ARCADIS Design & Consultancy for natural and built assets

Mr. Payson Long
Remediation Bureau D
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7013

Arcadis of New York, Inc.
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631 249 7600
Fax 631 249 7610
www.arcadis.com

ENVIRONMENT

Subject:
2017 Annual Monitoring Report, Colesville Landfill
Broome County, New York. (Site No. 704010).

Date:
January 10, 2018

Contact:
Steven M. Feldman

Phone:
631 391 5244

Email:
steven.feldman@arcadis.com

Our ref:
NY000949.0029.00004

Dear Mr. Long:

This Annual Monitoring Report (report) was prepared on behalf of the Broome County Division of Solid Waste Management for the Colesville Landfill, located in Broome County, New York (site) to evaluate and document long-term monitoring (LTM) activities at the site. Monitoring activities are being conducted pursuant to the Site Management Plan (SMP) (Broome County Division of Solid Waste Management and ARCADIS 2015), which was approved by the New York State Department of Environmental Conservation (NYSDEC).

During this reporting period, the NYSDEC issued a change in classification for the Colesville Landfill in the Registry of Inactive Hazardous Waste Disposal Sites. In a letter from the NYSDEC dated September 27, 2017, Broome County was notified of a classification change from 2 to 4 based on the rationale that residual contamination is being managed under a SMP.

This report describes the data collected and analyzed during calendar year 2017, which includes the March 8 and 29, May 9 and September 13 (hereinafter referred to as the reporting period) groundwater, spring water and sediment monitoring results. Following the detailed data analysis and discussion is a summary of findings, conclusions, and recommendations.

METHODOLOGY

The following section provides a summary of the environmental monitoring for the reporting period. The site plan and monitoring locations are provided on Figures 1 and 2.

Groundwater Monitoring

Groundwater monitoring performed during the reporting period included 5th Quarter groundwater monitoring from 14 monitoring wells. The samples were collected and analyzed by the laboratory (ALS) for volatile organic compounds (VOCs) and field analyzed for pH, temperature and specific conductance. Field sampling logs are provided in Appendix A. In addition, analysis of per- and polyfluoroalkyl substances (PFASs) for a subset of 7 monitoring wells sampled on March 29, 2017 was performed. In accordance with NYSDEC requirements, PFASs were analyzed via EPA Method 537 for the six (6) substances originally monitored as part of EPA's UCMR3 (third Unregulated Contaminant Monitoring Rule). The same subset of wells was sampled for 1,4-dioxane. Nine of the 14 wells were also sampled for monitored natural attenuation parameters.

Surface Water Monitoring

Surface water samples were collected at the SW-2, SW-3, SW-4, and F-6 locations during the May and September monitoring events. Surface water samples were collected as direct grab samples from the North Stream at areas collocated with the spring samples, and at a location further downgradient of the springs (F-6) in accordance with the SMP. Surface water samples were collected and analyzed by the laboratory (ALS) for VOCs and metals and field analyzed for pH, temperature and specific conductance.

Spring Water and Sediment Monitoring

Spring water samples were collected at the SP-2, SP-3, and SP-4 locations during the May and September monitoring events. Spring water samples were collected as grab samples, consistent with the SMP. Spring water samples were collected and analyzed by the laboratory (ALS) for VOCs and total metals and field analyzed for pH, temperature and specific conductance. In addition to the above, a spring water inspection was completed during the sampling events to evaluate the presence and appearance/condition of existing springs. Photographs were also taken when appropriate.

Sediment samples were collected within the North Stream in the vicinity of SP-3 during the May and September 2017 monitoring events. All sediment samples were homogenized in a stainless-steel bowl prior to placement into sample containers, and were submitted for laboratory analysis of total metals. Measures were taken to decant off the liquid during the sample collection with the objective of preventing analysis of samples with a high percent moisture content.

Spring Water Remediation System Performance Monitoring

SP-5 Spring Water Remediation System OM&M was conducted during the May and September monitoring events. System OM&M was conducted in accordance with the SMP and consisted of the collection of influent and effluent spring water samples for analysis of VOCs. The influent sample was collected as a grab sample from the influent monitoring well, which is located within the SP-5 treatment unit and screened below the liquid phase granular activated carbon (LPGAC) zone. The treatment system effluent sample was collected as a grab sample from the discharge pipe prior to entering the outfall stone apron.

RESULTS

The results of the environmental effectiveness and remediation system performance monitoring for the reporting period are summarized below, by environmental medium. An electronic copy of the reporting period laboratory analytical results is included in Appendix B.

Groundwater Quality

Analytical results for groundwater samples collected during the reporting period are provided in Table 1 (VOCs, including 1,4-dioxane), Table 2 (field parameters), and Table 3 (PFASs). A summary of all analytical data collected since 2016 has also been provided in the same table for comparative purposes.

As shown in Table 1, landfill perimeter monitoring well PW-7 exhibited detections in March 2017 of the same VOCs (i.e., 1,1-dichloroethane [DCA], chloroethane [CA], cis-1,2-dichloroethene [DCE], and trichloroethene [TCE]) that were detected during 2016. Although total VOC (TVOC) concentrations in PW-7 showed a relative increase from 2016 to 2017, there has been a significant decline in TVOC concentrations observed since September 2014.

Further downgradient from the landfill perimeter in the mid-plume area (i.e., GMMW-5, GMMW-6, and GMMW-2), concentrations of chlorinated ethenes have significantly decreased, with DCA and CA being the primary VOCs present in groundwater.

Further downgradient in monitoring wells near East Windsor Road (i.e., PW-4, PW-3 and W-16S), TVOC concentrations range from below the limits of detection to 30 µg/L. However, at GMPW-4, which is a former recovery well, TVOC concentrations were 110 µg/L.

Concentrations of VOCs south of East Windsor Road (i.e., W-18 and W20S) were below the limits of detection. As shown in Table 2, monitoring wells in the mid-plume area continue to exhibit elevated concentrations of total organic carbon (TOC), degradation end products (ethene and ethane), and methanogenic conditions that are conducive to the reductive dechlorination of VOCs.

The concentration of 1,4-dioxane in the subset of 7 monitoring wells sampled in March 2017 ranged from below the limits of detection to 1.9 µg/L (Table 1). While EPA and NYS have not set MCLs for 1,4-dioxane, EPA has established a lifetime health advisory of 0.2 mg/L for 1,4-dioxane in drinking water (EPA 2012), and the NYS Department of Health (NYSDOH) has a standard of 50 µg/L for Unspecified Organic Contaminant that is used to regulate compounds such as 1,4-dioxane.

The analytical results for the sampling of PFASs is provided in Table 3. The results indicate that the concentration of the six (6) PFASs ranged from below the limits of detection to 9.8 ng/L, and total PFASs were well below the USEPA health advisory levels of 70 ng/L (parts per trillion [ppt]).

Surface Water Quality

Surface water quality analytical results for May and December 2017 are summarized in Table 4. As shown in Table 4, surface water quality remained consistent when compared to historical data. The TVOC concentration at surface water sampling locations were below the limits of detection or at trace levels. The metals concentrations, many below limits of detection, at the F-6, SW-3 and SW-4 sampling

locations were also consistent with the background, upgradient sample SW-2, and historical data. These data indicate that surface water quality is not being adversely impacted by the landfill.

Spring Water and Sediment Quality

The embankment of the North Stream was inspected for springs during the site visits in May and September. During both inspection events, iron hydroxide staining was observed around the SP-2, SP-3, and SP-4 springs and the SP-5-effluent area. These observations have been generally consistent with conditions observed during past site visits.

Spring water samples were collected at the SP-2, SP-3 and SP-4 locations following the inspections. Spring water quality analytical results are summarized in Table 5. As shown in Table 5, TVOC concentrations at the SP-2 spring water location in May 2017 were elevated (49 µg/L) in comparison with the low-level concentrations that are typically observed during previous sampling events. However, TVOC concentrations in September 2017 were 0.30 µg/L, which is consistent with the SP-2 results observed during 2016. TVOC concentrations at the SP-3 spring water location were 11 µg/L in May 2017 and 70 µg/L in September 2017, in comparison with 40 µg/L in June 2016 and 100 µg/L in December 2016; TVOC concentrations at the SP-4 spring water location decreased to 17 µg/L in May 2017 and 21 µg/L in September 2017, from 41 µg/L in June 2016 and 31 µg/L in December 2016.

Detected concentrations were compared to the NYSDEC Part 703 Water Quality Standards (WQS) for Class C fresh surface waters. Where WQS were not available, the NYSDEC Division of Water Technical Operational Guidance Series (TOGS 1.1.1) standards and guidance values were listed for comparative purposes. Since the designated use of Class C waters is fishing, the standards and guidance values are protective of fish, shellfish and wildlife propagation and survival, as well as primary and secondary contact recreation. The concentration of chlorobenzene (7.4 µg/L) at SP-2 in May 2017 slightly exceeded the WQS (5 µg/L). The concentrations of chlorobenzene at SP-3 (20 µg/L) and SP-4 (5.4 µg/L) in September 2017 also exceeded the WQS (5 µg/L; Note that the Record of Decision [ROD] Applicable or Relevant and Appropriate Requirements [ARARs] range from 5-20 µg/L, and the federal maximum contaminant level [MCL] for chlorobenzene is 100 µg/L). Despite the presence of VOCs in spring water, non-detect to trace concentrations of VOCs are present in the surface water (Table 4). These data continue to demonstrate that VOCs detected in the spring water are not adversely impacting surface water quality in the North Stream. In general, the concentrations of metals were below their respective WQS with the exception of iron, which was present in all spring water samples at levels that exceeded the criteria for protection of aquatic life from chronic effects; in September 2017, the aluminum concentration of 0.14 mg/L also slightly exceeded the WQS of 0.1 mg/L. However, only non-detect to trace concentrations of iron and aluminum are present in surface water.

Sediment samples (SP-3-SED) were collected within the North Stream in the vicinity of SP-3 during the site visits in May and September. Sediment quality analytical results are summarized in Table 6.

Sediment samples collected in the SP-3 area included 4 samples during the May sampling event that were collected near the spring source and downgradient of the source, both before and after scraping and removal of surficial sediments. One sample was collected from the SP-3 source area during the September event. All samples were analyzed for metals. Sediment samples collected at the SP-3-SED area during the reporting period were generally consistent with the background sediment sample (SP-1-SED [upstream of the SP-3]) for most metals, with the exception of arsenic. The metals results for the

SP-3-SED samples were also evaluated relative to Table 5 - Freshwater Sediment Guidance Values of the NYSDEC Screening and Assessment of Contaminated Sediment document (NYSDEC 2014), which characterizes freshwater sediment as either Class A (low risk to aquatic life), Class B (slightly to moderately contaminated and additional testing is required to evaluate the potential risks to aquatic life), and Class C (sediments are considered to be highly contaminated and likely to pose a risk to aquatic life). Several metals were either detected at concentrations below the Class A designation (chromium, copper, lead, mercury, zinc) or were below the limits of detection (cadmium, silver, sodium and thallium). However, nickel was detected in May 2017 at concentrations slightly above the lower range of the Class B designation, and arsenic was detected at concentrations which are greater than the Class C designation.

