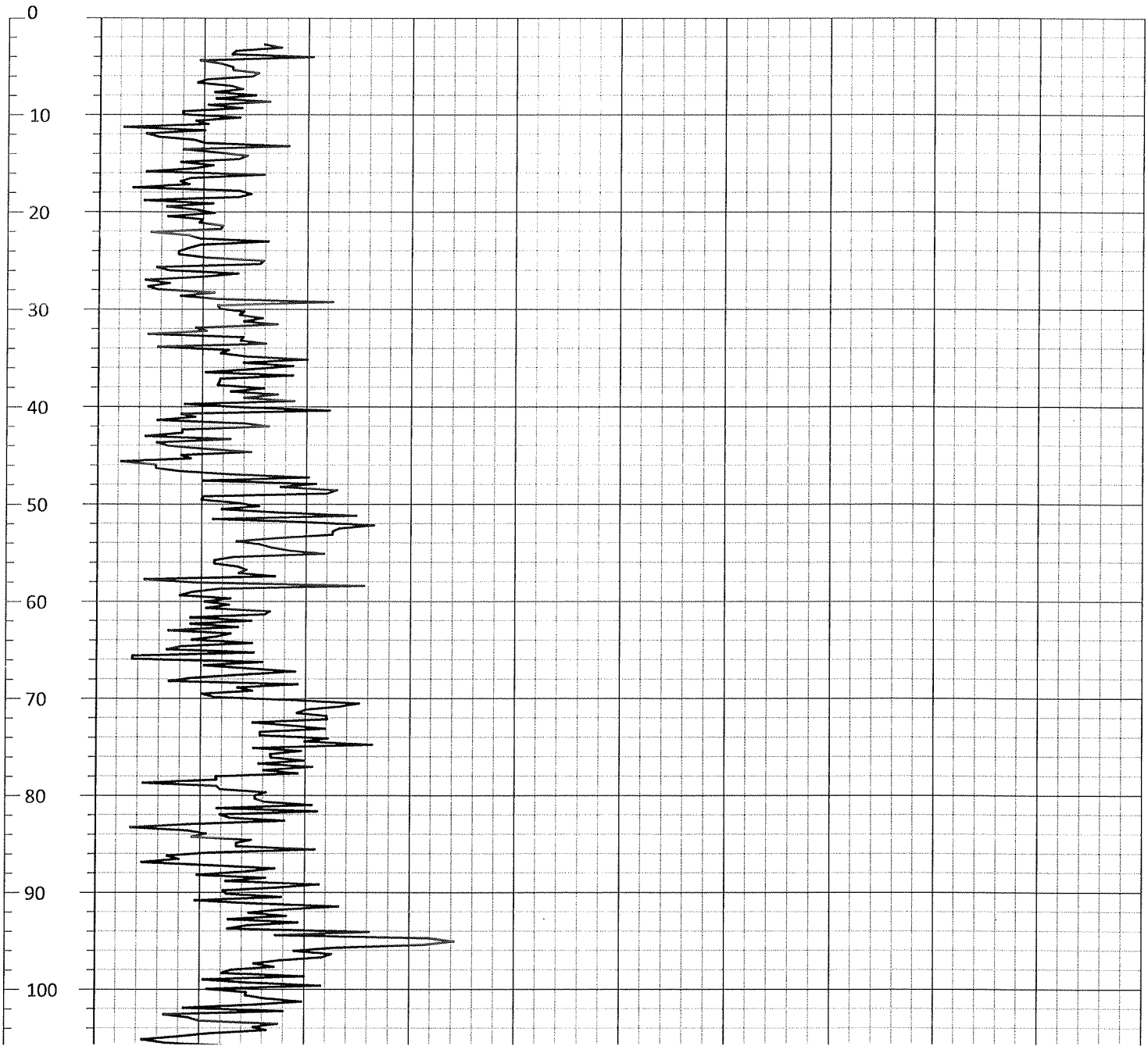


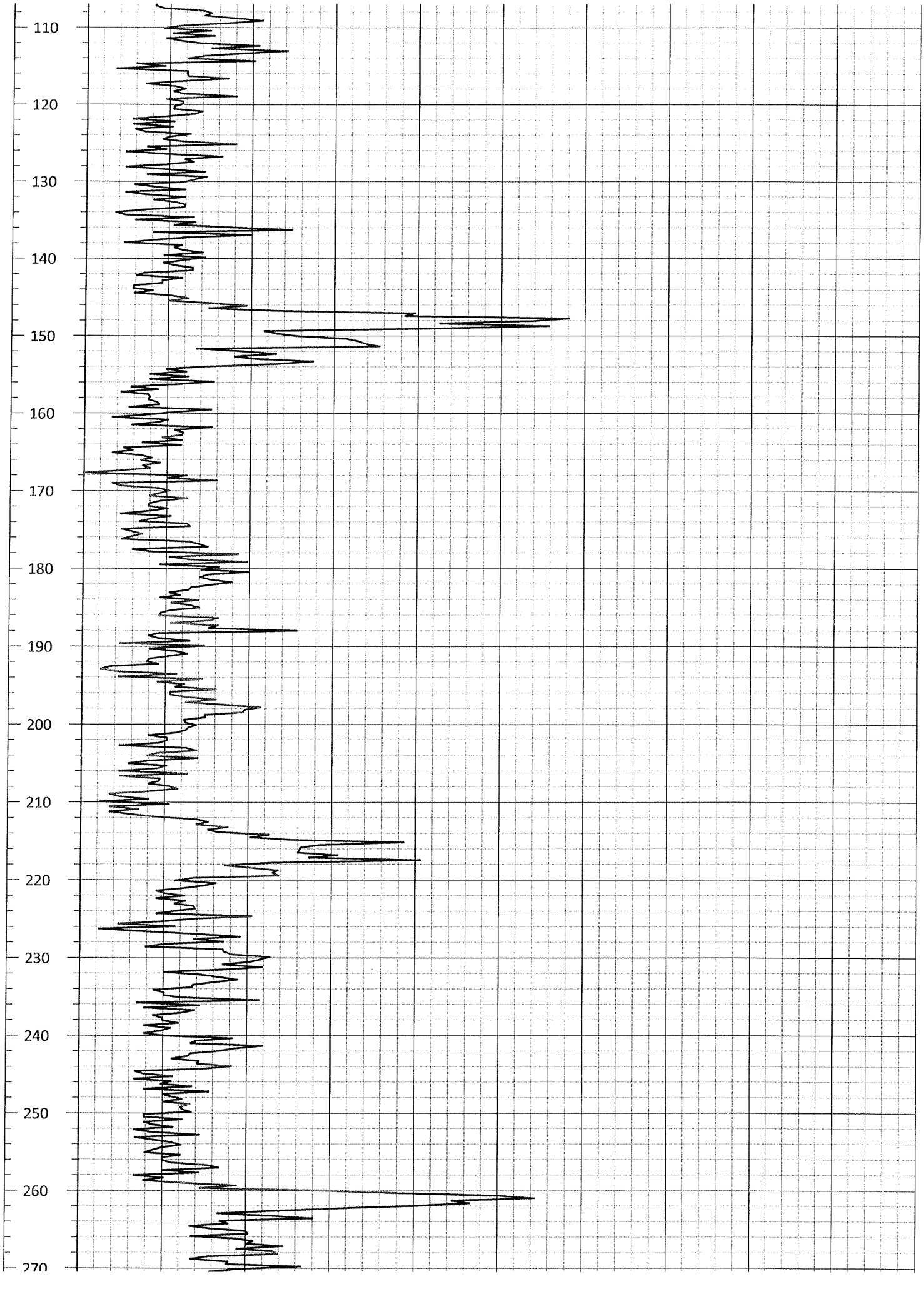
DEPTH (ft)	PID (ppm)	TCE (ug/L)	PCE (ug/L)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
858				Magothy	CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt *(continued)*
860	0				CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt, trace lignite
862					CH		Gray (Gley1 5/N) fine Sandy medium fat CLAY, trace silt, trace lignite
864					CH		Gray (10YR 5/1) fine Sandy medium fat CLAY, trace silt, trace lignite
866							
868							
870					CH		Gray (10YR 5/1) fine Sandy medium fat CLAY, trace silt, trace lignite
872							
874					CH		Gray (10YR 5/1) fine Sandy medium fat CLAY, trace silt, trace lignite
876							
878							
880	0			Raritan	CH		Gray (Gley1 5/N) and Red (2.5 YR 4/6) stiff fat CLAY
882					CH		Gray (Gley1 5/N) and Red (2.5 YR 4/6) stiff fat CLAY
884	0				CH		Gray (Gley1 5/N) and Red (2.5 YR 4/6) stiff fat CLAY, trace lignite
886					CH		Gray (Gley1 5/N) and Red (2.5 YR 4/6) stiff fat CLAY
888							
890	0				CH		Gray (Gley1 5/N) and Red (2.5 YR 4/6) stiff fat CLAY

End of boring at 890.0 ft. bgs.

DOWN HOLE

COMPANY: DELTA WELL & PUMP CO., INC.	
LOCATION: NWIRP LIRR SITE	
Well: VPB-157	Depth Driller:
	Depth Logger:
Date: 06/12/2015 Time:	Logged by: CMO
File Name: 739	Witness: MIKE

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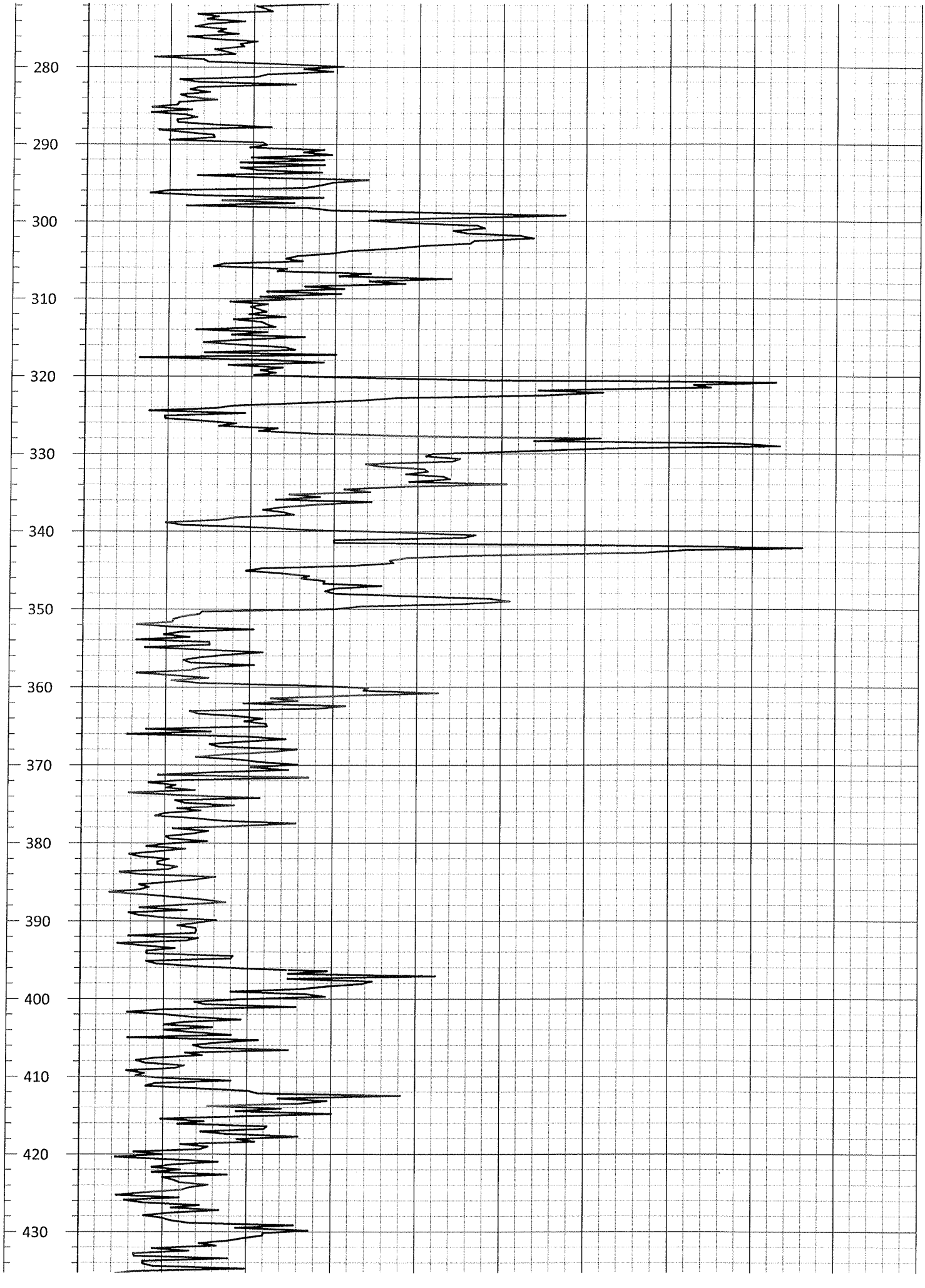
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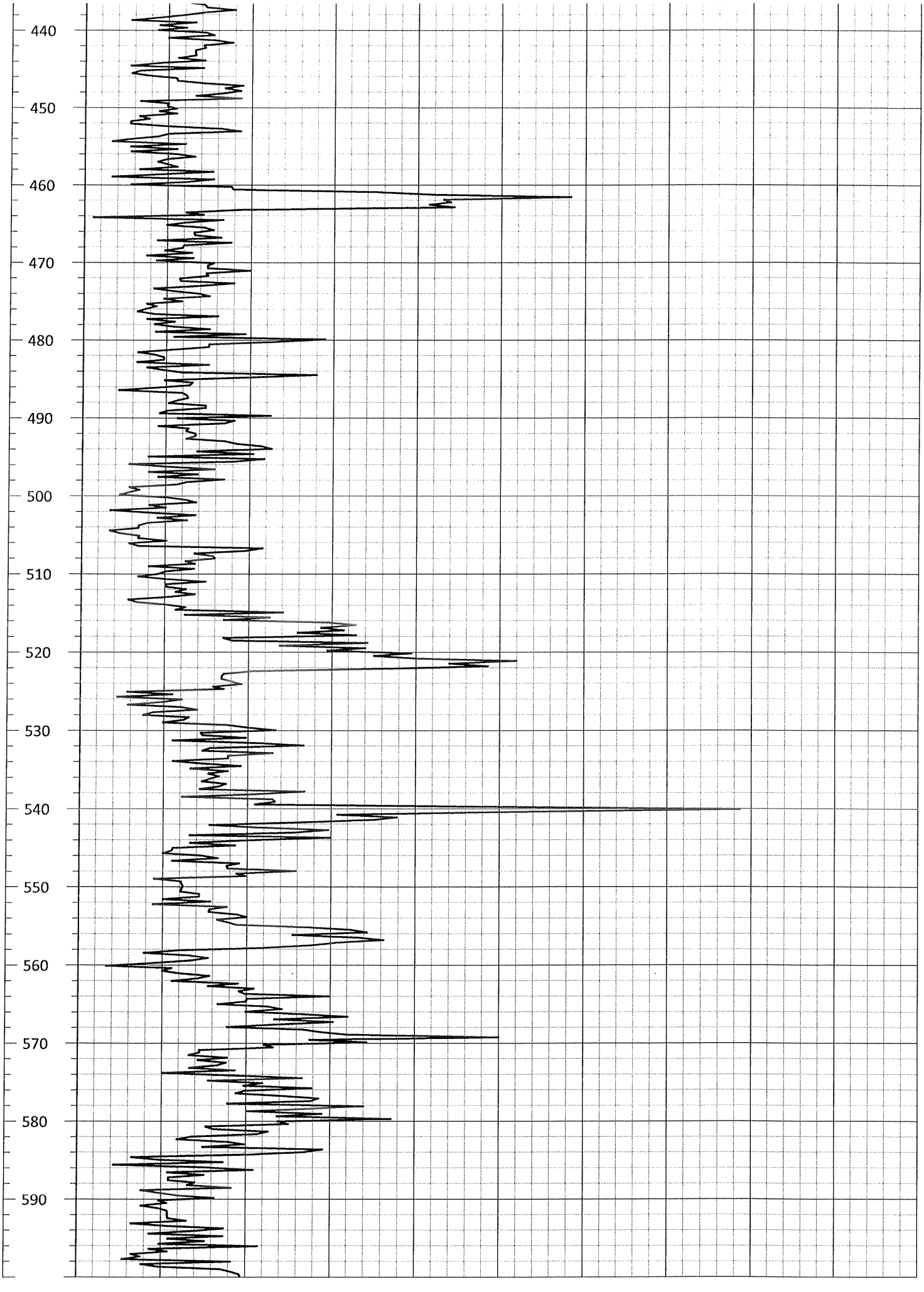
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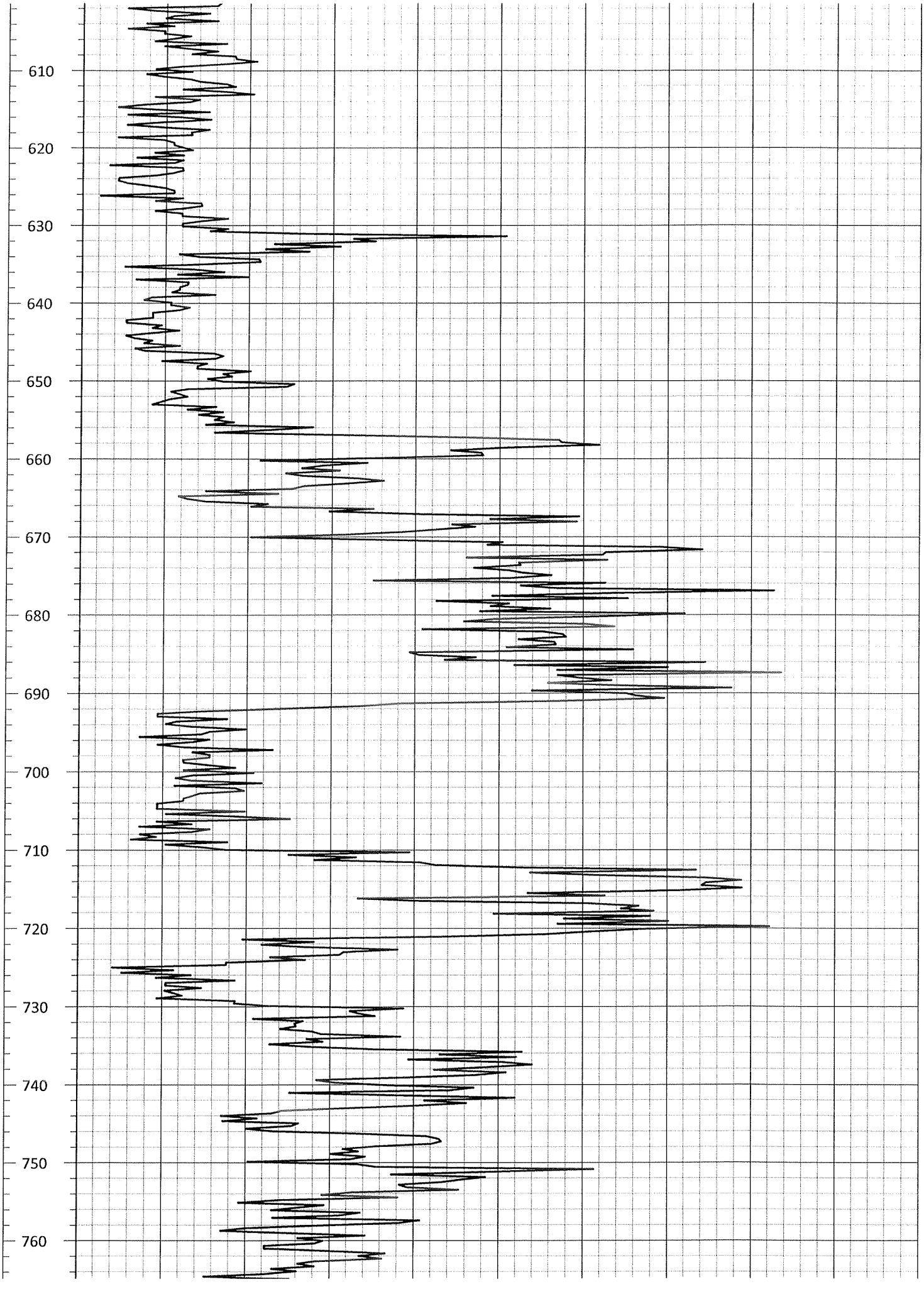
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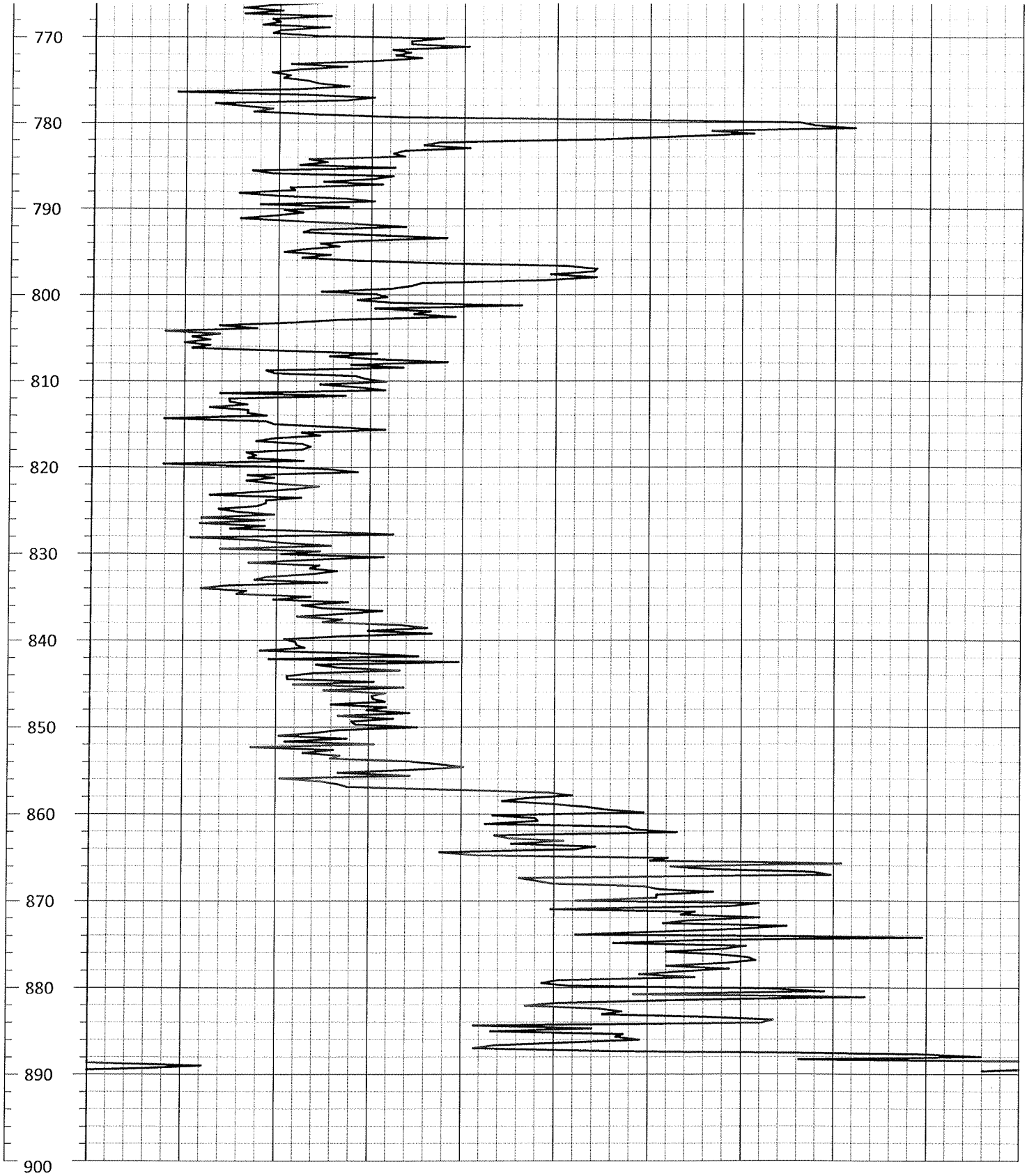
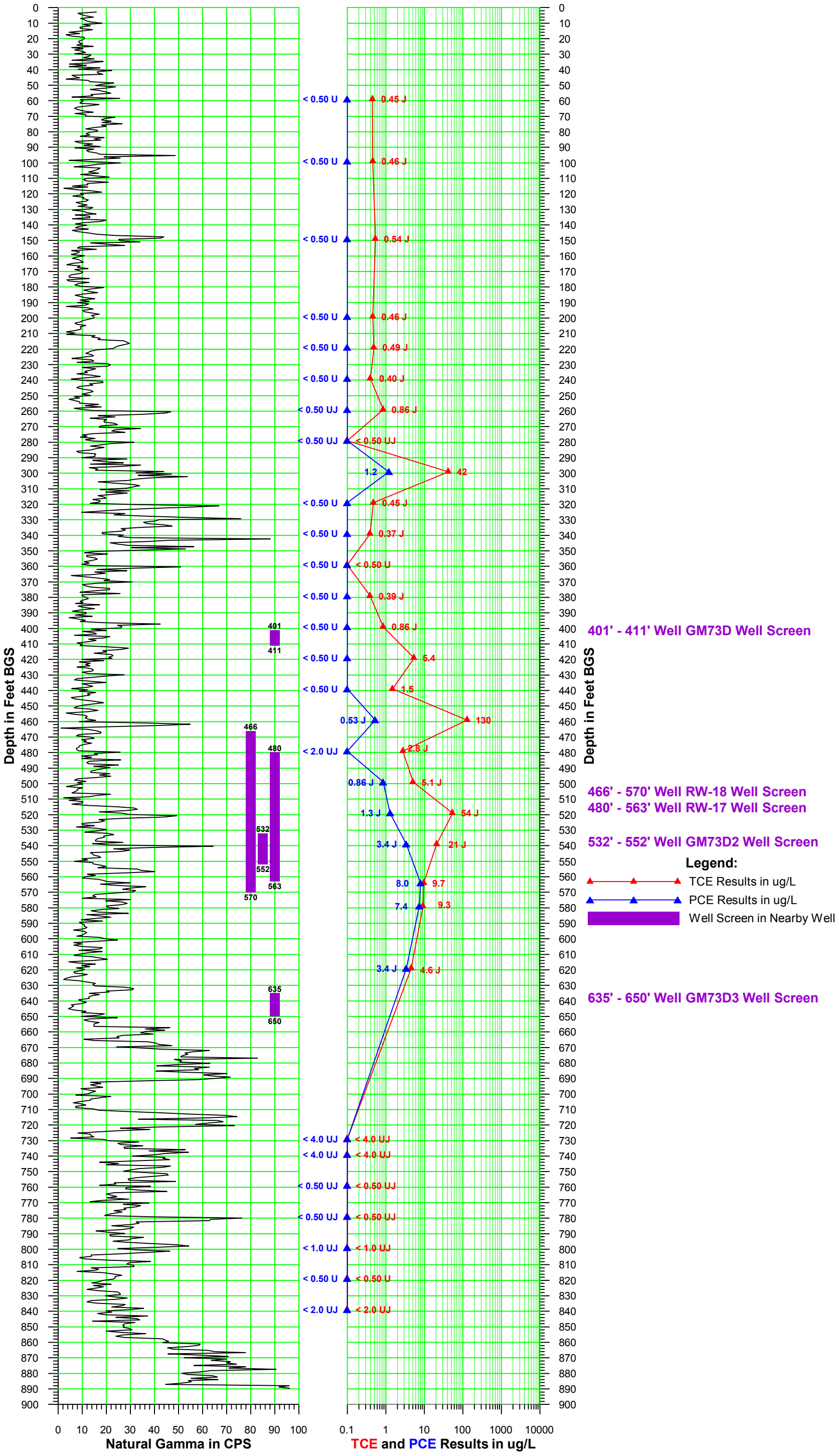


