RETTEW

We answer to you.

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Engineers
Environmental Consultants
Surveyors
Landscape Architects
Safety Consultants

May 18, 2017

Radnor Township Board of Commissioners
Radnor Township
301 Iven Avenue
Wayne, PA 19087-5297

RE: Limited Asphalt and Soil Quality Investigation Report
Villanova Parking Lot
Radnor Township, Delaware County, Pennsylvania
RETTEW Project No. 101442012

Dear Commissioners:

RETTEW Associates, Inc. prepared this Limited Asphalt and Soil Quality Investigation Report for the 7-acre Villanova University (Villanova) parking lot (Site) in Radnor Township, Delaware County, Pennsylvania (see **Figure 1**). Student housing is being constructed at the Site. The purpose of this investigation was to determine if the parking lot asphalt contained asbestos and to evaluate general soil quality at the Site.

SITE INVESTIGATION METHODS

RETTEW conducted the investigation at eight selected soil boring locations within the parking lot (see **Figure 2**). Prior to mobilizing to the Site, RETTEW contacted PA One Call in advance of drilling to locate subsurface utilities in the public right-of-way. RETTEW also completed a private utility clearance for each boring location utilizing ground penetrating radar (GPR) and electromagnetic methods (EM).

On April 19, 2017, the eight soil boring locations (identified as R-1 through R-8) were characterized by first coring the asphalt, which was then followed by direct-push soil borings through the core hole. Asphalt samples were collected from each observed layer in the asphalt cores, and were submitted to a subcontracted Environmental Protection Agency (EPA)-accredited laboratory for asbestos containing materials (ACM) polarized light microscopy (PLM) analysis. Asphalt samples were analyzed by Schneider Laboratories Global, Inc. of Richmond, Virginia.

Soil borings were then advanced through the core holes to investigate soil quality using a track-mounted, direct push Geoprobe® drilling rig provided by Eichelbergers, Inc. of Mechanicsburg, Pennsylvania. Soil borings were advanced to a depth of 15 feet below grade. Each soil boring was logged in the field by a RETTEW geoscientist, and soil samples were screened for organic vapors using a photoionization detector (PID). Soil boring logs documenting field observations are provided in **Attachment A**. No bedrock or saturated groundwater conditions were observed in the borings.

A soil sample from the one to two-foot interval, and a deeper soil sample where the highest PID reading was observed, were collected from each boring for laboratory analysis. Sample identification nomenclature consists of the location followed by the depth in feet the sample was collected. For example, sample “R-1(1-2)” was collected at location R-1 at a depth between one and two feet below grade. Each soil sample was preserved in the field using laboratory bottleware and placed in an iced cooler

for delivery to the laboratory. ALS Environmental of Middletown, Pennsylvania analyzed the soil samples for U.S. Environmental Protection Agency (EPA) target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), polychlorinated biphenyl (PCB), and EPA priority pollutant list (PPL) metals.

ASPHALT SAMPLE ANALYTICAL RESULTS

None of the asphalt samples contained asbestos. The laboratory report is provided in **Attachment C**. In general, two layers of asphalt were encountered in each of the eight asphalt cores. A sample of both layers was collected from each of the eight locations (R-1 through R-8) for a total of 16 asphalt samples. The sample identification from the upper layer was noted with an "a" (e.g., "R1a"), and the sample identification from the lower layer was noted with a "b" (e.g., "R1b").

SOIL SAMPLE ANALYTICAL RESULTS

Detected analytes in soil are summarized on **Table 1** in **Attachment B**. Results were compared to the Pennsylvania Department of Environmental Protection (PADEP) residential Statewide Health Standard Medium Specific Concentrations (MSCs) as summarized in **Table 1**. Results are summarized below:

- No VOCs were detected above the applicable Residential MSCs.
- No PCBs were detected in any of the collected soil samples.
- One SVOC, benzo(a)pyrene, was detected above its residential Direct Contact MSC (0.58 milligrams per kilogram [mg/kg]) in two soil samples, including R-2 (13-15) at a concentration of 1.19 mg/kg, and in R-6 (1-2) at a concentration of 2.66 mg/kg. PADEP Direct Contact MSCs were derived to be protective of human exposure to the soil. Benzo(a)pyrene did not exceed its residential Soil to Groundwater MSC, which was derived to be protective of underlying groundwater. Benzo(a)pyrene did not exceed its nonresidential Direct Contact or nonresidential Soil to Groundwater MSCs.
- Multiple other SVOC parameters were detected in six of the eight boring locations at concentrations below MSCs. SVOC detections were typically higher in concentration and more frequent in the shallower soil samples compared to the deeper samples collected in five of six of these locations. R2 was the one exception, where the deeper sample had higher concentrations, and is also one of the two locations where benzo(a)pyrene exceeded its residential MSC.
- Two metallic analytes were detected above their residential MSCs.
    - Lead was detected above its residential and nonresidential Soil to Groundwater MSC (450 mg/kg) in sample R-8 (1-2) at a concentration of 972 mg/kg. Lead also exceeded its residential Direct Contact MSC (500 mg/Kg), but did not exceed its nonresidential Direct Contact MSC (1,000 mg/Kg).
    - Beryllium was detected above its residential Direct Contact MSC (2 mg/kg) in sample R-7 (13-15) at a concentration of 2.3 mg/kg. However, this exceedance (2.3 compared to 2) is considered negligible when considering that the result of 2.3 mg/Kg could be rounded down to one significant digit (i.e., 2 mg/kg) to be consistent with the significant digits of the MSC, and therefore could be considered a non-exceedance (e.g., 2 compared to 2). Beryllium did not exceed its residential Soil to Groundwater MSC, or its nonresidential Direct Contact MSC.

CONCLUSIONS

RETTEW has conducted a limited asphalt and soil quality investigation at the Site. Conclusions are summarized below.

- Asbestos was not detected in the collected and analyzed asphalt samples.
- One SVOC, benzo(a)pyrene, was detected above its residential Direct Contact MSC (0.58 mg/kg) in two soil samples, including R-2 (13-15) at a concentration of 1.19 mg/kg, and in R-6 (1-2) at a concentration of 2.66 mg/kg. Benzo(a)pyrene did not exceed its PADEP residential Soil to Groundwater MSC. Multiple other SVOC parameters were detected in six of the eight boring locations. SVOC detections were typically higher in concentration and more frequent in the shallower soil samples compared to the deeper samples collected in five of six of these locations. R2 was the one exception, where the deeper sample had higher concentrations, and is also one of the two locations where benzo(a)pyrene exceeded its residential MSC.
- Lead was detected above its residential and nonresidential Soil to Groundwater MSC (450 mg/kg) in sample R-8 (1-2) at a concentration of 972 mg/kg. Lead also exceeded its residential Direct Contact MSC (500 mg/Kg), but did not exceed its nonresidential Direct Contact MSC (1,000 mg/Kg).
- The above-noted benzo(a)pyrene and lead exceedances in soil could be considered marginal, based on their exceedance of some but not all MSCs (e.g., residential and nonresidential, Direct Contact and Soil to Groundwater); however, the noted exceedances are still applicable and further characterization would be needed to clarify the uncertainty of the extent and magnitude of these exceedances. Evaluation of the human health and environmental exposure pathways associated with these MSC exceedances under current and future land use conditions would also be needed to better evaluate the environmental risk related to these findings.

Please contact us if you have any questions.

Sincerely,

Scott Houser
Geoscientist

Brendan O'Donnell, P.G.
Senior Geologist

Attachments

copy: Robert Zienkowski, Township Manager
Steve Norcini, PE, Public Works Director

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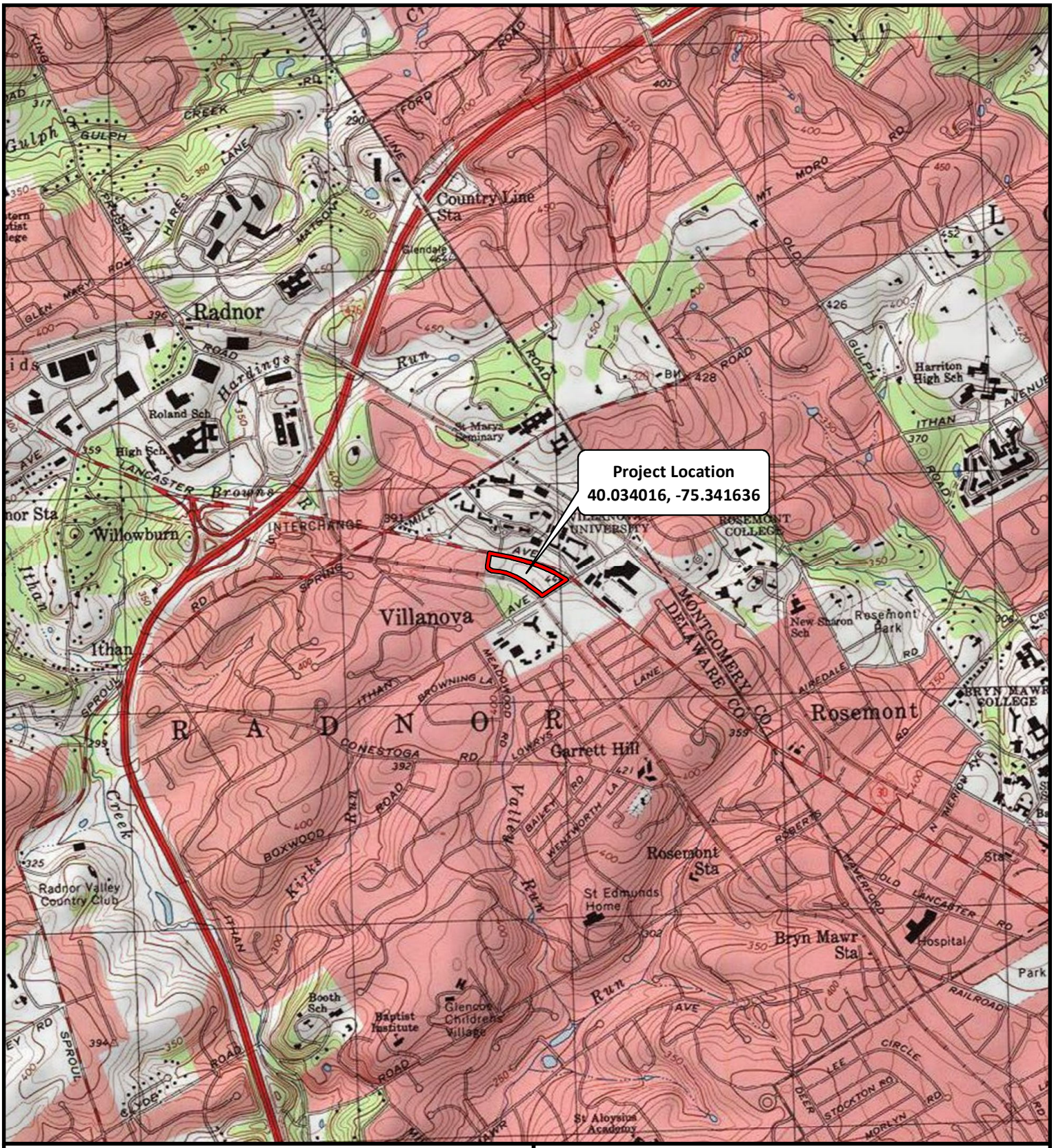
FIGURES

Site and Soil Boring Locations



Approximate Site Boundary

Norristown, PA 7.5' USGS Topographic Quadrangle

5/11/2017

Radnor Township

Villanova Parking Lot

Figure 1 - Site Location Map

Radnor Township, Delaware County, PA

Project No. 101442012

N

W E

S

0 2,000 Feet

1 inch = 2,000 feet

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Soil Boring Location

Approximate Site Boundary

Radnor Township

Villanova Parking Lot

Figure 2 - Aerial Basemap

Radnor Township, Delaware County, PA

Project No. 101442012

N

W E

S

0 200 Feet

1 inch = 200 feet

Imagery Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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5/11/2017

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ATTACHMENT A

Soil Boring Logs

RETTEW

Soil Boring Log: R-1

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 4.0': Silty SAND with gravel, brown and gray, and dry	SM		1	0.7	R-1@1-2
2	-2						
3	-3						
4	-4	4.0'-15.0': Elastic SILT with sand and gravel, orangish brown, and dry to slightly moist	ML		2	0.9	
5	-5						
6	-6						
7	-7						
8	-8						
9	-9					3.1	R-1@8-10
10	-10				3	1.4	
11	-11						
12	-12						
13	-13						
14	-14						
15	-15	End of Boring @15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

RETTEW

Soil Boring Log: R-2

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 3.0': Silty SAND with gravel, brown and gray, and dry	SM		1	1.2	R-2@1-2
2	-2						
3	-3	3.0'-11.0': Elastic SILT with sand and gravel, orangish brown, and dry to slightly moist	ML		2	1.0	
4	-4						
5	-5						
6	-6						
7	-7						
8	-8					0.9	
9	-9						
10	-10						
11	-11	11.0'-15.0': Elastic SILT with sand and gravel, brown to gray, and slightly moist	ML		3	1.1	R-2@13-15
12	-12						
13	-13						
14	-14						
15	-15	End of Boring @ 15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

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Soil Boring Log: R-3

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 3.0': Silty SAND with gravel, brown and gray, and dry	SM		1	1.1	R-3@1-2
2	-2						
3	-3	3.0'-15.0': Elastic SILT with sand and gravel, brown to gray, and dry to slightly moist					
4	-4						
5	-5						
6	-6					0.7	R-3@6-8
7	-7				2		
8	-8						
9	-9		ML			0.5	
10	-10						
11	-11						
12	-12				3	0.5	
13	-13						
14	-14						
15	-15	End of Boring @15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