On May 9, 2017, Broome County personnel performed visual monitoring and sediment removal at SP-3. Iron straining was photographed, and stained sediment and vegetation were removed, drummed and transported off-site for disposal at the Broome County Landfill. The sediment removal effort was primarily focused on the area where the spring exfiltrates from the base of the rock wall and the affected area immediately downgradient.

Spring Water Remediation System Performance

During the site visits in May and September 2017, the SP-5 Spring Water Remediation System was cleaned out by ALS, but did not require replacement of granulated activated carbon media. SP-5 analytical results for this reporting period are provided in Table 7. As shown in Table 7, influent TVOC concentrations remained stable in May 2017 (24 µg/L) and September 2017 (19 µg/L) when compared to June 2016 (24 µg/L) and December 2016 (21 µg/L), and with historical data. Furthermore, the influent concentrations were below (or within the range of) their respective BPJ limits during the reporting period. TVOC concentrations of 10 µg/L (May 2017) and 2.3 µg/L (September 2017) were detected in SP-5 effluent. The effluent sample collected in September was taken from the cleanout prior to the effluent discharge due to heavy vegetation in the area.

Table 8 contains the SP-5 spring water remediation system operating parameters recorded during the reporting period. Approximately 430,000 gallons of spring water were treated during this reporting period and approximately 0.08 lbs of mass were recovered since September 2016. An estimated 6,330,000 gallons of spring water has been treated and an estimated 2.5 lbs of VOC mass has been recovered since system startup in October 2003.

CONCLUSIONS

Based on the data obtained during the reporting period, Arcadis concludes the following:

- The concentration of VOCs generally decreased or remained stable during the reporting period when compared with historical data.
- There have not been any discernible changes in the relative appearance of spring areas thus far since the discontinuation pilot test, except for the SP-3 area where substantial amounts of willows and grasses have become established.
- VOC and metals concentrations in surface water continue to be low or non-detect and consistent with historical data, despite the presence of VOCs and metals in the spring water.

- Sediment quality results during 2017 were significantly improved in comparison with 2016 data. Sediment samples collected at the SP-3-SED area during the reporting period were generally consistent with the background sediment sample (SP-1-SED [upstream of the SP-3]) for most metals, with the exception of arsenic. Nickel was detected in May 2017 at concentrations slightly above the lower range of the NYSDEC Freshwater Sediment Screening Values for Class B designation, and arsenic was detected at concentrations which are greater than the Class C. designation.

RECOMMENDATIONS

The following recommendations are made for this reporting period:

- Continue to conduct monitoring for residual VOCs via groundwater, spring water, and surface water monitoring in accordance with the SMP.
- Continue to inspect the former spring locations and the embankment of the North Stream.
- Continue to conduct semi-annual sediment sampling at SP-3, and perform maintenance by removing surficial sediment that is visually impacted near the SP-3 spring.
- Evaluate the need to continue monitoring SP-3 sediment quality relative to potential ecological risk.

PROJECT SCHEDULE

The current monitoring schedule outlined in the SMP includes groundwater and surface water monitoring every 5th quarter (next scheduled for 2nd quarter 2018) and spring water and sediment monitoring semi-annually (next scheduled for 2nd quarter 2018).

Please feel free to contact me if you have any questions or comments.

Sincerely,

Arcadis of New York, Inc.

Steven M. Feldman
Project Manager

Copies:
Laurie Haskell, Broome County
George Jacob, USEPA
Richard Jones, NYSDOH, electronic copy

Enclosures:
Tables

1 Concentrations of Volatile Organic Compounds Detected in Groundwater, Colesville Landfill, Broome County, New York.
2 Concentrations of General Chemistry, Inorganics, Field Parameters and Dissolved Gases Detected in Groundwater, Colesville Landfill, Broome County, New York.

3 Concentrations of PFAS Compounds Detected in Groundwater, Colesville Landfill, Broome County, New York.
4 Concentrations of Volatile Organic Compounds and Selected Metals Detected in Surface Water, Colesville Landfill, Broome County, New York.
5 Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.
6 Concentrations of Metals Detected in Sediment Samples Associated with Springs, Colesville Landfill, Broome County, New York.
7 Concentrations of Volatile Organic Compounds Detected in Aqueous Samples Collected from the SP-5 Spring Water Remediation System, Colesville Landfill, Broome County, New York.
8 SP-5 Spring Water Remediation System Mass Removal Rate of Volatile Organic Compounds, Colesville Landfill, Broome County, New York.

Figures

1 Site Plan, Colesville Landfill, Broome County, New York

2 Spring Water and Surface Water Sampling Locations Along the North Stream, Colesville Landfill, Broome County, New York

Attachments

A 2017 Groundwater Sampling Logs

B Laboratory Analytical Results

TABLES

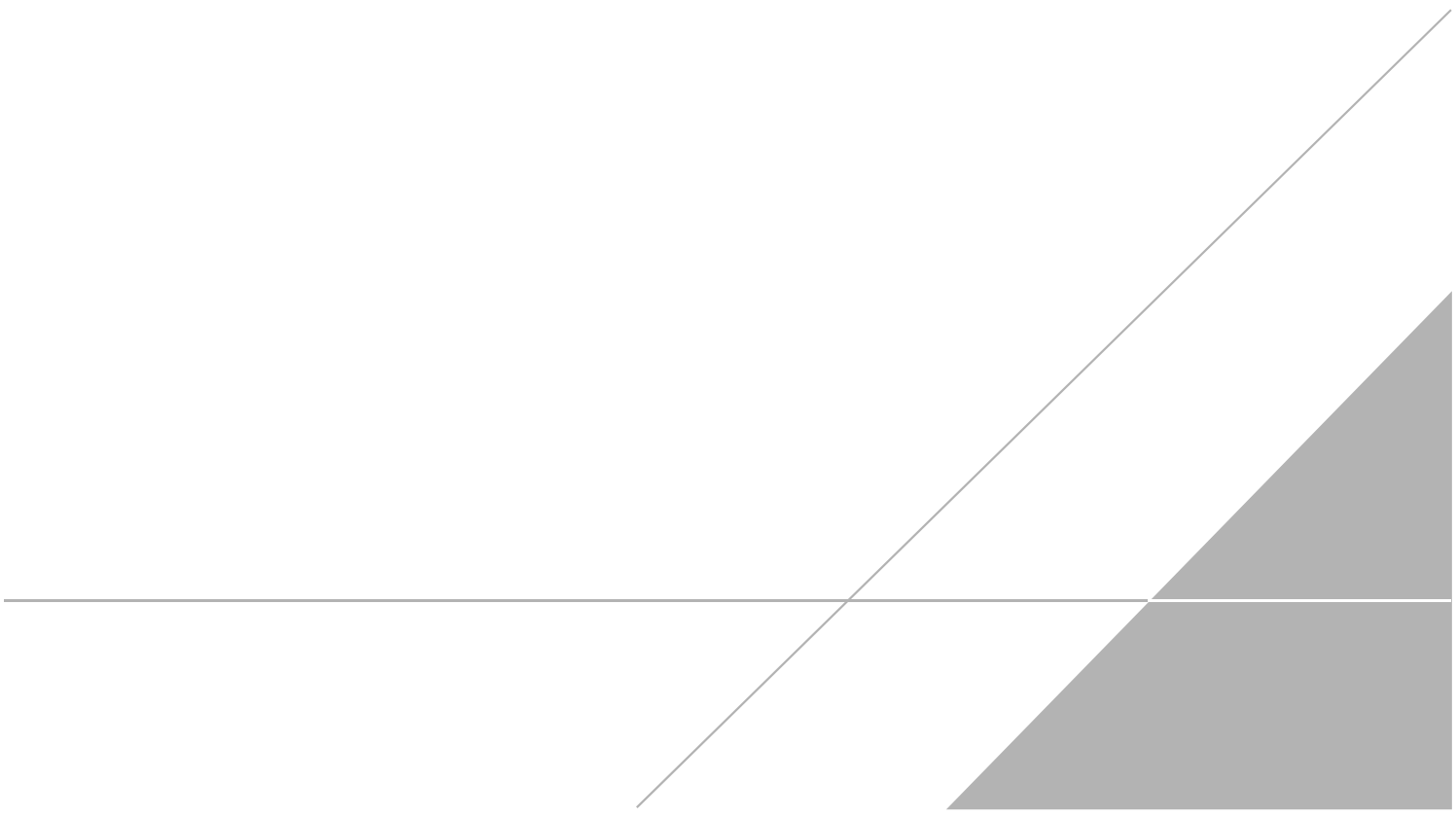


Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	GMMW-2 12/9/2015	GMMW-2 3/29/2017	GMMW-5 12/9/2015	GMMW-5 3/29/2017	GMMW-6 12/9/2015
1,1,1-Trichloroethane		**1.1 J**	<5.0	<5.0	<5.0	<10
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<10
1,1,2-Trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0	<5.0	<10
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<10
1,1-Dichloroethane		**36**	**50**	**3.5 J**	**10**	**9.0 J**
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<10
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0	<5.0	<10
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0	<5.0	<10
1,2-Dibromoethane		<5.0	<5.0	<5.0	<5.0	<10
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<10
1,2-Dichloroethane		<5.0	<5.0	**0.37 J**	<5.0	<10
1,2-Dichloropropane		**0.40 J**	<5.0	<5.0	<5.0	<10
1,3-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<10
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<10
2-Butanone		<10	<10	<10	<10	<20
2-Hexanone		<10 J	<10	<10 J	<10	<20
4-Methyl-2-pentanone		<10 J	<10	<10 J	<10	<20
Acetone		<10 B	<10	<10	<10	<20 B
Benzene		**1.7 J**	<5.0	**1.1 J**	<5.0	**5.8 J**
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<10
Bromoform		<5.0	<5.0	<5.0	<5.0	<10
Bromomethane		<5.0	<5.0	<5.0	<5.0	<10
Carbon Disulfide		<10	<10	<10	<10	<20
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<10
Chlorobenzene		**23**	**26**	**9.5**	**8.8**	**19**
Chloroethane		**11**	**13**	**46**	**61**	**200**

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	GMMW-2 12/9/2015	GMMW-2 3/29/2017	GMMW-5 12/9/2015	GMMW-5 3/29/2017	GMMW-6 12/9/2015
Chloroform		<5.0	<5.0	<5.0	<5.0	<10
Chloromethane		<5.0	<5.0	<5.0	<5.0	<10
cis-1,2-Dichloroethene		**12**	**11**	**1.4 J**	<5.0	**2.5 J**
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<10
Cyclohexane		<10	<10	<10	<10	<20
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<10
Dichlorodifluoromethane		<5.0 J	<5.0	<5.0 J	<5.0	<10 J
Ethylbenzene		<5.0	<5.0	**0.52 J**	<5.0	**0.48 J**
Isopropylbenzene		<5.0	<5.0	<5.0	<5.0	<10
Methyl acetate		<10	<10	<10	<10	<20
Methyl tert-butyl ether		<5.0	<5.0	<5.0	<5.0	<10
Methylcyclohexane		<10	<10	<10	<10	<20
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	**3.1 J**
Styrene		<5.0	<5.0	<5.0	<5.0	<10
Tetrachloroethene		<5.0	<5.0	<5.0	<5.0	<10
Toluene		<5.0	<5.0	<5.0	<5.0	<10
trans-1,2-Dichloroethene		**0.43 J**	<5.0	<5.0	<5.0	**0.90 J**
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<10
Trichloroethene		**14**	**16**	**1.9 J**	**5.1**	**1.2 J**
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<10
Vinyl Chloride		**3.8 J**	<5.0	**0.39 J**	<5.0	**0.82 J**
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<10
Total VOCs		**103 J**	**120**	**65 J**	**85**	**243 J**

