

November 29, 2017

Mr. Michael Belveg
Project Manager
NYSDEC Region 7
615 Erie Boulevard West
Syracuse, New York 13204

Re: Pass and Seymour AOC-1 Soil Borings and Soil Sample Results

Dear Mr. Belveg,

The purpose of this letter is to present the results of a soil boring and sampling program described in a workplan submitted to you on April 26, 2017. The intent of this sampling was to better define potential locations of source material within a portion of AOC-1 at the Pass and Seymour Brownfield site C734102 located at 50 Boyd Ave, Solvay, New York.

As you are aware, groundwater impacted with Trichloroethene (TCE) and related compounds was treated in 2009 and again in 2012 with Potassium and Sodium Permanganate in two portions of the site designated as AOC-1 both overburden and bedrock plus AOC-2. Much of the groundwater impact with solvent contamination has responded well to the chemical oxidation process with many of the impacted wells showing declines of 90%. However, a core area of bedrock wells in AOC-1 has shown persistent high concentrations of TCE and Dichloroethene (DCE), particularly in four wells: OW1-1, OW1-2, OW1-3 and BR09-37. These wells, shown on the attached figure, are clustered in an area between the former manufacturing building and the existing office building. The zone that includes these wells and the impacted groundwater is approximately fifty feet across (east-west) and one hundred feet long (north-south).

Passive Soil Gas Sampling Results

The results of soil gas sampling were reported to DEC/DOH in a report dated December 2, 2016. Sample results indicated elevated soil vapor in three locations on site, specifically soil vapor locations 4, 5 and 11. The soil borings program was focused on those three locations to determine whether impacted soil/weathered bedrock could be identified.

Soil Boring Approach and Results of Sampling

The approach to locating soil borings was described in the approved workplan with a boring to be installed exactly at the location of soil vapor sample locations 4, 5 and 11, and then radiating out from each of the three locations. The total depth of each boring was dictated by complete auger refusal. Each boring was terminated at a depth that was well into weathered shale bedrock and at which complete auger refusal was experienced. A slight deviation from the workplan procedure was to select samples for analysis based on Photoionization Detector (PID) readings of 10 PPM instead of 50

PPM. In some cases, more than one soil sample was taken from each boring because of distinct zones of impact observed at more than one interval of soil/weathered rock. Figure 1 shows the locations of the completed soil borings. It was not possible to complete a boring just east of soil boring 12 due to the proximity of the fence. An additional boring was added, delineated as soil boring 11. This location was chosen due to nearby impact and the presence of a scupper drain in the building foundation (see the attached photograph). Boring 11 was located just uphill of OW1-2 and 5 feet due east of the scupper drain.

A total of 15 borings were completed to depths varying between 10.3 feet below ground surface (bgs) and 15.5 feet bgs. Generally speaking, the depth to auger refusal increased by about 4-5 feet between the northern borings (soil borings 12, 13, 14 and 15) as compared with the southern borings (soil borings 1-10). This would seem to indicate that the top of the unweathered shale is flat or perhaps dipping slightly to the south. All boring logs are attached.

No soil samples were taken from borings 1-10 because there were no PID readings that exceeded 10 ppm. The highest reading in any of these borings was 7 ppm in SB-4. For boring 11, PID readings of 12 and 12.3 ppm were measured at 12 and 14 feet. During completion of soil boring 12, PID readings of 19 and 10.3 ppm were measured at 3 feet and 8 feet respectively. Soil boring 13 had a PID reading of 26 ppm at 3 feet and soil boring 14 had PID readings of 20 and 10.3 ppm at 3 and 8 feet respectively.

Table 1 shows the results of soil testing completed in accordance with methods described in the workplan from borings completed at location 11 plus the cluster of borings including 12, 13 and 15. The primary contaminant of concern at this site has always been Trichloroethene (TCE) and that is the compound found in highest concentrations in soil samples from these borings. Side by side borings 13 and 15 have TCE concentrations of 94 and 320 ppm at three feet below grade, an interval that corresponds to the fill/weathered shale interface. Adjacent boring 15 has a TCE concentration of 4 ppm at 8 feet bgs. In boring 11 a TCE concentration of 33 ppm was measured in a sample from 14 feet bgs.

Conclusions

The soil vapor survey was a first step to identifying potential sources of TCE impact AOC-1 overburden, and soil borings were installed based on the results of soil vapor testing. The result of soil boring and testing is the identification of two locations in overburden containing elevated concentrations of TCE that could be ongoing sources of groundwater impact.