RETTEW

Soil Boring Log: R-4

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 3.0': Silty SAND with gravel, brown and gray, and dry	SM		1	0.2	R-4@1-2
2	-2						
3	-3	3.0'-11.0': Elastic SILT with sand and gravel, orangish brown, and dry to slightly moist					
4	-4						
5	-5						
6	-6				2	0.5	
7	-7		ML				
8	-8						
9	-9						
10	-10						
11	-11	11.0'-15.0': Elastic SILT with sand and gravel, brown to gray, and slightly moist				1.5	R-4@10-12
12	-12				3		
13	-13		ML				
14	-14					1.3	
15	-15	End of Boring @ 15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

RETTEW

Soil Boring Log: R-5

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 4.0': Sandy SILT with gravel, brown and gray, and dry	ML		1	1.0	R-5@1-2
2	-2						
3	-3						
4	-4	4.0'-15.0': Elastic SILT with sand and gravel, orangish brown, and dry to slightly moist	ML		2	1.0	
5	-5						
6	-6						
7	-7					0.7	
8	-8						
9	-9						
10	-10				3	1.0	R-5@12-14
11	-11						
12	-12						
13	-13						
14	-14						
15	-15	End of Boring @15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

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Soil Boring Log: R-6

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 5.0': Sandy SILT with gravel, brown, and dry	ML		1	2.0	R-6@1-2
2	-2						
3	-3						
4	-4	5.0'-15.0': Elastic SILT with gravel, orangish brown to gray, and dry to slightly moist					
5	-5						
6	-6				2	1.5	
7	-7						
8	-8						
9	-9		ML			1.6	R-6@8-10
10	-10						
11	-11						
12	-12				3	1.2	
13	-13						
14	-14						
15	-15	End of Boring @15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

RETTEW

Soil Boring Log: R-7

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 9.0': Sandy SILT with gravel, brown, and dry	ML		1	0.1	R-7@1-2
2	-2						
3	-3						
4	-4						
5	-5				2	0.1	
6	-6						
7	-7						
8	-8						
9	-9	9.0'-15.0': Silty SAND with gravel, orangish brown, and dry to slightly moist	SM		3	0.1	R-7@13-15
10	-10						
11	-11						
12	-12						
13	-13						
14	-14						
15	-15	End of Boring @15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

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RETTEW

Soil Boring Log: R-8

Villanova Parking Lot
Radnor Township
Delaware County
Pennsylvania
Project #: 101442012

Date Completed	: 4/19/17	Surface Elevation	: 0
Hole Diameter	: 2"	Datum	:
Drilling Method	: Direct Push	GW Observed	: N/A
Sampling Method	: 5' Macro Core		
Rettew Representative	: S. Houser		

Depth in Feet	Surf. Elev. 0	DESCRIPTION	USCS	GRAPHIC	Run #	PID (ppm)	Sample Collected
0	0	0.0-0.5': Asphalt					
1	-1	0.5'- 3.0': Silty SAND with gravel, brown and gray, and dry	SM		1	3.4	R-8@1-2
2	-2						
3	-3	3.0'-11.0': Elastic SILT with sand and gravel, orangish brown, and dry to slightly moist	ML		2	4.3	R-8@6-8
4	-4						
5	-5						
6	-6						
7	-7						
8	-8						
9	-9						
10	-10						
11	-11	11.0'-15.0': Elastic SILT with sand and gravel, brown to gray, and slightly moist	ML		3	2.3	
12	-12						
13	-13					2.2	
14	-14						
15	-15	End of Boring @ 15.0' bgs.					
16	-16						
17	-17						
18	-18						
19	-19						
20							

ATTACHMENT B

Table 1 – Summary of Detected Analytes in Soil

TABLE 1: Summary of Detected Analytes in Soil
Villanova Parking Lot
Radnor Township, Delaware Couny, Pennsylvania
RETTEW Project No. 101442012

Parameter		R-1 (1-2)	R-1 (8-10)	R-2 (1-2)	R-2 (13-15)	R-3 (1-2)	R-3 (6-8)	R-4 (1-2)	R-4 (10-12)	R-5 (1-2)	R-5 (12-14)	R-6 (1-2)	R-6 (8-10)	R-7 (1-2)	R-7 (13-15)	R-8 (1-2)	R-8 (6-8)	Act 2 Statewide Health Standard MSCs			
																			Residential		
																		Applicable Residential MSC	Direct Contact	Soil To Groundwater	
		1-2'	8-10'	1-2'	13-15'	1-2'	6-8'	1-2'	10-12'	1-2'	12-14'	1-2'	8-10'	1-2'	13-15'	1-2'	6-8'		0-15'	100X GW MSC	Generic Value
VOCs	Acetone	0.013	ND	ND	0.0335	0.0226	0.0215	0.0391	0.0392	0.0365	ND	0.0299	ND	0.0342	ND	0.0479	0.0185	**3,800**	10,000	**3,800**	430
	Benzene	ND	ND	ND	ND	ND	ND	ND	ND	0.0027	ND	ND	ND	ND	ND	ND	ND	**0.5**	57	**0.5**	0.13
	Methyl Acetate	ND	ND	ND	ND	0.0035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4,200**	10,000	**4,200**	780
SVOCs	Acenapthene	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	0.228	ND	ND	ND	ND	ND	**3,100**	13,000	250	**3,100**
	Acenapthylene	ND	ND	ND	0.115	0.0584	ND	ND	ND	0.232	ND	0.301	ND	0.174	ND	ND	ND	**2,800**	13,000	250	**2,800**
	Anthracene	ND	ND	ND	0.231	0.0859	ND	ND	ND	0.201	ND	0.645	ND	0.194	ND	ND	ND	**350**	66,000	6.6	**350**
	Benzo(a)anthracene	ND	ND	0.161	0.872	0.51	ND	ND	ND	0.445	ND	2.18	ND	0.365	ND	0.145	ND	**6**	**6**	0.032	28
	Benzo(a)pyrene	ND	ND	0.229	**1.19**	0.5	ND	ND	ND	0.538	ND	**2.66**	ND	0.561	ND	0.14	ND	**0.58**	**0.58**	0.02	46
	Benzo(b)fluoranthene	ND	ND	0.314	1.73	0.524	ND	ND	ND	0.703	0.0847	3.22	ND	0.603	ND	0.187	ND	**3.5**	**3.5**	0.019	26
	Benzo(ghi)perylene	ND	ND	0.207	1.10	0.302	ND	ND	ND	0.396	ND	2.06	ND	0.422	ND	0.133	ND	**180**	13,000	0.026	**180**
	Benzo(k)fluoranthene	ND	ND	0.124	0.667	0.189	ND	ND	ND	0.243	ND	1.43	ND	0.226	ND	0.0732	ND	**4**	**4**	0.019	210
	Carbozole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.278	ND	ND	ND	ND	ND	**24**	930	3.7	**24**
	Chrysene	ND	ND	0.181	1.10	0.61	ND	ND	ND	0.543	ND	2.72	ND	0.431	ND	0.187	ND	**35**	**35**	0.19	230
	Dibenzo(a,h)anthracene	ND	ND	ND	ND	0.0924	ND	ND	ND	ND	ND	0.45	ND	0.103	ND	ND	ND	**1**	**1**	0.0055	25
	Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.112	ND	ND	ND	ND	ND	**110**	220	4.2	**110**
	Fluoranthene	ND	ND	0.288	2.38	0.534	ND	ND	ND	0.768	0.062	6.39	ND	0.624	ND	0.259	ND	**3,200**	8,800	26	**3,200**
	Fluorene	ND	ND	ND	0.117	ND	ND	ND	ND	0.0991	ND	0.267	ND	0.0931	ND	ND	ND	**3,400**	8,800	170	**3,400**
	Indeno(1,2,3-cd)pyrene	ND	ND	0.227	1.15	0.263	ND	ND	ND	0.42	ND	2.02	ND	0.419	ND	0.125	ND	**3.5**	**3.5**	0.019	1,500
	Naphthalene	ND	ND	ND	0.0621	ND	ND	ND	ND	0.116	ND	ND	ND	0.116	ND	ND	ND	**25**	160	10	**25**
	Phenanthrene	ND	ND	0.086	0.907	0.175	ND	ND	ND	0.568	ND	3.23	ND	0.407	ND	0.0966	ND	**10,000**	66,000	110	**10,000**
	Pyrene	ND	ND	0.264	2.05	0.976	ND	ND	ND	0.857	ND	5.25	ND	0.833	ND	0.245	ND	**2,200**	6,600	13	**2,200**
Metals	Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0	ND	**27**	88	0.6	**27**
	Arsenic	4.1	ND	4.2	4.7	3.1	9.7	3.0	2.9	6.2	ND	2.7	3.4	4.9	ND	4.8	4.8	**12**	**12**	1	29
	Beryllium	0.99	0.92	ND	0.81	1.3	0.76	1.3	1.0	1.1	1.8	0.74	0.72	0.84	**2.3**	0.59	ND	**2**	**2**	0.4	320
	Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	**1.2**	**1.2**	0.5	38
	Chromium	59.4	20.4	27.1	25.4	30.5	24.2	29.8	27.7	46.1	35.0	27.2	26.5	21.7	83.7	34.7	22.3	**190,000**	**190,000**	10	**190,000**
	Copper	19.9	3.2	18.8	18.6	24.5	7.3	18.8	22.1	32.5	18.5	23.5	27.5	31.3	32.8	23.4	6.2	**8,100**	**8,100**	100	43,000
	Lead	15.2	9.7	17.0	25.3	31.6	12.0	122	18.0	70.3	16.8	17.2	10	23.7	7	**972**	12.2	**450**	500	0.5	**450**
	Mercury	ND	ND	ND	ND	0.052	ND	ND	ND	0.19	ND	ND	ND	ND	ND	0.11	ND	**10**	35	0.2	**10**
	Nickel	18.0	14.9	10.5	13.5	28.3	9.0	27.0	28.1	36.2	30.9	18.9	12.6	14.7	49.5	15.5	5.2	**650**	4,400	10	**650**
	Selenium	ND	ND	ND	ND	ND	ND	3.7	ND	3.8	ND	ND	3	ND	ND	ND	ND	**26**	1,100	5	**26**
	Thallium	ND	ND	ND	ND	ND	ND	0.64	0.66	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	0.2	14
	Zinc	38.3	37.5	44.9	38.7	85.3	22.4	70.0	88.5	92.8	65.6	70.6	53.6	60.7	51.0	276	21.0	**12,000**	66,000	200	**12,000**

Notes:
1. All Units in Milligrams Per Kilogram (mg/kg).
2. ND - Not Detected
3. MSC - Medium Specific Concentration.
4. "100X GW MSC" = 100 times the Groundwater Medium Specific Concentration.
5. Applicable MSCs are in bold. Results were compared to the "Applicable Residential MSC" in bold and provided in a separate column, which was selected by first selecting the higher of 100XGW and Generic Value Soil to Groundwater MSC, then taking the lower of that Soil to Groundwater MSC and the Direct Contact MSC.
6. Bold and shaded results indicate an exceedance of the Applicable Residential MSC.
7. Sample depth below grade is noted in the sample identifications in parentheses.
8. All samples were collected on April 19, 2017.
9. VOCs = volatile organic compound
10. SVOCs - semivolatile organic compound
11. Parameter list above includes only those parameters detected in one or more samples. Samples were analyzed for TCL VOCs, TCL SVOCs, PCBs, and PPL metals.

ATTACHMENT C

Laboratory Analytical Reports

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

May 2, 2017

Mr. Scott Houser
Rettew - Mechanicsburg
5031 Richard Lane
Suite 111
Mechanicsburg, PA 17055

Certificate of Analysis

Project Name:	**Villanova / 101442012**	Workorder:	**2224292**
Purchase Order:		Workorder ID:	**Villanova / 101442012**

Dear Mr. Houser:

Enclosed are the analytical results for samples received by the laboratory on Thursday, April 20, 2017.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mr. Brad W Kintzer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Kelly Kramer

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Mr. Brad W Kintzer
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2224292 Villanova / 101442012

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2224292001	R-7 @ 1-2	Solid	4/19/2017 08:50	4/20/2017 06:52	Mr. Scott Houser
2224292002	R-7 @ 13-15	Solid	4/19/2017 08:55	4/20/2017 06:52	Mr. Scott Houser
2224292003	R-6 @ 1-2	Solid	4/19/2017 09:40	4/20/2017 06:52	Mr. Scott Houser
2224292004	R-6 @ 8-10	Solid	4/19/2017 09:45	4/20/2017 06:52	Mr. Scott Houser
2224292005	R-5 @ 1-2	Solid	4/19/2017 10:35	4/20/2017 06:52	Mr. Scott Houser
2224292006	R-5 @ 12-14	Solid	4/19/2017 10:40	4/20/2017 06:52	Mr. Scott Houser
2224292007	R-3 @ 1-2	Solid	4/19/2017 11:40	4/20/2017 06:52	Mr. Scott Houser
2224292008	R-3 @ 6-8	Solid	4/19/2017 11:45	4/20/2017 06:52	Mr. Scott Houser
2224292009	R-2 @ 1-2	Solid	4/19/2017 13:15	4/20/2017 06:52	Mr. Scott Houser
2224292010	R-2 @ 13-15	Solid	4/19/2017 13:20	4/20/2017 06:52	Mr. Scott Houser
2224292011	R-1 @ 1-2	Solid	4/19/2017 14:00	4/20/2017 06:52	Mr. Scott Houser
2224292012	R-1 @ 8-10	Solid	4/19/2017 14:05	4/20/2017 06:52	Mr. Scott Houser
2224292013	R-4 @ 1-2	Solid	4/19/2017 14:45	4/20/2017 06:52	Mr. Scott Houser
2224292014	R-4 @ 10-12	Solid	4/19/2017 14:50	4/20/2017 06:52	Mr. Scott Houser
2224292015	R-8 @ 1-2	Solid	4/19/2017 15:00	4/20/2017 06:52	Mr. Scott Houser
2224292016	R-8 @ 6-8	Solid	4/19/2017 15:05	4/20/2017 06:52	Mr. Scott Houser