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	GMMW-6 3/29/2017	GMMW-7 12/9/2015	GMMW-7 3/29/2017	PW-3 12/9/2015	PW-3 3/29/2017
1,1,1-Trichloroethane		<10	**0.80 J**	<5.0	**1.3 J**	<5.0
1,1,2,2-Tetrachloroethane		<10	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		<10	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<10	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		**14**	**20**	<5.0	**20**	<5.0
1,1-Dichloroethene		<10	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<10	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<10	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane		<10	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene		<10	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<10	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<10	<5.0	<5.0	**0.53 J**	<5.0
1,3-Dichlorobenzene		<10	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<10	<5.0	<5.0	<5.0	<5.0
2-Butanone		<20	<10	<10	<10	<10
2-Hexanone		<20	<10	<10	<10 J	<10
4-Methyl-2-pentanone		<20	<10	<10	<10 J	<10
Acetone		<20	<10	<10	<10	<10
Benzene		<10	<5.0	<5.0	**0.67 J**	<5.0
Bromodichloromethane		<10	<5.0	<5.0	<5.0	<5.0
Bromoform		<10	<5.0	<5.0	<5.0	<5.0
Bromomethane		<10	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide		<20	<10	<10	<10	<10
Carbon Tetrachloride		<10	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		**20**	**3.6 J**	<5.0	**5.4**	<5.0
Chloroethane		**200**	**6**	<5.0	**3.3 J**	<5.0

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	GMMW-6 3/29/2017	GMMW-7 12/9/2015	GMMW-7 3/29/2017	PW-3 12/9/2015	PW-3 3/29/2017
Chloroform		<10	<5.0	<5.0	**0.26 J**	<5.0
Chloromethane		<10	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		<10	**8.1**	<5.0	**9.5**	<5.0
cis-1,3-Dichloropropene		<10	<5.0	<5.0	<5.0	<5.0
Cyclohexane		<20	<10	<10	<10	<10
Dibromochloromethane		<10	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		<10	<5.0 J	<5.0	<5.0 J	<5.0
Ethylbenzene		<10	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		<10	<5.0	<5.0	<5.0	<5.0
Methyl acetate		<20	<10	<10	<10	<10
Methyl tert-butyl ether		<10	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane		<20	<10	<10	<10	<10
Methylene Chloride		<10	<5.0	<5.0	<5.0	<5.0
Styrene		<10	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<10	<5.0	<5.0	**2.2 J**	<5.0
Toluene		<10	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<10	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<10	<5.0	<5.0	<5.0	<5.0
Trichloroethene		<10	**7.4**	<5.0	**15**	<5.0
Trichlorofluoromethane		<10	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<10	**4.2 J**	<5.0	**0.65 J**	<5.0
Xylenes (total)		<10	<5.0	<5.0	<5.0	<5.0
Total VOCs		**230**	**50 J**	ND	**59 J**	ND

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	PW-3 3/29/2017 PW-3 Duplicate	PW-4 12/9/2015	PW-4 3/29/2017	PW-5 12/9/2015	PW-5 3/29/2017
1,1,1-Trichloroethane		<5.0	**3.8 J**	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		<5.0	**15**	<5.0	<5.0	<5.0
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<5.0	**0.24 J**	<5.0	<5.0	<5.0
1,3-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone		<10	<10	<10	<10	<10
2-Hexanone		<10	<10 J	<10	<10	<10
4-Methyl-2-pentanone		<10	<10 J	<10	<10	<10
Acetone		<10	<10	<10	<10	<10
Benzene		<5.0	**0.75 J**	<5.0	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide		<10	<10	<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		<5.0	**3.5 J**	<5.0	<5.0	<5.0
Chloroethane		<5.0	**3.2 J**	<5.0	<5.0	<5.0

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	PW-3 3/29/2017 PW-3 Duplicate	PW-4 12/9/2015	PW-4 3/29/2017	PW-5 12/9/2015	PW-5 3/29/2017
Chloroform		<5.0	**0.37 J**	<5.0	<5.0	<5.0
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		<5.0	**8.4**	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane		<10	<10	<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		<5.0	<5.0 J	<5.0	<5.0 J	<5.0
Ethylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate		<10	<10	<10	<10	<10
Methyl tert-butyl ether		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane		<10	<10	<10	<10	<10
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<5.0	**0.51 J**	<5.0	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		<5.0	**20**	**11**	<5.0	<5.0
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<5.0	**0.42 J**	<5.0	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs		ND	**56 J**	**11**	ND	ND

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	PW-7 Lower 3/9/2016	PW-7 Upper 3/9/2016	PW-7 Lower 6/3/2016	PW-7 Upper 6/3/2016	PW-7 3/29/2017
1,1,1-Trichloroethane		**0.61 J**	**0.46 J**	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		NA	NA	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		**10**	**7.5**	**32**	**16**	**48**
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		NA	NA	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene		NA	NA	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone		<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10
4-Methyl-2-pentanone		<10	<10	<10	<10	<10
Acetone		<10	<10	<10	<10	<10
Benzene		<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide		<10	<10	<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane		**0.92 J**	**0.68 J**	**7.0**	<5.0	**20**

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

Constituents (units in ug/L)	Location ID: Date:	PW-7 Lower 3/9/2016	PW-7 Upper 3/9/2016	PW-7 Lower 6/3/2016	PW-7 Upper 6/3/2016	PW-7 3/29/2017
Chloroform		<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		**2.9 J**	**2.0 J**	**13**	**6.7**	**23**
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane		NA	NA	<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		NA	NA	<5.0	<5.0	<5.0
Ethylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		NA	NA	<5.0	<5.0	<5.0
Methyl acetate		NA	NA	<10	<10	<10
Methyl tert-butyl ether		NA	NA	<5.0	<5.0	<5.0
Methylcyclohexane		NA	NA	<10	<10	<10
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		**3.3 J**	**3.9 J**	**5.2**	**6.0**	**7.8**
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs		**18 J**	**15 J**	**57**	**29**	**99**

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	W-7 12/9/2015	W-7 3/8/2017	W-16S 12/9/2015	W-16S 3/8/2017	W-17S 12/9/2015
1,1,1-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		**2.6 J**	<5.0	**10**	**11**	<5.0
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane		NA	<5.0	NA	<5.0	NA
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<5.0	<5.0	**0.47 J**	<5.0	<5.0
1,3-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone		**1.1 J**	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10
4-Methyl-2-pentanone		<10	<10	<10	<10	<10
Acetone		<10 B	<10	<10	<10	<10
Benzene		**0.53 J**	<5.0	**1.3 J**	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide		**1.8 J**	<10	<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		**5.2**	**7.2**	**19**	**19**	<5.0
Chloroethane		<5.0	<5.0	**3.4 J**	<5.0	<5.0

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	W-7 12/9/2015	W-7 3/8/2017	W-16S 12/9/2015	W-16S 3/8/2017	W-17S 12/9/2015
Chloroform		<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		**1.5 J**	<5.0	**1.4 J**	<5.0	<5.0
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane		<10	<10	<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		<5.0 J	<5.0	<5.0 J	<5.0	<5.0 J
Ethylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate		<10	<10	<10	<10	<10
Methyl tert-butyl ether		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane		<10	<10	<10	<10	<10
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		**0.67 J**	<5.0	**2.2 J**	<5.0	<5.0
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<5.0	<5.0	**0.92 J**	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs		**13 J**	**7.2**	**39 J**	**30**	ND

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	W-17S 3/8/2017	W-18 12/9/2015	W-18 3/29/2017	W-20S 12/9/2015	W-20S 3/29/2017
1,1,1-Trichloroethane		<5.0	**4.5 J**	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		<5.0	**14**	<5.0	<5.0	<5.0
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane		<5.0	NA	<5.0	NA	<5.0
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone		<10	<10	<10	<10	<10
2-Hexanone		<10	<10 J	<10	<10	<10
4-Methyl-2-pentanone		<10	<10 J	<10	<10	<10
Acetone		<10	<10	<10	<10	<10
Benzene		<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0	<5.0	<5.0	<5.0
Carbon Disulfide		<10	<10	<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane		<5.0	**0.72 J**	<5.0	<5.0	<5.0

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	W-17S 3/8/2017	W-18 12/9/2015	W-18 3/29/2017	W-20S 12/9/2015	W-20S 3/29/2017
Chloroform		<5.0	**0.38 J**	<5.0	<5.0	<5.0
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		<5.0	**12**	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane		<10	<10	<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		<5.0	<5.0 J	<5.0	<5.0 J	<5.0
Ethylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate		<10	<10	<10	<10	<10
Methyl tert-butyl ether		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane		<10	<10	<10	<10	<10
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		<5.0	**11**	<5.0	<5.0	<5.0
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<5.0	<5.0	<5.0	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs		ND	**43 J**	ND	ND	ND

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Location ID: Date:	GMPW-4 12/9/2015	GMPW-4 3/8/2017	TRIP BLANK 3/8/2017
1,1,1-Trichloroethane		**3.5 J**	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0
1,1-Dichloroethane		**32**	**34**	<5.0
1,1-Dichloroethene		<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0	<5.0	<5.0
1,2-Dibromoethane		NA	<5.0	<5.0
1,2-Dichlorobenzene		<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0
1,2-Dichloropropane		**0.59 J**	<5.0	<5.0
1,3-Dichlorobenzene		<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0
2-Butanone		<10	<10	<10
2-Hexanone		<10 J	<10	<10
4-Methyl-2-pentanone		<10 J	<10	<10
Acetone		<10	<10	<10
Benzene		**2.4 J**	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0	<5.0
Carbon Disulfide		<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0
Chlorobenzene		**12**	**14**	<5.0
Chloroethane		**15**	**14**	<5.0

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

Constituents (units in ug/L)	Location ID: Date:	GMPW-4 12/9/2015	GMPW-4 3/8/2017	TRIP BLANK 3/8/2017
Chloroform		<5.0	<5.0	<5.0
Chloromethane		<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		**14**	**14**	<5.0
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0
Cyclohexane		<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0
Dichlorodifluoromethane		<5.0 J	<5.0	<5.0
Ethylbenzene		<5.0	<5.0	<5.0
Isopropylbenzene		<5.0	<5.0	<5.0
Methyl acetate		<10	<10	<10
Methyl tert-butyl ether		<5.0	<5.0	<5.0
Methylcyclohexane		<10	<10	<10
Methylene Chloride		**0.87 J**	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0
Tetrachloroethene		**0.58 J**	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		**0.47 J**	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0
Trichloroethene		**32**	**32**	<5.0
Trichlorofluoromethane		<5.0	<5.0	<5.0
Vinyl Chloride		**1.9 J**	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0
Total VOCs		**120 J**	**110**	ND

Notes and abbreviations on last page.