Depth (ft.)	0.0	GAMMA (cps)	100.0

Section 2

VPB 157 Gamma and PCE/TCE Plot

Vertical Profile Boring VPB-157
Downward Run - April 22, 2015
Validated Analytical Data



Section 3

VPB 157 Groundwater Sample Log Sheets

Hydropunch Sample

Client: Navy (ResCon)
Project No: 60266526
Site Location: Bernpage
Weather Conds:

Date:
VPB: ~~149~~ 157
Collector(s): MZ

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
5-18-15	1230	14.7	6.85	146.6	3.62	32.9	>1,100	58	60	brown
DUP * 5-19-15	1045	14.2	6.93	195.9	4.31	-123.5	417.5	98	100	cloudy
MS/MSD * 5-21-15	1050	14.9	6.82	203.5	4.81	-237.0	>1,100	148	150	yellow
5-21-15	1245	15.1	6.40	~~167.0~~	3.24	-192.7	591.9	198	200	cloudy
5-21-15	1430	14.7	6.32	162.4	3.20	-167.4	>1,100	218	220	brown
5-22-15	1000	14.2	6.19	162.8	2.98	-183.1	>1,100	238	240	yellow
5-22-15	1150	14.6	6.27	118.1	3.04	-178.2	>1,100	258	260	yellow
5-22-15	1345	←	Not enough sample per	reading	s →			278	280	brown
5-26-15	1015	17.4	6.02	192.5	2.31	-158.4	>1,100	298	300	brown
5-26-15	1230	17.8	6.05	145.5	1.62	68.7	>1,100	318	320	yellow brown
5-26-15	1440	18.1	6.17	162.3	2.41	53.6	314.2	338	340	cloudy
5-27-15	1020	—	not enough sample to take			readings	~~[illegible]~~	358	360	yellow brown
5-27-15	1350	18.5	5.98	164.3	2.12	6.8	754.3	378	380	light brown
5-28-15	0950	16.9	5.96	168.2	2.04	17.4	804.7	398	400	yellow brown
5-28-15	1220	17.1	6.13	173.5	1.96	26.4	561.1	418	420	~~[illegible]~~ cloudy
5-28-15	1440	17.3	~~[illegible]~~ 6.17	152.1	2.09	71.2	426.8	438	440	cloudy
5-29-15	1010	17.4	6.02	144.2	2.04	114.3	278.5	458	460	cloudy
5-29-15	1215	←	Not enough sample to take readings				→	478	480	yellow
5-29-15	1445	16.2	6.83	163.1	2.08	83.1	>1,100	498	500	light brown
~~6-1-15~~ 6-1-15	1045	15.8	6.91	140.8	2.63	94.8	316.2	~~518~~	520	cloudy
DUP * 6-1-15	1315	14.1	6.92	124.7	2.19	62.5	283.9	~~538~~	540	cloudy
6-2-15	1200	14.5	6.89	153.1	2.62	28.4	141.7	563	565	clear

Hydropunch Sample

Client: Navy (ResCon)
Project No: 60266526
Site Location:
Weather Conds:

Date:
VPB: ~~149~~ 657
Collector(s):

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
6-3-15	1025	14.0	6.54	145.5	2.51	17.6	88.1	578	580	
6-3-15	1445	—	—	—	—	—	—	~~618~~	620	INSUFF. VOL. FOR MEASURE.
6-4-15	1345	14.7	6.43	140.2	2.35	27.4	143.2	658	660	cloudy
6-8-15	1240	——	Not enough sample for readings ——					728	730	brown
6-8-15	1515	~~15.2~~	~~6.57~~	Not enough sample for readings ——				738	740	brown
6-9-15	1100	15.2	6.57	170.3	2.71	-15.4	487.9	758	760	cloudy
6-9-15	1320	16.5	6.62	151.2	2.54	7.9	198.4	778	780	cloudy
6-9-15 (MS/MSD)	1530	16.48	6.40	198.6	2.34	58.7	>1000	798	800	grey
6-10-15	1120	17.1	6.21	173.8	1.06	47.0	143.7	818	820	cloudy
6-10-15	1400	——	Not enough sample for readings ——					838	840	brown

Section 4

VPB 157 Analytical Data Validation

- Analytical Data Sheets
- Chain of Custody Records
- Validation Letter and Table

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3417	
Analyses/Method:	Volatile Organic Compounds (VOCs) by U.S. EPA SW-846 Method 8260C	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 07/18/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3417_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage Site on 18, 19 and 21 May 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-GW-051815-58-60	Groundwater	8260C
VPB157-GW-051915-98-100	Groundwater	8260C
VPB157-GW-052115-148-150	Groundwater	8260C
VPB157-GW-052115-198-200	Groundwater	8260C
VPB157-GW-052115-218-220	Groundwater	8260C
VPB157-GW-D-051915	Field Duplicate	8260C
VPB157-TB-052115	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (NFG, June 2008), and Department of

Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody)/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✗ Initial calibration (ICAL)/continuing calibration verification (CCV)
- ✓ Laboratory blanks/trip blanks
- ✓ Surrogate spike recoveries
- ✓ Matrix spike and/or matrix spike duplicate results
- ✗ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. Acceptable data parameters for which all criteria were met and no qualification was performed, and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;
- the ICV standard percent recovery acceptance criteria were met;

- the CCV standard method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and

- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific initial calibration (ICAL) was as

ICAL Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%RSD >15% and quantitation based on mean response factor	J	UJ

Notes:
%RSD = Relative standard deviation
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific CCV was as follows:

CCV Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%Difference or %Drift > 20%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

ICAL and CCV non-conformances are summarized in Attachment A in Table's A-1 and A-2.

Laboratory Control Samples / Laboratory Control Sample Duplicate

LCS %Rs is used to monitor the overall accuracy and performance of each step during analysis, including sample preparation. The laboratory analyzed LCSs in duplicate when matrix spike/matrix spike duplicates were not reported. In these instances, the laboratory determined precision between the duplicated values. Non-conformance is summarized in Attachment A in Table A-3. Data qualification to the analytes associated with the specific LCS/LCS duplicate was as follows:

Laboratory Control Sample / Laboratory Control Sample Duplicate Non-conformance Chart:

Criteria	Action	
	Detected	Non-detected
% R or RPD > UL	J	No qualification
%R < LL	J	UJ
%R < 20%	J	Rejected

Notes:

%R	=	Percent recovery
RPD	=	Relative percent difference
UL	=	Upper limit
LL	=	Lower limit
J	=	Estimated
UJ	=	Undetected and estimated

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-targets was checked to confirm that the results and/or sample-specific LOQs and limit of detections were adjusted accordingly by the laboratory.

Analytes outside individual QC criteria were flagged during this evaluation. Undetected dichlorodifluoromethane results in samples VPB157-GW-051915-98-100, VPB157-GW-052115-218-220, and VPB157-GW-D-051915were rejected and qualified "UR" due to extreme low laboratory control sample %Rs. Remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. Environmental Protection Agency and Department of Defense guidelines. All other results were acceptable without qualification. Final data review qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Table
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Initial Calibration Non-Conformance

Method	Analyte	ICV ID / Date	%R	Limit	Associated Samples	Qualifier
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-051815-58-60	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-051915-98-100	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-052115-148-150	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-052115-198-200	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-052115-218-220	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-GW-D-051915	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-TB-052115	UJ

Notes:
ICAL = Initial calibration
%R = Percent recovery
UJ = Non-detect estimated value

Table A-2
Continuing Calibration Verification Non-Conformance

Calibration	Analyte	%D	%D Limit	Associated Samples	Qualifiers
WG163531-4 P1107.D	Chloroethane	21.13916	20	VPB157-GW-051915-98-100 VPB157-GW-D-051915 VPB157-052115-218-220	All associated non-detects qualified as estimated UJ
WG163602-4 P1128.D	Chloroethane	20.74386	20	VPB157-TB-052115 VPB157-GW-051815-58-60	All associated non-detects qualified as estimated UJ
WG163602-4 P1128.D	4-Methyl-2-pentanone	-23.12811	20	VPB157-TB-052115 VPB157-GW-051815-58-60	All associated non-detects qualified as estimated UJ
WG163602-4 P1128.D	2-Hexanone	-27.51606	20	VPB157-TB-052115 VPB157-GW-051815-58-60	All associated non-detects qualified as estimated UJ

Notes:
%D = Percent difference
UJ = Non-detect estimated value

Table A-3
Laboratory Control Sample Non-Conformance

LCS	Batch	Analyte	%R	Limits	Associated Sample	Qualifier
WG163531-1	WG163531	Dichlorodifluoromethane	18.2	30-155	VPB157-GW-051915-98-100 VPB157-GW-D-051915 VPB157-052115-218-220	UR

Notes:
LCS = Laboratory control sample
%R = Percent recovery
UR = Non-detected analyte in associated sample qualified rejected "UR" because %R is lower than 20%.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UR	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-1RA2		
		Sample ID		VPB157-GW-051815-58-60		
		Sample Date		5/18/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.8	J	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	c
8260C	ACETONE	67-64-1	UG_L	20		
8260C	BENZENE	71-43-2	UG_L	0.28	J	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.45	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-2RA		
		Sample ID		VPB157-GW-051915-98-100		
		Sample Date		5/19/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	3.9	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1.0	UR	l
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.46	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-3RA		
		Sample ID		VPB157-GW-D-051915		
		Sample Date		5/19/2015		
		Sample Type		Field Duplicate		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	3.6	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1.0	UR	l
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.49	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-4		
		Sample ID		VPB157-GW-052115-148-150		
		Sample Date		5/21/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	4.4	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.54	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-5		
		Sample ID		VPB157-GW-052115-198-200		
		Sample Date		5/21/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	3.1	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.46	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-6RA		
		Sample ID		VPB157-GW-052115-218-220		
		Sample Date		5/21/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	6.2		
8260C	BENZENE	71-43-2	UG_L	0.26	J	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1.0	UR	l
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.49	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3417		
		Lab ID		SI3417-7RA2		
		Sample ID		VPB157-TB-052115		
		Sample Date		5/21/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	c
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

Notes:

UG_L = Micrograms per liter
Qual = Final qualifiers (See Attachment B)
RC = Reason codes (See Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3512	
Analyses/Method:	Volatile Organic Compounds (VOCs) by U.S. EPA SW-846 Method 8260C	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 07/23/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3512_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 22 and 26 May 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-052215-238-240	Groundwater	8260C
VPB157-052215-258-260	Groundwater	8260C
VPB157-052215-278-280	Groundwater	8260C
VPB157-052615-298-300	Groundwater	8260C
VPB157-052615-318-320	Groundwater	8260C
VPB157-052615-338-340	Groundwater	8260C
VPB157-TB052615	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *U.S.*

Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008), and Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✓	Data completeness (chain-of-custody)/sample integrity
✓	Holding times and sample preservation
✓	GC/MS performance checks
✗	Initial calibration/continuing calibration verification
✗	Laboratory blanks/trip blanks
✗	Surrogate spike recoveries
NA	Matrix spike and/or matrix spike duplicate results
✓	Laboratory control sample /laboratory control sample duplicate results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;

- the initial calibration verification standard percent recovery acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL was as follows:

ICAL Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%RSD >15% and quantitation based on mean response factor	J	UJ

Notes:
%RSD = Relative standard deviation
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific initial calibration verification (ICV) was as follows:

ICV Recovery Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
Recovery > 120%	J	UJ
Recovery < 80%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific CCV was as follows:

CCV Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%Difference or %Drift > 20%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

ICAL, ICV and CCV non-conformances are summarized in Attachment A in Table's A-1, A-2 and A-3.