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SAMPLE SUMMARY

Workorder: 2224292 Villanova / 101442012

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292001** Date Collected: 4/19/2017 08:50 Matrix: Solid

Sample ID: **R-7 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	34.2		ug/kg	11.7	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Benzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Bromochloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Bromodichloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Bromoform	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Bromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
2-Butanone	ND		ug/kg	11.7	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Carbon Disulfide	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Chlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Chlorodibromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Chloroethane	ND		ug/kg	5.8	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Chloroform	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Chloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.8	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,4-Dioxane	ND		ug/kg	87.4	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Ethylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Freon 113	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
2-Hexanone	ND		ug/kg	11.7	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Isopropylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Methyl acetate	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Methyl cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292001** Date Collected: 4/19/2017 08:50 Matrix: Solid

Sample ID: **R-7 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	11.7	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Methylene Chloride	ND	1	ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Styrene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Tetrachloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Toluene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Total Xylenes	ND		ug/kg	7.0	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.8	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.8	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Trichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Vinyl Chloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
o-Xylene	ND		ug/kg	2.3	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
mp-Xylene	ND		ug/kg	4.7	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	87		%	56 - 124	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
4-Bromofluorobenzene (S)	87.1		%	51 - 128	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Dibromofluoromethane (S)	99.2		%	62 - 123	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D
Toluene-d8 (S)	87.5		%	59 - 131	SW846 8260B	4/19/17 08:50	SYB	4/25/17 07:54	SYB	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Acenaphthylene	174		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Acetophenone	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Anthracene	194		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Atrazine	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzaldehyde	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzo(a)anthracene	365		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzo(a)pyrene	561		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzo(b)fluoranthene	603		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzo(g,h,i)perylene	422		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Benzo(k)fluoranthene	226		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Biphenyl	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Bromophenyl-phenylether	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Butylbenzylphthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292001** Date Collected: 4/19/2017 08:50 Matrix: Solid

Sample ID: **R-7 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Carbazole	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Chloro-3-methylphenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Chloroaniline	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
bis(2-Chloroethyl)ether	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Chloronaphthalene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Chlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Chlorophenyl-phenylether	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Chrysene	431		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
mp-Cresol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
o-Cresol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Di-n-Butylphthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Di-n-Octylphthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Dibenzo(a,h)anthracene	103		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Dibenzofuran	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
3,3-Dichlorobenzidine	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4-Dichlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Diethylphthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4-Dimethylphenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Dimethylphthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4-Dinitrophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4-Dinitrotoluene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,6-Dinitrotoluene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
1,4-Dioxane	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Fluoranthene	624		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Fluorene	93.1		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Hexachlorobenzene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Hexachlorobutadiene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Hexachlorocyclopentadiene	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Hexachloroethane	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Indeno(1,2,3-cd)pyrene	419		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Isophorone	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Methylnaphthalene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Naphthalene	116		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292001** Date Collected: 4/19/2017 08:50 Matrix: Solid

Sample ID: **R-7 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
3-Nitroaniline	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Nitroaniline	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Nitrobenzene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Nitrophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
4-Nitrophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
N-Nitrosodiphenylamine	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Pentachlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Phenanthrene	407		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Phenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Pyrene	833		ug/kg	63.3	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	127	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4,5-Trichlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2,4,6-Trichlorophenol	ND		ug/kg	253	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	97.3		%	19 - 132	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Fluorobiphenyl (S)	73.3		%	40 - 110	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
2-Fluorophenol (S)	71.7		%	26 - 116	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Nitrobenzene-d5 (S)	71.7		%	38 - 112	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Phenol-d5 (S)	77.5		%	35 - 111	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
Terphenyl-d14 (S)	102		%	45 - 126	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:05	DHF	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1016	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1221	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1232	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1242	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1248	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1254	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Aroclor-1260	ND		mg/kg	0.043	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	63		%	49 - 115	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
Tetrachloro-m-xylene (S)	79.5		%	27 - 137	SW846 8082A	4/26/17 04:05	CMA	4/26/17 13:31	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292001** Date Collected: 4/19/2017 08:50 Matrix: Solid

Sample ID: **R-7 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	24.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	76.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Arsenic, Total	4.9		mg/kg	1.9	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Beryllium, Total	0.84		mg/kg	0.62	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Cadmium, Total	ND		mg/kg	0.62	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Chromium, Total	21.7		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Copper, Total	31.3		mg/kg	3.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Lead, Total	23.7		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Mercury, Total	ND		mg/kg	0.058	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:06	AXC	A1
Nickel, Total	14.7		mg/kg	3.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Selenium, Total	ND		mg/kg	3.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Thallium, Total	ND		mg/kg	0.62	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2
Zinc, Total	60.7		mg/kg	3.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:05	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292002** Date Collected: 4/19/2017 08:55 Matrix: Solid

Sample ID: **R-7 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	15.4	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Benzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Bromochloromethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Bromodichloromethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Bromoform	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Bromomethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
2-Butanone	ND		ug/kg	15.4	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Carbon Disulfide	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Carbon Tetrachloride	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Chlorobenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Chlorodibromomethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Chloroethane	ND		ug/kg	7.7	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Chloroform	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Chloromethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Cyclohexane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	7.7	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2-Dibromoethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Dichlorodifluoromethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,1-Dichloroethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2-Dichloroethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,1-Dichloroethene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2-Dichloropropane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,4-Dioxane	ND		ug/kg	115	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Ethylbenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Freon 113	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
2-Hexanone	ND		ug/kg	15.4	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Isopropylbenzene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Methyl acetate	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Methyl cyclohexane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292002** Date Collected: 4/19/2017 08:55 Matrix: Solid

Sample ID: **R-7 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	15.4	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Methylene Chloride	ND	1	ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Styrene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Tetrachloroethene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Toluene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Total Xylenes	ND		ug/kg	9.2	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	7.7	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	7.7	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Trichloroethene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Trichlorofluoromethane	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Vinyl Chloride	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
o-Xylene	ND		ug/kg	3.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
mp-Xylene	ND		ug/kg	6.1	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	77.1		%	56 - 124	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
4-Bromofluorobenzene (S)	85.9		%	51 - 128	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Dibromofluoromethane (S)	95.5		%	62 - 123	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
Toluene-d8 (S)	88.5		%	59 - 131	SW846 8260B	4/19/17 08:55	SYB	4/25/17 08:17	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Acenaphthylene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Acetophenone	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Anthracene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Atrazine	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzaldehyde	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzo(a)anthracene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzo(a)pyrene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzo(b)fluoranthene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzo(g,h,i)perylene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Benzo(k)fluoranthene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Biphenyl	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Bromophenyl-phenylether	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Butylbenzylphthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292002** Date Collected: 4/19/2017 08:55 Matrix: Solid

Sample ID: **R-7 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Carbazole	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Chloro-3-methylphenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Chloroaniline	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
bis(2-Chloroethyl)ether	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Chloronaphthalene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Chlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Chlorophenyl-phenylether	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Chrysene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
mp-Cresol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
o-Cresol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Di-n-Butylphthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Di-n-Octylphthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Dibenzo(a,h)anthracene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Dibenzofuran	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
3,3-Dichlorobenzidine	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4-Dichlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Diethylphthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4-Dimethylphenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Dimethylphthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4-Dinitrophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4-Dinitrotoluene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,6-Dinitrotoluene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
1,4-Dioxane	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Fluoranthene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Fluorene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Hexachlorobenzene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Hexachlorobutadiene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Hexachlorocyclopentadiene	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Hexachloroethane	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Isophorone	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Methylnaphthalene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Naphthalene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292002** Date Collected: 4/19/2017 08:55 Matrix: Solid

Sample ID: **R-7 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
3-Nitroaniline	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Nitroaniline	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Nitrobenzene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Nitrophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
4-Nitrophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
N-Nitrosodiphenylamine	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Pentachlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Phenanthrene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Phenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Pyrene	ND		ug/kg	71.2	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	142	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4,5-Trichlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2,4,6-Trichlorophenol	ND		ug/kg	285	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	93.7		%	19 - 132	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Fluorobiphenyl (S)	77.6		%	40 - 110	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
2-Fluorophenol (S)	77.3		%	26 - 116	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Nitrobenzene-d5 (S)	78.9		%	38 - 112	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Phenol-d5 (S)	82.1		%	35 - 111	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
Terphenyl-d14 (S)	99.5		%	45 - 126	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:30	DHF	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1016	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1221	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1232	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1242	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1248	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1254	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Aroclor-1260	ND		mg/kg	0.048	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	73.6		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
Tetrachloro-m-xylene (S)	82.3		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:48	EGO	A
WET CHEMISTRY										

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292002** Date Collected: 4/19/2017 08:55 Matrix: Solid

Sample ID: **R-7 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	33.3		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	66.7		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.5	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Arsenic, Total	ND		mg/kg	2.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Beryllium, Total	2.3		mg/kg	0.73	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Cadmium, Total	ND		mg/kg	0.73	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Chromium, Total	83.7		mg/kg	1.5	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Copper, Total	32.8		mg/kg	3.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Lead, Total	7.0		mg/kg	1.5	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Mercury, Total	ND		mg/kg	0.069	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:07	AXC	A1
Nickel, Total	49.5		mg/kg	3.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Selenium, Total	ND		mg/kg	3.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Silver, Total	ND		mg/kg	1.5	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Thallium, Total	ND		mg/kg	0.73	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2
Zinc, Total	51.0		mg/kg	3.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:09	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ALS Environmental

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292003** Date Collected: 4/19/2017 09:40 Matrix: Solid

Sample ID: **R-6 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	29.9		ug/kg	13.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Benzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Bromochloromethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Bromodichloromethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Bromoform	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Bromomethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
2-Butanone	ND		ug/kg	13.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Carbon Disulfide	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Chlorobenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Chlorodibromomethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Chloroethane	ND		ug/kg	6.8	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Chloroform	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Chloromethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Cyclohexane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.8	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,4-Dioxane	ND		ug/kg	103	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Ethylbenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Freon 113	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
2-Hexanone	ND		ug/kg	13.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Isopropylbenzene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Methyl acetate	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Methyl cyclohexane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292003** Date Collected: 4/19/2017 09:40 Matrix: Solid

Sample ID: **R-6 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	13.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Methylene Chloride	ND	1	ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Styrene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Tetrachloroethene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Toluene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Total Xylenes	ND		ug/kg	8.2	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.8	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.8	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Trichloroethene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Vinyl Chloride	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
o-Xylene	ND		ug/kg	2.7	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
mp-Xylene	ND		ug/kg	5.5	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	82.6		%	56 - 124	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
4-Bromofluorobenzene (S)	87.3		%	51 - 128	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Dibromofluoromethane (S)	91.3		%	62 - 123	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D
Toluene-d8 (S)	89.6		%	59 - 131	SW846 8260B	4/19/17 09:40	SYB	4/25/17 08:40	SYB	D

SEMIVOLATILES

Acenaphthene	228		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Acenaphthylene	301		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Acetophenone	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Anthracene	645		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Atrazine	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzaldehyde	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzo(a)anthracene	2180		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzo(a)pyrene	2660		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzo(b)fluoranthene	3220		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzo(g,h,i)perylene	2060		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Benzo(k)fluoranthene	1430		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Biphenyl	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Bromophenyl-phenylether	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Butylbenzylphthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292003** Date Collected: 4/19/2017 09:40 Matrix: Solid

Sample ID: **R-6 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Carbazole	278		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Chloro-3-methylphenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Chloroaniline	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
bis(2-Chloroethyl)ether	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Chloronaphthalene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Chlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Chlorophenyl-phenylether	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Chrysene	2720		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
mp-Cresol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
o-Cresol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Di-n-Butylphthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Di-n-Octylphthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Dibenzo(a,h)anthracene	450		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Dibenzofuran	112		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
3,3-Dichlorobenzidine	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4-Dichlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Diethylphthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4-Dimethylphenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Dimethylphthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4-Dinitrophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4-Dinitrotoluene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,6-Dinitrotoluene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
1,4-Dioxane	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Fluoranthene	6390		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Fluorene	267		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Hexachlorobenzene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Hexachlorobutadiene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Hexachlorocyclopentadiene	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Hexachloroethane	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Indeno(1,2,3-cd)pyrene	2020		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Isophorone	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Methylnaphthalene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Naphthalene	ND		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292003** Date Collected: 4/19/2017 09:40 Matrix: Solid

Sample ID: **R-6 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
3-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Nitrobenzene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Nitrophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
4-Nitrophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
N-Nitrosodiphenylamine	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Pentachlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Phenanthrene	3230		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Phenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Pyrene	5250		ug/kg	54.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	109	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4,5-Trichlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2,4,6-Trichlorophenol	ND		ug/kg	219	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	77.3		%	19 - 132	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Fluorobiphenyl (S)	84.1		%	40 - 110	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
2-Fluorophenol (S)	67.2		%	26 - 116	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Nitrobenzene-d5 (S)	75.4		%	38 - 112	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Phenol-d5 (S)	71.6		%	35 - 111	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
Terphenyl-d14 (S)	78		%	45 - 126	SW846 8270D	4/25/17 05:15	CMA	4/26/17 01:54	DHF	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1016	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1221	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1232	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1242	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1248	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1254	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Aroclor-1260	ND		mg/kg	0.035	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	75.5		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
Tetrachloro-m-xylene (S)	94		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 06:59	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292003** Date Collected: 4/19/2017 09:40 Matrix: Solid