Table 1.
Concentrations of Volatile Organic Compounds Detected in Groundwater
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Notes and abbreviations:

Bold constituent detected above method detection limit.

B	Compound considered non-detect at the listed value due to associated blank contamination.
D	Concentration is based on a diluted sample analysis.
J	Concentration is an estimated value.
NA	not applicable
ug/L	micrograms per liter
VOCs	volatile organic compounds
<	analyte below detection limit

Table 2.
Concentrations of General Chemistry, Inorganics,
Field Parameters and Dissolved Gases Detected in Groundwater,
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Parameters	Units	Typical Baseline Values for Discontinuation Pilot Test Area [1]	GMMW-2 12/9/2015	GMMW-2 3/29/2017	GMMW-5 12/9/2015	GMMW-5 3/29/2017	GMMW-6 12/9/2015	GMMW-6 3/29/2017	GMMW-7 12/9/2015	GMMW-7 3/29/2017	PW-3 12/9/2015
GENERAL CHEMISTRY											
Nitrate	mg/L	**0.632**	<0.05	<1	**0.101**	<1	--	<1	--	**1.5**	**0.088**
Nitrite	mg/L	**0.026**	<0.01	<1	**0.033**	<1	--	<1	--	<1	<0.01
Total Organic Carbon	mg/L	**6.6**	**10.2**	**9.5**	**5.4**	**7.7**	--	**13.5**	--	**1.8**	**8.1**
INORGANICS											
Iron	mg/L	**0.493**	<0.100	<0.100	**23.1**	**19.3**	--	**18.7 J**	--	**0.748**	<0.100
Iron (Filtered)	mg/L	**0.455**	<0.1	<0.1	**17.4 J**	**16.7**	--	**25.2 J**	--	<0.1	<0.1
FIELD PARAMETERS											
pH	Standard units	**6.88**	**6.36**	**6.41**	**6.82**	**7.01**	**6.58**	**6.55**	**6.42**	**6.88**	**6.54**
Specific Conductance	mmhos/cm	**0.420**	**0.496**	**0.523**	**0.488**	**0.399**	**0.979**	**0.836**	**0.222**	**0.173**	**0.47**
Temperature	deg C	**13.0**	**11**	**12.1**	**10.2**	**12.1**	**9.7**	**11.9**	**9.6**	**10.3**	**11.3**
DISSOLVED GASES											
Ethane	ng/L	**2,590**	<50,000	**590 J**	**13,000**	**4,900**	--	**6,300**	--	<3,300	<1,000
Ethene	ng/L	**7,700**	<50,000	**1,500 J**	<10,000	**2,100 J**	--	**810 J**	--	<2,400	<1,000
Methane	ug/L	**0.45**	**3,600**	**871**	**660**	**185**	--	**581**	--	**0.7 J**	**880 D**

Notes and abbreviations on last page.

Table 2.
Concentrations of General Chemistry, Inorganics,
Field Parameters and Dissolved Gases Detected in Groundwater,
Colesville Landfill,
Broome County, New York.

Parameters	Units	Typical Baseline Values for Discontinuation Pilot Test Area [1]	PW-3 3/29/2017	PW-3 3/29/2017 Duplicate	PW-4 12/9/2015	PW-4 3/29/2017	PW-5 12/9/2015	PW-5 3/8/2017	PW-7 Lower 3/9/2016	PW-7 Upper 3/9/2016	PW-7 Lower 6/3/2016
GENERAL CHEMISTRY											
Nitrate	mg/L	**0.632**	<1	**<1**	**0.246**	**1.3**	--	--	--	--	--
Nitrite	mg/L	**0.026**	<1	<1	<0.01	<1	--	--	--	--	--
Total Organic Carbon	mg/L	**6.6**	**1.4**	**1.6**	**5.3**	**4.2**	--	--	--	--	--
INORGANICS											
Iron	mg/L	**0.493**	**4.58**	**4.76**	**0.209**	**1.80**	--	--	--	--	--
Iron (Filtered)	mg/L	**0.455**	<0.1	<0.1	<0.1	<0.1	--	--	--	--	--
FIELD PARAMETERS											
pH	Standard units	**6.88**	**6.85**	**6.86**	**6.05**	**5.91**	**7.86**	**6.91**	**7.40**	**7.40**	**7.06**
Specific Conductance	mmhos/cm	**0.420**	**0.096**	**0.096**	**0.43**	**0.884**	**0.285**	**0.284**	**0.134**	**0.134**	**0.150**
Temperature	deg C	**13.0**	**7.9**	**7.9**	**10.1**	**9.8**	**8**	**12**	**11.9**	**11.9**	**12.8**
DISSOLVED GASES											
Ethane	ng/L	**2,590**	<3,300	<3,300	<1,000	<3,300	--	NA	--	--	--
Ethene	ng/L	**7,700**	<2,400	<2,400	<1,000	<2,400	--	NA	--	--	--
Methane	ug/L	**0.45**	<1.5	<1.5	**290 D**	**0.4 J**	--	NA	--	--	--

Notes and abbreviations on last page.

Table 2.
Concentrations of General Chemistry, Inorganics,
Field Parameters and Dissolved Gases Detected in Groundwater,
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Parameters	Units	Typical Baseline Values for Discontinuation Pilot Test Area [1]	PW-7 Upper 6/3/2016	PW-7 3/29/2017	W-7 12/9/2015	W-7 3/8/2017	W-16S 12/9/2015	W-16S 3/8/2017	W-17S 12/9/2015	W-17S 3/8/2017	W-18 12/9/2015
GENERAL CHEMISTRY											
Nitrate	mg/L	**0.632**	--	**1.6**	--	--	--	--	--	--	**0.21**
Nitrite	mg/L	**0.026**	--	<1	--	--	--	--	--	--	<0.01
Total Organic Carbon	mg/L	**6.6**	--	**5.1**	--	--	--	--	--	--	**4.9**
INORGANICS											
Iron	mg/L	**0.493**	--	**43.0**	--	--	--	--	--	--	<0.100
Iron (Filtered)	mg/L	**0.455**	--	**2.49**	--	--	--	--	--	--	<0.1
FIELD PARAMETERS											
pH	Standard units	**6.88**	**7.59**	**6.09**	**6.02**	**6.64**	**6.22**	**7.27**	**6.52**	**8.09**	**6.32**
Specific Conductance	mmhos/cm	**0.420**	**0.141**	**0.186**	**0.306**	**0.554**	**0.368**	**0.407**	**0.173**	**0.188**	**0.534**
Temperature	deg C	**13.0**	**13.7**	**9.2**	**10.6**	**11.9**	**9.6**	**8.7**	**10.1**	**8.3**	**11**
DISSOLVED GASES											
Ethane	ng/L	**2,590**	--	<3,300	--	NA	--	NA	--	NA	<1,000
Ethene	ng/L	**7,700**	--	<2,400	--	NA	--	NA	--	NA	<1,000
Methane	ug/L	**0.45**	--	**9,900**	--	NA	--	NA	--	NA	<1

Notes and abbreviations on last page.

Table 2.
Concentrations of General Chemistry, Inorganics,
Field Parameters and Dissolved Gases Detected in Groundwater,
Colesville Landfill,
Broome County, New York.

Parameters	Units	Typical Baseline Values for Discontinuation Pilot Test Area [1]	W-18 3/29/2017	W-20S 12/9/2015	W-20S 3/29/2017	GMPW-4 12/9/2015	GMPW-4 3/8/2017
GENERAL CHEMISTRY							
Nitrate	mg/L	**0.632**	<1	--	<1	<0.05	--
Nitrite	mg/L	**0.026**	<1	--	<1	<0.01	--
Total Organic Carbon	mg/L	**6.6**	**2.7**	--	**1.2**	**7.7**	**--**
INORGANICS							
Iron	mg/L	**0.493**	**0.625**	--	**1.47**	**0.118**	**--**
Iron (Filtered)	mg/L	**0.455**	<0.1	--	<0.1	<0.1	--
FIELD PARAMETERS							
pH	Standard units	**6.88**	**6.16**	**6.46**	**6.46**	**6.38**	**6.89**
Specific Conductance	mmhos/cm	**0.420**	**0.139**	**0.112**	**0.119**	**0.778**	**0.744**
Temperature	deg C	**13.0**	**7.7**	**10.6**	**10.2**	**10.7**	**11.4**
DISSOLVED GASES							
Ethane	ng/L	**2,590**	<3,300	--	<3,300	<50,000	NA
Ethene	ng/L	**7,700**	<2,400	--	<2,400	<50,000	NA
Methane	ug/L	**0.45**	<1.5	--	<1.5	**3,600 J**	NA

Notes and abbreviations on last page.

Table 2.
Concentrations of General Chemistry, Field Parameters, and Dissolved Gases Detected in Groundwater, Colesville Landfill, Broome County, New York.[(1)]

ARCADIS Design & Consultancy for natural and built assets

Notes and abbreviations:

Bold constituent detected above method detection limit.

B	Compound considered non-detect at the listed value due to associated blank contamination.
D	Concentration is based on a diluted sample analysis.
deg C	degrees Celsius
IRZ	in-situ reactive zone
J	Concentration is an estimated value.
mg/L	milligrams per liter
mmhos/cm	millimhos per centimeter
ng/L	nanograms per liter
ug/L	micrograms per liter
ng/L	nanogram per liter
--	not analyzed or collected
<	Analyte below detection limit.

Table 3.
Concentrations of PFAS Compounds Detected in Groundwater,
Colesville Landfill,
Broome County, New York.

Parameters	Units	GMMW-02 3/29/2017	GMMW-05 3/29/2017	GMMW-06 3/29/2017	GMMW-07 3/29/2017	PW-03 3/29/2017	PW-03 3/29/2017 PW-3 Duplicate	PW-04 3/29/2017	PW-07 03/29/17
PFAS COMPOUNDS									
Perfluorobutanesulfonate	ng/L	**0.97 J**	**0.59 J**	<5	<4.6	**1.3 J**	**0.72 J**	<4.6	<4.6
Perfluoroheptanoic Acid	ng/L	**4.1 J**	<4.5 B	**3.3 J**	<4.6	<4.5 B	<4.8 B	<4.6 B	<4.6 B
Perfluorohexanesulfonate	ng/L	<4.6	<4.5	<5	<4.6	<4.5	<4.8	<4.6	<4.6
Perfluorononanoic Acid	ng/L	<4.6	<4.5	<5 B	<4.6	<4.5	<4.8 B	<4.6	<4.6
Perfluorooctanesulfonate	ng/L	**2.8 J**	**1.9 J**	<5	<4.6	**1.3 J**	**1.2 J**	<4.6	**0.67 J**
Perfluorooctanoic Acid	ng/L	**7.6**	<3.3 B	**9.8**	<1.9 B	<2.8 B	<3.6 B	<1.9 B	**4**

Notes and abbreviations:

Bold constituent detected above method detection limit.