Further Action

Once the DEC and DOH have reviewed and approved this report, Pass and Seymour will submit a workplan describing a remedial action to address the impact observed. The workplan will be submitted within 45 days of the DEC/DOH approval of this report.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "David W. Stoner".

David W. Stoner, PG
President

Figure Legend

- Existing AOC-1 Monitoring Wells
- Soil Boring Locations

OW1-3
BR09-37
OW1-2
OW1-1

 **DW Stoner
& Associates, LLC**

Pass and Seymour Boyd Ave Site
NYSDEC Brownfield Site Number C734102
Figure 1
Soil Boring Locations (#1-15)
Job Number 1225 October 2017

Boyd Ave

TABLE 1
SOIL SAMPLE RESULTS

Analyte (mg/kg)	SB 11-12	SB 11-14.2	SB 12-8	SB 13-3	SB 15-3	SB 15-8
1,1,1 trichloroethane	ND	.0023J	ND	ND	ND	ND
1,1 dichloroethene	ND	0.00073J	ND	ND	ND	ND
1,2 dichlorobenzene	0.0016J	0.0019J	ND	ND	ND	ND
1,3 dichlorobenzene	0.00031J	ND	ND	ND	ND	ND
1,2,4 trichlorobenzene	0.00055J	ND	ND	ND	ND	ND
Acetone	0.0061J	0.0087J	0.026	ND	0.0078J	14J
Benzene	ND	0.00033J	0.00026J	ND	ND	ND
Chloroform	ND	ND	ND	0.00039J	0.00056JB	ND
cis-1,2 dichloroethene	0.0074	0.150	ND	0.011	0.0011J	ND
Ethylbenzene	ND	0.0022J	ND	ND	ND	ND
Methylcyclohexane	0.0017J	0.0016J	ND	ND	ND	ND
Tetrachloroethene	0.092	3.9	0.0023J	0.0013J	0.0048	0.0014J
Toluene	ND	0.001J	ND	ND	ND	ND
Trichloroethene	0.026	33	0.170	94	320	4
Xylenes, total	ND	0.0074J	ND	ND	ND	ND

ATTACHMENTS

BORING LOGS

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-1
Sheet 1 of 1

Date(s) Drilled	Aug 28,2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	15 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured	NA	Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Fill material 0-5.7 ft	
	5						Silty clay 6-11.7 ft bgs	PID readings 0 PPM all split spoons
	10						Weathered shale 11.7-15 ft.	
	15						Complete auger refusal at 15 ft 50 blows per 0.4 ft	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-2

Sheet 1 of 1

Date(s) Drilled	Aug 28,2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	15 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured	NA	Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Fill material 0-6 ft bgs ft	
	5						Silty clay 6-10 ft bgs	PID readings 0 PPM all split spoons
	10						Weathered shale 10-15 ft.	
	15						Complete auger refusal at 15 ft 50 blows per 0.4 ft	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-3

Sheet 1 of 1

Date(s) Drilled	Aug 28,2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	14.1
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured	NA	Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Fill material 0-4 ft	
	5						Very hard silty clay 4-10 ft bgs	PID readings 0 PPM all split spoons
	10						Weathered shale 10-14.1 ft.	
	15						Complete auger refusal at 14.1 ft 50 blows per 0.4 ft	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-4

Sheet 1 of 1

Date(s) Drilled	August 28, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	14.5
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-2 ft bgs- fill material	PID readings: 7ppm at 1.5 ft
							2-4 silty clay-very hard	4ppm at 4.4 ft
							4-8 ft- hard weathered silty clay	
	5							
							8-12 weathered shale moist	0.7ppm at 8.5 ft
	10						12-14.5- moist weathered shale	
							Auger refusal at 14.5 ft bgs	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-5
Sheet 1 of 1

Date(s) Drilled	August 28, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	10
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-3 ft fill	
							2-4 silty clay	
							4-6 clay	
	5						6-10 silty clay, moist but increasing in density	
							10-12 silty clay	
	10						12-14.5 very dense weathered shale	
							14.5 auger refusal	
	15							
	20							
	25							
	30							

 PID readings all 0.0
with the exception of
a reading of 0.3ppm at
3 ft and 0.3ppm at 14-
14.1 ft

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-6

Sheet 1 of 1

Date(s) Drilled	August 29, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	13 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-4 ft fill	PID readings all 0 ppm
	5						4-6 ft bgs wet fill	
	10						6-13 ft bgs dry to moist weathered shale, increasingly dense with depth	
	15						13 ft bgs complete auger refusal	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-7
Sheet 1 of 1