Sample ID: **R-6 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	8.6		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	91.4		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Arsenic, Total	2.7		mg/kg	1.5	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Beryllium, Total	0.74		mg/kg	0.52	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Cadmium, Total	ND		mg/kg	0.52	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Chromium, Total	27.2		mg/kg	1.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Copper, Total	23.5		mg/kg	2.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Lead, Total	17.2		mg/kg	1.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Mercury, Total	ND		mg/kg	0.048	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:10	AXC	A1
Nickel, Total	18.9		mg/kg	2.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Selenium, Total	ND		mg/kg	2.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Silver, Total	ND		mg/kg	1.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Thallium, Total	ND		mg/kg	0.52	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2
Zinc, Total	70.6		mg/kg	2.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:24	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292004** Date Collected: 4/19/2017 09:45 Matrix: Solid

Sample ID: **R-6 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	11.8	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Benzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Bromochloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Bromodichloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Bromoform	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Bromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
2-Butanone	ND		ug/kg	11.8	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Carbon Disulfide	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Chlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Chlorodibromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Chloroethane	ND		ug/kg	5.9	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Chloroform	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Chloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.9	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,4-Dioxane	ND		ug/kg	88.7	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Ethylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Freon 113	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
2-Hexanone	ND		ug/kg	11.8	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Isopropylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Methyl acetate	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Methyl cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292004** Date Collected: 4/19/2017 09:45 Matrix: Solid

Sample ID: **R-6 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	11.8	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Methylene Chloride	ND	1	ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Styrene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Tetrachloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Toluene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Total Xylenes	ND		ug/kg	7.1	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.9	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.9	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Trichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Vinyl Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
o-Xylene	ND		ug/kg	2.4	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
mp-Xylene	ND		ug/kg	4.7	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	79.3		%	56 - 124	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
4-Bromofluorobenzene (S)	87.9		%	51 - 128	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Dibromofluoromethane (S)	93.7		%	62 - 123	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
Toluene-d8 (S)	86.6		%	59 - 131	SW846 8260B	4/19/17 09:45	SYB	4/25/17 09:04	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Acenaphthylene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Acetophenone	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Anthracene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Atrazine	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzaldehyde	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzo(a)anthracene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzo(a)pyrene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzo(b)fluoranthene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzo(g,h,i)perylene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Benzo(k)fluoranthene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Biphenyl	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Bromophenyl-phenylether	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Butylbenzylphthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292004** Date Collected: 4/19/2017 09:45 Matrix: Solid

Sample ID: **R-6 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Caprolactam	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Carbazole	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Chloro-3-methylphenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Chloroaniline	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
bis(2-Chloroethyl)ether	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Chloronaphthalene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Chlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Chlorophenyl-phenylether	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Chrysene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
mp-Cresol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
o-Cresol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Di-n-Butylphthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Di-n-Octylphthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Dibenzo(a,h)anthracene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Dibenzofuran	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
3,3-Dichlorobenzidine	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4-Dichlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Diethylphthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4-Dimethylphenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Dimethylphthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4-Dinitrophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4-Dinitrotoluene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,6-Dinitrotoluene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
1,4-Dioxane	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Fluoranthene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Fluorene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Hexachlorobenzene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Hexachlorobutadiene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Hexachlorocyclopentadiene	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Hexachloroethane	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Isophorone	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Methylnaphthalene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Naphthalene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292004** Date Collected: 4/19/2017 09:45 Matrix: Solid

Sample ID: **R-6 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
3-Nitroaniline	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Nitroaniline	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Nitrobenzene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Nitrophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
4-Nitrophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
N-Nitrosodiphenylamine	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Pentachlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Phenanthrene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Phenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Pyrene	ND		ug/kg	58.7	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	117	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4,5-Trichlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2,4,6-Trichlorophenol	ND		ug/kg	235	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	85.3		%	19 - 132	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Fluorobiphenyl (S)	72.5		%	40 - 110	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
2-Fluorophenol (S)	71.6		%	26 - 116	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Nitrobenzene-d5 (S)	69.5		%	38 - 112	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Phenol-d5 (S)	77.1		%	35 - 111	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
Terphenyl-d14 (S)	97.1		%	45 - 126	SW846 8270D	4/25/17 05:15	CMA	4/26/17 02:18	DHF	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1016	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1221	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1232	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1242	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1248	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1254	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Aroclor-1260	ND		mg/kg	0.057	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	76.8		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
Tetrachloro-m-xylene (S)	98.5		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:11	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292004** Date Collected: 4/19/2017 09:45 Matrix: Solid

Sample ID: **R-6 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	20.1		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	79.9		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Arsenic, Total	3.4		mg/kg	1.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Beryllium, Total	0.72		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Cadmium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Chromium, Total	26.5		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Copper, Total	27.5		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Lead, Total	10.0		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Mercury, Total	ND		mg/kg	0.057	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:11	AXC	A1
Nickel, Total	12.6		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Selenium, Total	3.0		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Thallium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2
Zinc, Total	53.6		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:28	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292005** Date Collected: 4/19/2017 10:35 Matrix: Solid

Sample ID: **R-5 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	36.5		ug/kg	12.6	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Benzene	2.7		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Bromochloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Bromodichloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Bromoform	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Bromomethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
2-Butanone	ND		ug/kg	12.6	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Carbon Disulfide	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Chlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Chlorodibromomethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Chloroethane	ND		ug/kg	6.3	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Chloroform	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Chloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Cyclohexane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.3	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,4-Dioxane	ND		ug/kg	94.4	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Ethylbenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Freon 113	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
2-Hexanone	ND		ug/kg	12.6	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Isopropylbenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Methyl acetate	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Methyl cyclohexane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292005** Date Collected: 4/19/2017 10:35 Matrix: Solid

Sample ID: **R-5 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	12.6	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Methylene Chloride	ND	1	ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Styrene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Tetrachloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Toluene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Total Xylenes	ND		ug/kg	7.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.3	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.3	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Trichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Vinyl Chloride	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
o-Xylene	ND		ug/kg	2.5	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
mp-Xylene	ND		ug/kg	5.0	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	84.8		%	56 - 124	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
4-Bromofluorobenzene (S)	87.2		%	51 - 128	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Dibromofluoromethane (S)	92.9		%	62 - 123	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
Toluene-d8 (S)	89		%	59 - 131	SW846 8260B	4/19/17 10:35	SYB	4/25/17 09:27	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Acenaphthylene	232		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Acetophenone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Anthracene	201		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Atrazine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzaldehyde	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzo(a)anthracene	445		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzo(a)pyrene	538		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzo(b)fluoranthene	703		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzo(g,h,i)perylene	396		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Benzo(k)fluoranthene	243		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Biphenyl	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Butylbenzylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292005** Date Collected: 4/19/2017 10:35 Matrix: Solid

Sample ID: **R-5 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Carbazole	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Chloroaniline	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Chloronaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Chlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Chrysene	543		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
mp-Cresol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
o-Cresol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Di-n-Butylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Di-n-Octylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Dibenzofuran	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4-Dichlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Diethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4-Dimethylphenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Dimethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4-Dinitrophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
1,4-Dioxane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Fluoranthene	768		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Fluorene	99.1		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Hexachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Hexachlorobutadiene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Hexachloroethane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Indeno(1,2,3-cd)pyrene	420		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Isophorone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Methylnaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Naphthalene	116		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292005** Date Collected: 4/19/2017 10:35 Matrix: Solid

Sample ID: **R-5 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
3-Nitroaniline	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Nitroaniline	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Nitrobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Nitrophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
4-Nitrophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Pentachlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Phenanthrene	568		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Phenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Pyrene	857		ug/kg	62.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	248	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	81.6		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Fluorobiphenyl (S)	77.4		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
2-Fluorophenol (S)	75.2		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Nitrobenzene-d5 (S)	71.6		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Phenol-d5 (S)	81.4		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
Terphenyl-d14 (S)	81.5		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 16:58	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1016	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1221	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1232	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1242	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1248	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1254	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Aroclor-1260	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	65		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
Tetrachloro-m-xylene (S)	77.1		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:22	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292005** Date Collected: 4/19/2017 10:35 Matrix: Solid

Sample ID: **R-5 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	20.5		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	79.5		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Arsenic, Total	6.2		mg/kg	1.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Beryllium, Total	1.1		mg/kg	0.57	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Cadmium, Total	ND		mg/kg	0.57	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Chromium, Total	46.1		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Copper, Total	32.5		mg/kg	2.9	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Lead, Total	70.3		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Mercury, Total	0.19		mg/kg	0.054	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:13	AXC	A1
Nickel, Total	36.2		mg/kg	2.9	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Selenium, Total	3.8		mg/kg	2.9	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Thallium, Total	ND		mg/kg	0.57	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2
Zinc, Total	92.8		mg/kg	2.9	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:32	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292006** Date Collected: 4/19/2017 10:40 Matrix: Solid

Sample ID: **R-5 @ 12-14** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	10.7	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Benzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Bromochloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Bromodichloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Bromoform	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Bromomethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
2-Butanone	ND		ug/kg	10.7	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Carbon Disulfide	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Chlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Chlorodibromomethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Chloroethane	ND		ug/kg	5.4	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Chloroform	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Chloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Cyclohexane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.4	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,4-Dioxane	ND		ug/kg	80.6	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Ethylbenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Freon 113	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
2-Hexanone	ND		ug/kg	10.7	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Isopropylbenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Methyl acetate	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Methyl cyclohexane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292006** Date Collected: 4/19/2017 10:40 Matrix: Solid

Sample ID: **R-5 @ 12-14** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	10.7	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Methylene Chloride	ND	1	ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Styrene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Tetrachloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Toluene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Total Xylenes	ND		ug/kg	6.4	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.4	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.4	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Trichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Vinyl Chloride	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
o-Xylene	ND		ug/kg	2.1	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
mp-Xylene	ND		ug/kg	4.3	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	83.9		%	56 - 124	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
4-Bromofluorobenzene (S)	85.8		%	51 - 128	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Dibromofluoromethane (S)	93		%	62 - 123	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
Toluene-d8 (S)	87.6		%	59 - 131	SW846 8260B	4/19/17 10:40	SYB	4/25/17 09:50	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Acenaphthylene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Acetophenone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Anthracene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Atrazine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzaldehyde	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzo(a)anthracene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzo(a)pyrene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzo(b)fluoranthene	84.7		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Biphenyl	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Butylbenzylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292006** Date Collected: 4/19/2017 10:40 Matrix: Solid

Sample ID: **R-5 @ 12-14** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Carbazole	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Chloroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Chloronaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Chlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Chrysene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
mp-Cresol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
o-Cresol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Di-n-Butylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Di-n-Octylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Dibenzofuran	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4-Dichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Diethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4-Dimethylphenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Dimethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4-Dinitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
1,4-Dioxane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Fluoranthene	62.0		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Fluorene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Hexachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Hexachlorobutadiene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Hexachloroethane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Isophorone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Methylnaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Naphthalene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292006** Date Collected: 4/19/2017 10:40 Matrix: Solid

Sample ID: **R-5 @ 12-14** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
3-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Nitrobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Nitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
4-Nitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Pentachlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Phenanthrene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Phenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Pyrene	ND		ug/kg	61.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	84.6		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Fluorobiphenyl (S)	77.8		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
2-Fluorophenol (S)	86.4		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Nitrobenzene-d5 (S)	74.2		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Phenol-d5 (S)	83.9		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
Terphenyl-d14 (S)	80.2		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:23	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1016	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1221	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1232	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1242	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1248	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1254	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Aroclor-1260	ND		mg/kg	0.041	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	65.6		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
Tetrachloro-m-xylene (S)	78.1		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:34	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292006** Date Collected: 4/19/2017 10:40 Matrix: Solid

Sample ID: **R-5 @ 12-14** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	21.1		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	78.9		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Arsenic, Total	ND		mg/kg	1.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Beryllium, Total	1.8		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Cadmium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Chromium, Total	35.0		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Copper, Total	18.5		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Lead, Total	16.8		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Mercury, Total	ND		mg/kg	0.058	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:16	AXC	A1
Nickel, Total	30.9		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Selenium, Total	ND		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Thallium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2
Zinc, Total	65.6		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:36	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292007** Date Collected: 4/19/2017 11:40 Matrix: Solid

Sample ID: **R-3 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	22.6		ug/kg	12.4	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Benzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Bromochloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Bromodichloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Bromoform	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Bromomethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
2-Butanone	ND		ug/kg	12.4	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Carbon Disulfide	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Chlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Chlorodibromomethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Chloroethane	ND		ug/kg	6.2	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Chloroform	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Chloromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Cyclohexane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.2	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,4-Dioxane	ND		ug/kg	92.8	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Ethylbenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Freon 113	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
2-Hexanone	ND		ug/kg	12.4	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Isopropylbenzene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Methyl acetate	3.5	1,2	ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Methyl cyclohexane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292007** Date Collected: 4/19/2017 11:40 Matrix: Solid

Sample ID: **R-3 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	12.4	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Methylene Chloride	ND	3	ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Styrene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Tetrachloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Toluene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Total Xylenes	ND		ug/kg	7.4	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.2	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.2	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Trichloroethene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Vinyl Chloride	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
o-Xylene	ND		ug/kg	2.5	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
mp-Xylene	ND		ug/kg	4.9	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	81.5		%	56 - 124	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
4-Bromofluorobenzene (S)	87.9		%	51 - 128	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Dibromofluoromethane (S)	91		%	62 - 123	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
Toluene-d8 (S)	88.6		%	59 - 131	SW846 8260B	4/19/17 11:40	SYB	4/25/17 10:13	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Acenaphthylene	58.4		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Acetophenone	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Anthracene	85.9		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Atrazine	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzaldehyde	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzo(a)anthracene	510		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzo(a)pyrene	500		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzo(b)fluoranthene	524		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzo(g,h,i)perylene	302		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Benzo(k)fluoranthene	189		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Biphenyl	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Butylbenzylphthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292007** Date Collected: 4/19/2017 11:40 Matrix: Solid