B	Compound considered non-detect at the listed value due to associated blank contamination.
J	Concentration is an estimated value.
ng/L	nanogram per liter
<	Analyte below detection limit.
PFAS	Per- and Polyfluoroalkyl Substances; the reported PFAS are the six originally monitored as part of EPA's UCMR3 (third Unregulated Contaminant Monitoring Rule).

Table 4
Concentrations of Voaltile Organic Compounds and Selected Metals Detected in Surface Water, Colesville Landfill, Broome County, New York.

Constituents	Sample ID: Date:	F-6 12/13/2016	F-6 5/9/2017	F-6 9/13/2017	SW-2 12/13/2016	SW-2 5/9/2017	SW-2 9/13/2017	SW-3 12/13/2016	SW-3 5/9/2017	SW-3 9/13/2017	SW-4 12/13/2016	SW-4 5/9/2017	SW-4 9/13/2017
Volatile organic compounds (VOCs) (units in ug/L)													
1,1,1-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-trichloro-1,2,2-trifluoroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane		**0.28 J**	**0.21 J**	**0.35 J**	<5.0	<5.0	<5.0	**0.43 J**	**0.28 J**	**0.90 J**	**0.44 J**	**0.30 J**	**0.85 J**
1,1-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane		<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0 J	<5.0	<5.0
1,2-Dibromoethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone		<10 J	<10	<10	<10	<10	<10	<10 J	<10	<10	<10 J	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetone		<10	<10	<10	<10	**1.9 J**	<10	<10	<10	<10	<10	**2.3 J**	<10
Benzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		<5.0	<5.0 B	<5.0	<5.0 B	<5.0 B	<5.0	<5.0	<5.0 B	<5.0	<5.0	<5.0 B	<5.0
Carbon Disulfide		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroform		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

See notes on the next page.

Table 4
Concentrations of Voaltile Organic Compounds and Selected Metals Detected in Surface Water, Colesville Landfill,
Broome County, New York.

Constituents	Sample ID: Date:	F-6 12/13/2016	F-6 5/9/2017	F-6 9/13/2017	SW-2 12/13/2016	SW-2 5/9/2017	SW-2 9/13/2017	SW-3 12/13/2016	SW-3 5/9/2017	SW-3 9/13/2017	SW-4 12/13/2016	SW-4 5/9/2017	SW-4 9/13/2017
Volatile organic compounds (VOCs) (units in ug/L) (continued)													
Chloromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**0.30 J**
cis-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Dibromochloromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Ethylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate		<10 J	<10	<10	<10	<10	<10	<10 J	<10	<10	<10 J	<10	<10
Methyl tert-butyl ether		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Chloride		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Styrene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**0.32 J**	<5.0	<5.0	<5.0
Trichlorofluoromethane		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Xylenes (total)		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs		**0.28 J**	**0.21 J**	**0.35 J**	ND	**1.9 J**	ND	**0.43 J**	**0.28 J**	**1.2 J**	**0.44 J**	**2.6 J**	**1.2 J**

See notes on the next page.

Table 4
Concentrations of Voaltile Organic Compounds and Selected Metals Detected in Surface Water, Colesville Landfill, Broome County, New York.

Constituents	Sample ID: / Date:	F-6 12/13/2016	F-6 5/9/2017	F-6 9/13/2017	SW-2 12/13/2016	SW-2 5/9/2017	SW-2 9/13/2017	SW-3 12/13/2016	SW-3 5/9/2017	SW-3 9/13/2017	SW-4 12/13/2016	SW-4 5/9/2017	SW-4 9/13/2017
Metals (units in mg/L)													
Aluminum		<0.100	<0.100	<0.100	<0.100	**0.206**	<0.100	<0.100	**0.105**	<0.100	<0.100	**0.101**	<0.100
Antimony		<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600
Arsenic		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Barium		<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Beryllium		<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300
Cadmium		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Calcium		**14.0**	**7.67**	**21.4**	**5.61**	**6.36**	**15.2**	**10.7**	**6.70**	**19.1**	**11.8**	**6.99**	**19.8**
Chromium		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Cobalt		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Copper		<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Iron		<0.100	**0.198**	<0.100	<0.100	**0.320**	<0.100	<0.100	**0.196**	<0.100	<0.100	**0.197**	**0.180**
Lead		<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Magnesium		**3.22**	**2.35**	**4.70**	**1.90**	**2.14**	**3.90**	**2.65**	**2.20**	**4.30**	**2.86**	**2.23**	**4.50**
Manganese		**0.0419**	**0.0478**	**0.0500**	**<0.0100**	**0.0434**	<0.0100	**0.0130**	**0.0437**	**0.0100**	**0.0423**	**0.0453**	**0.0710**
Mercury		<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
Nickel		<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
Potassium		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Selenium		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Silver		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Sodium		**6.39**	**4.82**	**7.20**	**5.65**	**4.63**	**6.80**	**6.08**	**4.70**	**7.00**	**6.08**	**4.71**	**6.90**
Thallium		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vanadium		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Zinc		<0.0200	<0.0200 J	<0.0200	<0.0200	<0.0200 J	<0.0200	<0.0200	<0.0200 J	<0.0200	<0.0200	<0.0200 J	<0.0200

See notes on the next page.

Table 4
Concentrations of Voaltile Organic Compounds and Selected Metals Detected in Surface Water,
Colesville Landfill,
Broome County, New York.

ARCADIS Design & Consultancy for natural and built assets

Notes and abbreviations:

Bold constituent detected above method detection limit.

J	Concentration is an estimated value.
mg/L	milligrams per liter
ug/L	micrograms per liter
NA	not applicable
<	Analyte below detection limit.

Table 5.
Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Sample ID: Date:		SP-2 6/3/2016	SP-2 12/13/2016	SP-2 5/9/2017	SP-2 9/13/2017	SP-3 6/3/2016	SP-3 12/13/2016	SP-3 5/9/2017
	NYSDEC Part 703 WQS [2]	Basis							
1,1,1-Trichloroethane	NA		<5.0	<5.0	**0.65 J**	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-trichloro-1,2,2-trifluoroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	40	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	NA		<5.0	<5.0	**20**	<5.0	**20**	**43**	**4.8 J**
1,1-Dichloroethene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene	5	A(C) a	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane	NA		<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	5	A(C) b	<5.0	<5.0	<5.0	<5.0	<5.0	**0.33 J**	<5.0
1,2-Dichloroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	**0.37 J**	<5.0
1,2-Dichloropropane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	5	A(C) b	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	5	A(C) b	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone	NA		<10	<10 J	<10	<10	<10	<10	<10
2-Hexanone	NA		<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	NA		<10	<10	<10	<10	<10	<10	<10
Acetone	NA		**2.4 J**	**1.6 J**	**1.8 J**	<10	<10	<10	**2.4 J**
Benzene	10	H(FC)	<5.0	<5.0	**0.21 J**	<5.0	**0.22 J**	**0.64 J**	<5.0
Bromodichloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	NA		<5.0	<5.0	<5.0 B	<5.0	<5.0	<5.0 B	<5.0 B
Carbon Disulfide	NA		<10	<10	<10	**0.30 BJ**	<10	<10	<10
Carbon Tetrachloride	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	5	A(C)	<5.0	<5.0	**7.4**	<5.0	**7.5**	**22**	**1.1 J**
Chloroethane	NA		<5.0	<5.0	**5.7**	<5.0	**3.8 J**	**12**	**0.77 J**
Chloroform	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene	NA		<5.0	<5.0	**7.3**	<5.0	**5.2**	**14**	**1.2 J**
cis-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane	NA		<10	<10	<10	<10	<10	<10	<10
Dibromochloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Ethylbenzene	17	A(C) c	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate	NA		<10	<10 J	<10	<10	<10	<10	<10
Methyl tert-butyl ether	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane	NA		<10	<10	<10	<10	<10	<10	<10
Methylene Chloride	200	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Styrene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	1	H(FC) c	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	6000	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	40	H(FC)	**0.59 J**	**0.52 J**	**3.6 J**	<5.0	**2.0 J**	**4.0 J**	**1.1 J**
Trichlorofluoromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	NA		<5.0	<5.0	**2.5 J**	<5.0	**1.2 J**	**5.6**	<5.0
Xylenes (total)	5	A(C) c	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs	**NA**		**3.0 J**	**2.1 J**	**49 J**	**0.30 J**	**40 J**	**100 J**	**11 J**

See notes on last page.

Table 5.
Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Sample ID: Date:		SP-2 6/3/2016	SP-2 12/13/2016	SP-2 5/9/2017	SP-2 9/13/2017	SP-3 6/3/2016	SP-3 12/13/2016	SP-3 5/9/2017
	NYSDEC Part 703 WQS [2]	Basis							
Metals (units in mg/L)									
Aluminum	0.1	A(C)	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Antimony	NA		<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600	<0.0600
Arsenic	0.15	A(C) d	**0.0150**	<0.0100	<0.0100	**0.0410**	**0.0138**	**0.0243**	<0.0100
Barium	NA		**0.0269**	<0.0200	**0.0270**	<0.0200	**0.0317**	**0.0380**	<0.0200
Beryllium	1100	A(C) e	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300
Cadmium	0.002	A(C) f	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Calcium	NA		**9.40**	**10.9**	**27.6**	**9.30**	**25.6**	**28.2**	**28.9**
Chromium	0.086	A(C) f	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Cobalt	0.005	A(C) g	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Copper	0.009	A(C) f	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Iron	0.3	A(C)	**3.05**	**2.84**	**6.95**	**8.52**	**13.2**	**19.3**	**0.775**
Lead	0.005	A(C) f	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Magnesium	NA		**2.20**	**2.84**	**5.91**	**2.20**	**5.52**	**6.00**	**6.40**
Manganese	NA		**2.63**	**5.07**	**2.28**	**4.43**	**2.44**	**3.77**	**1.94**
Mercury	0.0000007	H(FC)	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
Nickel	0.05	A(C) f	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
Potassium	NA		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Selenium	0.0046	A(C) d	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Silver	0.0001	A(C) h	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Sodium	NA		**5.63**	**4.55**	**3.62**	**4.60**	**4.01**	**3.77**	**3.91**
Thallium	0.008	A(C) g	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vanadium	0.014	A(C) g	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Zinc	0.08	A(C) f	<0.0200	<0.0200	<0.0200 J	<0.0200	<0.0200	<0.0200	<0.0200 J

See notes on last page.