Laboratory Blanks/Trip Blanks

Laboratory blanks and trip blanks were analyzed with samples to assess contamination imparted by sample preparation and/or analysis. All results associated with a particular blank were evaluated to determine whether there was an inherent variability in the data, or if a problem was an isolated occurrence that did not affect the data. Samples were flagged in accordance with *Functional Guidelines* (shown below) where detections were not believed to be site-related. Trip blank non-conformances are summarized in Attachment A in Table A-4.

Blank Non-conformance Chart:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Trip, Field, or Equipment	Detects	Not detected	No qualification
	< 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ	Use professional judgment
	> 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ and < blank contamination	Report the blank result with a U or reject the sample result as unusable R
		≥ 2x LOQ and ≥ blank contamination	If the result is ≤2x blank result, report the sample result U. If the result is > 2x blank result, no qualification is required.
	= 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ	Use professional judgment
	Gross contamination	Detects	Qualify results as unusable R

Notes:

LOQ = Limit of quantitation
U = Undetected
R = Rejected

Surrogate Spike Recoveries

Surrogates provide information needed to assess the accuracy of analyses. Known amounts of surrogate compounds, or compounds which are not likely to be found in the actual samples, are added to each organic sample to check for accuracy. If surrogate percent recoveries (%Rs) are close to the known concentrations, the reported target compound concentrations are assumed to be accurate. Data qualification on the basis of surrogate recovery was as follows:

Surrogate Recovery Non-conformance Chart:

Criteria	Action	
	Detected	Non-detected
% R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
% R < 20%	J	R

Notes:

%R	=	Percent recovery
UL	=	Upper limit
LL	=	Lower limit
J	=	Estimated
UJ	=	Undetected and estimated
R	=	Rejected

Surrogate recovery non-conformance is summarized in Attachment A in Table A-5.

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-targets was checked to confirm that the results and/or sample-specific LOQs and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. EPA and Department of Defense guidelines. Final data review qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Table
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Initial Calibration Non-Conformance

Method	Analyte	ICV ID / Date	%R	Limit	Associated Samples	Qualifier
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-052215-238-240	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-052215-258-260	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-052215-278-280	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-052615-298-300	UJ
8260C	Chloroethane	GCMS-P / 05/21/2015	32.49915	≤15%	VPB157-052615-318-320	UJ
8260C	Chloroethane	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-052615-338-340	UJ
8260C	Chloroethane	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-TB052615	UJ

Notes:
ICAL = Initial calibration
%R = Percent recovery
UJ = Non-detect estimated value

Table A-2
Initial Calibration Verification Non-Conformance

Method	Analyte	ICV ID	%R	Limit	Associated Samples	Qualifier
8260C	Dichlorodifluoromethane	WG164075-7	182.52	80-120	VPB157-052615-318-320 VPB157-052615-338-340	All associated non-detects qualified as estimated UJ.
8260C	Bromomethane	WG164075-7	129.51	80-120	VPB157-052615-318-320 VPB157-052615-338-340	All associated non-detects qualified as estimated UJ.
8260C	Carbon Disulfide	WG164075-7	121.47	80-120	VPB157-052615-318-320 VPB157-052615-338-340	All associated non-detects qualified as estimated UJ.

Notes:
ICV = Initial calibration verification
%R = Percent recovery
SDG = Sample delivery group
UJ = Non-detect estimated value

Table A-3
Continuing Calibration Verification Non-Conformance

Lab ID /Calibration ID	Analyte	%D	%D Limit	Associated Samples	Qualifiers
WG163696-4 / P1151.D	Chloroethane	21.85448	20	VPB157-052215-238-240 VPB157-052215-258-260 VPB157-052215-278-280 VPB157-052615-298-300 VPB157-TB052615	All associated non-detects qualified as estimated UJ.
WG163696-4 / P1151.D	2-Hexanone	-20.6447	20	VPB157-052215-238-240 VPB157-052215-258-260 VPB157-052215-278-280 VPB157-052615-298-300 VPB157-TB052615	All associated non-detects qualified as estimated UJ.
WG163386-4 / P1304.D	Dichlorodifluoromethane	36.7844	20	VPB157-052615-318-320 VPB157-052615-338-340	All associated non-detects qualified as estimated UJ.

Notes:
%D = Percent difference
SDG = Sample delivery group
UJ = Non-detect estimated value

Table A-4
Trip Blank Non-Conformance
(Micrograms per liter)

Blank ID	Analyte	Blank Result	LOQ	Associated Sample	Sample Result	Sample Result LOQ	Qualifier
VPB157-TB-052615	Acetone	2.5	5	VPB157-052215-238-240	4.0	5	U
VPB157-TB-052615	Acetone	2.5	5	VPB157-052215-258-260	3.4	5	U
VPB157-TB-052615	Acetone	2.5	5	VPB157-052215-278-280	6.7	5	U
VPB157-TB-052615	Acetone	2.5	5	VPB157-052615-298-300	3.5	5	U
VPB157-TB-052615	Acetone	2.5	5	VPB157-052615-318-320	2.3	5	U
VPB157-TB-052615	Acetone	2.5	5	VPB157-052615-338-340	2.4	5	U

Notes:
LOQ = Limit of quantitation
U = Associated sample flagged non-detect "U" due to both blank result and sample result less than 2 times LOQ.

Table A-5
Surrogate Recovery Non-Conformance

Method	Analyte	%R	Limit	Associated Samples	Qualifier
8260C	1,2-Dichloroethane-d4	66.5	70-120	VPB157-052215-258-260	Qualify detected compounds J: carbon disulfide and TCE Qualify nondetect compounds UJ
8260C	Dibromofluoromethane	61.5	85-115	VPB157-052215-258-260	Qualify detected compounds J: carbon disulfide and TCE Qualify nondetect compounds UJ
8260C	Toluene-d8	62.4	85-120	VPB157-052215-258-260	Qualify detected compounds J: carbon disulfide and TCE Qualify nondetect compounds UJ
8260C	4-Bromofluorobenzene	57.6	75-120	VPB157-052215-258-260	Qualify detected compounds J: carbon disulfide and TCE Qualify nondetect compounds UJ
8260C	1,2-Dichloroethane-d4	62.6	70-120	VPB157-052215-278-280	Qualify nondetect compounds UJ
8260C	Dibromofluoromethane	59.6	85-115	VPB157-052215-278-280	Qualify nondetect compounds UJ
8260C	Toluene-d8	59.8	85-120	VPB157-052215-278-280	Qualify nondetect compounds UJ
8260C	4-Bromofluorobenzene	54.1	75-120	VPB157-052215-278-280	Qualify nondetect compounds UJ

Notes:
%R = Percent recovery
UJ = Non-detect estimated value
J = Estimated value

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3512		
		Lab ID		SI3512-1		
		Sample ID		VPB157-052215-238-240		
		Sample Date		5/22/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.4	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group Lab ID Sample ID Sample Date Sample Type		SI3512 SI3512-2 VPB157-052215-258-260 5/22/2015 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	s
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	s
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	s
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	s
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	s
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	UJ	s
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	s
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	s
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	s
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	s
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	s
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	s
8260C	2-BUTANONE	78-93-3	UG_L	2.5	UJ	s
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	s,c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	s
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt,s
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	s
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	s
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	s
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	s
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.32	J	s
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	s
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	s
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	s,c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	s
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	s
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	s
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	s
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	s
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	s
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	s
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	s
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	s
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	s
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	s
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	s
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	s
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	s
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	s
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	s
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	UJ	s
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	s
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	s
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	s
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.86	J	s
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	s
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	s
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	s

			Sample Delivery Group Lab ID Sample ID Sample Date Sample Type	SI3512 SI3512-3 VPB157-052215-278-280 5/22/2015 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	s
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	s
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	s
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	s
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	s
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	UJ	s
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	s
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	s
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	s
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	s
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	s
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	s
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	s
8260C	2-BUTANONE	78-93-3	UG_L	2.5	UJ	s
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	s,c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	s
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt,s
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	s
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	s
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	s
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	s
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	s
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	s
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	s
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	s,c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	s
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	s
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	s
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	s
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	s
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	s
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	s
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	s
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	s
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	s
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	s
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	s
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	s
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	s
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	s
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	s
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	UJ	s
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	s
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	s
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	s
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	UJ	s
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	s
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	s
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	s

			Sample Delivery Group	SI3512		
			Lab ID	SI3512-4		
			Sample ID	VPB157-052615-298-300		
			Sample Date	5/26/2015		
			Sample Type	Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	1.7		
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	0.34	J	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.28	J	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.35	J	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.34	J	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	0.38	J	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	1.2		
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	42		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

			Sample Delivery Group	SI3512		
			Lab ID	SI3512-5		
			Sample ID	VPB157-TB052615		
			Sample Date	5/22/2015		
			Sample Type	Trip Blank		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	c
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

			Sample Delivery Group Lab ID Sample ID Sample Date Sample Type	SI3512 SI3512-6RA VPB157-052615-318-320 5/26/2015 Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.45	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

			Sample Delivery Group	SI3512		
			Lab ID	SI3512-7RA		
			Sample ID	VPB157-052615-338-340		
			Sample Date	5/26/2015		
			Sample Type	Groundwater		
Method	Analyte	CAS No	Units	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.37	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

Notes:

UG_L = Micrograms per liter
Qual = Final qualifiers (See Attachment B)
RC = Reason codes (See Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3605	
Analyses/Method:	Volatile Organic Compounds (VOCs) by U.S. EPA SW-846 Method 8260C Total Organic Carbon (TOC) by U.S. EPA SW-846 Method 9060A	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 08/12/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3605_8260C_9060A

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage Site on 27 and 28 May 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-EB-052715	Equipment Blank	8260C / 9060A
VPB157-FB-052715	Field Blank	8260C / 9060A
VPB157-GW-052715-358-360	Groundwater	8260C
VPB157-GW-052715-378-380	Groundwater	8260C
VPB157-GW-052815-398-400	Groundwater	8260C
VPB157-GW-052815-418-420	Groundwater	8260C
VPB157-GW-052815-438-440	Groundwater	8260C
VPB157-TB-052815	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *SW-846*

Method 9060A, Total Organic Carbon (U.S. EPA, 1996), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (NFG, June 2008), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (NFG, January 2010, and Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✓	Data completeness (chain-of-custody [COC])/sample integrity
✓	Holding times and sample preservation
✓	Gas chromatography/mass spectrometer performance checks
✗	Initial calibration verification/continuing calibration verification
✓	Laboratory blanks/trip blanks
✓	Surrogate spike recoveries
NA	Matrix spike and/or matrix spike duplicate results
✓	Laboratory control sample/laboratory control sample duplicate results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;

- the initial calibration verification (ICV) standard percent recovery acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and

- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific initial calibration verification (ICV) was as follows:

ICV Recovery Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
Recovery >120%	J	UJ
Recovery < 80%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

ICV non-conformances are summarized in Attachment A in Table's A-1.

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-targets was checked to confirm that the results and/or sample-specific LOQs and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. Environmental Protection Agency and Department of Defense guidelines. Final data review qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Table
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Initial Calibration Verification Non-Conformance

Method	Analyte	ICV ID	%R	Limit	Associated Samples	Qualifier
8260C	Chloroethane	WG163915-7	79.4	80-120	All samples in SDG	All associated non-detect results for analyte were qualified as estimated (UJ).

Notes:

ICV = Initial calibration verification
%R = Percent recovery
SDG = Sample delivery group
UJ = Non-detect estimated value

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-3		
		Sample ID		VPB157-EB-052715		
		Sample Date		5/27/2015		
		Sample Type		Equipment Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
5310B	TOTAL ORGANIC CARBON	-28	MG_L	0.19	J	
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-4		
		Sample ID		VPB157-FB-052715		
		Sample Date		5/27/2015		
		Sample Type		Field Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
5310B	TOTAL ORGANIC CARBON	-28	MG_L	0.22	J	
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.45	J	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-1		
		Sample ID		VPB157-TB-052815		
		Sample Date		5/27/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-2		
		Sample ID		VPB157-GW-052715-358-360		
		Sample Date		5/27/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	5.2		
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-5		
		Sample ID		VPB157-GW-052715-378-380		
		Sample Date		5/27/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	4.4	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.39	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-6		
		Sample ID		VPB157-GW-052815-398-400		
		Sample Date		5/28/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	5		
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.86	J	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-7		
		Sample ID		VPB157-GW-052815-418-420		
		Sample Date		5/28/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.7	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	5.4		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3605		
		Lab ID		SI3605-8		
		Sample ID		VPB157-GW-052815-438-440		
		Sample Date		5/28/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.6	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	1.5		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

Notes:

UG_L = Micrograms per liter
Qual = Final qualifier (Refer to Attachment B)
RC = Reason code (Refer to Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3693	
Analyses/Method:	Volatile Organic Compounds by U.S. EPA SW-846 Method 8260C	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 08/03/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3693_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 29 May to 1 June 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-GW-052915-458-460	Groundwater	8260C
VPB157-GW-052915-478-480	Groundwater	8260C
VPB157-GW-052915-498-500	Groundwater	8260C
VPB157-GW-060115-518-520	Groundwater	8260C
VPB157-GW-060115-538-540	Groundwater	8260C
VPB157-GW-D-060115	Field Duplicate	8260C
VPB157-TB060115	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *SW-846 Method 8270D, Semivolatile Organic Compounds by Gas Chromatograph/Mass Spectrometry*

(U.S. EPA, 2007), *U.S. Environmental Protection Agency* (U.S. EPA) *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and Department of Defense Quality Systems Manual for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✗	Data completeness (chain-of-custody)/sample integrity
✓	Holding times and sample preservation
✓	Gas chromatography/Mass spectrometer performance checks
✗	Initial calibration/continuing calibration verification
✓	Laboratory blanks/trip blanks
✗	Surrogate spike recoveries
✗	Matrix spike (MS) and/or matrix spike duplicate (MSD) results
✓	Laboratory control sample laboratory control sample duplicate results
✓	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- the COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody;

- the laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory;

- completeness of analyses was verified by comparing the reported results to the COC request.

Below shows a list of samples that were mostly comprised of soil in all vials and not very much liquid:

- VPB157-GW-052915-478-480 had all three vials decanted, compounded into one vial for each sample and analyzed at a dilution of 1:4. VPB157-GW-052915-498-500, VPB157-GW-060115-518-520, VPB157-GW-060115-538-540 and VPB157-GW-D-060115 had all three vials decanted and analyzed.

Positive and non-detected results for all decanted samples were qualified as estimated (J and UJ) respectively due to possible loss of sample integrity during the decanting process. Non-conformances are summarized in Attachment A in Table A-1.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;
- the initial calibration verification (ICV) standard percent recovery acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific initial calibration (ICAL) was as

ICAL Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%RSD >15% and quantitation based on mean response factor	J	UJ

Notes:

%RSD = Relative standard deviation
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific ICV was as follows:

ICV Recovery Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
Recovery >120%	J	UJ
Recovery < 80%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific CCV was as follows:

CCV Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%Difference or %Drift > 20%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

ICAL, ICV, and CCV non-conformances are summarized in Attachment A in Table's A-2, A-3 and A-4.

Surrogate Spike Recoveries

Surrogates provide information needed to assess the accuracy of analyses. Known amounts of surrogate compounds, or compounds which are not likely to be found in the actual samples, are added to each organic sample to check for accuracy. If surrogate percent recoveries (%Rs) are close to the known concentrations, the reported target compound concentrations are assumed to be accurate. Data qualification on the basis of surrogate recovery was as follows:

Surrogate Recovery Non-conformance Chart:

Criteria	Action	
	Detected	Non-detected
% R > Upper Limit	J	No qualification
20%≤ %R < Lower Limit	J	UJ
%R < 20%	J	Rejected

Notes:
%R = Percent recovery
J = Estimated
UJ = Undetected and estimated

Surrogate recovery non-conformance is summarized in Attachment A in Table A-5.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSDs are generated to provide information about the effect of each sample matrix on the sample preparation and the measurement methodology. MS/MSD percent recoveries (%Rs) assess the effect of the sample matrix on the accuracy of the analytical results and %Rs above the laboratory control limit could indicate a potential high result bias while %Rs below QC limits could indicate a potential low result bias. The relative percent differences (RPDs) between the MS and MSD results are evaluated to assess sample precision. The MS/MSD %Rs and RPDs were reviewed for conformance with the QC acceptance criteria. Non-conformances are summarized in Attachment A in Table A-6. Data qualification to the analytes associated with the specific MS/MSD non-conformances were as follows:

MS/MSD Non-conformances Chart:

Criteria	Action	
	Detected Compounds	Non-detected Compounds
%R>Upper Limit	J	No qualification
20% $\leq$ %R < Lower Limit	J	UJ
%R <20%	J	Rejected

Notes:

%R	=	Percent recovery
RPD	=	Relative percent difference
J	=	Estimated
UJ	=	Undetected and estimated

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-target analytes was checked to confirm that the results and/or sample-specific limit of quantitation and limit of detections were adjusted accordingly by the laboratory.