Sample ID: **R-3 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Carbazole	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Chloroaniline	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Chloronaphthalene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Chlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Chrysene	610		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
mp-Cresol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
o-Cresol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Di-n-Butylphthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Di-n-Octylphthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Dibenzo(a,h)anthracene	92.4		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Dibenzofuran	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4-Dichlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Diethylphthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4-Dimethylphenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Dimethylphthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4-Dinitrophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
1,4-Dioxane	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Fluoranthene	534		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Fluorene	ND		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Hexachlorobenzene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Hexachlorobutadiene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Hexachloroethane	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Indeno(1,2,3-cd)pyrene	263		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Isophorone	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Methylnaphthalene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Naphthalene	ND		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292007** Date Collected: 4/19/2017 11:40 Matrix: Solid

Sample ID: **R-3 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
3-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Nitroaniline	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Nitrobenzene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Nitrophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
4-Nitrophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Pentachlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Phenanthrene	175		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Phenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Pyrene	976		ug/kg	54.7	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	109	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	219	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	88.3		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Fluorobiphenyl (S)	86		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
2-Fluorophenol (S)	85.6		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Nitrobenzene-d5 (S)	78.6		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Phenol-d5 (S)	88.5		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
Terphenyl-d14 (S)	93		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 17:48	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1016	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1221	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1232	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1242	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1248	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1254	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Aroclor-1260	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	81.4		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
Tetrachloro-m-xylene (S)	99.1		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:45	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292007** Date Collected: 4/19/2017 11:40 Matrix: Solid

Sample ID: **R-3 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	12.7		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	87.3		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Arsenic, Total	3.1		mg/kg	1.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Beryllium, Total	1.3		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Cadmium, Total	ND		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Chromium, Total	30.5		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Copper, Total	24.5		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Lead, Total	31.6		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Mercury, Total	0.052		mg/kg	0.049	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:17	AXC	A1
Nickel, Total	28.3		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Selenium, Total	ND		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Thallium, Total	ND		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2
Zinc, Total	85.3		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:40	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292008** Date Collected: 4/19/2017 11:45 Matrix: Solid

Sample ID: **R-3 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	21.5		ug/kg	10.2	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Benzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Bromochloromethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Bromodichloromethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Bromoform	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Bromomethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
2-Butanone	ND		ug/kg	10.2	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Carbon Disulfide	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Carbon Tetrachloride	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Chlorobenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Chlorodibromomethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Chloroethane	ND		ug/kg	5.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Chloroform	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Chloromethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Cyclohexane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2-Dibromoethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2-Dichlorobenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,3-Dichlorobenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,4-Dichlorobenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Dichlorodifluoromethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,1-Dichloroethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2-Dichloroethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,1-Dichloroethene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
cis-1,2-Dichloroethene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
trans-1,2-Dichloroethene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2-Dichloropropane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
cis-1,3-Dichloropropene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
trans-1,3-Dichloropropene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,4-Dioxane	ND		ug/kg	76.2	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Ethylbenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Freon 113	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
2-Hexanone	ND		ug/kg	10.2	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Isopropylbenzene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Methyl acetate	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Methyl cyclohexane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292008** Date Collected: 4/19/2017 11:45 Matrix: Solid

Sample ID: **R-3 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	10.2	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Methylene Chloride	ND	1	ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Styrene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Tetrachloroethene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Toluene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Total Xylenes	ND		ug/kg	6.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,1,1-Trichloroethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
1,1,2-Trichloroethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Trichloroethene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Trichlorofluoromethane	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Vinyl Chloride	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
o-Xylene	ND		ug/kg	2.0	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
mp-Xylene	ND		ug/kg	4.1	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	82.9		%	56 - 124	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
4-Bromofluorobenzene (S)	86.1		%	51 - 128	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Dibromofluoromethane (S)	92.2		%	62 - 123	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
Toluene-d8 (S)	85.3		%	59 - 131	SW846 8260B	4/19/17 11:45	SYB	4/25/17 10:37	SYB	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Acenaphthylene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Acetophenone	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Anthracene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Atrazine	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzaldehyde	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzo(a)anthracene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzo(a)pyrene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Biphenyl	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Butylbenzylphthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292008** Date Collected: 4/19/2017 11:45 Matrix: Solid

Sample ID: **R-3 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Carbazole	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Chloroaniline	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Chloronaphthalene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Chlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Chrysene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
mp-Cresol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
o-Cresol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Di-n-Butylphthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Di-n-Octylphthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Dibenzofuran	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4-Dichlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Diethylphthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4-Dimethylphenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Dimethylphthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4-Dinitrophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
1,4-Dioxane	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Fluoranthene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Fluorene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Hexachlorobenzene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Hexachlorobutadiene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Hexachloroethane	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Isophorone	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Methylnaphthalene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Naphthalene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292008** Date Collected: 4/19/2017 11:45 Matrix: Solid

Sample ID: **R-3 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
3-Nitroaniline	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Nitroaniline	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Nitrobenzene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Nitrophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
4-Nitrophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Pentachlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Phenanthrene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Phenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Pyrene	ND		ug/kg	59.8	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	120	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	239	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	87.2		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Fluorobiphenyl (S)	76.1		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
2-Fluorophenol (S)	83.5		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Nitrobenzene-d5 (S)	71.2		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Phenol-d5 (S)	83.2		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
Terphenyl-d14 (S)	84.4		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:12	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1016	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1221	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1232	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1242	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1248	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1254	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Aroclor-1260	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	74.5		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
Tetrachloro-m-xylene (S)	89.3		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 07:57	EGO	A
WET CHEMISTRY										

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292008** Date Collected: 4/19/2017 11:45 Matrix: Solid

Sample ID: **R-3 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	19.6		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	80.4		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Arsenic, Total	9.7		mg/kg	1.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Beryllium, Total	0.76		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Cadmium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Chromium, Total	24.2		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Copper, Total	7.3		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Lead, Total	12.0		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Mercury, Total	ND		mg/kg	0.058	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:18	AXC	A1
Nickel, Total	9.0		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Selenium, Total	ND		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Thallium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2
Zinc, Total	22.4		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:44	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292009** Date Collected: 4/19/2017 13:15 Matrix: Solid

Sample ID: **R-2 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	ND		ug/kg	11.4	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Benzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Bromochloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Bromodichloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Bromoform	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Bromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
2-Butanone	ND		ug/kg	11.4	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Carbon Disulfide	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Carbon Tetrachloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Chlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Chlorodibromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Chloroethane	ND		ug/kg	5.7	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Chloroform	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Chloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.7	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2-Dibromoethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,1-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,1-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2-Dichloropropane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,4-Dioxane	ND		ug/kg	85.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Ethylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Freon 113	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
2-Hexanone	ND		ug/kg	11.4	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Isopropylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Methyl acetate	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Methyl cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292009** Date Collected: 4/19/2017 13:15 Matrix: Solid

Sample ID: **R-2 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	11.4	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Methylene Chloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Styrene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Tetrachloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Toluene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Total Xylenes	ND		ug/kg	6.8	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.7	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.7	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Trichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Trichlorofluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Vinyl Chloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
o-Xylene	ND		ug/kg	2.3	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
mp-Xylene	ND		ug/kg	4.5	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	82.6		%	56 - 124	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
4-Bromofluorobenzene (S)	87		%	51 - 128	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Dibromofluoromethane (S)	94.2		%	62 - 123	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D
Toluene-d8 (S)	89.7		%	59 - 131	SW846 8260B	4/19/17 13:15	DD	4/25/17 17:09	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Acenaphthylene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Acetophenone	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Anthracene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Atrazine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzaldehyde	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzo(a)anthracene	161		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzo(a)pyrene	229		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzo(b)fluoranthene	314		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzo(g,h,i)perylene	207		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Benzo(k)fluoranthene	124		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Biphenyl	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Butylbenzylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292009** Date Collected: 4/19/2017 13:15 Matrix: Solid

Sample ID: **R-2 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Carbazole	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Chloroaniline	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Chloronaphthalene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Chlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Chrysene	181		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
mp-Cresol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
o-Cresol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Di-n-Butylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Di-n-Octylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Dibenzofuran	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4-Dichlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Diethylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4-Dimethylphenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Dimethylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4-Dinitrophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
1,4-Dioxane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Fluoranthene	288		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Fluorene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Hexachlorobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Hexachlorobutadiene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Hexachloroethane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Indeno(1,2,3-cd)pyrene	227		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Isophorone	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Methylnaphthalene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Naphthalene	ND		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292009** Date Collected: 4/19/2017 13:15 Matrix: Solid

Sample ID: **R-2 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
3-Nitroaniline	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Nitroaniline	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Nitrobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Nitrophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
4-Nitrophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Pentachlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Phenanthrene	86.0		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Phenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Pyrene	264		ug/kg	58.2	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	233	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	87.2		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Fluorobiphenyl (S)	82.4		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
2-Fluorophenol (S)	83.6		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Nitrobenzene-d5 (S)	79.7		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Phenol-d5 (S)	87.5		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
Terphenyl-d14 (S)	89.9		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 18:37	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1016	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1221	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1232	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1242	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1248	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1254	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Aroclor-1260	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	82.3		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
Tetrachloro-m-xylene (S)	91.8		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:08	EGO	A
WET CHEMISTRY										

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292009** Date Collected: 4/19/2017 13:15 Matrix: Solid

Sample ID: **R-2 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	16.9		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	83.1		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Arsenic, Total	4.2		mg/kg	1.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Beryllium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Cadmium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Chromium, Total	27.1		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Copper, Total	18.8		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Lead, Total	17.0		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Mercury, Total	ND		mg/kg	0.052	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:19	AXC	A1
Nickel, Total	10.5		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Selenium, Total	ND		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Thallium, Total	ND		mg/kg	0.60	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2
Zinc, Total	44.9		mg/kg	3.0	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:48	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292010** Date Collected: 4/19/2017 13:20 Matrix: Solid

Sample ID: **R-2 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	33.5		ug/kg	9.7	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Benzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Bromochloromethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Bromodichloromethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Bromoform	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Bromomethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
2-Butanone	ND		ug/kg	9.7	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Carbon Disulfide	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Carbon Tetrachloride	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Chlorobenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Chlorodibromomethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Chloroethane	ND		ug/kg	4.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Chloroform	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Chloromethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Cyclohexane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2-Dibromoethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2-Dichlorobenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,3-Dichlorobenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,4-Dichlorobenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Dichlorodifluoromethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,1-Dichloroethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2-Dichloroethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,1-Dichloroethene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2-Dichloropropane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,4-Dioxane	ND		ug/kg	72.8	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Ethylbenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Freon 113	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
2-Hexanone	ND		ug/kg	9.7	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Isopropylbenzene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Methyl acetate	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Methyl cyclohexane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292010** Date Collected: 4/19/2017 13:20 Matrix: Solid

Sample ID: **R-2 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	9.7	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Methylene Chloride	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Styrene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Tetrachloroethene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Toluene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Total Xylenes	ND		ug/kg	5.8	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	4.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	4.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,1,1-Trichloroethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
1,1,2-Trichloroethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Trichloroethene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Trichlorofluoromethane	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Vinyl Chloride	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
o-Xylene	ND		ug/kg	1.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
mp-Xylene	ND		ug/kg	3.9	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	84.3		%	56 - 124	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
4-Bromofluorobenzene (S)	88.2		%	51 - 128	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Dibromofluoromethane (S)	94.9		%	62 - 123	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D
Toluene-d8 (S)	88.7		%	59 - 131	SW846 8260B	4/19/17 13:20	DD	4/25/17 17:32	DD	D

SEMIVOLATILES

Acenaphthene	110		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Acenaphthylene	115		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Acetophenone	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Anthracene	231		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Atrazine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzaldehyde	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzo(a)anthracene	872		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzo(a)pyrene	1190		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzo(b)fluoranthene	1730		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzo(g,h,i)perylene	1100		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Benzo(k)fluoranthene	667		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Biphenyl	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Butylbenzylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292010** Date Collected: 4/19/2017 13:20 Matrix: Solid

Sample ID: **R-2 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Carbazole	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Chloroaniline	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Chloronaphthalene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Chlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Chrysene	1100		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
mp-Cresol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
o-Cresol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Di-n-Butylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Di-n-Octylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Dibenzofuran	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4-Dichlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Diethylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4-Dimethylphenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Dimethylphthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4-Dinitrophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
1,4-Dioxane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Fluoranthene	2380		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Fluorene	117		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Hexachlorobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Hexachlorobutadiene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Hexachloroethane	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Indeno(1,2,3-cd)pyrene	1150		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Isophorone	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Methylnaphthalene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Naphthalene	62.1		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292010** Date Collected: 4/19/2017 13:20 Matrix: Solid

Sample ID: **R-2 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
3-Nitroaniline	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Nitroaniline	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Nitrobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Nitrophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
4-Nitrophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Pentachlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Phenanthrene	907		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Phenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Pyrene	2050		ug/kg	58.1	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	232	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	90.5		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Fluorobiphenyl (S)	84.6		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
2-Fluorophenol (S)	91.9		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Nitrobenzene-d5 (S)	79.8		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Phenol-d5 (S)	90.9		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
Terphenyl-d14 (S)	92.7		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:02	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1016	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1221	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1232	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1242	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1248	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1254	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Aroclor-1260	ND		mg/kg	0.039	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	81.7		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
Tetrachloro-m-xylene (S)	99.1		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:20	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292010** Date Collected: 4/19/2017 13:20 Matrix: Solid