Table 5.
Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Sample ID: Date:		SP-3 9/13/2017	SP-4 6/3/2016	SP-4 12/13/2016	SP-4 5/9/2017	SP-4 9/13/2017
	NYSDEC Part 703 WQS [2]	Basis					
1,1,1-Trichloroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-trichloro-1,2,2-trifluoroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	40	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	NA		**26**	**13**	**8.6**	**6.1**	**3.8 J**
1,1-Dichloroethene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene	5	A(C) a	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	5	A(C) b	**0.24 J**	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	NA		<5.0	**0.61 J**	**0.58 J**	<5.0	**0.47 J**
1,2-Dichloropropane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	5	A(C) b	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	5	A(C) b	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone	NA		<10	<10	<10	<10	<10
2-Hexanone	NA		<10	<10	<10	<10	<10
4-Methyl-2-pentanone	NA		<10	<10	<10	<10	<10
Acetone	NA		<10	1.4 J	<10	<10	**1.6 J**
Benzene	10	H(FC)	**0.69 J**	**0.37 J**	**0.40 J**	**0.20 J**	**0.45 J**
Bromodichloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	NA		<5.0	<5.0	<5.0	<5.0 B	<5.0
Carbon Disulfide	NA		<10	<10	<10	<10	<10
Carbon Tetrachloride	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	5	A(C)	**20**	**5.0**	**4.6 J**	**2.4 J**	**5.4**
Chloroethane	NA		**9.1**	**18**	**15**	**7.0**	**8.5**
Chloroform	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene	NA		**6.7**	**1.6 J**	**0.72 J**	**0.50 J**	**0.57 J**
cis-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane	NA		<10	<10	<10	<10	<10
Dibromochloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Ethylbenzene	17	A(C) c	<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Methyl acetate	NA		<10	<10	<10	<10	<10
Methyl tert-butyl ether	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane	NA		<10	<10	<10	<10	<10
Methylene Chloride	200	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0
Styrene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	1	H(FC) c	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	6000	H(FC)	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	40	H(FC)	**3.2 J**	**1.2 J**	**0.33 J**	**0.63 J**	<5.0
Trichlorofluoromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	NA		**3.7 J**	<5.0	**0.38 J**	<5.0	<5.0
Xylenes (total)	5	A(C) c	<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs	**NA**		**70 J**	**41 J**	**31 J**	**17 J**	**21 J**

See notes on last page.

Table 5.
Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.[1]

Constituents (units in ug/L)	Sample ID: Date:		SP-3 9/13/2017	SP-4 6/3/2016	SP-4 12/13/2016	SP-4 5/9/2017	SP-4 9/13/2017
	NYSDEC Part 703 WQS [2]	Basis					
Metals (units in mg/L)							
Aluminum	0.1	A(C)	<0.100	**1.25**	<0.100	<0.100	**0.140**
Antimony	NA		<0.0600	<0.0600	<0.0600	<0.0600	<0.0600
Arsenic	0.15	A(C) d	**0.0360**	**0.129**	**0.0737**	**0.0455**	**0.101**
Barium	NA		**0.0430**	**0.132**	**0.0870**	**0.0617**	**0.0980**
Beryllium	1100	A(C) e	<0.00300	<0.00300	<0.00300	<0.00300	<0.00300
Cadmium	0.002	A(C) f	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Calcium	NA		**31.2**	**51.7**	**54.0**	**46.8**	**54.0**
Chromium	0.086	A(C) f	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Cobalt	0.005	A(C) g	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Copper	0.009	A(C) f	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Iron	0.3	A(C)	**17.2**	**46.4**	**24.4**	**10.7**	**21.6**
Lead	0.005	A(C) f	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Magnesium	NA		**7.10**	**10.7**	**11.2**	**9.11**	**10.7**
Manganese	NA		**3.62**	**5.43**	**4.63**	**2.47**	**5.21**
Mercury	0.0000007	H(FC)	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
Nickel	0.05	A(C) f	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
Potassium	NA		<2.00	**2.08**	<2.00	<2.00	<2.00
Selenium	0.0046	A(C) d	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Silver	0.0001	A(C) h	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Sodium	NA		**3.80**	**7.28**	**6.15**	**6.13**	**6.70**
Thallium	0.008	A(C) g	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vanadium	0.014	A(C) g	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Zinc	0.08	A(C) f	<0.0200	<0.0200	<0.0200	<0.0200 J	<0.0200

See notes on last page.

Table 5.
Concentrations of Volatile Organic Compounds and Selected Metals Detected in Spring Water, Colesville Landfill, Broome County, New York.(1)

ARCADIS Design & Consultancy for natural and built assets

Notes and Abbreviations:

Bold constituent detected above method detection limit.

	Concentration exceeds WQS.
IRZ	in-situ reactive zone
J	Concentration is an estimated value.
mg/L	milligrams per liter
ug/L	micrograms per liter
NA	not applicable
VOCs	volatile organic compounds
WQS	water quality standard
<	analyte below detection limit
--	not analyzed or collected
(1)	Data presented in this table corresponds to monitoring data during a two-year period (June 2015 to December 2016).
(2)	NYSEC Part 703 water quality standards were tabulated for Class C fresh surface waters. Where not available, the NYSDEC Division of Water Technical Operational Guidance Series (TOGS 1.1.1) standards and guidance values were use Where standards for metals are based on hardness, a default value of 100 mg/L was used. Codes for the basis of the standards and guidance values follows: H(FC) = Health (Fish Consumption) A(C) = Aquatic (Chronic) gv = guidance value a = applies to sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzenes b = applies to sum of 1,2-, 1,3- and 1,4-dichlorobenzenes c = TOGS 1.1.1 guidance value d = for dissolved form e = for hardness > 75 ppm f = hardnes dependent standard, which is based on a default hardness of 100 mg/L g = acid-soluble form h = for ionic silver

Table 6.
Concentrations of Metals Detected in Sediment Samples Associated with Springs, Colesville Landfill,
Broome County, New York.[1]

ARCADIS Design & Consultancy for natural and built assets

	NYSDEC Freshwater Sediment Screening Values[a]			Location ID:	SED-1	SED-3	SED-3	SED-3	SED-3	SED-3	SED-3 Downgradient Before Cleaning	SED-3 Downgradient After Cleaning	SED-3 Before Cleaning	SED-3 After Cleaning	SED-3
				Sample ID:	SP-1-SED	Mid_Channel	SP-3-SED	SP-3-SED	SP-3-Down SED	SP-3 SED					
				Date:	(Background) 9/19/2013 [2]	03/09/16	03/09/16	06/03/16	12/13/16	12/13/16	05/09/17	05/09/17	05/09/17	05/09/17	09/13/17
	Class A	Class B	Class C	NOAA SQuiRT values[b]											
Metals (Units in mg/kg)															
Arsenic	10	10 – 33	33	NA	**18.2**	**35.3**	**128**	**52.2**	**169**	**11.2**	**18.1**	**17.0**	**48.2**	**31.7**	**40.3**
Barium	NA	NA	NA	NA	**68.2**	**152**	**182**	**53.2**	**339**	**46.1**	**57.7**	**59.9**	**62.2**	**55.0**	**54.8**
Beryllium	NA	NA	NA	NA	**0.680**	<0.371	<0.799	<0.504	<1.80	**0.425**	**0.557**	**0.508**	**0.399**	**0.419**	<0.470
Cadmium	1	1 – 5	5	NA	**0.160 J**	<0.618	<1.30	<0.840	<2.90	<0.664	<0.696	<0.651	<0.643	<0.654	<0.780
Calcium	NA	NA	NA	NA	**1,040**	**1,440**	**939**	**554**	**3,740**	**628**	**540**	**597**	**185**	**286**	<160
Chromium	43	43 – 110	110	NA	**16.2**	<1.20	**25.5**	**15.7**	<5.90	**14.6**	**17.0**	**16.3**	**13.3**	**14.6**	**14.4**
Cobalt	NA	NA	NA	50+[c]	**16.3**	**14.2**	**17.5**	**11.7**	<29.4	**11.5**	**13.3**	**12.2**	**9.20**	**9.30**	**10.9**
Copper	32	32 – 150	150	NA	**24.4**	**2.70**	**36.8**	**21.8**	<11.7	**20.5**	**20.8**	**23.2**	**18.8**	**20.3**	**16.3**
Iron	NA	NA	NA	20,000-40,000	**35,200**	**39,600**	**99,100**	**55,400**	**132,000**	**28,100**	**33,600**	**35,900**	**52,200**	**41,900**	**48,100**
Lead	36	36 – 130	130	NA	**19.9**	**4.60**	**207**	**56.2**	<29.4	**17.3**	**18.8**	**15.1**	**15.6**	**16.8**	**21.1**
Magnesium	NA	NA	NA	NA	**3,790**	**387**	**5,790**	**3,800**	**1,290**	**3,910**	**4,350**	**4,180**	**3,600**	**3,890**	**3,680**
Manganese	NA	NA	NA	460-1100	**1,670**	**23,000**	**667**	**721**	**49,800**	**630**	**1,290**	**1,820**	**1,470**	**658**	**1,300**
Mercury	0.2	0.2 – 1	1	NA	<0.0270	<0.0430	**0.116**	<0.0570	<0.187	<0.0450	<0.0450	<0.0430	<0.0420	<0.0440	<0.0520
Nickel	23	23 – 49	49	NA	**28.0**	**7.80**	**40.5**	**25.4**	<23.5	**20.8**	**27.3**	**27.0**	**21.4**	**23.1**	**22.2**
Potassium	NA	NA	NA	NA	**819**	**302**	**1,590**	**844**	<1,170	**1,050**	**1,110**	**986**	**941**	**993**	**640**
Selenium	NA	NA	NA	NA	<5.10	**7.00**	<2.70	<1.70	**24.8**	**1.80**	**1.60**	**1.80**	**2.50**	<1.30	**2.10**
Silver	1	1 – 2.2	2.2	NA	<0.640	<1.20	<2.70	<1.70	<5.90	<1.30	<1.40	<1.30	<1.30	<1.30	<1.60
Sodium	NA	NA	NA	NA	**37.1 J**	<124	<266	<168	<587	<133	<139	<130	<129	<131	<160
Thallium	NA	NA	NA	NA	**0.430 J**	<1.20	<2.70	<1.70	<5.90	<1.30	<1.40	<1.30	<1.30	<1.30	<1.60
Vanadium	NA	NA	NA	NA	**16.8**	<6.20	**25.6**	**15.0**	<29.4	**15.6**	**18.2**	**18.1**	**14.8**	**15.6**	**15.9**
Zinc	120	120 – 460	460	NA	**74.6**	**11.4**	**107**	**70.7**	**41.2**	**60.6**	**73.3**	**72.9**	**60.9**	**64.0**	**63.1**
Miscellaneous															
Percent Moisture (% by wt.)	NA	NA	NA	NA	**25.0**	**23**	**63.9**	**43.3**	**83.3**	**27.6**	**28.2**	**25.4**	**23.8**	**26.5**	**38.1**

Notes and abbreviations on last page.

Table 6.
Concentrations of Metals Detected in Sediment Samples Associated with Springs, Colesville Landfill, Broome County, New York.[1]

Notes and abbreviations:

a Values obtained from NYSDEC Technical Guidance for Screening Contaminated Sediments dated June 24, 2014.
b Values obtained from NOAAs SQuiRT (Buchman, MF. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA. Office of Response and Restoration Division, NOAA, 34 pp.)
c Value from Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario, Canada. Aug 1993. Value is LEL from Canadian Sediment Guidelines.