Analytes outside individual QC criteria were flagged during this evaluation. Undetected 1,1,2-trichloro-1,2,2-trifluoroethane, methyl cyclohexane, and methyl acetate result in sample VPB157-GW-052915-498-500 were rejected and qualified "UR" due to extreme low matrix spike and matrix spike duplicate %Rs. Remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. Environmental Protection Agency and Department of Defense guidelines. All other results were acceptable without qualification. Final data review

qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Tables
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-052915-478-480	1,1,1-TRICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,1,2,2-TETRACHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,1,2-TRICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,1-DICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,1-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,2,4-TRICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	3	UJ
8260C	VPB157-GW-052915-478-480	1,2-DIBROMOETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,2-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,2-DICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,2-DICHLOROETHENE, TOTAL	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	1,2-DICHLOROPROPANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,3-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	1,4-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	2-BUTANONE	UG_L	10	UJ
8260C	VPB157-GW-052915-478-480	2-HEXANONE	UG_L	10	UJ
8260C	VPB157-GW-052915-478-480	4-METHYL-2-PENTANONE	UG_L	10	UJ
8260C	VPB157-GW-052915-478-480	ACETONE	UG_L	10	UJ
8260C	VPB157-GW-052915-478-480	BENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	BROMODICHLOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	BROMOFORM	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	BROMOMETHANE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	CARBON DISULFIDE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CARBON TETRACHLORIDE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	CHLOROFORM	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	CIS-1,2-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CIS-1,3-DICHLOROPROPENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	CYCLOHEXANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	DIBROMOCHLOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	DICHLORODIFLUOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	ETHYLBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	ISOPROPYLBENZENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	M- AND P-XYLENE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	METHYL ACETATE	UG_L	3	UJ
8260C	VPB157-GW-052915-478-480	METHYL CYCLOHEXANE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	METHYL TERT-BUTYL ETHER	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	METHYLENE CHLORIDE	UG_L	10	UJ
8260C	VPB157-GW-052915-478-480	O-XYLENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	STYRENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	TETRACHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	TOLUENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	TRANS-1,2-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-052915-478-480	TRANS-1,3-DICHLOROPROPENE	UG_L	2	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-052915-478-480	TRICHLOROETHENE	UG_L	2.8	J
8260C	VPB157-GW-052915-478-480	TRICHLOROFLUOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	VINYL CHLORIDE	UG_L	4	UJ
8260C	VPB157-GW-052915-478-480	XYLENES, TOTAL	UG_L	6	UJ
8260C	VPB157-GW-052915-498-500	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L		UR
8260C	VPB157-GW-052915-498-500	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,1-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,1-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-052915-498-500	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,2-DICHLOROETHENE, TOTAL	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	2-BUTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-052915-498-500	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-052915-498-500	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-052915-498-500	ACETONE	UG_L	3.3	J
8260C	VPB157-GW-052915-498-500	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	CARBON DISULFIDE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	CIS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	METHYL ACETATE	UG_L		UR
8260C	VPB157-GW-052915-498-500	METHYL CYCLOHEXANE	UG_L		UR
8260C	VPB157-GW-052915-498-500	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-052915-498-500	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	TETRACHLOROETHENE	UG_L	0.86	J
8260C	VPB157-GW-052915-498-500	TOLUENE	UG_L	0.5	UJ

Table A-1 Sample Integrity Non-Conformance					
Method	**Sample ID**	**Analyte**	**Units**	**Result**	**Qualifier**
8260C	VPB157-GW-052915-498-500	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-052915-498-500	TRICHLOROETHENE	UG_L	5.1	J
8260C	VPB157-GW-052915-498-500	TRICHLOROFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-052915-498-500	XYLENES, TOTAL	UG_L	1.5	UJ
8260C	VPB157-GW-060115-518-520	1,1,1-TRICHLOROETHANE	UG_L	0.37	J
8260C	VPB157-GW-060115-518-520	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,1-DICHLOROETHANE	UG_L	0.7	J
8260C	VPB157-GW-060115-518-520	1,1-DICHLOROETHENE	UG_L	0.85	J
8260C	VPB157-GW-060115-518-520	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-060115-518-520	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,2-DICHLOROETHENE, TOTAL	UG_L	1.3	J
8260C	VPB157-GW-060115-518-520	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	2-BUTANONE	UG_L	1.9	J
8260C	VPB157-GW-060115-518-520	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060115-518-520	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060115-518-520	ACETONE	UG_L	20	J
8260C	VPB157-GW-060115-518-520	BENZENE	UG_L	0.43	J
8260C	VPB157-GW-060115-518-520	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	CARBON DISULFIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	CHLOROFORM	UG_L	0.48	J
8260C	VPB157-GW-060115-518-520	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	CIS-1,2-DICHLOROETHENE	UG_L	1.3	J
8260C	VPB157-GW-060115-518-520	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-060115-518-520	METHYL CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-060115-518-520	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	STYRENE	UG_L	0.5	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060115-518-520	TETRACHLOROETHENE	UG_L	1.3	J
8260C	VPB157-GW-060115-518-520	TOLUENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-518-520	TRICHLOROETHENE	UG_L	54	J
8260C	VPB157-GW-060115-518-520	TRICHLOROFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060115-518-520	XYLENES, TOTAL	UG_L	1.5	UJ
8260C	VPB157-GW-060115-538-540	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.67	J
8260C	VPB157-GW-060115-538-540	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,1-DICHLOROETHANE	UG_L	0.74	J
8260C	VPB157-GW-060115-538-540	1,1-DICHLOROETHENE	UG_L	1.2	J
8260C	VPB157-GW-060115-538-540	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-060115-538-540	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,2-DICHLOROETHENE, TOTAL	UG_L	1.7	J
8260C	VPB157-GW-060115-538-540	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	2-BUTANONE	UG_L	1.4	J
8260C	VPB157-GW-060115-538-540	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060115-538-540	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060115-538-540	ACETONE	UG_L	12	J
8260C	VPB157-GW-060115-538-540	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	CARBON DISULFIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	CIS-1,2-DICHLOROETHENE	UG_L	1.7	J
8260C	VPB157-GW-060115-538-540	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-060115-538-540	METHYL CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	METHYLENE CHLORIDE	UG_L	2.5	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060115-538-540	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	TETRACHLOROETHENE	UG_L	3.4	J
8260C	VPB157-GW-060115-538-540	TOLUENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060115-538-540	TRICHLOROETHENE	UG_L	21	J
8260C	VPB157-GW-060115-538-540	TRICHLOROFLUOROMETHANE	UG_L	0.42	J
8260C	VPB157-GW-060115-538-540	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060115-538-540	XYLENES, TOTAL	UG_L	1.5	UJ
8260C	VPB157-GW-D-060115	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,1-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,1-DICHLOROETHENE	UG_L	0.98	J
8260C	VPB157-GW-D-060115	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-D-060115	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,2-DICHLOROETHENE, TOTAL	UG_L	1.9	J
8260C	VPB157-GW-D-060115	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	2-BUTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-D-060115	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-D-060115	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-D-060115	ACETONE	UG_L	12	J
8260C	VPB157-GW-D-060115	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	CARBON DISULFIDE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	CIS-1,2-DICHLOROETHENE	UG_L	1.9	J
8260C	VPB157-GW-D-060115	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-D-060115	METHYL CYCLOHEXANE	UG_L	0.5	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-D-060115	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-D-060115	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	TETRACHLOROETHENE	UG_L	4	J
8260C	VPB157-GW-D-060115	TOLUENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-D-060115	TRICHLOROETHENE	UG_L	20	J
8260C	VPB157-GW-D-060115	TRICHLOROFLUOROMETHANE	UG_L	0.33	J
8260C	VPB157-GW-D-060115	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-D-060115	XYLENES, TOTAL	UG_L	1.5	UJ

Notes:
UG_L = Micrograms per liter
UJ = Non-detect estimated value
J = Estimated value

Table A-2
Initial Calibration Non-Conformance

Method	Analyte	ICV ID / Date	%R	Limit	Associated Samples	Qualifier
8260C	CHLOROETHANE	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-052915-458-460 (SI3693-1RA)	UJ

Notes:
ICAL = Initial calibration
%R = Percent recovery
UJ = Non-detect estimated value

Table A-3
Initial Calibration Verification Non-Conformance

Method	Analyte	Instrument ID	%RSD	Limit	Associated Samples	Qualifier
8260C	DICHLORODIFLUOROMETHANE	P1233A.D	182.52	80-120	VPB157-052915-458-460 (SI3693-1RA)	UJ
8260C	BROMMETHANE	P1233A.D	129.51	80-120	VPB157-052915-458-460 (SI3693-1RA)	UJ
8260C	CARBON DISULFIDE	P1233A.D	121.47	80-120	VPB157-052915-458-460 (SI3693-1RA)	UJ
8260C	CHLOROETHANE	T3661A.D	79.4	80-120	VPB157-TB060115 VPB157-052915-478-480 VPB157-052915-498-500 VPB157-060115-518-520 VPB157-060115-538-540 VPB157-GW-D-060115	UJ

Notes:
%RSD = Relative standard deviation
UJ = Non-detected analyte in associated sample qualified estimated "UJ" due to potential bias

Table A-4 Continuing Calibration Verification Non-Conformance						
Method	**Analyte**	**CCV ID**	**%D**	**Limit**	**Associated Samples**	**Qualifier**
8260C	DICHLORODIFLUOROMETHANE	P1304.D	36.7844	20	VPB157-052915-458-460 (SI3693-1RA)	UJ

Notes:
CCV ID = Continuing calibration verification identification
%D = Percent difference
UJ = Non-detected analyte in associated sample qualified estimated "UJ" due to potential bias

Table A-5 Surrogate Non-Conformance					
Method	**Analyte**	**%R**	**Limits**	**Associated Sample**	**Qualifier**
8260C	DICHLORODIFLUOROMETHANE	117	85-115	VPB157-GW-052915-478-480	TRICHLOROETHENE qualified J

Notes:
%R = Percent recovery
J = Detected analyte qualified estimated "J" because %R is greater than the upper control limit in associated sample

Table A-6 Matrix Spike / Matrix Spike Duplicate Non-Conformance							
Spiked Sample	**Analyte**	**Sample Result (µg/L)**	**Spike Added (µg/L)**	**MS %R**	**MSD %R**	**%R Limits**	**Qualifier**
VPB157-GW-052915-498-500	ETHYLBENZENE	0.50 U	50.0	35.2	36	75-125	UJ
VPB157-GW-052915-498-500	STYRENE	0.50 U	50.0	32.8	28.8	65-135	UJ
VPB157-GW-052915-498-500	CIS-1,3-DICHLOROPROPENE	0.50 U	50.0	36.2	34.6	70-130	UJ
VPB157-GW-052915-498-500	TRANS-1,3-DICHLOROPROPENE	0.50 U	50.0	38.8	39	55-140	UJ
VPB157-GW-052915-498-500	1,4-DICHLOROBENZENE	0.50 U	50.0	35.6	35.2	75-125	UJ
VPB157-GW-052915-498-500	1,2-DIBROMOETHANE	0.50 U	50.0	37.4	38.6	80-120	UJ
VPB157-GW-052915-498-500	1,2-DICHLOROETHANE	0.50 U	50.0	44.8	45.2	70-130	UJ
VPB157-GW-052915-498-500	4-METHYL-2-PENTANONE	2.5 U	50.0	39.2	38.6	60-135	UJ
VPB157-GW-052915-498-500	M- AND P-XYLENE	1.0 U	100	38.1	36.4	75-130	UJ
VPB157-GW-052915-498-500	METHYL CYCLOHEXANE	0.50 U	50.0	17.8	16	73-125	R
VPB157-GW-052915-498-500	TOLUENE	0.50 U	50.0	39.6	38.2	75-120	UJ
VPB157-GW-052915-498-500	CHLOROBENZENE	0.50 U	50.0	40.4	39.4	80-120	UJ
VPB157-GW-052915-498-500	CYCLOHEXANE	0.50 U	50.0	45.4	39	71-133	UJ
VPB157-GW-052915-498-500	1,2,4-TRICHLOROBENZENE	0.50 U	50.0	33	32.6	65-135	UJ
VPB157-GW-052915-498-500	DIBROMOCHLOROMETHANE	0.50 U	50.0	36.2	38.4	60-135	UJ
VPB157-GW-052915-498-500	TETRACHLOROETHENE	0.86 J	50.0	36.7	36.1	45-150	J
VPB157-GW-052915-498-500	XYLENES, TOTAL	1.5 U	150	38.8	37.1	89-116	UJ
VPB157-GW-052915-498-500	CIS-1,2-DICHLOROETHENE	0.50 U	50.0	39.6	38.4	70-125	UJ
VPB157-GW-052915-498-500	TRANS-1,2-DICHLOROETHENE	0.50 U	50.0	42.2	38.2	60-140	UJ
VPB157-GW-052915-498-500	METHYL TERT-BUTYL ETHER	0.50 U	100	28.4	27.5	65-125	UJ
VPB157-GW-052915-498-500	1,2-DICHLOROETHENE, TOTAL	1.0 U	100	40.9	38.3	84-121	UJ
VPB157-GW-052915-498-500	1,3-DICHLOROBENZENE	0.50 U	50.0	37.8	36	75-125	UJ
VPB157-GW-052915-498-500	CARBON TETRACHLORIDE	0.50 U	50.0	41.6	41.2	65-140	UJ

Table A-6
Matrix Spike / Matrix Spike Duplicate Non-Conformance

Spiked Sample	Analyte	Sample Result (µg/L)	Spike Added (µg/L)	MS %R	MSD %R	%R Limits	Qualifier
VPB157-GW-052915-498-500	2-HEXANONE	2.5 U	50.0	38	36.8	55-130	UJ
VPB157-GW-052915-498-500	CHLOROFORM	0.50 U	50.0	45	42.8	65-135	UJ
VPB157-GW-052915-498-500	BENZENE	0.50 U	50.0	40.6	40.2	80-120	UJ
VPB157-GW-052915-498-500	1,1,1-TRICHLOROETHANE	0.50 U	50.0	46.6	40.2	65-130	UJ
VPB157-GW-052915-498-500	CHLOROETHANE	1.0 U	50.0	41.8	44.4	60-135	UJ
VPB157-GW-052915-498-500	VINYL CHLORIDE	1.0 U	50.0	42.4	40.4	50-145	UJ
VPB157-GW-052915-498-500	METHYLENE CHLORIDE	2.5 U	50.0	43.6	38.2	55-140	UJ
VPB157-GW-052915-498-500	BROMOFORM	0.50 U	50.0	35.2	34.4	70-130	UJ
VPB157-GW-052915-498-500	BROMODICHLOROMETHANE	0.50 U	50.0	40	40.8	75-120	UJ
VPB157-GW-052915-498-500	1,1-DICHLOROETHANE	0.50 U	50.0	44.6	42.8	70-135	UJ
VPB157-GW-052915-498-500	1,1-DICHLOROETHENE	0.50 U	50.0	46	44.2	70-130	UJ
VPB157-GW-052915-498-500	TRICHLOROFLUOROMETHANE	1.0 U	50.0	45	41.2	60-145	UJ
VPB157-GW-052915-498-500	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.50 U	50.0	18.4	15.6	73-126	R
VPB157-GW-052915-498-500	1,2-DICHLOROPROPANE	0.50 U	50.0	41	41.8	75-125	UJ
VPB157-GW-052915-498-500	1,1,2-TRICHLOROETHANE	0.50 U	50.0	37.4	36	75-125	UJ
VPB157-GW-052915-498-500	TRICHLOROETHENE	5.1	50.0	44.8	40	70-125	J
VPB157-GW-052915-498-500	METHYL ACETATE	0.75 U	50.0	22	19.2	70-132	R
VPB157-GW-052915-498-500	1,1,2,2-TETRACHLOROETHANE	0.50 U	50.0	37.4	36.4	65-130	UJ
VPB157-GW-052915-498-500	O-XYLENE	0.50 U	50.0	40.2	38.6	80-120	UJ
VPB157-GW-052915-498-500	1,2-DICHLOROBENZENE	0.50 U	50.0	38.2	36.6	70-120	UJ
VPB157-GW-052915-498-500	1,2-DIBROMO-3-CHLOROPROPANE	0.75 U	50.0	39.4	40.8	50-130	UJ
VPB157-GW-052915-498-500	ISOPROPYLBENZENE	0.50 U	50.0	41	38.8	75-125	UJ

Notes:

µg/L = Micrograms per liter
MS = Matrix spike
MSD = Matrix spike duplicate
%R = Percent recovery
UJ = Non-detected and estimated
J = Estimated
R = Detected analyte rejected because %R is lower than 20% in associated sample

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UR	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate relative percent difference
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration
l	Laboratory control sample
lc	Labeled compound recovery
ld	Laboratory duplicate relative percent difference
lp	Laboratory control sample/laboratory control sample duplicate relative percent difference
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate relative percent difference
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column relative percent difference
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	Interference check sample results (metals)

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3693-1RA		
		Lab ID		VPB157-GW-052915-458-460		
		Sample ID		5/29/2015		
		Sample Date		Groundwater		
		Sample Type		SI3693-1RA		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	0.39	J	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	3.9	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	2.7		
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.39	J	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.53	J	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	130		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group Lab ID Sample ID Sample Date Sample Type		SI3693 SI3693-2DL VPB157-GW-052915-478-480 5/29/2015 Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	2	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	2	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	2	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	2	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	2	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	2	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	2	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	3	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	2	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	2	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	2	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	4	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	2	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	2	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	2	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	10	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	10	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	10	UJ	mc
8260C	ACETONE	67-64-1	UG_L	10	UJ	mc
8260C	BENZENE	71-43-2	UG_L	2	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	2	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	2	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	4	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	2	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	2	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	2	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	4	UJ	c,mc
8260C	CHLOROFORM	67-66-3	UG_L	2	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	4	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	2	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	2	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	2	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	2	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	4	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	2	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	2	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	4	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	3	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	2	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	2	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	10	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	2	UJ	mc
8260C	STYRENE	100-42-5	UG_L	2	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	2	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	2	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	2	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	2	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	2.8	J	s,mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	4	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	4	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	6	UJ	mc

		Sample Delivery Group		SI3693		
		Lab ID		SI3693-3		
		Sample ID		VPB157-GW-052915-498-500		
		Sample Date		5/29/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	m,mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	m,mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L		UR	m,mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	m,mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	m,mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	UJ	m,mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	m,mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	m,mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	m,mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	m,mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	m,mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	m,mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	m,mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	m,mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	m,mc
8260C	2-BUTANONE	78-93-3	UG_L	2.5	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	m,mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	m,mc
8260C	ACETONE	67-64-1	UG_L	3.3	J	mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	m,mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	m,mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	m,mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	m,mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	m,mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	m,c,mc
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	m,mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	m,mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	m,mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	m,mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	m,mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	m,mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	m,mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	m,mc
8260C	METHYL ACETATE	79-20-9	UG_L		UR	m,mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L		UR	m,mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	m,mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	m,mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	m,mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	m,mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.86	J	m,mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	m,mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	m,mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	m,mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	5.1	J	m,mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	m,mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	m,mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	m,mc

		Sample Delivery Group		SI3693		
		Lab ID		SI3693-4		
		Sample ID		VPB157-TB060115		
		Sample Date		5/29/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3693		
		Lab ID		SI3693-5		
		Sample ID		VPB157-GW-060115-518-520		
		Sample Date		6/1/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.37	J	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.7	J	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.85	J	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1.3	J	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	1.9	J	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	20	J	mc
8260C	BENZENE	71-43-2	UG_L	0.43	J	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c,mc
8260C	CHLOROFORM	67-66-3	UG_L	0.48	J	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	1.3	J	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	1.3	J	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	54	J	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

		Sample Delivery Group		SI3693		
		Lab ID		SI3693-6		
		Sample ID		VPB157-GW-060115-538-540		
		Sample Date		6/1/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.67	J	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.74	J	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	1.2	J	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1.7	J	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	1.4	J	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	12	J	mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c,mc
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	1.7	J	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	3.4	J	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	21	J	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	0.42	J	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

		Sample Delivery Group		SI3693		
		Lab ID		SI3693-7		
		Sample ID		VPB157-GW-D-060115		
		Sample Date		6/1/2015		
		Sample Type		Field Duplicate		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.98	J	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1.9	J	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	2.5	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	12	J	mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c,mc
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	1.9	J	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	4	J	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	20	J	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	0.33	J	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

Notes:
UG_L = Micrograms per liter
Qual = Final qualifier (Refer to Attachment B)
RC = Reason code (Refer to Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3861	
Analyses/Method:	Volatile Organic Compounds by U.S. EPA SW-846 Method 8260C	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 08/03/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3861_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 2 to 3 June 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-GW-060215-563-565	Groundwater	8260C
VPB157-GW-060315-578-580	Groundwater	8260C
VPB157-GW-060315-618-620	Groundwater	8260C
VPB157-TB060415	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *SW-846 Method 8270D, Semivolatile Organic Compounds by Gas Chromatograph/Mass Spectrometry* (U.S. EPA, 2007), *U.S. Environmental Protection Agency* (U.S. EPA) *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and Department of Defense Quality Systems Manual for Environmental Laboratories, Version 4.2 (October

2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✗	Data completeness (chain-of-custody)/sample integrity
✓	Holding times and sample preservation
✓	Gas chromatography/Mass spectrometer performance checks
✗	Initial calibration/continuing calibration verification
✗	Laboratory blanks/trip blanks
✓	Surrogate spike recoveries
NA	Matrix spike (MS) and/or matrix spike duplicate (MSD) results
✓	Laboratory control sample laboratory control sample duplicate results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- the COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody;
- the laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory;
- completeness of analyses was verified by comparing the reported results to the COC request.