Date(s) Drilled	August 29, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	13 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-5 ft mixed fill	All PID readings for split spoon samples were 0.0 ppm
	5						5-12 weathered shale with wet zones at 7 ft, 9 ft and 11 ft	
	10						12-13 ft dense weathered shale	
	15						Auger refusal at 13 ft bgs	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-8

Sheet 1 of 1

Date(s) Drilled	August 29, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	14.4 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-4.5 ft fill	All PID readings were 0.0 ppm
							4.5 -8 ft dense weathered shale	
							9-9.5 saturated layer of weathered shale	
	5						9.5-14.4 dense weathered shale	
							Auger refusal 14.4 ft bgs	
	10							
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-9
Sheet 1 of 1

Date(s) Drilled	August 29, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	13.5 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-4 ft fill	All PID readings were 0.0 ppm
							4-8 silty clay	
	5						8-12 moist weathered shale	
							12-13.5 dense weathered shale	
	10						Auger refusal at 13.5 ft bgs	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-10

Sheet 1 of 1

Date(s) Drilled	August 29, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	13.5 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-4.5 ft fill	All PID readings were 0.0 ppm
	5						4.5-12 ft-alternating intervals of dry and moist silty clay	
	10						12-13.5 ft dense weathered shale	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-11

Sheet 1 of 1

Date(s) Drilled	August 30, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	15.5 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	421
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-6 ft fill	PID readings of 0.1 ppm at 3 ft, 1.4 ppm at 7 ft and 12 and 12, 3 ppm at 12 and 14 ft bgs
	5						6-11 moist silty clay	
	10		SB-11-12				11-15.5 ft moist but dense weathered shale	Odor of organic material at 12 ft
	15		SB-11-14.2				Auger refusal at 15.5 ft bgs	
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-12

Sheet 1 of 1

Date(s) Drilled	August 30, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	10.5
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	417
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-7.9 ft fill	PID readings above zero at the following intervals and following concentrations: 19 ppm at 3 ft, 3 ppm at 5 ft, 10.3 ppm at 8 ft and 7 ppm at 10 ft
	5		S B				7.9-10.5 ft weathered shale	
	10		1 2 8				Auger refusal at 10.5 ft	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-13
Sheet 1 of 1

Date(s) Drilled	August 30, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	10.3 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	417
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-3 ft fill	PID readings above 0.0 ppm of 0.2 ppm at 1 ft, 26 ppm at 3 ft, 8.9 ppm at 7 ft 3 ppm at 8.4 ft and 0.1 ppm at 10.4 ft
	5		S B 1 3 3				3-8 ft silty clay	
	10						8-10.3 dense weathered shale	
							Auger refusal at 10.3 ft bgs	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-14

Sheet 1 of 1

Date(s) Drilled	August 30, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	10.3
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	417
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-4 ft fill	PID readings above 0.0 of 5 ppm at 3 ft, 0.1 ppm at 7.4 ft and 4.6 ppm at 10.3 ft
	5						4-8ft moist weathered shale	
							8-10.3 ft dense weathered shale	
	10						Auger refusal at 10.3 ft bgs	
	15							
	20							
	25							
	30							

Project: Pass and Seymour Soil Borings

Project Location: Boyd Ave Solvay NY

Project Number: 1225

Log of Boring SB-15

Sheet 1 of 1

Date(s) Drilled	August 30, 2017	Logged By	DWS	Checked By	
Drilling Method	HSA	Drill Bit Size/Type		Total Depth of Borehole	10.4 ft
Drill Rig Type	HSA	Drilling Contractor	Parratt-Wolff	Approximate Surface Elevation	417
Groundwater Level and Date Measured		Sampling Method(s)	EPA 5035A	Hammer Data	standard
Borehole Backfill	cuttings	Location	AOC-1		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						0-3 ft fill	PID readings above 0.0 ppm of 4.4 ppm at 2 ft, 20 ppm at 3-4 ft 7 ppm at 7.4 ft 10.3 ppm at 8 ft 8.5 ppm at 10 ft
	5		S B- 1 5- 8				3-4 moist silty clay	
							4-10.4 weathered shale- intermittently moist and dry, of increasing density	Odor of naphthalene at 3 ft
	10							
							Auger refusal at 10.4 ft bgs	
	15							
	20							
	25							
	30							

PHOTOGRAPH