(1) Data presented in this table corresponds to monitoring data during a two-year period
(2) Background sediment sample collected by Arcadis from SP-1 spring sample location upstream of the SP-2 spring sample location (see Figure 1).
(3) Background sediment sample collected by Broome County upstream and on the opposite bank from SP-2 spring sample location.
(4) Sediment/iron oxide film composite sample collected by Broome County from the SP-3 spring sample location.
(5) Sample collected by Broome County from the SP-3 spring outlet area in close proximity to the North Stream.
(6) Sample collected by Broome County from North Stream sediment at the SP-3 spring area.
(7) Sediment composite sample collected by ARCADIS from SP-3 spring sample location as part of the spring water and sediment monitoring program of the In-Situ Reactive Zone Discontinuation Pilot Test.
(8) Sample collected in the vicinity of SP-3-SED sample, at a minimum depth of 3 inches.
(9) Sample collected as close as to the North Stream as possible.
(10) Sample collected in the vicinity of SP-3-SED, after the top layer (approximately1inch) of all stained sediment was removed.

Bold constituent detected above method detection limit.
B Analyte detected in the associated Method Blank.
J Concentration is an estimated value
Class B Considered to be slightly to moderately contaminated and additional testing required to evaluate the potential risks to aquatic life.
Class C Considered to be highly contaminated and likely to pose a risk to aquatic life.
mg/kg milligrams per kilogram
NA not applicable
NOAA National Oceanic and Atmospheric Administration
NYSDEC New York State Department of Environmental Concervation
Q Outlying QC recoveries were associates with this parameter.
SQuiRT Screening Quick Reference Tables
Class B sediments
Class C sediments
within or exceeds NOAA SQuiRT values
< Analyte below detection limit.
-- not analyzed

Table 7
Concentrations of Volatile Organic Compounds Detected in Aqueous Samples Collected from SP-5 Spring Water Remediation System Colesville Landfill Broome County, New York (1)

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Model Technology BPJ Limits[1,2]	Sample ID: Date:	SP-5 INF. 6/10/2015	SP-5 INF. 12/8/2015	SP-5 INF. 6/3/2016	SP-5 INF. 12/13/2016	SP-5 INF. 5/9/2017
VOCs							
1,1,1-Trichloroethane	10		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	50		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-trichloro-1,2,2-trifluoroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	100		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	10		**10**	**7.7**	**8.9**	**6.4**	**4.7 J**
1,1-Dichloroethene	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane	NA		<5.0	<5.0 J	<5.0	<5.0	<5.0
1,2-Dibromoethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	10-100		**0.43 J**	<5.0	<5.0	**0.38 J**	<5.0
1,2-Dichloropropane	10		<5.0	<5.0	**0.21 J**	<5.0	<5.0
1,3-Dichlorobenzene	10		<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	10		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone	NA		<10	<10	<10	<10	<10
2-Hexanone	NA		<10	<10	<10	<10	<10
4-Methyl-2-pentanone	NA		<10	<10	<10	<10	<10
Acetone	NA		**1.6 J**	<10	<10	**1.3 J**	**2.0 J**
Benzene	5		**0.91 J**	<5.0	**0.87 J**	**0.78 J**	**0.67 J**
Bromodichloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	50		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	10		<5.0	<5.0 J	<5.0	<5.0	<5.0
Carbon Disulfide	NA		**0.74 J**	<10	2.1 J	**0.29 J**	<10
Carbon Tetrachloride	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	10-25		**8.5**	**7.9**	**8.6**	**8.3**	**13**
Chloroethane	10		**3.4 J**	<5.0	<5.0	**1.1 J**	<5.0
Chloroform	100		<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	10		<5.0 J	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethene	10		**1.1 J**	<5.0	**1.2 J**	**1.0 J**	**1.5 J**
cis-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane	NA		<10	<10	<10	<10	<10
Dibromochloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane	10		<5.0	<5.0 J	<5.0	<5.0	<5.0
Ethylbenzene	5		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0

Notes and Abbreviations on last page.

Table 7
Concentrations of Volatile Organic Compounds
Detected in Aqueous Samples Collected from
SP-5 Spring Water Remediation System Colesville Landfill
Broome County, New York [(1)]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Model Technology BPJ Limits[1,2]	Sample ID: Date:	SP-5 INF. 6/10/2015	SP-5 INF. 12/8/2015	SP-5 INF. 6/3/2016	SP-5 INF. 12/13/2016	SP-5 INF. 5/9/2017
Methyl acetate	NA		<10	<10	<10	<10	<10
Methyl tert-butyl ether	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane	NA		<10	<10	<10	<10	<10
Methylene Chloride	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	5		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	10		**1.7 J**	<5.0	**1.5 J**	**1.6 J**	**1.9 J**
Trichlorofluoromethane	10		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	10		**0.37 J**	<5.0	**0.34 J**	<5.0	**0.64 J**
Xylenes (total)	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs			**29 J**	**16**	**24 J**	**21 J**	**24 J**

Notes and Abbreviations on last page.

Table 7
Concentrations of Volatile Organic Compounds Detected in Aqueous Samples Collected from SP-5 Spring Water Remediation System Colesville Landfill Broome County, New York [(1)]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Model Technology BPJ Limits[1,2]	Sample ID: Date:	SP-5 INF. 9/13/2017	SP-5 EFF. 6/3/2016	SP-5 EFF. 12/13/2016	SP-5 EFF. 5/9/2017	SP-5 EFF. 9/13/2017
VOCs							
1,1,1-Trichloroethane	10		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	50		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-trichloro-1,2,2-trifluoroethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	100		<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	10		**5.8**	**1.1 J**	**0.60 J**	**2.2 J**	**1.6 J**
1,1-Dichloroethene	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromo-3-chloropropane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dibromoethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	10		**0.22 J**	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	10		<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	10		<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone	NA		<10	<10	<10	<10	<10
2-Hexanone	NA		<10	<10	<10	<10	<10
4-Methyl-2-pentanone	NA		<10	<10	<10	<10	<10
Acetone	NA		<10	<10	<10	**2.4 J**	<10
Benzene	5		**0.89 J**	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	50		<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	10		<5.0	<5.0	<5.0	<5.0 B	<5.0
Carbon Disulfide	NA		**0.49 BJ**	<10	<10	<10	<10
Carbon Tetrachloride	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	10-25		**7.9**	**0.46 J**	<5.0	**3.6 J**	<5.0
Chloroethane	10		<5.0	<5.0	**0.86 J**	**1.1 J**	<5.0
Chloroform	100		<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	10		<5.0	<5.0	<5.0	<5.0	**0.36 BJ**
cis-1,2-Dichloroethene	10		**1.3 J**	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Cyclohexane	NA		<10	<10	<10	<10	<10
Dibromochloromethane	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorodifluoromethane	10		<5.0	<5.0	<5.0	<5.0	<5.0
Ethylbenzene	5		<5.0	<5.0	<5.0	<5.0	<5.0
Isopropylbenzene	NA		<5.0	<5.0	<5.0	<5.0	<5.0

Notes and Abbreviations on last page.

Table 7
Concentrations of Volatile Organic Compounds
Detected in Aqueous Samples Collected from
SP-5 Spring Water Remediation System Colesville Landfill
Broome County, New York [(1)]

ARCADIS Design & Consultancy for natural and built assets

Constituents (units in ug/L)	Model Technology BPJ Limits[1,2]	Sample ID: Date:	SP-5 INF. 9/13/2017	SP-5 EFF. 6/3/2016	SP-5 EFF. 12/13/2016	SP-5 EFF. 5/9/2017	SP-5 EFF. 9/13/2017
Methyl acetate	NA		<10	<10	<10	<10	<10
Methyl tert-butyl ether	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Methylcyclohexane	NA		<10	<10	<10	<10	<10
Methylene Chloride	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
Styrene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	10-50		<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	5		**0.31 J**	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	10-100		<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	10		**1.6 J**	<5.0	<5.0	**0.42 J**	<5.0
Trichlorofluoromethane	10		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	10		<5.0	<5.0	<5.0	**0.33 J**	**0.34 J**
Xylenes (total)	NA		<5.0	<5.0	<5.0	<5.0	<5.0
Total VOCs			**19 J**	**1.6 J**	**1.5 J**	**10 J**	**2.3 J**

Notes and Abbreviations on last page.

Table 7
Concentrations of Volatile Organic Compounds
Detected in Aqueous Samples Collected from
SP-5 Spring Water Remediation System Colesville Landfill
Broome County, New York [1]

Notes and Abbreviations:

1. Model Technology BPJ Limits recommended for carbon adsorption with appropriate pretreatment from Attachment C of TOGS 1.2.1.
2. When a range is listed for the BPJ limit, a variation in available references was found. Recommended daily maximum limits should be in this range.

Bold constituent detected above method detection limit.

EFF.	effluent
INF.	influent
J	Concentration is an estimated value
B	Compound considered non-detect at the listed value due to associated blank contamination.
NA	not applicable
ug/L	micrograms per liter
VOCs	volatile organic compounds
BPJ	Best Professional Judgment
<	Analyte below detection limit.
TOGS	Technical and Operational Guidance Series

Table 8
SP-5 Spring Water Remediation System
Mass Removal Rate of Volatile Organic Compounds
Colesville Landfill
Broome County, New York

ARCADIS Design & Consultancy for natural and built assets

Date Sampled	Total VOC Influent Concentration (ug/L)	Effluent Flowrate (gpm)	Depth to Water (feet btc)	Total SW Treated [1] Between Sampling Interval (gal)	Influent Concentration Geometric Mean [2] (ug/L)	Total Estimated [3] Mass Removed (lbs)
6/3/2016	24	1.1 [4]	NM	280,000	20	0.046
12/13/2016	21	1.1 [4]	NM	310,000	22	0.058
5/9/2017	24	1.1 [4]	NM	230,000	22	0.043
9/13/2017	21	1.1 [4]	NM	200,000	22	0.037
					Total Estimated Mass Removed Since System Startup (lbs) =	**2.5**
					Total Effluent Treated During Reporting Period (gallons) =	**430,000**
					Total Effluent Treated Since System Startup (gallons) =	**6,330,000**

Notes and Abbreviations:

1. Total Spring Water Treated Between Sampling Intervals = Effluent Flowrate Geometric Mean x 1440 min/day x days between sampling events.
2. Influent Concentration Geometric Mean = (Influent Concentration for prior sampling event x Influent Concentration for current sampling event)^(1/2).
3. Total Mass Removed = (Total Groundwater Treated Between Sampling Intervals) x Influent Concentration Geometric Mean x 3.7854 L/gal x (1 lbs / 453,592,370 ug).
4. Effluent flow rate not recorded during the reporting period. Value shown is the average flow rate recorded between March 2013 and September 2014.

btc	below top of casing
gal	gallons
gpm	gallons per minute
lbs	pounds
NA	not applicable
NM	not measured
ug/L	micrograms per liter
SW	spring water
VOC	volatile organic compound