Below shows a list of samples that were mostly comprised of soil in all vials and not very much liquid:

- VPB157-GW-060315-618-620 had all three vials decanted and analyzed.

Positive and non-detected results for decanted samples were qualified as estimated (J and UJ) respectively due to possible loss of sample integrity during the decanting process. Non-conformances are summarized in Attachment A in Table A-1.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;
- the initial calibration verification (ICV) standard percent recovery acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific initial calibration (ICAL) was as

ICAL Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%RSD >15% and quantitation based on mean response factor	J	UJ

Notes:

%RSD = Relative standard deviation
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific ICV was as follows:

ICV Recovery Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
Recovery >120%	J	UJ
Recovery < 80%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

Data qualification to the analytes associated with the specific CCV was as follows:

CCV Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%Difference or %Drift > 20%	J	UJ

Notes:
J = Estimated
UJ = Undetected and estimated

ICAL, ICV, and CCV non-conformances are summarized in Attachment A in Table's A-2, A-3 and A-4.

Laboratory Blanks/Trip Blanks

Laboratory blanks and trip blanks were analyzed with samples to assess contamination imparted by sample preparation and/or analysis. All results associated with a particular blank were evaluated to determine whether there was an inherent variability in the data, or if a problem was an isolated occurrence that did not affect the data. Samples were flagged in accordance with *Functional Guidelines* (shown below) where detections were not believed to be site-related. Trip blank non-conformances are summarized in Attachment A in Table A-5.

Blank Non-conformance Chart:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Trip, Field, or Equipment	Detects	Not detected	No qualification
	< 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ	Use professional judgment
	> 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ and < blank contamination	Report the blank result with a U or reject the sample result as unusable R
		≥ 2x LOQ and ≥ blank contamination	If the result is ≤2x blank result, report the sample result U.

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Trip,	Detects	Not detected	No qualification
			If the result is > 2x blank result, no qualification is required.
	= 2x LOQ	< 2x LOQ	Report sample LOQ value with a U
		≥ 2x LOQ	Use professional judgment
	Gross contamination	Detects	Qualify results as unusable R

Notes:
LOQ = Limit of quantitation
U = Undetected
R = Rejected

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-target analytes was checked to confirm that the results and/or sample-specific limit of quantitation and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. EPA and Department of Defense guidelines. Final data review qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Tables
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060315-618-620	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.41	J
8260C	VPB157-GW-060315-618-620	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,1-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,1-DICHLOROETHENE	UG_L	0.35	J
8260C	VPB157-GW-060315-618-620	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-060315-618-620	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,2-DICHLOROETHENE, TOTAL	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	2-BUTANONE	UG_L	2	J
8260C	VPB157-GW-060315-618-620	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060315-618-620	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060315-618-620	ACETONE	UG_L	2.5	UJ
8260C	VPB157-GW-060315-618-620	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	CARBON DISULFIDE	UG_L	0.39	J
8260C	VPB157-GW-060315-618-620	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	CIS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-060315-618-620	METHYL CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-060315-618-620	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	TETRACHLOROETHENE	UG_L	3.4	J
8260C	VPB157-GW-060315-618-620	TOLUENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060315-618-620	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060315-618-620	TRICHLOROETHENE	UG_L	4.6	J
8260C	VPB157-GW-060315-618-620	TRICHLOROFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060315-618-620	XYLENES, TOTAL	UG_L	1.5	UJ

Notes:
UG_L = Micrograms per liter
UJ = Non-detect estimated value
J = Estimated value

Table A-2
Initial Calibration Non-Conformance

Method	Analyte	ICV ID / Date	%R	Limit	Associated Samples	Qualifier
8260C	CHLOROETHANE	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-GW-060215-563-565	UJ
8260C	CHLOROETHANE	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-GW-060315-578-580	UJ
8260C	CHLOROETHANE	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-GW-060315-618-620	UJ
8260C	CHLOROETHANE	GCMS-P / 06/03/2015	33.25292	≤15%	VPB157-TB060415	UJ

Notes:
ICAL = Initial calibration
%R = Percent recovery
UJ = Non-detect estimated value

Table A-3
Initial Calibration Verification Non-Conformance

Method	Analyte	Instrument ID	%RSD	Limit	Associated Samples	Qualifier
8260C	DICHLORODIFLUOROMETHANE	P1233A.D	182.52	80-120	VPB157-TB060415 VPB157-GW-060215-563-565 VPB157-GW-060315-578-580 VPB157-GW-060315-618-620	UJ
8260C	BROMMETHANE	P1233A.D	129.51	80-120	VPB157-TB060415 VPB157-GW-060215-563-565 VPB157-GW-060315-578-580 VPB157-GW-060315-618-620	UJ
8260C	CARBON DISULFIDE	P1233A.D	121.47	80-120	VPB157-TB060415 VPB157-GW-060215-563-565 VPB157-GW-060315-578-580 VPB157-GW-060315-618-620	Nondetect: U J Detect: J

Notes:
%RSD = Relative standard deviation
UJ = Non-detected analyte in associated sample qualified estimated "UJ" due to potential bias
J = Estimated due to potential bias

Table A-4 Continuing Calibration Verification Non-Conformance						
Method	**Analyte**	**CCV ID**	**%D**	**Limit**	**Associated Samples**	**Qualifier**
8260C	DICHLORODIFLUOROMETHANE	P1304.D	36.7844	20	VPB157-TB060415 VPB157-GW-060215-563-565 VPB157-GW-060315-578-580 VPB157-GW-060315-618-620	UJ

Notes:
CCV ID = Continuing calibration verification identification
%D = Percent difference
UJ = Non-detected analyte in associated sample qualified estimated "UJ" due to potential bias

Table A-5 Trip Blank Non-Conformance									
Blank	**Method**	**Analyte**	**Blank Result**	**QL**	**Units**	**Associated Sample**	**Sample Result**	**QL**	**Qualifier**
VPB157-TB060415	8260C	Acetone	4.5	5	ug/L	VPB157-GW-060315-578-580	2.7	5	U
VPB157-TB060415	8260C	Acetone	4.5	5	ug/L	VPB157-GW-060315-618-620	8.1	5	U

Notes:
QL = Quantitation limit
UG_L = Micrograms per liter
U = Non-detect

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate relative percent difference
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration
l	Laboratory control sample
lc	Labeled compound recovery
ld	Laboratory duplicate relative percent difference
lp	Laboratory control sample/laboratory control sample duplicate relative percent difference
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate relative percent difference
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column relative percent difference
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	Interference check sample results (metals)

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3861		
		Lab ID		SI3861-10		
		Sample ID		VPB157-GW-060215-563-565		
		Sample Date		6/2/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	1.1		
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.54	J	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	0.27	J	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.27	J	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	8		
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	9.7		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3861		
		Lab ID		SI3861-11		
		Sample ID		VPB157-GW-060315-578-580		
		Sample Date		6/3/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	1.2		
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	bt
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	7.4		
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	9.3		
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	0.27	J	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3861		
		Lab ID		SI3861-12		
		Sample ID		VPB157-GW-060315-618-620		
		Sample Date		6/3/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.41	J	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.35	J	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	2	J	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	2.5	UJ	bt,mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc,c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.39	J	mc,c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	mc,c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc,c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	3.4	J	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	4.6	J	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

		Sample Delivery Group		SI3861		
		Lab ID		SI3861-9		
		Sample ID		VPB157-TB060415		
		Sample Date		6/2/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	4.5	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	c
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

Notes:
UG_L = Micrograms per liter
Qual = Final qualifier (Refer to Attachment B)
RC = Reason code (Refer to Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI3999	
Analyses/Method:	Volatile Organic Compounds by U.S. EPA SW-846 Method 8260C	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 07/08/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI3999_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 8 June 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-GW-060815-728-730	Groundwater	8260C
VPB157-GW-060815-738-740	Groundwater	8260C
VPB157-TB060915	Trip Blank	8260C

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (U.S. EPA, 2006), *SW-846 Method 8270D, Semivolatile Organic Compounds by Gas Chromatograph/Mass Spectrometry* (U.S. EPA, 2007), *U.S. Environmental Protection Agency* (U.S. EPA) *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and Department of Defense Quality Systems Manual for Environmental Laboratories, Version 4.2 (October

2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✗	Data completeness (chain-of-custody)/sample integrity
✓	Holding times and sample preservation
✓	Gas chromatography/Mass spectrometer performance checks
✗	Initial calibration/continuing calibration verification
✓	Laboratory blanks/trip blanks
✓	Surrogate spike recoveries
NA	Matrix spike and/or matrix spike duplicate results
✓	Laboratory control sample laboratory control sample duplicate results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- the COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody;
- the laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory;
- completeness of analyses was verified by comparing the reported results to the COC request.

Below shows a list of samples that were mostly comprised of soil in all vials and not very much liquid:

- VPB157-GW-060815-728-730 and VPB157-GW-060815-738-740 had all three vials decanted, compounded into one vial for each sample and analyzed at a dilution of 1:8.

Positive and non-detected results for both samples were qualified as estimated (J and UJ) respectively due to possible loss of sample integrity during the decanting process. Non-conformances are summarized in Attachment A in Table A-1.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;
- the initial calibration verification standard percent recovery acceptance criteria were met;
- the continuing calibration verification standard method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific initial calibration (ICAL) was as

ICAL Linearity Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
%RSD >15% and quantitation based on mean response factor	J	UJ

Notes:

%RSD	=	Relative standard deviation
J	=	Estimated
UJ	=	Undetected and estimated

ICAL non-conformances are summarized in Attachment A in Table's A-2.

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-target analytes was checked to confirm that the results and/or sample-specific limit of quantitation and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. EPA and Department of Defense guidelines. Final data review qualifiers used to describe results and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Tables
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060815-728-730	1,1,1-TRICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,1,2,2-TETRACHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,1,2-TRICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,1-DICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,1-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,2,4-TRICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	6	UJ
8260C	VPB157-GW-060815-728-730	1,2-DIBROMOETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,2-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,2-DICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,2-DICHLOROETHENE, TOTAL	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	1,2-DICHLOROPROPANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,3-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	1,4-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	2-BUTANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-728-730	2-HEXANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-728-730	4-METHYL-2-PENTANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-728-730	ACETONE	UG_L	20	UJ
8260C	VPB157-GW-060815-728-730	BENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	BROMODICHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	BROMOFORM	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	BROMOMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	CARBON DISULFIDE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CARBON TETRACHLORIDE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CHLOROETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	CHLOROFORM	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CHLOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	CIS-1,2-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CIS-1,3-DICHLOROPROPENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	CYCLOHEXANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	DIBROMOCHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	DICHLORODIFLUOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	ETHYLBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	ISOPROPYLBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	M- AND P-XYLENE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	METHYL ACETATE	UG_L	6	UJ
8260C	VPB157-GW-060815-728-730	METHYL CYCLOHEXANE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	METHYL TERT-BUTYL ETHER	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	METHYLENE CHLORIDE	UG_L	20	UJ
8260C	VPB157-GW-060815-728-730	O-XYLENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	STYRENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	TETRACHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	TOLUENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	TRANS-1,2-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	TRANS-1,3-DICHLOROPROPENE	UG_L	4	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060815-728-730	TRICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-728-730	TRICHLOROFLUOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	VINYL CHLORIDE	UG_L	8	UJ
8260C	VPB157-GW-060815-728-730	XYLENES, TOTAL	UG_L	12	UJ
8260C	VPB157-GW-060815-738-740	1,1,1-TRICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,1,2,2-TETRACHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,1,2-TRICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,1-DICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,1-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,2,4-TRICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	6	UJ
8260C	VPB157-GW-060815-738-740	1,2-DIBROMOETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,2-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,2-DICHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,2-DICHLOROETHENE, TOTAL	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	1,2-DICHLOROPROPANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,3-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	1,4-DICHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	2-BUTANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-738-740	2-HEXANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-738-740	4-METHYL-2-PENTANONE	UG_L	20	UJ
8260C	VPB157-GW-060815-738-740	ACETONE	UG_L	20	UJ
8260C	VPB157-GW-060815-738-740	BENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	BROMODICHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	BROMOFORM	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	BROMOMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	CARBON DISULFIDE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CARBON TETRACHLORIDE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CHLOROBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CHLOROETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	CHLOROFORM	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CHLOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	CIS-1,2-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CIS-1,3-DICHLOROPROPENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	CYCLOHEXANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	DIBROMOCHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	DICHLORODIFLUOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	ETHYLBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	ISOPROPYLBENZENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	M- AND P-XYLENE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	METHYL ACETATE	UG_L	6	UJ
8260C	VPB157-GW-060815-738-740	METHYL CYCLOHEXANE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	METHYL TERT-BUTYL ETHER	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	METHYLENE CHLORIDE	UG_L	20	UJ
8260C	VPB157-GW-060815-738-740	O-XYLENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	STYRENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	TETRACHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	TOLUENE	UG_L	4	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060815-738-740	TRANS-1,2-DICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	TRANS-1,3-DICHLOROPROPENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	TRICHLOROETHENE	UG_L	4	UJ
8260C	VPB157-GW-060815-738-740	TRICHLOROFLUOROMETHANE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	VINYL CHLORIDE	UG_L	8	UJ
8260C	VPB157-GW-060815-738-740	XYLENES, TOTAL	UG_L	12	UJ

Notes:
UG_L = Micrograms per liter
UJ = Non-detect estimated value

Table A-2
Initial Calibration Non-Conformance

Method	Analyte	ICV ID / Date	%R	Limit	Associated Samples	Qualifier
8260C	CHLOROETHANE	GCMS-T / 06/11/2015	28.31610	≤15%	VPB157-GW-060815-728-730	UJ
8260C	CHLOROETHANE	GCMS-T / 06/11/2015	28.31610	≤15%	VPB157-GW-060815-738-740	UJ
8260C	CHLOROETHANE	GCMS-T / 06/11/2015	28.31610	≤15%	VPB157-TB060915	UJ

Notes:
ICAL = Initial calibration
%R = Percent recovery
UJ = Non-detect estimated value

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate relative percent difference
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration
l	Laboratory control sample
lc	Labeled compound recovery
ld	Laboratory duplicate relative percent difference
lp	Laboratory control sample/laboratory control sample duplicate relative percent difference
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate relative percent difference
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column relative percent difference
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	Interference check sample results (metals)

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI3999		
		Lab ID		SI3999-1		
		Sample ID		VPB157-TB060915		
		Sample Date		6/8/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI3999		
		Lab ID		SI3999-2DL		
		Sample ID		VPB157-GW-060815-728-730		
		Sample Date		6/8/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	4	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	4	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	4	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	4	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	4	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	4	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	4	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	6	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	4	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	4	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	4	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	8	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	4	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	4	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	4	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	20	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	20	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	20	UJ	mc
8260C	ACETONE	67-64-1	UG_L	20	UJ	mc
8260C	BENZENE	71-43-2	UG_L	4	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	4	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	4	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	8	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	4	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	4	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	4	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	8	UJ	mc,c
8260C	CHLOROFORM	67-66-3	UG_L	4	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	8	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	4	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	4	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	4	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	4	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	8	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	4	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	4	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	8	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	6	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	4	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	4	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	20	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	4	UJ	mc
8260C	STYRENE	100-42-5	UG_L	4	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	4	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	4	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	4	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	4	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	4	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	8	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	8	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	12	UJ	mc

		Sample Delivery Group		SI3999		
		Lab ID		SI3999-3DL		
		Sample ID		VPB157-GW-060815-738-740		
		Sample Date		6/8/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	4	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	4	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	4	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	4	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	4	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	4	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	4	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	6	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	4	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	4	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	4	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	8	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	4	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	4	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	4	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	20	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	20	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	20	UJ	mc
8260C	ACETONE	67-64-1	UG_L	20	UJ	mc
8260C	BENZENE	71-43-2	UG_L	4	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	4	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	4	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	8	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	4	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	4	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	4	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	8	UJ	mc,c
8260C	CHLOROFORM	67-66-3	UG_L	4	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	8	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	4	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	4	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	4	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	4	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	8	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	4	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	4	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	8	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	6	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	4	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	4	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	20	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	4	UJ	mc
8260C	STYRENE	100-42-5	UG_L	4	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	4	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	4	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	4	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	4	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	4	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	8	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	8	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	12	UJ	mc

Notes:
UG_L = Micrograms per liter
Qual = Final qualifier (Refer to Attachment B)
RC = Reason code (Refer to Attachment C)

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI4107	
Analyses/Method:	Volatile Organic Compounds (VOCs) by U.S. EPA SW-846 Method 8260C Total Organic Carbon (TOC) by U.S. EPA SW-846 Method 9060A	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 07/20/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI4107_8260C

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 9 to 11 June 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-EB-061015	Groundwater	8260C / 5310B
VPB157-GW-060915-758-760	Groundwater	8260C
VPB157-GW-060915-778-780	Groundwater	8260C
VPB157-GW-060915-798-800	Groundwater	8260C
VPB157-GW-061015-818-820	Groundwater	8260C
VPB157-GW-061015-838-840	Groundwater	8260C
VPB157-TB061115	Trip Blank	8260C
VPB157-SOIL-061015-823-825	Soil	9060A
VPB157-SOIL-D-061015	Soil	9060A

Data validation activities were conducted using the following guidance documents: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846, specifically Method 8260C,*

Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (U.S. EPA, 2006), *SW-846 Method 9060A, Total Organic Carbon* (U.S. EPA, 1996), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (NFG, June 2008), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (NFG, January 2010, and Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✗	Data completeness (chain-of-custody)/sample integrity
✓	Holding times and sample preservation
✓	Gas chromatography/Mass spectrometer performance checks
✗	Initial calibration/continuing calibration verification
✓	Laboratory blanks/trip blanks
✓	Surrogate spike recoveries
✗	Matrix spike and/or matrix spike duplicate results
✓	Laboratory control sample laboratory control sample duplicate results
✓	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further. The symbol (✗) indicates that a QC non-conformance resulted in the qualification of data. Any QC non-conformance that resulted in the qualification of data is discussed below.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- the COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody;

- the laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory;

- completeness of analyses was verified by comparing the reported results to the COC request.

Below shows a list of samples that were mostly comprised of soil in all vials and not very much liquid:

- VPB157-GW-060915-758-760 and VPB157-GW-060915-778-780 had all two vials decanted, compounded into one vial for each sample and analyzed. VPB157-GW-060915-798-800 and VPB157-GW-061015-838-840 had all three vials decanted, compounded into one vial for each sample and analyzed at a dilution of 1:2 and 1:4.