Sample ID: **R-2 @ 13-15** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	16.2		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	83.8		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Arsenic, Total	4.7		mg/kg	1.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Beryllium, Total	0.81		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Cadmium, Total	ND		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Chromium, Total	25.4		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Copper, Total	18.6		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Lead, Total	25.3		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Mercury, Total	ND		mg/kg	0.058	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:20	AXC	A1
Nickel, Total	13.5		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Selenium, Total	ND		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Thallium, Total	ND		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2
Zinc, Total	38.7		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:52	MO	A2

Mr. Brad W Kintzer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292011** Date Collected: 4/19/2017 14:00 Matrix: Solid

Sample ID: **R-1 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	13.0		ug/kg	11.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Benzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Bromochloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Bromodichloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Bromoform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Bromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
2-Butanone	ND		ug/kg	11.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Carbon Disulfide	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Carbon Tetrachloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Chlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Chlorodibromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Chloroethane	ND		ug/kg	5.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Chloroform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Chloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2-Dibromoethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,1-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,1-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2-Dichloropropane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,4-Dioxane	ND		ug/kg	89.0	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Ethylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Freon 113	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
2-Hexanone	ND		ug/kg	11.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Isopropylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Methyl acetate	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Methyl cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292011** Date Collected: 4/19/2017 14:00 Matrix: Solid

Sample ID: **R-1 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	11.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Methylene Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Styrene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Tetrachloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Toluene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Total Xylenes	ND		ug/kg	7.1	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.9	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Trichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Trichlorofluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Vinyl Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
o-Xylene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
mp-Xylene	ND		ug/kg	4.7	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	85.5		%	56 - 124	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
4-Bromofluorobenzene (S)	88.2		%	51 - 128	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Dibromofluoromethane (S)	94.9		%	62 - 123	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D
Toluene-d8 (S)	87		%	59 - 131	SW846 8260B	4/19/17 14:00	DD	4/25/17 17:56	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Acenaphthylene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Acetophenone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Anthracene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Atrazine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzaldehyde	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzo(a)anthracene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzo(a)pyrene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Biphenyl	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Butylbenzylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292011** Date Collected: 4/19/2017 14:00 Matrix: Solid

Sample ID: **R-1 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Carbazole	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Chloroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Chloronaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Chlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Chrysene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
mp-Cresol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
o-Cresol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Di-n-Butylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Di-n-Octylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Dibenzofuran	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4-Dichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Diethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4-Dimethylphenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Dimethylphthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4-Dinitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
1,4-Dioxane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Fluoranthene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Fluorene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Hexachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Hexachlorobutadiene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Hexachloroethane	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Isophorone	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Methylnaphthalene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Naphthalene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292011** Date Collected: 4/19/2017 14:00 Matrix: Solid

Sample ID: **R-1 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
3-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Nitroaniline	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Nitrobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Nitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
4-Nitrophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Pentachlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Phenanthrene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Phenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Pyrene	ND		ug/kg	61.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	124	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	247	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	89.8		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Fluorobiphenyl (S)	78		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
2-Fluorophenol (S)	86.9		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Nitrobenzene-d5 (S)	81.8		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Phenol-d5 (S)	87.7		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
Terphenyl-d14 (S)	89.8		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:27	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1016	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1221	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1232	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1242	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1248	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1254	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Aroclor-1260	ND		mg/kg	0.042	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	89.2		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
Tetrachloro-m-xylene (S)	103		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:32	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292011** Date Collected: 4/19/2017 14:00 Matrix: Solid

Sample ID: **R-1 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	23.3		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	76.7		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Arsenic, Total	4.1		mg/kg	1.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Beryllium, Total	0.99		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Cadmium, Total	ND		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Chromium, Total	59.4		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Copper, Total	19.9		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Lead, Total	15.2		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Mercury, Total	ND		mg/kg	0.060	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:21	AXC	A1
Nickel, Total	18.0		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Selenium, Total	ND		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Thallium, Total	ND		mg/kg	0.56	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2
Zinc, Total	38.3		mg/kg	2.8	SW846 6020A	4/24/17 01:51	TSS	4/24/17 11:56	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292012** Date Collected: 4/19/2017 14:05 Matrix: Solid

Sample ID: **R-1 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/kg	11.5	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Benzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Bromochloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Bromodichloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Bromoform	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Bromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
2-Butanone	ND		ug/kg	11.5	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Carbon Disulfide	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Carbon Tetrachloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Chlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Chlorodibromomethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Chloroethane	ND		ug/kg	5.8	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Chloroform	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Chloromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.8	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2-Dibromoethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,1-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2-Dichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,1-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2-Dichloropropane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,4-Dioxane	ND		ug/kg	86.5	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Ethylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Freon 113	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
2-Hexanone	ND		ug/kg	11.5	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Isopropylbenzene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Methyl acetate	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Methyl cyclohexane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292012** Date Collected: 4/19/2017 14:05 Matrix: Solid

Sample ID: **R-1 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	11.5	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Methylene Chloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Styrene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Tetrachloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Toluene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Total Xylenes	ND		ug/kg	6.9	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.8	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.8	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Trichloroethene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Trichlorofluoromethane	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Vinyl Chloride	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
o-Xylene	ND		ug/kg	2.3	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
mp-Xylene	ND		ug/kg	4.6	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	78.1		%	56 - 124	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
4-Bromofluorobenzene (S)	85.7		%	51 - 128	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Dibromofluoromethane (S)	94.9		%	62 - 123	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D
Toluene-d8 (S)	90		%	59 - 131	SW846 8260B	4/19/17 14:05	DD	4/25/17 18:19	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Acenaphthylene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Acetophenone	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Anthracene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Atrazine	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzaldehyde	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzo(a)anthracene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzo(a)pyrene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Biphenyl	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Butylbenzylphthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292012** Date Collected: 4/19/2017 14:05 Matrix: Solid

Sample ID: **R-1 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Carbazole	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Chloroaniline	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Chloronaphthalene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Chlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Chrysene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
mp-Cresol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
o-Cresol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Di-n-Butylphthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Di-n-Octylphthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Dibenzofuran	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4-Dichlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Diethylphthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4-Dimethylphenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Dimethylphthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4-Dinitrophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
1,4-Dioxane	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Fluoranthene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Fluorene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Hexachlorobenzene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Hexachlorobutadiene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Hexachloroethane	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Isophorone	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Methylnaphthalene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Naphthalene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292012** Date Collected: 4/19/2017 14:05 Matrix: Solid

Sample ID: **R-1 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
3-Nitroaniline	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Nitroaniline	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Nitrobenzene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Nitrophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
4-Nitrophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Pentachlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Phenanthrene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Phenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Pyrene	ND		ug/kg	52.9	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	106	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	212	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	90.7		%	19 - 132	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Fluorobiphenyl (S)	83		%	40 - 110	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
2-Fluorophenol (S)	87.8		%	26 - 116	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Nitrobenzene-d5 (S)	78.1		%	38 - 112	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Phenol-d5 (S)	93.5		%	35 - 111	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
Terphenyl-d14 (S)	85.4		%	45 - 126	SW846 8270D	4/26/17 01:25	CMA	4/26/17 19:51	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1016	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1221	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1232	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1242	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1248	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1254	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Aroclor-1260	ND		mg/kg	0.036	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	100		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
Tetrachloro-m-xylene (S)	112		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 08:43	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292012** Date Collected: 4/19/2017 14:05 Matrix: Solid

Sample ID: **R-1 @ 8-10** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	11.4		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	88.6		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Arsenic, Total	ND		mg/kg	1.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Beryllium, Total	0.92		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Cadmium, Total	ND		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Chromium, Total	20.4		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Copper, Total	3.2		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Lead, Total	9.7		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Mercury, Total	ND		mg/kg	0.053	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:22	AXC	A1
Nickel, Total	14.9		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Selenium, Total	ND		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Thallium, Total	ND		mg/kg	0.54	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2
Zinc, Total	37.5		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:00	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292013** Date Collected: 4/19/2017 14:45 Matrix: Solid

Sample ID: **R-4 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	39.1		ug/kg	12.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Benzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Bromochloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Bromodichloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Bromoform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Bromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
2-Butanone	ND		ug/kg	12.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Carbon Disulfide	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Carbon Tetrachloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Chlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Chlorodibromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Chloroethane	ND		ug/kg	6.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Chloroform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Chloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2-Dibromoethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,1-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,1-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2-Dichloropropane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,4-Dioxane	ND		ug/kg	89.9	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Ethylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Freon 113	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
2-Hexanone	ND		ug/kg	12.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Isopropylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Methyl acetate	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Methyl cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292013** Date Collected: 4/19/2017 14:45 Matrix: Solid

Sample ID: **R-4 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	12.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Methylene Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Styrene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Tetrachloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Toluene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Total Xylenes	ND		ug/kg	7.2	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.0	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Trichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Trichlorofluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Vinyl Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
o-Xylene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
mp-Xylene	ND		ug/kg	4.8	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	84		%	56 - 124	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
4-Bromofluorobenzene (S)	84.2		%	51 - 128	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Dibromofluoromethane (S)	92.8		%	62 - 123	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D
Toluene-d8 (S)	87.5		%	59 - 131	SW846 8260B	4/19/17 14:45	DD	4/25/17 18:42	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Acenaphthylene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Acetophenone	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Anthracene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Atrazine	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzaldehyde	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzo(a)anthracene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzo(a)pyrene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Biphenyl	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Butylbenzylphthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292013** Date Collected: 4/19/2017 14:45 Matrix: Solid

Sample ID: **R-4 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Carbazole	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Chloroaniline	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Chloronaphthalene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Chlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Chrysene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
mp-Cresol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
o-Cresol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Di-n-Butylphthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Di-n-Octylphthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Dibenzofuran	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4-Dichlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Diethylphthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4-Dimethylphenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Dimethylphthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4-Dinitrophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
1,4-Dioxane	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Fluoranthene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Fluorene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Hexachlorobenzene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Hexachlorobutadiene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Hexachloroethane	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Isophorone	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Methylnaphthalene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Naphthalene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292013** Date Collected: 4/19/2017 14:45 Matrix: Solid

Sample ID: **R-4 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
3-Nitroaniline	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Nitroaniline	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Nitrobenzene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Nitrophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
4-Nitrophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Pentachlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Phenanthrene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Phenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Pyrene	ND		ug/kg	57.0	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	114	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	228	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	93.3		%	19 - 132	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Fluorobiphenyl (S)	78.1		%	40 - 110	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
2-Fluorophenol (S)	75.5		%	26 - 116	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Nitrobenzene-d5 (S)	76.4		%	38 - 112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Phenol-d5 (S)	80.3		%	35 - 111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
Terphenyl-d14 (S)	88.1		%	45 - 126	SW846 8270D	4/27/17 03:30	CMA	4/27/17 08:41	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1016	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1221	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1232	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1242	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1248	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1254	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Aroclor-1260	ND		mg/kg	0.038	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	82.5		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
Tetrachloro-m-xylene (S)	91.4		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:18	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292013** Date Collected: 4/19/2017 14:45 Matrix: Solid

Sample ID: **R-4 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	14.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	86.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Arsenic, Total	3.0		mg/kg	1.6	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Beryllium, Total	1.3		mg/kg	0.55	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Cadmium, Total	ND		mg/kg	0.55	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Chromium, Total	29.8		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Copper, Total	18.8		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Lead, Total	122		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Mercury, Total	ND		mg/kg	0.054	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:23	AXC	A1
Nickel, Total	27.0		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Selenium, Total	3.7		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Thallium, Total	0.64		mg/kg	0.55	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2
Zinc, Total	70.0		mg/kg	2.7	SW846 6020A	4/24/17 01:51	TSS	4/24/17 12:24	MO	A2

Mr. Brad W Kintzer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292014** Date Collected: 4/19/2017 14:50 Matrix: Solid

Sample ID: **R-4 @ 10-12** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	39.2		ug/kg	12.2	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Benzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Bromochloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Bromodichloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Bromoform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Bromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
2-Butanone	ND		ug/kg	12.2	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Carbon Disulfide	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Carbon Tetrachloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Chlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Chlorodibromomethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Chloroethane	ND		ug/kg	6.1	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Chloroform	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Chloromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.1	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2-Dibromoethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,1-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2-Dichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,1-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2-Dichloropropane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,4-Dioxane	ND		ug/kg	91.2	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Ethylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Freon 113	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
2-Hexanone	ND		ug/kg	12.2	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Isopropylbenzene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Methyl acetate	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Methyl cyclohexane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292014** Date Collected: 4/19/2017 14:50 Matrix: Solid

Sample ID: **R-4 @ 10-12** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	12.2	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Methylene Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Styrene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Tetrachloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Toluene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Total Xylenes	ND		ug/kg	7.3	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.1	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.1	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Trichloroethene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Trichlorofluoromethane	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Vinyl Chloride	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
o-Xylene	ND		ug/kg	2.4	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
mp-Xylene	ND		ug/kg	4.9	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	81		%	56 - 124	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
4-Bromofluorobenzene (S)	85.3		%	51 - 128	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Dibromofluoromethane (S)	92.5		%	62 - 123	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D
Toluene-d8 (S)	87		%	59 - 131	SW846 8260B	4/19/17 14:50	DD	4/25/17 19:05	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Acenaphthylene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Acetophenone	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Anthracene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Atrazine	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzaldehyde	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzo(a)anthracene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzo(a)pyrene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Biphenyl	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Butylbenzylphthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292014** Date Collected: 4/19/2017 14:50 Matrix: Solid