Positive and non-detected results for all decanted samples were qualified as estimated (J and UJ) respectively due to possible loss of sample integrity during the decanting process. Non-conformances are summarized in Attachment A in Table A-1.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration percent relative standard deviation, correlation coefficient/coefficient of determination, and/or response factor method acceptance criteria were met;

- the initial calibration verification (ICV) standard percent recovery acceptance criteria were met;

- the continuing calibration verification standard method percent difference or percent drift (%Ds) and response factor acceptance criteria were met; and

- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICV was as follows:

ICV Recovery Non-conformance:

Criteria	Actions	
	Detected Results	Non-detected Results
Recovery >120%	J	UJ
Recovery < 80%	J	UJ

Notes:

J	=	Estimated
UJ	=	Undetected and estimated

ICV non-conformances are summarized in Attachment A in Table's A-2.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSDs are generated to provide information about the effect of each sample matrix on the sample preparation and the measurement methodology. MS/MSD percent recoveries (%Rs) assess the effect of the sample matrix on the accuracy of the analytical results and %Rs above the laboratory control limit could indicate a potential high result bias while %Rs below QC limits could indicate a potential low result bias. The relative percent differences (RPDs) between the MS and MSD results are evaluated to assess sample precision. The MS/MSD %Rs and RPDs were reviewed for conformance with the QC acceptance criteria. Non-conformances are summarized in Attachment A in Table A-3. Data qualification to the analytes associated with the specific MS/MSD non-conformances were as follows:

MS/MSD Non-conformances Chart:

Criteria	Action	
	Detected Compounds	Non-detected Compounds
%R>Upper Limit	J	No qualification
20% ≤ %R < Lower Limit	J	UJ
%R <20%	J	Rejected

Notes:

%R	=	Percent recovery
RPD	=	Relative percent difference
J	=	Estimated
UJ	=	Undetected and estimated

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality. All compounds detected at concentrations less than the limit of quantitation but greater than the method detection limit were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation. Any sample that was analyzed at a dilution because of high concentrations of target or non-target analytes was checked to confirm that the results and/or sample-specific limit of quantitation and limit of detections were adjusted accordingly by the laboratory.

No results were rejected; therefore, analytical completeness was calculated to be 100 percent. Data not qualified during data review are considered usable by the project. The remaining results qualified as estimated may be high or low, but the data are usable for their intended purpose, according to U.S. EPA and Department of Defense guidelines. Final data review qualifiers used to describe results

and how they should be interpreted by the end data user are provided in Attachment B and Attachment C. Attachment D provides final results after data review.

ATTACHMENTS

Attachment A: Non-Conformance Summary Tables
Attachment B: Qualifier Codes and Explanations
Attachment C: Reason Codes and Explanations
Attachment D: Final Results after Data Review

Attachment A
Non-Conformance Summary Table

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060915-758-760	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,1-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,1-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-060915-758-760	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,2-DICHLOROETHENE, TOTAL	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	2-BUTANONE	UG_L	1.8	J
8260C	VPB157-GW-060915-758-760	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-758-760	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-758-760	ACETONE	UG_L	10	J
8260C	VPB157-GW-060915-758-760	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	CARBON DISULFIDE	UG_L	0.32	J
8260C	VPB157-GW-060915-758-760	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	CIS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-060915-758-760	METHYL CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-758-760	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	TETRACHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	TOLUENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ

Table A-1 Sample Integrity Non-Conformance					
Method	**Sample ID**	**Analyte**	**Units**	**Result**	**Qualifier**
8260C	VPB157-GW-060915-758-760	TRICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-758-760	TRICHLOROFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060915-758-760	XYLENES, TOTAL	UG_L	1.5	UJ
8260C	VPB157-GW-060915-778-780	1,1,1-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,1,2,2-TETRACHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,1,2-TRICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,1-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,1-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,2,4-TRICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	0.75	UJ
8260C	VPB157-GW-060915-778-780	1,2-DIBROMOETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,2-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,2-DICHLOROETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,2-DICHLOROETHENE, TOTAL	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	1,2-DICHLOROPROPANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,3-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	1,4-DICHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	2-BUTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-778-780	2-HEXANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-778-780	4-METHYL-2-PENTANONE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-778-780	ACETONE	UG_L	3.7	J
8260C	VPB157-GW-060915-778-780	BENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	BROMODICHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	BROMOFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	BROMOMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	CARBON DISULFIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CARBON TETRACHLORIDE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CHLOROBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	CHLOROFORM	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	CIS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CIS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	DIBROMOCHLOROMETHANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	DICHLORODIFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	ETHYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	ISOPROPYLBENZENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	M- AND P-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	METHYL ACETATE	UG_L	0.75	UJ
8260C	VPB157-GW-060915-778-780	METHYL CYCLOHEXANE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	METHYL TERT-BUTYL ETHER	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	METHYLENE CHLORIDE	UG_L	2.5	UJ
8260C	VPB157-GW-060915-778-780	O-XYLENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	STYRENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	TETRACHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	TOLUENE	UG_L	0.5	UJ

Table A-1 Sample Integrity Non-Conformance					
Method	**Sample ID**	**Analyte**	**Units**	**Result**	**Qualifier**
8260C	VPB157-GW-060915-778-780	TRANS-1,2-DICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	TRANS-1,3-DICHLOROPROPENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	TRICHLOROETHENE	UG_L	0.5	UJ
8260C	VPB157-GW-060915-778-780	TRICHLOROFLUOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	VINYL CHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060915-778-780	XYLENES, TOTAL	UG_L	1.5	UJ
8260C	VPB157-GW-060915-798-800	1,1,1-TRICHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,1,2,2-TETRACHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,1,2-TRICHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,1-DICHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,1-DICHLOROETHENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,2,4-TRICHLOROBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	1.5	UJ
8260C	VPB157-GW-060915-798-800	1,2-DIBROMOETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,2-DICHLOROBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,2-DICHLOROETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,2-DICHLOROETHENE, TOTAL	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	1,2-DICHLOROPROPANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,3-DICHLOROBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	1,4-DICHLOROBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	2-BUTANONE	UG_L	2.8	J
8260C	VPB157-GW-060915-798-800	2-HEXANONE	UG_L	5	UJ
8260C	VPB157-GW-060915-798-800	4-METHYL-2-PENTANONE	UG_L	5	UJ
8260C	VPB157-GW-060915-798-800	ACETONE	UG_L	10	J
8260C	VPB157-GW-060915-798-800	BENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	BROMODICHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	BROMOFORM	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	BROMOMETHANE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	CARBON DISULFIDE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CARBON TETRACHLORIDE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CHLOROBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	CHLOROFORM	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CHLOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	CIS-1,2-DICHLOROETHENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CIS-1,3-DICHLOROPROPENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	CYCLOHEXANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	DIBROMOCHLOROMETHANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	DICHLORODIFLUOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	ETHYLBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	ISOPROPYLBENZENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	M- AND P-XYLENE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	METHYL ACETATE	UG_L	1.5	UJ
8260C	VPB157-GW-060915-798-800	METHYL CYCLOHEXANE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	METHYL TERT-BUTYL ETHER	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	METHYLENE CHLORIDE	UG_L	5	UJ
8260C	VPB157-GW-060915-798-800	O-XYLENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	STYRENE	UG_L	1	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-060915-798-800	TETRACHLOROETHENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	TOLUENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	TRANS-1,2-DICHLOROETHENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	TRANS-1,3-DICHLOROPROPENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	TRICHLOROETHENE	UG_L	1	UJ
8260C	VPB157-GW-060915-798-800	TRICHLOROFLUOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	VINYL CHLORIDE	UG_L	2	UJ
8260C	VPB157-GW-060915-798-800	XYLENES, TOTAL	UG_L	3	UJ
8260C	VPB157-GW-061015-838-840	1,1,1-TRICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,1,2,2-TETRACHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,1,2-TRICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,1-DICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,1-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,2,4-TRICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,2-DIBROMO-3-CHLOROPROPANE	UG_L	3	UJ
8260C	VPB157-GW-061015-838-840	1,2-DIBROMOETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,2-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,2-DICHLOROETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,2-DICHLOROETHENE, TOTAL	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	1,2-DICHLOROPROPANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,3-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	1,4-DICHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	2-BUTANONE	UG_L	10	UJ
8260C	VPB157-GW-061015-838-840	2-HEXANONE	UG_L	10	UJ
8260C	VPB157-GW-061015-838-840	4-METHYL-2-PENTANONE	UG_L	10	UJ
8260C	VPB157-GW-061015-838-840	ACETONE	UG_L	13	J
8260C	VPB157-GW-061015-838-840	BENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	BROMODICHLOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	BROMOFORM	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	BROMOMETHANE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	CARBON DISULFIDE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CARBON TETRACHLORIDE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CHLOROBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CHLOROETHANE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	CHLOROFORM	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CHLOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	CIS-1,2-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CIS-1,3-DICHLOROPROPENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	CYCLOHEXANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	DIBROMOCHLOROMETHANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	DICHLORODIFLUOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	ETHYLBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	ISOPROPYLBENZENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	M- AND P-XYLENE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	METHYL ACETATE	UG_L	3	UJ
8260C	VPB157-GW-061015-838-840	METHYL CYCLOHEXANE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	METHYL TERT-BUTYL ETHER	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	METHYLENE CHLORIDE	UG_L	10	UJ

Table A-1
Sample Integrity Non-Conformance

Method	Sample ID	Analyte	Units	Result	Qualifier
8260C	VPB157-GW-061015-838-840	O-XYLENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	STYRENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TETRACHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TOLUENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TRANS-1,2-DICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TRANS-1,3-DICHLOROPROPENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TRICHLOROETHENE	UG_L	2	UJ
8260C	VPB157-GW-061015-838-840	TRICHLOROFLUOROMETHANE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	VINYL CHLORIDE	UG_L	4	UJ
8260C	VPB157-GW-061015-838-840	XYLENES, TOTAL	UG_L	6	UJ

Notes:
UG_L = Micrograms per liter
UJ = Non-detect estimated value

Table A-2
Initial Calibration Verification Non-Conformance

Method	Analyte	ICV ID	%R	Limit	Associated Samples	Qualifier
8260C	DICHLORODIFLUOROMETHANE	P1435A.D	149.18	80-120	VPB157-EB-061015	UJ
8260C	CHLOROMETHANE	P1435A.D	133.46	80-120	VPB157-EB-061015	UJ
8260C	VINYL CHLORIDE	P1435A.D	127.34	80-120	VPB157-EB-061015	UJ
8260C	BROMOMETHANE	P1435A.D	123.74	80-120	VPB157-EB-061015	UJ
8260C	CHLOROETHANE	P1435A.D	127.07	80-120	VPB157-EB-061015	UJ
8260C	TRICHLOROFLUOROMETHANE	P1435A.D	124.7	80-120	VPB157-EB-061015	UJ
8260C	METHYL ACETATE	P1435A.D	78.18	80-120	VPB157-EB-061015	UJ

Notes:
ICV = Initial calibration verification
%R = Percent recovery
UJ = Non-detect estimated value

Table A-3
Matrix Spike / Matrix Spike Duplicate Non-Conformance

Spiked Sample	Analyte	Sample Result (µg/L)	Spike Added (µg/L)	MS %R	MSD %R	%R Limits	Qualifier
VPB157-GW-061015-818-820	METHYL ACETATE	<0.75	50.0	44.4	50	70-132	UJ

Notes:
µg/L = Micrograms per liter
MS = Matrix spike
MSD = Matrix spike duplicate
%R = Percent recovery
UJ = Non-detected and estimated

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

Attachment C
Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate relative percent difference
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration
l	Laboratory control sample
lc	Labeled compound recovery
ld	Laboratory duplicate relative percent difference
lp	Laboratory control sample/laboratory control sample duplicate relative percent difference
m	Matrix spike recovery
mc	Method compliance non-conformance
md	Matrix spike/matrix spike duplicate relative percent difference
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column relative percent difference
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	Interference check sample results (metals)

Attachment D
Final Results after Data Review

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-1		
		Sample ID		VPB157-TB061115		
		Sample Date		6/11/2015		
		Sample Type		Trip Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	U	
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	U	
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-2		
		Sample ID		VPB157-GW-060915-758-760		
		Sample Date		6/9/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	1.8	J	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	10	J	mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.32	J	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	mc
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-3		
		Sample ID		VPB157-GW-060915-778-780		
		Sample Date		6/9/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	2.5	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	2.5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	3.7	J	mc
8260C	BENZENE	71-43-2	UG_L	0.5	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	0.5	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	mc
8260C	CHLOROFORM	67-66-3	UG_L	0.5	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	0.5	UJ	mc
8260C	STYRENE	100-42-5	UG_L	0.5	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	0.5	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	UJ	mc

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-4DL		
		Sample ID		VPB157-GW-060915-798-800		
		Sample Date		6/9/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	1	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	1	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	1	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	1	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	1	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	1	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	1	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	1.5	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	1	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	1	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	1	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	2	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	1	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	1	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	1	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	2.8	J	mc
8260C	2-HEXANONE	591-78-6	UG_L	5	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	5	UJ	mc
8260C	ACETONE	67-64-1	UG_L	10	J	mc
8260C	BENZENE	71-43-2	UG_L	1	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	1	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	1	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	2	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	1	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	1	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	1	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	2	UJ	mc
8260C	CHLOROFORM	67-66-3	UG_L	1	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	2	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	1	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	1	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	1	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	1	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	2	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	1	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	1	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	2	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	1.5	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	1	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	1	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	5	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	1	UJ	mc
8260C	STYRENE	100-42-5	UG_L	1	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	1	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	1	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	1	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	1	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	1	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	2	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	2	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	3	UJ	mc

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-5		
		Sample ID		VPB157-GW-061015-818-820		
		Sample Date		6/10/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	3.7	J	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	U	
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	U	
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	U	
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	U	
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	m
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	U	
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	U	
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-6RA		
		Sample ID		VPB157-EB-061015		
		Sample Date		6/10/2015		
		Sample Type		Equipment Blank		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
5310B	TOTAL ORGANIC CARBON	-28	MG_L	0.5	U	
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	0.5	U	
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	0.5	U	
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	0.5	U	
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	0.5	U	
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	0.5	U	
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	0.5	U	
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	0.5	U	
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	0.75	U	
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	0.5	U	
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	0.5	U	
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	0.5	U	
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	1	U	
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	0.5	U	
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	0.5	U	
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	0.5	U	
8260C	2-BUTANONE	78-93-3	UG_L	2.5	U	
8260C	2-HEXANONE	591-78-6	UG_L	2.5	U	
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	2.5	U	
8260C	ACETONE	67-64-1	UG_L	2.5	U	
8260C	BENZENE	71-43-2	UG_L	0.5	U	
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	0.5	U	
8260C	BROMOFORM	75-25-2	UG_L	0.5	U	
8260C	BROMOMETHANE	74-83-9	UG_L	1	UJ	c
8260C	CARBON DISULFIDE	75-15-0	UG_L	0.5	U	
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	0.5	U	
8260C	CHLOROBENZENE	108-90-7	UG_L	0.5	U	
8260C	CHLOROETHANE	75-00-3	UG_L	1	UJ	c
8260C	CHLOROFORM	67-66-3	UG_L	0.5	U	
8260C	CHLOROMETHANE	74-87-3	UG_L	1	UJ	c
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	0.5	U	
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	0.5	U	
8260C	CYCLOHEXANE	110-82-7	UG_L	0.5	U	
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	0.5	U	
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	1	UJ	c
8260C	ETHYLBENZENE	100-41-4	UG_L	0.5	U	
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	0.5	U	
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	1	U	
8260C	METHYL ACETATE	79-20-9	UG_L	0.75	UJ	c
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	0.5	U	
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	0.5	U	
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	2.5	U	
8260C	O-XYLENE	95-47-6	UG_L	0.5	U	
8260C	STYRENE	100-42-5	UG_L	0.5	U	
8260C	TETRACHLOROETHENE	127-18-4	UG_L	0.5	U	
8260C	TOLUENE	108-88-3	UG_L	0.5	U	
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	0.5	U	
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	0.5	U	
8260C	TRICHLOROETHENE	79-01-6	UG_L	0.5	U	
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	1	UJ	c
8260C	VINYL CHLORIDE	75-01-4	UG_L	1	UJ	c
8260C	XYLENES, TOTAL	1330-20-7	UG_L	1.5	U	

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-9DL		
		Sample ID		VPB157-GW-061015-838-840		
		Sample Date		6/10/2015		
		Sample Type		Groundwater		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
8260C	1,1,1-TRICHLOROETHANE	71-55-6	UG_L	2	UJ	mc
8260C	1,1,2,2-TETRACHLOROETHANE	79-34-5	UG_L	2	UJ	mc
8260C	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	UG_L	2	UJ	mc
8260C	1,1,2-TRICHLOROETHANE	79-00-5	UG_L	2	UJ	mc
8260C	1,1-DICHLOROETHANE	75-34-3	UG_L	2	UJ	mc
8260C	1,1-DICHLOROETHENE	75-35-4	UG_L	2	UJ	mc
8260C	1,2,4-TRICHLOROBENZENE	120-82-1	UG_L	2	UJ	mc
8260C	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	UG_L	3	UJ	mc
8260C	1,2-DIBROMOETHANE	106-93-4	UG_L	2	UJ	mc
8260C	1,2-DICHLOROBENZENE	95-50-1	UG_L	2	UJ	mc
8260C	1,2-DICHLOROETHANE	107-06-2	UG_L	2	UJ	mc
8260C	1,2-DICHLOROETHENE, TOTAL	540-59-0	UG_L	4	UJ	mc
8260C	1,2-DICHLOROPROPANE	78-87-5	UG_L	2	UJ	mc
8260C	1,3-DICHLOROBENZENE	541-73-1	UG_L	2	UJ	mc
8260C	1,4-DICHLOROBENZENE	106-46-7	UG_L	2	UJ	mc
8260C	2-BUTANONE	78-93-3	UG_L	10	UJ	mc
8260C	2-HEXANONE	591-78-6	UG_L	10	UJ	mc
8260C	4-METHYL-2-PENTANONE	108-10-1	UG_L	10	UJ	mc
8260C	ACETONE	67-64-1	UG_L	13	J	mc
8260C	BENZENE	71-43-2	UG_L	2	UJ	mc
8260C	BROMODICHLOROMETHANE	75-27-4	UG_L	2	UJ	mc
8260C	BROMOFORM	75-25-2	UG_L	2	UJ	mc
8260C	BROMOMETHANE	74-83-9	UG_L	4	UJ	mc
8260C	CARBON DISULFIDE	75-15-0	UG_L	2	UJ	mc
8260C	CARBON TETRACHLORIDE	56-23-5	UG_L	2	UJ	mc
8260C	CHLOROBENZENE	108-90-7	UG_L	2	UJ	mc
8260C	CHLOROETHANE	75-00-3	UG_L	4	UJ	mc
8260C	CHLOROFORM	67-66-3	UG_L	2	UJ	mc
8260C	CHLOROMETHANE	74-87-3	UG_L	4	UJ	mc
8260C	CIS-1,2-DICHLOROETHENE	156-59-2	UG_L	2	UJ	mc
8260C	CIS-1,3-DICHLOROPROPENE	10061-01-5	UG_L	2	UJ	mc
8260C	CYCLOHEXANE	110-82-7	UG_L	2	UJ	mc
8260C	DIBROMOCHLOROMETHANE	124-48-1	UG_L	2	UJ	mc
8260C	DICHLORODIFLUOROMETHANE	75-71-8	UG_L	4	UJ	mc
8260C	ETHYLBENZENE	100-41-4	UG_L	2	UJ	mc
8260C	ISOPROPYLBENZENE	98-82-8	UG_L	2	UJ	mc
8260C	M- AND P-XYLENE	108-38-3/106-42	UG_L	4	UJ	mc
8260C	METHYL ACETATE	79-20-9	UG_L	3	UJ	mc
8260C	METHYL CYCLOHEXANE	108-87-2	UG_L	2	UJ	mc
8260C	METHYL TERT-BUTYL ETHER	1634-04-4	UG_L	2	UJ	mc
8260C	METHYLENE CHLORIDE	75-09-2	UG_L	10	UJ	mc
8260C	O-XYLENE	95-47-6	UG_L	2	UJ	mc
8260C	STYRENE	100-42-5	UG_L	2	UJ	mc
8260C	TETRACHLOROETHENE	127-18-4	UG_L	2	UJ	mc
8260C	TOLUENE	108-88-3	UG_L	2	UJ	mc
8260C	TRANS-1,2-DICHLOROETHENE	156-60-5	UG_L	2	UJ	mc
8260C	TRANS-1,3-DICHLOROPROPENE	10061-02-6	UG_L	2	UJ	mc
8260C	TRICHLOROETHENE	79-01-6	UG_L	2	UJ	mc
8260C	TRICHLOROFLUOROMETHANE	75-69-4	UG_L	4	UJ	mc
8260C	VINYL CHLORIDE	75-01-4	UG_L	4	UJ	mc
8260C	XYLENES, TOTAL	1330-20-7	UG_L	6	UJ	mc

Notes:

UG_L = Micrograms per liter
MG_L = Milligrams per liter
Qual = Final qualifier (Refer to Attachment B)
RC = Reason code (Refer to Attachment C)

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-7		
		Sample ID		VPB157-SOIL-061015-823-825		
		Sample Date		6/10/2015		
		Sample Type		Soil		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
2540G	TOTAL SOLIDS	-29	PCT	85		
9060A	TOTAL ORGANIC CARBON	-28	UG_G	860		

		Sample Delivery Group		SI4107		
		Lab ID		SI4107-8		
		Sample ID		VPB157-SOIL-D-061015		
		Sample Date		6/10/2015		
		Sample Type		Field Duplicate		
Method	**Analyte**	**CAS No**	**Units**	Result	Qual	RC
2540G	TOTAL SOLIDS	-29	PCT	84		
9060A	TOTAL ORGANIC CARBON	-28	UG_G	1200		

Notes:

PCT = Percent
UG_L = Micrograms per gram

DATA VALIDATION REPORT

Project:	Regional Groundwater Investigation — NWIRP Bethpage	
Laboratory:	Katahdin Analytical	
Sample Delivery Group:	SI4454	
Analyses/Method:	Volatile Organic Compounds (VOCs) by U.S. EPA Method TO-15	
Validation Level:	3	
Project Number:	0888812477.SA.DV	
Prepared by:	Dana Miller/Resolution Consultants	Completed on: 07/20/2015
Reviewed by:	Tina Cantwell/Resolution Consultants	File Name: SI4454_TO15

SUMMARY

This report summarizes data review findings for samples listed below, collected by Resolution Consultants from the Regional Groundwater Investigation — NWIRP Bethpage site on 10 June 2015 in accordance with the following Sampling and Analysis Plans:

- *Sampling and Analysis Plan, Bethpage, New York.* (Resolution Consultants April 2013).
- *UFP SAP Addendum, Installation of Vertical Profile Borings and Monitoring Wells, Operable Unit 2, NWIRP Bethpage, New York.* (Resolution Consultants November 2013).
- *UFP SAP Addendum, Inclusion of Additional Target Analytes for Volatile Organics Analyses, NWIRP Bethpage OU2, Bethpage, New York*. (Resolution Consultants August 2014).

Sample ID	Matrix/Sample Type	Analysis
VPB157-AIR-061015	Air	TO-15

Data validation activities were conducted using the following guidance documents: *Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)* (*U.S. EPA*, Method TO-15), *U.S. Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (NFG, June 2008), and Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

✓	Data completeness (chain-of-custody (COC)/sample integrity
✓	Holding times and sample preservation
✓	GC/MS performance checks
✓	Initial calibration/continuing calibration verification
✓	Laboratory blanks/trip blanks
NA	Matrix duplicate (MD) results
✓	Laboratory control sample (LCS) results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. Acceptable data parameters for which all criteria were met and no qualification was performed and non-conformance or other issues that were noted during validation, but did not result in qualification of data are not discussed further.

Qualifications Actions

The data was reviewed independently from the laboratory to assess data quality and no results were qualified during this data review. Analytical completeness was calculated to be 100% and the data are usable for their intended purpose, according to U.S. EPA guidelines and Department of Defense guidelines. Attachment A provides final results after data review.

ATTACHMENTS

Attachment A: Final Results after Data Review

Attachment A
Final Results after Data Review

		Sample Delivery Group		SI4454	
		Lab ID		200-28389-1	
		Sample ID		VPB157-AIR-061015	
		Sample Date		6/10/2015	
		Sample Type		Air	
Method	**Analyte**	**CAS No**	**Units**	Result	Qual
TO-15	1,1,1-TRICHLOROETHANE	71-55-6	PPBV	0.2	U
TO-15	1,1,2,2-TETRACHLOROETHANE	79-34-5	PPBV	0.2	U
TO-15	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	PPBV	0.2	U
TO-15	1,1,2-TRICHLOROETHANE	79-00-5	PPBV	0.2	U
TO-15	1,1-DICHLOROETHANE	75-34-3	PPBV	0.2	U
TO-15	1,1-DICHLOROETHENE	75-35-4	PPBV	0.2	U
TO-15	1,2,4-TRICHLOROBENZENE	120-82-1	PPBV	0.5	U
TO-15	1,2-DIBROMOETHANE	106-93-4	PPBV	0.2	U
TO-15	1,2-DICHLOROBENZENE	95-50-1	PPBV	0.2	U
TO-15	1,2-DICHLOROETHANE	107-06-2	PPBV	0.2	U
TO-15	1,2-DICHLOROPROPANE	78-87-5	PPBV	0.2	U
TO-15	1,3-DICHLOROBENZENE	541-73-1	PPBV	0.2	U
TO-15	1,4-DICHLOROBENZENE	106-46-7	PPBV	0.2	U
TO-15	2-BUTANONE	78-93-3	PPBV	1.4	
TO-15	2-HEXANONE	591-78-6	PPBV	0.5	U
TO-15	4-METHYL-2-PENTANONE	108-10-1	PPBV	0.5	U
TO-15	ACETONE	67-64-1	PPBV	7.5	
TO-15	BENZENE	71-43-2	PPBV	0.2	U
TO-15	BROMODICHLOROMETHANE	75-27-4	PPBV	0.2	U
TO-15	BROMOFORM	75-25-2	PPBV	0.2	U
TO-15	BROMOMETHANE	74-83-9	PPBV	0.2	U
TO-15	CARBON DISULFIDE	75-15-0	PPBV	0.5	U
TO-15	CARBON TETRACHLORIDE	56-23-5	PPBV	0.2	U
TO-15	CHLOROBENZENE	108-90-7	PPBV	0.2	U
TO-15	CHLOROETHANE	75-00-3	PPBV	0.5	U
TO-15	CHLOROFORM	67-66-3	PPBV	0.2	U
TO-15	CHLOROMETHANE	74-87-3	PPBV	0.52	
TO-15	CIS-1,2-DICHLOROETHENE	156-59-2	PPBV	0.2	U
TO-15	CIS-1,3-DICHLOROPROPENE	10061-01-5	PPBV	0.2	U
TO-15	CYCLOHEXANE	110-82-7	PPBV	0.25	
TO-15	DIBROMOCHLOROMETHANE	124-48-1	PPBV	0.2	U
TO-15	DICHLORODIFLUOROMETHANE	75-71-8	PPBV	0.5	U
TO-15	ETHYLBENZENE	100-41-4	PPBV	0.2	U
TO-15	ISOPROPYLBENZENE	98-82-8	PPBV	0.2	U
TO-15	M- AND P-XYLENE	108-38-3/106-42	PPBV	0.5	U
TO-15	METHYL TERT-BUTYL ETHER	1634-04-4	PPBV	0.2	U
TO-15	METHYLENE CHLORIDE	75-09-2	PPBV	0.5	U
TO-15	O-XYLENE	95-47-6	PPBV	0.2	U
TO-15	STYRENE	100-42-5	PPBV	0.2	U
TO-15	TETRACHLOROETHENE	127-18-4	PPBV	0.2	U
TO-15	TOLUENE	108-88-3	PPBV	0.49	
TO-15	TRANS-1,2-DICHLOROETHENE	156-60-5	PPBV	0.2	U
TO-15	TRANS-1,3-DICHLOROPROPENE	10061-02-6	PPBV	0.2	U
TO-15	TRICHLOROETHENE	79-01-6	PPBV	0.2	U
TO-15	TRICHLOROFLUOROMETHANE	75-69-4	PPBV	0.22	
TO-15	VINYL CHLORIDE	75-01-4	PPBV	0.2	U
TO-15	XYLENES, TOTAL	1330-20-7	PPBV	0.2	U

Notes:

PPBV = Parts per billion by volume
Qual = Final qualifier
U = The analyte was analyzed for and not detected above the reported sample quantitation limit.

Section 5

VPB 157 Analytical Data Table

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		5/18/2015	5/19/2015	5/19/2015	5/21/2015
Sample ID		VPB157-GW-051815-58-60	VPB157-GW-051915-98-100	VPB157-GW-D-051915	VPB157-GW-052115-148150
Sample interval		58-60 ft	98-100 ft	98-100 ft	148-150 ft
Sample type code		N	N	FD	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2,4-TRICHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***
1,2-DIBROMOETHANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-DICHLOROPROPANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,3-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,4-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-BUTANONE	50	**2.8 J**	< 2.5 U	< 2.5 U	< 2.5 U
2-HEXANONE	50	< 2.5 UJ	< 2.5 U	< 2.5 U	< 2.5 U
4-METHYL-2-PENTANONE	NL	< 2.5 UJ	< 2.5 U	< 2.5 U	< 2.5 U
ACETONE	50	**20**	**3.9 J**	**3.6 J**	**4.4 J**
BENZENE	1	**0.28 J**	< 0.50 U	< 0.50 U	< 0.50 U
BROMODICHLOROMETHANE	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
BROMOFORM	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
BROMOMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
CARBON DISULFIDE	60	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
DIBROMOCHLOROMETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
DICHLORODIFLUOROMETHANE	5	< 1.0 U	UR	UR	< 1.0 U
ETHYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
ISOPROPYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
M- AND P-XYLENE	NL	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
METHYL ACETATE	NL	< 0.75 U	< 0.75 U	< 0.75 U	< 0.75 U
METHYL CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
METHYL TERT-BUTYL ETHER	10	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
METHYLENE CHLORIDE	5	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
O-XYLENE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
STYRENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TOLUENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
TRICHLOROETHENE	5	**0.45 J**	**0.46 J**	**0.49 J**	**0.54 J**
TRICHLOROFLUOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
VINYL CHLORIDE	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
XYLENES, TOTAL	5	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		5/21/2015	5/21/2015	5/22/2015	5/22/2015
Sample ID		VPB157-GW-052115-198-200	VPB157-GW-052115-218-220	VPB157-052215-238-240	VPB157-052215-258-260
Sample interval		198-200 ft	218-220 ft	238-240 ft	258-260 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,2,4-TRICHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***	***< 0.75 UJ***
1,2-DIBROMOETHANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,2-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
1,2-DICHLOROPROPANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,3-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
1,4-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
2-BUTANONE	50	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 UJ
2-HEXANONE	50	< 2.5 U	< 2.5 U	< 2.5 UJ	< 2.5 UJ
4-METHYL-2-PENTANONE	NL	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 UJ
ACETONE	50	**3.1 J**	**6.2**	< 2.5 UJ	< 2.5 UJ
BENZENE	1	< 0.50 U	**0.26 J**	< 0.50 U	< 0.50 UJ
BROMODICHLOROMETHANE	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
BROMOFORM	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
BROMOMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
CARBON DISULFIDE	60	< 0.50 U	< 0.50 U	< 0.50 U	**0.32 J**
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
CHLOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 UJ***
CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
DIBROMOCHLOROMETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
DICHLORODIFLUOROMETHANE	5	< 1.0 U	UR	< 1.0 U	< 1.0 UJ
ETHYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
ISOPROPYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
M- AND P-XYLENE	NL	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
METHYL ACETATE	NL	< 0.75 U	< 0.75 U	< 0.75 U	< 0.75 UJ
METHYL CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
METHYL TERT-BUTYL ETHER	10	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
METHYLENE CHLORIDE	5	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 UJ
O-XYLENE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
STYRENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
TOLUENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 UJ
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 UJ***
TRICHLOROETHENE	5	**0.46 J**	**0.49 J**	**0.40 J**	**0.86 J**
TRICHLOROFLUOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
VINYL CHLORIDE	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
XYLENES, TOTAL	5	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 UJ

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		5/22/2015	5/26/2015	5/26/2015	5/26/2015
Sample ID		VPB157-052215-278-280	VPB157-052615-298-300	VPB157-052615-318-320	VPB157-052615-338-340
Sample interval		278-280 ft	298-300 ft	318-320 ft	338-340 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 UJ	**1.7**	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,2,4-TRICHLOROBENZENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 UJ***	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***
1,2-DIBROMOETHANE	NL	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 UJ	**0.34 J**	< 1.0 U	< 1.0 U
1,2-DICHLOROPROPANE	1	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,3-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
1,4-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
2-BUTANONE	50	< 2.5 UJ	< 2.5 U	< 2.5 U	< 2.5 U
2-HEXANONE	50	< 2.5 UJ	< 2.5 UJ	< 2.5 U	< 2.5 U
4-METHYL-2-PENTANONE	NL	< 2.5 UJ	< 2.5 U	< 2.5 U	< 2.5 U
ACETONE	50	< 2.5 UJ	< 2.5 UJ	< 2.5 UJ	< 2.5 UJ
BENZENE	1	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
BROMODICHLOROMETHANE	50	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
BROMOFORM	50	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
BROMOMETHANE	5	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 UJ
CARBON DISULFIDE	60	< 0.50 UJ	< 0.50 U	< 0.50 UJ	< 0.50 UJ
CARBON TETRACHLORIDE	5	< 0.50 UJ	**0.28 J**	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CHLOROFORM	7	< 0.50 UJ	**0.35 J**	< 0.50 U	< 0.50 U
CHLOROMETHANE	5	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 UJ	**0.34 J**	< 0.50 U	< 0.50 U
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
DIBROMOCHLOROMETHANE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
DICHLORODIFLUOROMETHANE	5	< 1.0 UJ	**0.38 J**	< 1.0 UJ	< 1.0 UJ
ETHYLBENZENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
ISOPROPYLBENZENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
M- AND P-XYLENE	NL	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U
METHYL ACETATE	NL	< 0.75 UJ	< 0.75 U	< 0.75 U	< 0.75 U
METHYL CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
METHYL TERT-BUTYL ETHER	10	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
METHYLENE CHLORIDE	5	< 2.5 UJ	< 2.5 U	< 2.5 U	< 2.5 U
O-XYLENE	NL	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
STYRENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 UJ	**1.2**	< 0.50 U	< 0.50 U
TOLUENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
TRICHLOROETHENE	5	< 0.50 UJ	**42**	**0.45 J**	**0.37 J**
TRICHLOROFLUOROMETHANE	5	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U
VINYL CHLORIDE	2	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U
XYLENES, TOTAL	5	< 1.5 UJ	< 1.5 U	< 1.5 U	< 1.5 U

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		5/27/2015	5/27/2015	5/28/2015	5/28/2015
Sample ID		VPB157-GW-052715-358 360	VPB157-GW-052715-378 380	VPB157-GW-052815-398 400	VPB157-GW-052815-418 420
Sample interval		358-360 ft	378-380 ft	398-400 ft	418-420 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2,4-TRICHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***	***< 0.75 U***
1,2-DIBROMOETHANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-DICHLOROPROPANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,3-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,4-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
2-BUTANONE	50	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
2-HEXANONE	50	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
4-METHYL-2-PENTANONE	NL	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
ACETONE	50	**5.2**	**4.4 J**	**5.0**	**2.7 J**
BENZENE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
BROMODICHLOROMETHANE	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
BROMOFORM	50	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
BROMOMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
CARBON DISULFIDE	60	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
DIBROMOCHLOROMETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
DICHLORODIFLUOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
ETHYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
ISOPROPYLBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
M- AND P-XYLENE	NL	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
METHYL ACETATE	NL	< 0.75 U	< 0.75 U	< 0.75 U	< 0.75 U
METHYL CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
METHYL TERT-BUTYL ETHER	10	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
METHYLENE CHLORIDE	5	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
O-XYLENE	NL	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
STYRENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TOLUENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***	***< 0.50 U***
TRICHLOROETHENE	5	< 0.50 U	**0.39 J**	**0.86 J**	**5.4**
TRICHLOROFLUOROMETHANE	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
VINYL CHLORIDE	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
XYLENES, TOTAL	5	< 1.5 U	< 1.5 U	< 1.5 U	< 1.5 U

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		5/28/2015	5/29/2015	5/29/2015	5/29/2015
Sample ID		VPB157-GW-052815-438 440	VPB157-GW-052915-458 460	VPB157-GW-052915-478 480	VPB157-GW-052915-498 500
Sample interval		438-440 ft	458-460 ft	478-480 ft	498-500 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	UR
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	***< 2.0 UJ***	< 0.50 UJ
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,2,4-TRICHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 U***	***< 0.75 U***	***< 3.0 UJ***	***< 0.75 UJ***
1,2-DIBROMOETHANE	NL	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,2-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 U	**0.39 J**	< 4.0 UJ	< 1.0 UJ
1,2-DICHLOROPROPANE	1	< 0.50 U	< 0.50 U	***< 2.0 UJ***	< 0.50 UJ
1,3-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
1,4-DICHLOROBENZENE	3	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
2-BUTANONE	50	< 2.5 U	< 2.5 U	< 10 UJ	< 2.5 UJ
2-HEXANONE	50	< 2.5 U	< 2.5 U	< 10 UJ	< 2.5 UJ
4-METHYL-2-PENTANONE	NL	< 2.5 U	< 2.5 U	< 10 UJ	< 2.5 UJ
ACETONE	50	**2.6 J**	**3.9 J**	< 10 UJ	**3.3 J**
BENZENE	1	< 0.50 U	< 0.50 U	***< 2.0 UJ***	< 0.50 UJ
BROMODICHLOROMETHANE	50	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
BROMOFORM	50	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
BROMOMETHANE	5	< 1.0 U	< 1.0 UJ	< 4.0 UJ	< 1.0 UJ
CARBON DISULFIDE	60	< 0.50 U	< 0.50 UJ	< 2.0 UJ	< 0.50 UJ
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 4.0 UJ	< 1.0 UJ
CHLOROFORM	7	< 0.50 U	**2.7**	< 2.0 UJ	< 0.50 UJ
CHLOROMETHANE	5	< 1.0 U	< 1.0 U	< 4.0 UJ	< 1.0 UJ
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	**0.39 J**	< 2.0 UJ	< 0.50 UJ
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 2.0 UJ***	***< 0.50 UJ***
CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
DIBROMOCHLOROMETHANE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
DICHLORODIFLUOROMETHANE	5	< 1.0 U	< 1.0 UJ	< 4.0 UJ	< 1.0 UJ
ETHYLBENZENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
ISOPROPYLBENZENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
M- AND P-XYLENE	NL	< 1.0 U	< 1.0 U	< 4.0 UJ	< 1.0 UJ
METHYL ACETATE	NL	< 0.75 U	< 0.75 U	< 3.0 UJ	UR
METHYL CYCLOHEXANE	NL	< 0.50 U	< 0.50 U	< 2.0 UJ	UR
METHYL TERT-BUTYL ETHER	10	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
METHYLENE CHLORIDE	5	< 2.5 U	< 2.5 U	***< 10 UJ***	< 2.5 UJ
O-XYLENE	NL	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
STYRENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
TETRACHLOROETHENE	5	< 0.50 U	**0.53 J**	< 2.0 UJ	**0.86 J**
TOLUENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 2.0 UJ	< 0.50 UJ
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 U***	***< 2.0 UJ***	***< 0.50 UJ***
TRICHLOROETHENE	5	**1.5**	**130**	**2.8 J**	**5.1 J**
TRICHLOROFLUOROMETHANE	5	< 1.0 U	< 1.0 U	< 4.0 UJ	< 1.0 UJ
VINYL CHLORIDE	2	< 1.0 U	< 1.0 U	***< 4.0 UJ***	< 1.0 UJ
XYLENES, TOTAL	5	< 1.5 U	< 1.5 U	***< 6.0 UJ***	< 1.5 UJ