Sample ID: **R-4 @ 10-12** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Carbazole	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Chloroaniline	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Chloronaphthalene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Chlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Chrysene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
mp-Cresol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
o-Cresol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Di-n-Butylphthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Di-n-Octylphthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Dibenzofuran	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4-Dichlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Diethylphthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4-Dimethylphenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Dimethylphthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4-Dinitrophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
1,4-Dioxane	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Fluoranthene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Fluorene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Hexachlorobenzene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Hexachlorobutadiene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Hexachloroethane	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Isophorone	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Methylnaphthalene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Naphthalene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292014** Date Collected: 4/19/2017 14:50 Matrix: Solid

Sample ID: **R-4 @ 10-12** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
3-Nitroaniline	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Nitroaniline	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Nitrobenzene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Nitrophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
4-Nitrophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Pentachlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Phenanthrene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Phenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Pyrene	ND		ug/kg	63.4	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	127	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	254	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	97.3		%	19 - 132	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Fluorobiphenyl (S)	84.6		%	40 - 110	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
2-Fluorophenol (S)	79.8		%	26 - 116	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Nitrobenzene-d5 (S)	83.7		%	38 - 112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Phenol-d5 (S)	84.6		%	35 - 111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
Terphenyl-d14 (S)	117		%	45 - 126	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:05	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1016	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1221	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1232	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1242	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1248	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1254	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Aroclor-1260	ND		mg/kg	0.040	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	89.9		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
Tetrachloro-m-xylene (S)	105		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:29	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292014** Date Collected: 4/19/2017 14:50 Matrix: Solid

Sample ID: **R-4 @ 10-12** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	22.7		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	77.3		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Arsenic, Total	2.9		mg/kg	1.8	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Beryllium, Total	1.0		mg/kg	0.61	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Cadmium, Total	ND		mg/kg	0.61	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Chromium, Total	27.7		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Copper, Total	22.1		mg/kg	3.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Lead, Total	18.0		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Mercury, Total	ND		mg/kg	0.055	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:25	AXC	A1
Nickel, Total	28.1		mg/kg	3.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Selenium, Total	ND		mg/kg	3.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Thallium, Total	0.66		mg/kg	0.61	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2
Zinc, Total	88.5		mg/kg	3.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:21	ZMC	A2

Mr. Brad W Kintzer
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292015** Date Collected: 4/19/2017 15:00 Matrix: Solid

Sample ID: **R-8 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	47.9		ug/kg	12.8	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Benzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Bromochloromethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Bromodichloromethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Bromoform	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Bromomethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
2-Butanone	ND		ug/kg	12.8	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Carbon Disulfide	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Carbon Tetrachloride	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Chlorobenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Chlorodibromomethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Chloroethane	ND		ug/kg	6.4	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Chloroform	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Chloromethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Cyclohexane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.4	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2-Dibromoethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,1-Dichloroethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2-Dichloroethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,1-Dichloroethene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2-Dichloropropane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,4-Dioxane	ND		ug/kg	96.3	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Ethylbenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Freon 113	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
2-Hexanone	ND		ug/kg	12.8	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Isopropylbenzene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Methyl acetate	ND	1	ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Methyl cyclohexane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292015** Date Collected: 4/19/2017 15:00 Matrix: Solid

Sample ID: **R-8 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	12.8	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Methylene Chloride	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Styrene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Tetrachloroethene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Toluene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Total Xylenes	ND		ug/kg	7.7	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	6.4	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	6.4	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Trichloroethene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Trichlorofluoromethane	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Vinyl Chloride	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
o-Xylene	ND		ug/kg	2.6	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
mp-Xylene	ND		ug/kg	5.1	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	79.9		%	56 - 124	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
4-Bromofluorobenzene (S)	87.3		%	51 - 128	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Dibromofluoromethane (S)	94.2		%	62 - 123	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D
Toluene-d8 (S)	86.8		%	59 - 131	SW846 8260B	4/19/17 15:00	DD	4/25/17 19:29	DD	D

SEMIVOLATILES

Acenaphthene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Acenaphthylene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Acetophenone	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Anthracene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Atrazine	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzaldehyde	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzo(a)anthracene	145		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzo(a)pyrene	140		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzo(b)fluoranthene	187		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzo(g,h,i)perylene	133		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Benzo(k)fluoranthene	73.2		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Biphenyl	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Butylbenzylphthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292015** Date Collected: 4/19/2017 15:00 Matrix: Solid

Sample ID: **R-8 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Carbazole	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Chloroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Chloronaphthalene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Chlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Chrysene	187		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
mp-Cresol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
o-Cresol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Di-n-Butylphthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Di-n-Octylphthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Dibenzofuran	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4-Dichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Diethylphthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4-Dimethylphenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Dimethylphthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4-Dinitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
1,4-Dioxane	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Fluoranthene	259		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Fluorene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Hexachlorobenzene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Hexachlorobutadiene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Hexachloroethane	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Indeno(1,2,3-cd)pyrene	125		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Isophorone	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Methylnaphthalene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Naphthalene	ND		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292015** Date Collected: 4/19/2017 15:00 Matrix: Solid

Sample ID: **R-8 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
3-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Nitrobenzene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Nitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
4-Nitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Pentachlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Phenanthrene	96.6		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Phenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Pyrene	245		ug/kg	55.8	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	92.1		%	19 - 132	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Fluorobiphenyl (S)	78.1		%	40 - 110	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
2-Fluorophenol (S)	73.2		%	26 - 116	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Nitrobenzene-d5 (S)	76.3		%	38 - 112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Phenol-d5 (S)	71.5		%	35 - 111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
Terphenyl-d14 (S)	84.4		%	45 - 126	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:30	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1016	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1221	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1232	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1242	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1248	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1254	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Aroclor-1260	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	83.4		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
Tetrachloro-m-xylene (S)	97.8		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:41	EGO	A
WET CHEMISTRY										

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292015** Date Collected: 4/19/2017 15:00 Matrix: Solid

Sample ID: **R-8 @ 1-2** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	15.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	85.0		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	2.0		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Arsenic, Total	4.8		mg/kg	1.7	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Beryllium, Total	0.59		mg/kg	0.58	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Cadmium, Total	1.1		mg/kg	0.58	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Chromium, Total	34.7		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Copper, Total	23.4		mg/kg	2.9	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Lead, Total	972		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Mercury, Total	0.11		mg/kg	0.059	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:26	AXC	A1
Nickel, Total	15.5		mg/kg	2.9	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Selenium, Total	ND		mg/kg	2.9	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Silver, Total	ND		mg/kg	1.2	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Thallium, Total	ND		mg/kg	0.58	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2
Zinc, Total	276		mg/kg	2.9	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:36	ZMC	A2

Mr. Brad W Kintzer
Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292016** Date Collected: 4/19/2017 15:05 Matrix: Solid

Sample ID: **R-8 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
Acetone	18.5		ug/kg	10.3	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Benzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Bromochloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Bromodichloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Bromoform	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Bromomethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
2-Butanone	ND		ug/kg	10.3	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Carbon Disulfide	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Carbon Tetrachloride	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Chlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Chlorodibromomethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Chloroethane	ND		ug/kg	5.2	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Chloroform	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Chloromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Cyclohexane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.2	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2-Dibromoethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,3-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,4-Dichlorobenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Dichlorodifluoromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,1-Dichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2-Dichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,1-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
cis-1,2-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
trans-1,2-Dichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2-Dichloropropane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
cis-1,3-Dichloropropene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
trans-1,3-Dichloropropene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,4-Dioxane	ND		ug/kg	77.6	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Ethylbenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Freon 113	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
2-Hexanone	ND		ug/kg	10.3	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Isopropylbenzene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Methyl acetate	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Methyl cyclohexane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292016** Date Collected: 4/19/2017 15:05 Matrix: Solid

Sample ID: **R-8 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methyl t-Butyl Ether	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
4-Methyl-2-Pentanone(MIBK)	ND		ug/kg	10.3	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Methylene Chloride	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Styrene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Tetrachloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Toluene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Total Xylenes	ND		ug/kg	6.2	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2,3-Trichlorobenzene	ND		ug/kg	5.2	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,2,4-Trichlorobenzene	ND		ug/kg	5.2	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,1,1-Trichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
1,1,2-Trichloroethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Trichloroethene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Trichlorofluoromethane	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Vinyl Chloride	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
o-Xylene	ND		ug/kg	2.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
mp-Xylene	ND		ug/kg	4.1	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	82		%	56 - 124	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
4-Bromofluorobenzene (S)	85.3		%	51 - 128	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Dibromofluoromethane (S)	93.7		%	62 - 123	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
Toluene-d8 (S)	87.7		%	59 - 131	SW846 8260B	4/19/17 15:05	DD	4/25/17 19:52	DD	D
SEMIVOLATILES										
Acenaphthene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Acenaphthylene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Acetophenone	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Anthracene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Atrazine	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzaldehyde	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzo(a)anthracene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzo(a)pyrene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzo(b)fluoranthene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzo(g,h,i)perylene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Benzo(k)fluoranthene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Biphenyl	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Bromophenyl-phenylether	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Butylbenzylphthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292016** Date Collected: 4/19/2017 15:05 Matrix: Solid

Sample ID: **R-8 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Caprolactam	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Carbazole	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Chloro-3-methylphenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Chloroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
bis(2-Chloroethoxy)methane	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
bis(2-Chloroethyl)ether	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
bis(2-Chloroisopropyl)ether	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Chloronaphthalene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Chlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Chlorophenyl-phenylether	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Chrysene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
mp-Cresol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
o-Cresol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Di-n-Butylphthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Di-n-Octylphthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Dibenzo(a,h)anthracene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Dibenzofuran	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
3,3-Dichlorobenzidine	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4-Dichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Diethylphthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4-Dimethylphenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Dimethylphthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4-Dinitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4-Dinitrotoluene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,6-Dinitrotoluene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
1,4-Dioxane	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
bis(2-Ethylhexyl)phthalate	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Fluoranthene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Fluorene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Hexachlorobenzene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Hexachlorobutadiene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Hexachlorocyclopentadiene	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Hexachloroethane	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Indeno(1,2,3-cd)pyrene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Isophorone	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Methyl-4,6-dinitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Methylnaphthalene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Naphthalene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292016** Date Collected: 4/19/2017 15:05 Matrix: Solid

Sample ID: **R-8 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
3-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Nitroaniline	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Nitrobenzene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Nitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
4-Nitrophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
N-Nitroso-di-n-propylamine	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
N-Nitrosodiphenylamine	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Pentachlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Phenanthrene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Phenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Pyrene	ND		ug/kg	55.7	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,3,4,6-Tetrachlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4,5-Trichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2,4,6-Trichlorophenol	ND		ug/kg	223	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	94.9		%	19 - 132	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Fluorobiphenyl (S)	81		%	40 - 110	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
2-Fluorophenol (S)	78.6		%	26 - 116	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Nitrobenzene-d5 (S)	81.4		%	38 - 112	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Phenol-d5 (S)	84.6		%	35 - 111	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
Terphenyl-d14 (S)	87.1		%	45 - 126	SW846 8270D	4/27/17 03:30	CMA	4/27/17 09:54	CGS	A
PCBs										
Total Polychlorinated Biphenyl	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1016	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1221	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1232	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1242	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1248	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1254	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Aroclor-1260	ND		mg/kg	0.037	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	56.2		%	49 - 115	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
Tetrachloro-m-xylene (S)	73.5		%	27 - 137	SW846 8082A	4/28/17 19:10	JSR	5/1/17 09:52	EGO	A
WET CHEMISTRY										

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2224292 Villanova / 101442012

Lab ID: **2224292016** Date Collected: 4/19/2017 15:05 Matrix: Solid

Sample ID: **R-8 @ 6-8** Date Received: 4/20/2017 06:52

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	*Cntr*
Moisture	13.7		%	0.1	S2540G-11			4/23/17 17:32	JWB	
Total Solids	86.3		%	0.1	S2540G-11			4/23/17 17:32	JWB	
METALS										
Antimony, Total	ND		mg/kg	1.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Arsenic, Total	4.8		mg/kg	1.6	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Beryllium, Total	ND		mg/kg	0.55	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Cadmium, Total	ND		mg/kg	0.55	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Chromium, Total	22.3		mg/kg	1.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Copper, Total	6.2		mg/kg	2.7	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Lead, Total	12.2		mg/kg	1.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Mercury, Total	ND		mg/kg	0.055	SW846 7471B	4/24/17 01:20	AXC	4/24/17 05:29	AXC	A1
Nickel, Total	5.2		mg/kg	2.7	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Selenium, Total	ND		mg/kg	2.7	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Silver, Total	ND		mg/kg	1.1	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Thallium, Total	ND		mg/kg	0.55	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2
Zinc, Total	21.0		mg/kg	2.7	SW846 6020A	4/25/17 06:40	ZMC	4/28/17 07:40	ZMC	A2

Mr. Brad W Kintzer
Project Coordinator

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2224292001	1	R-7 @ 1-2	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292002	1	R-7 @ 13-15	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292003	1	R-6 @ 1-2	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292004	1	R-6 @ 8-10	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292005	1	R-5 @ 1-2	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292006	1	R-5 @ 12-14	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292007	1	R-3 @ 1-2	SW846 8260B	Methyl acetate
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Methyl acetate. The % Recovery was reported as 185 and the control limits were 70 to 130.				
2224292007	2	R-3 @ 1-2	SW846 8260B	Methyl acetate
The QC sample type LCSD for method SW846 8260B was outside the control limits for the analyte Methyl acetate. The % Recovery was reported as 165 and the control limits were 70 to 130.				
2224292007	3	R-3 @ 1-2	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292008	1	R-3 @ 6-8	SW846 8260B	Methylene Chloride
The Method Blank for method SW846 8260B reported a value greater than the reporting level for the analyte Methylene Chloride.				
2224292015	1	R-8 @ 1-2	SW846 8260B	Methyl acetate
The QC sample type LCSD for method SW846 8260B was outside the control limits for the analyte Methyl acetate. The % Recovery was reported as 132 and the control limits were 70 to 130.				