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		6/1/2015	6/1/2015	6/1/2015	6/2/2015
Sample ID		VPB157-GW-060115-518 520	VPB157-GW-060115-538 540	VPB157-GW-D-060115	VPB157-GW-060215-563 565
Sample interval		518-520 ft	538-540 ft	538-540 ft	563-565 ft
Sample type code		N	N	FD	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	**0.37 J**	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 UJ	**0.67 J**	< 0.50 UJ	**1.1**
1,1,2-TRICHLOROETHANE	1	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,1-DICHLOROETHANE	5	**0.70 J**	**0.74 J**	< 0.50 UJ	< 0.50 U
1,1-DICHLOROETHENE	5	**0.85 J**	**1.2 J**	**0.98 J**	**0.54 J**
1,2,4-TRICHLOROBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 UJ***	***< 0.75 UJ***	***< 0.75 UJ***	***< 0.75 U***
1,2-DIBROMOETHANE	NL	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,2-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,2-DICHLOROETHENE, TOTAL	5	**1.3 J**	**1.7 J**	**1.9 J**	**0.27 J**
1,2-DICHLOROPROPANE	1	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,3-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
1,4-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
2-BUTANONE	50	**1.9 J**	**1.4 J**	< 2.5 UJ	< 2.5 U
2-HEXANONE	50	< 2.5 UJ	< 2.5 UJ	< 2.5 UJ	< 2.5 U
4-METHYL-2-PENTANONE	NL	< 2.5 UJ	< 2.5 UJ	< 2.5 UJ	< 2.5 U
ACETONE	50	**20 J**	**12 J**	**12 J**	< 2.5 U
BENZENE	1	**0.43 J**	< 0.50 UJ	< 0.50 UJ	< 0.50 U
BROMODICHLOROMETHANE	50	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
BROMOFORM	50	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
BROMOMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CARBON DISULFIDE	60	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ
CARBON TETRACHLORIDE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
CHLOROBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
CHLOROFORM	7	**0.48 J**	< 0.50 UJ	< 0.50 UJ	< 0.50 U
CHLOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	**1.3 J**	**1.7 J**	**1.9 J**	**0.27 J**
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 UJ***	***< 0.50 UJ***	***< 0.50 U***
CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
DIBROMOCHLOROMETHANE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
DICHLORODIFLUOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
ETHYLBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
ISOPROPYLBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
M- AND P-XYLENE	NL	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 U
METHYL ACETATE	NL	< 0.75 UJ	< 0.75 UJ	< 0.75 UJ	< 0.75 U
METHYL CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
METHYL TERT-BUTYL ETHER	10	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
METHYLENE CHLORIDE	5	< 2.5 UJ	< 2.5 UJ	< 2.5 UJ	< 2.5 U
O-XYLENE	NL	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
STYRENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
TETRACHLOROETHENE	5	**1.3 J**	**3.4 J**	**4.0 J**	**8.0**
TOLUENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 U
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 UJ***	***< 0.50 UJ***	***< 0.50 U***
TRICHLOROETHENE	5	**54 J**	**21 J**	**20 J**	**9.7**
TRICHLOROFLUOROMETHANE	5	< 1.0 UJ	**0.42 J**	**0.33 J**	< 1.0 U
VINYL CHLORIDE	2	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 U
XYLENES, TOTAL	5	< 1.5 UJ	< 1.5 UJ	< 1.5 UJ	< 1.5 U

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		6/3/2015	6/3/2015	6/8/2015	6/8/2015
Sample ID		VPB157-GW-060315-578 580	VPB157-GW-060315-618 620	VPB157-GW-060815-728 730	VPB157-GW-060815-738 740
Sample interval		578-580 ft	618-620 ft	728-730 ft	738-740 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	**1.2**	**0.41 J**	< 4.0 UJ	< 4.0 UJ
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,1-DICHLOROETHENE	5	< 0.50 U	**0.35 J**	< 4.0 UJ	< 4.0 UJ
1,2,4-TRICHLOROBENZENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 U***	***< 0.75 UJ***	***< 6.0 UJ***	***< 6.0 UJ***
1,2-DIBROMOETHANE	NL	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,2-DICHLOROBENZENE	3	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 U	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
1,2-DICHLOROPROPANE	1	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
1,3-DICHLOROBENZENE	3	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
1,4-DICHLOROBENZENE	3	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
2-BUTANONE	50	< 2.5 U	**2.0 J**	< 20 UJ	< 20 UJ
2-HEXANONE	50	< 2.5 U	< 2.5 UJ	< 20 UJ	< 20 UJ
4-METHYL-2-PENTANONE	NL	< 2.5 U	< 2.5 UJ	< 20 UJ	< 20 UJ
ACETONE	50	< 2.5 U	< 2.5 UJ	< 20 UJ	< 20 UJ
BENZENE	1	< 0.50 U	< 0.50 UJ	***< 4.0 UJ***	***< 4.0 UJ***
BROMODICHLOROMETHANE	50	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
BROMOFORM	50	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
BROMOMETHANE	5	< 1.0 UJ	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
CARBON DISULFIDE	60	< 0.50 UJ	**0.39 J**	< 4.0 UJ	< 4.0 UJ
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
CHLOROBENZENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
CHLOROFORM	7	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
CHLOROMETHANE	5	< 1.0 U	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 UJ***	***< 4.0 UJ***	***< 4.0 UJ***
CYCLOHEXANE	NL	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
DIBROMOCHLOROMETHANE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
DICHLORODIFLUOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
ETHYLBENZENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
ISOPROPYLBENZENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
M- AND P-XYLENE	NL	< 1.0 U	< 1.0 UJ	< 8.0 UJ	< 8.0 UJ
METHYL ACETATE	NL	< 0.75 U	< 0.75 UJ	< 6.0 UJ	< 6.0 UJ
METHYL CYCLOHEXANE	NL	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
METHYL TERT-BUTYL ETHER	10	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
METHYLENE CHLORIDE	5	< 2.5 U	< 2.5 UJ	***< 20 UJ***	***< 20 UJ***
O-XYLENE	NL	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
STYRENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
TETRACHLOROETHENE	5	**7.4**	**3.4 J**	< 4.0 UJ	< 4.0 UJ
TOLUENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 UJ	< 4.0 UJ	< 4.0 UJ
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 U***	***< 0.50 UJ***	***< 4.0 UJ***	***< 4.0 UJ***
TRICHLOROETHENE	5	**9.3**	**4.6 J**	< 4.0 UJ	< 4.0 UJ
TRICHLOROFLUOROMETHANE	5	**0.27 J**	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
VINYL CHLORIDE	2	< 1.0 U	< 1.0 UJ	***< 8.0 UJ***	***< 8.0 UJ***
XYLENES, TOTAL	5	< 1.5 U	< 1.5 UJ	***< 12 UJ***	***< 12 UJ***

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157	VPB157	VPB157	VPB157
Sample Date		6/9/2015	6/9/2015	6/9/2015	6/10/2015
Sample ID		VPB157-GW-060915-758760	VPB157-GW-060915-778780	VPB157-GW-060915-798800	VPB157-GW-061015-818820
Sample interval		758-760 ft	778-780 ft	798-800 ft	818-820 ft
Sample type code		N	N	N	N
VOC 8260C (ug/L)					
1,1,1-TRICHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,2,4-TRICHLOROBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 0.75 UJ***	***< 0.75 UJ***	***< 1.5 UJ***	***< 0.75 U***
1,2-DIBROMOETHANE	NL	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,2-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,2-DICHLOROETHENE, TOTAL	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
1,2-DICHLOROPROPANE	1	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,3-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
1,4-DICHLOROBENZENE	3	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
2-BUTANONE	50	**1.8 J**	< 2.5 UJ	**2.8 J**	< 2.5 U
2-HEXANONE	50	< 2.5 UJ	< 2.5 UJ	< 5.0 UJ	< 2.5 U
4-METHYL-2-PENTANONE	NL	< 2.5 UJ	< 2.5 UJ	< 5.0 UJ	< 2.5 U
ACETONE	50	**10 J**	**3.7 J**	**10 J**	**3.7 J**
BENZENE	1	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
BROMODICHLOROMETHANE	50	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
BROMOFORM	50	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
BROMOMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
CARBON DISULFIDE	60	**0.32 J**	< 0.50 UJ	< 1.0 UJ	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
CHLOROBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
CHLOROETHANE	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
CHLOROFORM	7	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
CHLOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
CIS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 UJ***	***< 1.0 UJ***	***< 0.50 U***
CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
DIBROMOCHLOROMETHANE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
DICHLORODIFLUOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
ETHYLBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
ISOPROPYLBENZENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
M- AND P-XYLENE	NL	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
METHYL ACETATE	NL	< 0.75 UJ	< 0.75 UJ	< 1.5 UJ	< 0.75 UJ
METHYL CYCLOHEXANE	NL	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
METHYL TERT-BUTYL ETHER	10	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
METHYLENE CHLORIDE	5	< 2.5 UJ	< 2.5 UJ	< 5.0 UJ	< 2.5 U
O-XYLENE	NL	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
STYRENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
TOLUENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
TRANS-1,3-DICHLOROPROPENE	0.4	***< 0.50 UJ***	***< 0.50 UJ***	***< 1.0 UJ***	***< 0.50 U***
TRICHLOROETHENE	5	< 0.50 UJ	< 0.50 UJ	< 1.0 UJ	< 0.50 U
TRICHLOROFLUOROMETHANE	5	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
VINYL CHLORIDE	2	< 1.0 UJ	< 1.0 UJ	< 2.0 UJ	< 1.0 U
XYLENES, TOTAL	5	< 1.5 UJ	< 1.5 UJ	< 3.0 UJ	< 1.5 U

Location	NYSDEC Groundwater Guidance or Standard Value (Note 1)	VPB157
Sample Date		6/10/2015
Sample ID		VPB157-GW-061015-838 840
Sample interval		838-840 ft
Sample type code		N
VOC 8260C (ug/L)		
1,1,1-TRICHLOROETHANE	5	< 2.0 UJ
1,1,2,2-TETRACHLOROETHANE	5	< 2.0 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 2.0 UJ
1,1,2-TRICHLOROETHANE	1	***< 2.0 UJ***
1,1-DICHLOROETHANE	5	< 2.0 UJ
1,1-DICHLOROETHENE	5	< 2.0 UJ
1,2,4-TRICHLOROBENZENE	5	< 2.0 UJ
1,2-DIBROMO-3-CHLOROPROPANE	0.04	***< 3.0 UJ***
1,2-DIBROMOETHANE	NL	< 2.0 UJ
1,2-DICHLOROBENZENE	3	< 2.0 UJ
1,2-DICHLOROETHANE	5	< 2.0 UJ
1,2-DICHLOROETHENE, TOTAL	5	< 4.0 UJ
1,2-DICHLOROPROPANE	1	***< 2.0 UJ***
1,3-DICHLOROBENZENE	3	< 2.0 UJ
1,4-DICHLOROBENZENE	3	< 2.0 UJ
2-BUTANONE	50	< 10 UJ
2-HEXANONE	50	< 10 UJ
4-METHYL-2-PENTANONE	NL	< 10 UJ
ACETONE	50	**13 J**
BENZENE	1	***< 2.0 UJ***
BROMODICHLOROMETHANE	50	< 2.0 UJ
BROMOFORM	50	< 2.0 UJ
BROMOMETHANE	5	< 4.0 UJ
CARBON DISULFIDE	60	< 2.0 UJ
CARBON TETRACHLORIDE	5	< 2.0 UJ
CHLOROBENZENE	5	< 2.0 UJ
CHLOROETHANE	5	< 4.0 UJ
CHLOROFORM	7	< 2.0 UJ
CHLOROMETHANE	5	< 4.0 UJ
CIS-1,2-DICHLOROETHENE	5	< 2.0 UJ
CIS-1,3-DICHLOROPROPENE	0.4	***< 2.0 UJ***
CYCLOHEXANE	NL	< 2.0 UJ
DIBROMOCHLOROMETHANE	5	< 2.0 UJ
DICHLORODIFLUOROMETHANE	5	< 4.0 UJ
ETHYLBENZENE	5	< 2.0 UJ
ISOPROPYLBENZENE	5	< 2.0 UJ
M- AND P-XYLENE	NL	< 4.0 UJ
METHYL ACETATE	NL	< 3.0 UJ
METHYL CYCLOHEXANE	NL	< 2.0 UJ
METHYL TERT-BUTYL ETHER	10	< 2.0 UJ
METHYLENE CHLORIDE	5	***< 10 UJ***
O-XYLENE	NL	< 2.0 UJ
STYRENE	5	< 2.0 UJ
TETRACHLOROETHENE	5	< 2.0 UJ
TOLUENE	5	< 2.0 UJ
TRANS-1,2-DICHLOROETHENE	5	< 2.0 UJ
TRANS-1,3-DICHLOROPROPENE	0.4	***< 2.0 UJ***
TRICHLOROETHENE	5	< 2.0 UJ
TRICHLOROFLUOROMETHANE	5	< 4.0 UJ
VINYL CHLORIDE	2	***< 4.0 UJ***
XYLENES, TOTAL	5	***< 6.0 UJ***

Notes:

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (6 NYCRR 700-706, Part 703.5 summarized in TOGS 1.1.1)
Ambient water quality standards and groundwater effluent limitations, class GA; NL = Not Listed

Bold = Detected; ***Bold and Italics*** =Not detected exceeds NYS Groundwater Standards or guidance value

Yellow highlighted values exceed Groundwater Standards or guidance value

Sample type codes: N - normal environmental sample, FD - field duplicate

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte.

UR = Rejected/unusable data. The analyte was not detected and rejected due to one or more QC parameters significantly exceeding control limits.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

M = the matrix spike or matrix spike duplicate did not meet recovery or precision requirements.

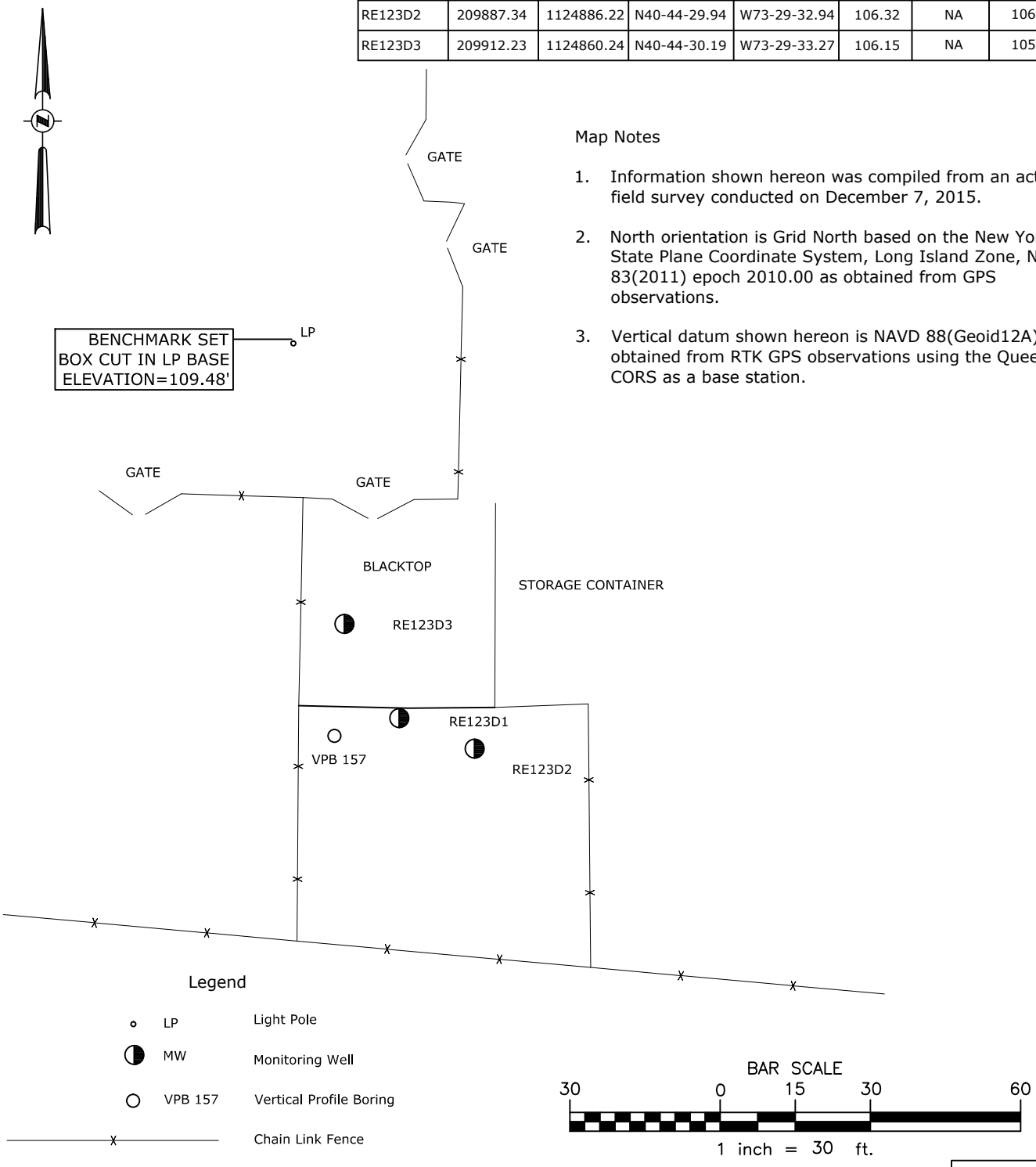
Section 6

Survey

NONE :XREFS

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Description	Northing	Easting	Latitude	Longitude	Ground	Rim	PVC
VPB 157	209889.90	1124858.22	N40-44-29.97	W73-29-33.30	106.01	NA	NA
RE123D1	209894.44	1124871.20	N40-44-30.00	W73-29-33.13	105.93	NA	105.49
RE123D2	209887.34	1124886.22	N40-44-29.94	W73-29-32.94	106.32	NA	106.11
RE123D3	209912.23	1124860.24	N40-44-30.19	W73-29-33.27	106.15	NA	105.92



Map Notes

1. Information shown hereon was compiled from an actual field survey conducted on December 7, 2015.
2. North orientation is Grid North based on the New York State Plane Coordinate System, Long Island Zone, NAD 83(2011) epoch 2010.00 as obtained from GPS observations.
3. Vertical datum shown hereon is NAVD 88(Geoid12A) as obtained from RTK GPS observations using the Queens CORS as a base station.

DWG NO. 15-660

Date	RECORD OF WORK	Appr.

Drafter: LMK | Checker: JFC

Appr. by: JFC | Proj. No. 14.4121

VERTICAL PROFILE BORING 157 SURVEY LOCATION
PARKING LOT OFF OF SUNBEAM AVE.

TOWN OF BETHPAGE | NASSAU COUNTY, NEW YORK

C.T. MALE ASSOCIATES
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518.786.7400 * FAX 518.786.7299

SCALE: 1"=30' | DATE: DECEMBER 7, 2015

CAD DWG. FILE NAME: K:\Projects\144121\Survey\Drawings and Maps\VPB 157.dwg