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN-OF-CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 2

Courier:
Tracking #:

2224292

Co. Name: RETTEW
Contact (Report to): Scott Houser
Phone: 717-418-7558
Address: 5031 Richard Lane Mechanicsburg, PA 17055

Bill to (if different than Report to):
PO#:

Project Name/#: Villanova / 101442012
ALS Quote #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y shouser@rettew.com
Fax? [ ] Y No.:

***Container Type		G	AG	G	G					
***Container Size		16oz	2oz	40	40					
***Preservative		—		MeOH	DI					

ANALYSES/METHOD REQUESTED: VOCs, SVOCs, PCBs, PP Metals

Enter Number of Containers Per Analysis

#	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	VOCs, SVOCs, PCBs, PP Metals									
1	R-7 @ 1-2		4-19-17	850	G	SO	1	1	1	1	2					
2	R-7 @ 13-15		↓	855	↓	↓	1									
3	R-6 @ 1-2			940			1									
4	R-6 @ 8-10			945			1									
5	R-5 @ 1-2			1035			1									
6	R-5 @ 12-14			1040			1									
7	R-3 @ 1-2			1140			1									
8	R-3 @ 6-8		↓	1145	↓	↓	1	0	0	0	0					

AS 4/21/17
RS 4/20/17

Performed by: (initials)
Cooler Temp: 5.2
Therm. ID: TH 318
No. of Coolers:
Notes:

Circle appropriate Y or N.

	Y	N
Correct containers?	Y	N
Correct sample volume?	Y	N
Correct preservation?	Y	N
Headspace/Volatiles?	Y	N
Custody seals Present?	Y	N
(If present) Seals intact?	Y	N
Received on ice?	Y	N
COC/Labels complete/accurate?	Y	N
Container in good condition?	Y	N

SAMPLED BY (Please Print): Scott Houser

Project Comments:

#	Relinquished By / Company Name	Date	Time	#	Received By / Company Name	Date	Time
1	[signature] / RETTEW	4-20-17	0852	2	[signature] ALS	4/20	0852
3				4			
5				6			
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ]
EDDs Required? [ ] If yes, format type:
DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ] Other
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Enter PWSID No.

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

Courier:
Tracking #:

222492

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Co. Name: RETTEW
Contact (Report to): Scott Houser Phone: 717-418-7558
Address: 5031 Richard Lane
Mechanicsburg, PA 17055

Bill to (if different than Report to): PO#:

Project Name/#: V. Ilanova / 101442012 ALS Quote #:

TAT: [X] Normal-Standard TAT is 10-12 business days. Date Required:
[ ] Rush-Subject to ALS approval and surcharges. Approved By:

Email? [X] -Y shouser@rettew.com
Fax? [ ] -Y No.:

	Container Type		G	AG	G	G					
	Container Size		1L 802	2.02	40	4G					
	Preservative		—	—	MeOH	DI					
	*G or C	**Matrix	VOCs, SVOCs, PCBs, PP Metals								
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	Enter Number of Containers Per Analysis							
1 R-2 @ 1-2		4-19-17	1315	G	SO	1	1	1	1	2	
2 R-2 @ 13-15			1320			1					
3 R-1 @ 1-2			1400			1					
4 R-1 @ 8-10			1405			1					
5 R-4 @ 1-2			1445			1					
6 R-4 @ 10-12			1450			1					
7 R-8 @ 1-2			1500			1					
8 R-8 @ 6-8		↓	1505	↓	↓	1	↓	↓	↓	↓	

JLS 4/20/17

Receipt Information (completed by Sample Receiving)
Performed by: [illegible]
Cooler Temp: 5.2
Therm. ID: IR-318
No. of Coolers:

Notes:

	Circle appropriate Y or N.
Custody seals Present?	Y N
(if present) Seals Intact?	Y N
Correct containers?	Y N
Correct sample volume?	Y N
Correct preservation?	Y N
Received on Ice?	Y N
Headspace/Volatiles?	Y N
COC/Labels complete/accurate?	Y N
Container in good condition?	Y N

SAMPLED BY (Please Print): Scott Houser

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible] / RETTEW	4-20-17	0852	2 [illegible] ALS	4/20	0852
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other
EDDs Required? [ ] If yes, format type:
DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]
Other
SEE REVERSE

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Rettew Associates, Inc. (2846)
Address: 5031 Richard Lane Suite 111
Mechanicsburg, PA 17055

Attn:

Project: Villanova Parking Lot
Location: Radnor Township Delaware
Number: 101442012

Order #: 211086

Received 04/26/17
Analyzed 05/02/17
Reported 05/03/17

PO Number:

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
211086-001	04/19/17	R1a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-002	04/19/17	R1b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-003	04/19/17	R2a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-004	04/19/17	R2b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-005	04/19/17	R3a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-006	04/19/17	R3b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-007	04/19/17	R4a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-008	04/19/17	R4b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. The EPA recommends that any vermiculite should be treated as Asbestos Containing Material (ACM). This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
211086-009	04/19/17	R5a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-010	04/19/17	R5b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-011	04/19/17	R6a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-012	04/19/17	R6b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-013	04/19/17	R7a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-014	04/19/17	R7b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-015	04/19/17	R8a	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL
211086-016	04/19/17	R8b	Radnor Township		
Layer 1: Asphalt Material Beige/Black, Hard				None Detected	100% NON FIBROUS MATERIAL

EPA Regulatory Limit: 1%

Total layers analyzed on order: 16

211086-05/03/17 08:12 AM

Analyst **Mohammed Hashim**

Reviewed By: **Charles Lynch**
Data Management

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. The EPA recommends that any vermiculite should be treated as Asbestos Containing Material (ACM). This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

SCHNEIDER LABORATORIES GLOBAL, INC.

2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475
www.slabinc.com e-mail: info@slabinc.com

211086 S 16
V:\211\211086
fghraizi 4/26/2017 10:15:00 AM
Federal Express 77898 7151007

Submitting Co.	RETTEW	Lab WO#		Phone	
5031 Richard Lane, Suite #111		Acct #		Fax / Email	shouser@rettew.com
Mechanicsburg, PA 17055		**State of Collection	PA	**Cert. Required	☐ Yes ☐ No

Project Name:	Villanova Parking Lot
Project Location:	Radnor Township, Delaware County, PA
Project Number:	101442012
PO Number:	

Special Instructions [include requests for special reporting or data packages]

Turn Around Time (TAT)

- ☐ 2 hours*
- ☐ Same day* †
- ☐ 1 business day* †
- ☐ 2 business days* †
- ☐ 3 business days* †
- ☒ 5 business days* †

* Not available for all tests

† A job received past 3PM will begin its TAT the next business day

Schedule rush organics, multi-metals & weekend tests in advance.

Matrix / Sample Type (Select ONE)

All samples on form should be of SAME matrix type. Use additional forms as needed.

- ☐ Air
- ☐ Aqueous
- ☐ Bulk
- ☐ Hi-Vol Filter (PM10)
- ☐ Hi-Vol Filter (TSP)
- ☐ Oil
- ☐ Paint
- ☐ Sludge
- ☐ Soil
- ☐ Solid
- ☐ Waste
- ☐ Wastewater
- ☐ Water,Drinking
- ☐ Compliance
- ☐ Wipe
- ☐ Wipe, Composite
- ☐ _____
- ☐ _____

Tests / Analytes (Select ALL that Apply)

Asbestos in Air

- ☐ PCM (NIOSH 7400)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II)

Miscellaneous Tests

- ☐ Total Dust (NIOSH 0500)
- ☐ Resp. Dust (NIOSH 0600)
- ☐ Silica - FTIR (NIOSH 7602)
- ☐ Silica - XRD (NIOSH 7500)

Other

- ☐ _____

Asbestos in Bulk

- ☒ PLM
- ☐ PLM (Point Count)
- ☐ PLM (Qualitative only)
- ☐ NYELAP
- ☐ CAELAP (Point Count)
- ☐ TEM (Chatfield)
- ☐ _____

FOR ASBESTOS AIR:

TYPE OF RESPIRATOR USED: _____

Metals-Total

- ☐ Lead
- ☐ RCRA Metals

TCLP

- ☐ TCLP / Lead
- ☐ TCLP / RCRA Metals
- ☐ TCLP / Full (w/ organics) 10 day

Microbiology

- ☐ BACT (MPN & P/A)
- ☐ Mold Direct Exam
- ☐ _____

Sample #	Date Sampled**	Time Sampled**	Sample Identification (Employee, SSN, Bldg, Material, Type[1])	Wiped Area (ft^2)	pH / Temp *	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total[4] Air
R1a	4-19-17		asphalt							
R1b	4-19-17		asphalt							
R2a	4-19-17		asphalt							
R2b	4-19-17		asphalt							
R3a	4-19-17		asphalt							
R3b	4-19-17		asphalt							
R4a	4-19-17		asphalt							
R4b	4-19-17		asphalt							
R5a	4-19-17		asphalt							
R5b	4-19-17		asphalt							

[1]Type: A=Area B=Blank P=Personal E=Excursion [2]Beginning/End of Sample Period [3]Pump Calibration in Liters/Minute [4]Volume in Liters [time in min × flow in L/min]

All soil and aqueous samples must be sent in adequate quantity for duplicate analysis to be performed per EPA requirements. Failure to perform a sample duplicate analysis, due to a lack of sample quantity, will lead to a disclaimer on the report. All problem jobs without customer response held over 30 days will be voided and disposed of.

Sampled by	Relinquished to lab by	For Lab Use:
NAME Scott Houser	NAME Scott Houser	
SIGNATURE	SIGNATURE	
DATE / TIME 4-19-17	DATE / TIME 4-25-17	

Sample Disposal ☐ Return to Sender (shipping fees) ☐ Disposal by Lab ($50 fee for excessive weight)

* Temperature taken with IR Gun A. **Required.

Chain-of-Custody documentation continued internally within lab. Terms and conditions page 2.

SCHNEIDER LABORATORIES GLOBAL, INC.

2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475
www.slabinc.com e-mail: info@slabinc.com

WO Label

Submitting Co.	RETTEW	Lab WO#		Phone	
5031 Richard Lane, Suite #111		Acct #		Fax / Email	shouser@rettew.com
Mechanicsburg, PA 17055		**State of Collection	PA	**Cert. Required	☐ Yes ☐ No
Project Name:	Villanova Parking Lot	Special Instructions [include requests for special reporting or data packages]			
Project Location:	Radnor Township, Delaware County, PA				
Project Number:	101442012				
PO Number:					

Turn Around Time (TAT)

- ☐ 2 hours*
- ☐ Same day* †
- ☐ 1 business day* †
- ☐ 2 business days* †
- ☐ 3 business days* †
- ☒ 5 business days* †

* Not available for all tests

† A job received past 3PM will begin its TAT the next business day

Schedule rush organics, multi-metals & weekend tests in advance.

Matrix / Sample Type (Select ONE)

All samples on form should be of SAME matrix type. Use additional forms as needed.

☐ Air	☐ Solid
☐ Aqueous	☐ Waste
☐ Bulk	☐ Wastewater
☐ Hi-Vol Filter (PM10)	☐ Water,Drinking
☐ Hi-Vol Filter (TSP)	☐ Compliance
☐ Oil	☐ Wipe
☐ Paint	☐ Wipe, Composite
☐ Sludge	☐ _____
☐ Soil	☐ _____

Tests / Analytes (Select ALL that Apply)

Asbestos in Air
- ☐ PCM (NIOSH 7400)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II)

Miscellaneous Tests
- ☐ Total Dust (NIOSH 0500)
- ☐ Resp. Dust (NIOSH 0600)
- ☐ Silica - FTIR (NIOSH 7602)
- ☐ Silica - XRD (NIOSH 7500)

Other
- ☐ _____

Asbestos in Bulk
- ☒ PLM
- ☐ PLM (Point Count)
- ☐ PLM (Qualitative only)
- ☐ NYELAP
- ☐ CAELAP (Point Count)
- ☐ TEM (Chatfield)
- ☐ _____

FOR ASBESTOS AIR:
TYPE OF RESPIRATOR USED: _____

Metals-Total
- ☐ Lead
- ☐ RCRA Metals

TCLP
- ☐ TCLP / Lead
- ☐ TCLP / RCRA Metals
- ☐ TCLP / Full (w/ organics) 10 day

Microbiology
- ☐ BACT (MPN & P/A)
- ☐ Mold Direct Exam
- ☐ _____

Sample #	Date Sampled**	Time Sampled**	Sample Identification (Employee, SSN, Bldg, Material, Type[1])	Wiped Area (ft²)	pH / Temp *	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total[4] Air
R6a	4-19-17		asphalt							
R6b	4-19-17		asphalt							
R7a	4-19-17		asphalt							
R7b	4-19-17		asphalt							
R8a	4-19-17		asphalt							
R8b	4-19-17		asphalt							

[1]Type: A=Area B=Blank P=Personal E=Excursion [2]Beginning/End of Sample Period [3]Pump Calibration in Liters/Minute [4]Volume in Liters [time in min × flow in L/min]

All soil and aqueous samples must be sent in adequate quantity for duplicate analysis to be performed per EPA requirements. Failure to perform a sample duplicate analysis, due to a lack of sample quantity, will lead to a disclaimer on the report. All problem jobs without customer response held over 30 days will be voided and disposed of.

Sampled by	Relinquished to lab by	For Lab Use:
NAME Scott Houser	NAME Scott Houser	
SIGNATURE	SIGNATURE	
DATE / TIME 4-19-17	DATE / TIME 4-25-17	

Sample Disposal ☐ Return to Sender (shipping fees) ☐ Disposal by Lab ($50 fee for excessive weight)

* Temperature taken with IR Gun A. **Required.

Chain-of-Custody documentation continued internally within lab. Terms and conditions page 2.