FIGURES

PROJECT AREA

LANDFILL

STREAM

NORTH

EAST WINDSOR ROAD

SOUTH STREAM

Susquehanna River

KITCHEN

SCOTT JR

SCOTT

SP-1 SP-2 SP-3 SP-4 SP-5

PW-1 PW-2 PW-3 PW-4 PW-5 PW-6 PW-7 PW-8 PW-9 PW-10 PW-11 PW-12 PW-13

IW-1 IW-2 IW-3 IW-4 IW-5 IW-6 IW-7 IW-8 IW-9 IW-10 IW-11 IW-12 IW-13 IW-14 IW-15

GMMW-1 GMMW-2 GMMW-3 GMMW-4 GMMW-5 GMMW-6 GMMW-7

GMPW-1 GMPW-2 GMPW-3 GMPW-4 GMPW-5

TW-1

F-6 F-8

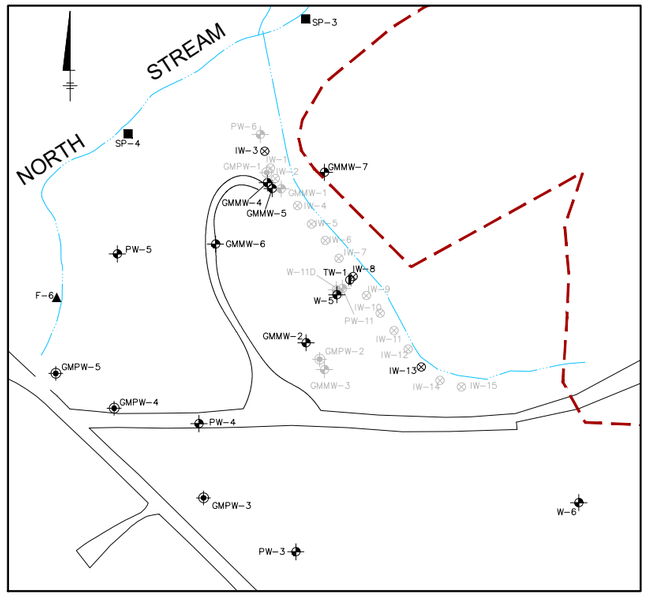
W-1 W-2 W-3 W-4 W-5 W-6 W-7 W-8 W-10 W-11D W-12D W-13 W-14S W-14D W-16S W-16D W-17I W-17S W-18 W-20D W-20S W-21 W-22S W-22D W-23S W-24 W-25 W-2D W-2S PZ-1S PZ-1D SG-2

0 200' 400'
SCALE IN FEET

NOTE: ALL LOCATIONS ARE APPROXIMATE

EXPLANATION

BOLD	IN-SITU REACTIVE ZONE (IRZ) DISCONTINUATION PILOT TEST MONITORING WELL
W-24 GMMW-7	LOCATION AND DESIGNATION OF MONITORING WELL
SCOTT	LOCATION AND DESIGNATION OF EXISTING HOMEOWNER WELL
IW-2	LOCATION AND DESIGNATION OF INJECTION WELL
GMPW-3	LOCATION AND DESIGNATION OF PRODUCTION WELL
TW-1	LOCATION AND DESIGNATION OF TEST MONITORING WELL
F-6	LOCATION AND DESIGNATION OF SURFACE WATER SAMPLE
SP-2	LOCATION AND DESIGNATION OF SPRING SAMPLE AND CO-LOCATED SEDIMENT SAMPLE



SITE PLAN SHOWING PROJECT AREA

0 100' 200'
SCALE IN FEET

COLESVILLE LANDFILL
COLESVILLE, NEW YORK

SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

F-6 LOCATED APPROXIMATELY
300-FEET DOWNSTREAM

SW-4

SP-4

NORTH STREAM

HEAVY STONE
RETAINING WALL

SP-4 REMEDIATION SYSTEM
INFILTRATION BED

SW-3

SP-3/SP-3-SED

PROPERTY LINE

TREE WITH
FENCE (TYP.)

HEAVY STONE
RETAINING WALL

NORTH STREAM

SW-2

SP-2

PROPERTY LINE

PW 5

PW 6

PW 7

PW 8

W4

BM #4

TEST
WELL

WEIR

GM PW 1

IW 1

GM MW 4

IW 2

GM MW 5

GM MW 1

GM MW 6

GM MW 7

ANCHOR

BUILDING

GAS VENT

GRAVEL ROAD

NLINK

TEST
WELL

LEGEND:

- SPRING WATER AND CO-LOCATED SEDIMENT SAMPLING LOCATION (APPROXIMATE)
- SURFACE WATER SAMPLING LOCATION (APPROXIMATE)
- RIP RAP
- RETAINING WALL
- NORTH STREAM

0 50' 100'

SCALE IN FEET

COLESVILLE LANDFILL
COLESVILLE, NEW YORK

SPRING WATER AND SURFACE WATER SAMPLING LOCATIONS ALONG THE NORTH STREAM

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

APPENDIX A

2017 Groundwater Sampling Logs

FIELD MONITORING REPORT

PROJECT Coleville 5th Quarter Wells LAB ID 13 VOA only

SAMPLE POINT ID W-17S

PURGE INFORMATION

Well Depth (ft.) 21.73 Purge Date 3/8/17 Purge Method Bailer

SWL (ft.) 8.58 Start Time 0750 Stop Time 0755

Standing Water (ft.) 13.15 Volume Purged gal. 6.3 # casings 3

Well Constant (gal/ft.) 0.163 Observations Clear to moderately

Well Volume (gal.) 2.1 turbid rust brown

SAMPLING INFORMATION

Sample Method Bailer

Date 3/8/17 Time 0805 SWL 8.58

Appearance Turbid, rust brown

Weather Conditions PSun 37°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	8.10	8.07
↓	Conductivity	µmhos/cm	188	187
↓	Temperature	Degrees Celsius	8.3	8.3
↓	Redox	millivolts		
LaMotte	Turbidity	NTU		

Calibration Date/Time 3/8/17 0800 7.00/10.00/4.00 1413 set 1413

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID VOAS ONLY 14

SAMPLE POINT ID W-16S

PURGE INFORMATION

Well Depth (ft.) 22.16 Purge Date 3/8/17 Purge Method Bailer

SWL (ft.) 9.66 Start Time 0828 Stop Time 0834

Standing Water (ft.) 12.50 Volume Purged gal. 3 # casings ~1.5 Tody

Well Constant (gal/ft.) 0.163 Observations Turbid tan to clear

Well Volume (gal.) 2.1

SAMPLING INFORMATION

Sample Method Bailer

Date 3/8/17 Time 0855 SWL 9.66

Appearance Clear with a few suspended particles

Weather Conditions PSun 37°

Sampling Technician (Print) BRIAN MALKIN Signature Brian Malkin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.27	7.26
↓	Conductivity	µmhos/cm	407	407
↓	Temperature	Degrees Celsius	8.7	8.7
—	Redox	millivolts	—	—
LaMotte	Turbidity	NTU	1.3	

Calibration Date/Time 3/8/17 0800

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID Voflonly 15

SAMPLE POINT ID GMPW-4

PURGE INFORMATION

Well Depth (ft.) 27.08 Purge Date 3/8/17 Purge Method Pump

SWL (ft.) 15.51 Start Time 0914 Stop Time 0925

Standing Water (ft.) 11.57 Volume Purged gal. 18 # casings ~1 to dry

Well Constant (gal/ft.) 1.46 Observations Clear

Well Volume (gal.) 16.9

SAMPLING INFORMATION

Sample Method Bailer

Date 3/8/17 Time 0957 SWL 20.07

Appearance Clear

Weather Conditions PSun 45°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.88	6.90
↓	Conductivity	µmhos/cm	744	744
↓	Temperature	Degrees Celsius	11.4	11.4
—	Redox	millivolts	—	—
LaMotte	Turbidity	NTU	8.3	

Calibration Date/Time 3/8/17 0800

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 16

SAMPLE POINT ID W-7

PURGE INFORMATION

Well Depth (ft.) 51.35 Purge Date 3/8/17 Purge Method Bailer

SWL (ft.) 44.24 Start Time 1020 Stop Time 1030

Standing Water (ft.) 7.11 Volume Purged gal. 1.5 # casings ~1.3 today

Well Constant (gal/ft.) BJM 3/8/17 ~~2"~~ 0.163 Observations Turbid rust brown to slight yellow orange tint

Well Volume (gal.) 1.1

SAMPLING INFORMATION

Sample Method Bailer

Date 3/8/17 Time 1102 SWL 47.10

Appearance Slightly turbid, yellow-tan tint

Weather Conditions PSun 45°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.64	6.63
↓	Conductivity	µmhos/cm	554	554
↓	Temperature	Degrees Celsius	11.9	11.9
—	Redox	millivolts	—	—
LaMotte	Turbidity	NTU	34.8	

Calibration Date/Time 3/8/17 0800

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 17

SAMPLE POINT ID PW-5

PURGE INFORMATION

Well Depth (ft.) 26.93 Purge Date 3/8/17 Purge Method Bailer

SWL (ft.) 0.85 Start Time 1140 Stop Time 1159

Standing Water (ft.) 26.08 Volume Purged gal. 12.9 # casings 3

Well Constant (gal/ft.) 0.163 Observations Tan tint to turbid brown

Well Volume (gal.) 4.3

SAMPLING INFORMATION

Sample Method Bailer

Date 3/8/17 Time 1220 SWL 0.85

Appearance Turbid brown

Weather Conditions Sun 53°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.90	6.91
↓	Conductivity	µmhos/cm	284	284
↓	Temperature	Degrees Celsius	12.0	12.0
—	Redox	millivolts	—	—
LaMotte	Turbidity	NTU		

Calibration Date/Time 3/8/17 1200 7.00, 10.00, 4.00
1413 set 1413
0.0/10.0

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

MNA
DIOXANE

PROJECT Colesville 5th Quarter Wells LAB ID 1

SAMPLE POINT ID W-18

PURGE INFORMATION

Well Depth (ft.) 21.94 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 10.98 Start Time 0710 Stop Time 0722

Standing Water (ft.) 10.96 Volume Purged gal. 5.4 # casings 3

Well Constant (gal/ft.) BJM 3/27/17 ~~1.8~~ 0.163 Observations Turbid tan

Well Volume (gal.) 1.8

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 0710 SWL 10.98

Appearance Clear to turbid tan

Weather Conditions Overcast 35°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.15	6.17
	Conductivity	µmhos/cm	139	139
	Temperature	Degrees Celsius	7.7	7.7
↓	Redox	millivolts	295	
LaMotte	Turbidity	NTU	13.1	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 9.79 mg/L

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 2 MNA DIOXANE

SAMPLE POINT ID W-20S

PURGE INFORMATION

Well Depth (ft.) 21.75 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 8.06 Start Time 0745 Stop Time 0810

Standing Water (ft.) 13.69 Volume Purged gal. 2.2 # casings 1 to dry

Well Constant (gal/ft.) 0.163 Observations Turbid tan-brown

Well Volume (gal.) 2.2

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 0745 SWL 8.07

Appearance Turbid tan tint

Weather Conditions Overcast 35°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.47	6.44
↓	Conductivity	µmhos/cm	118	119
↓	Temperature	Degrees Celsius	10.2	10.2
↓	Redox	millivolts	262	
LaMotte	Turbidity	NTU	23.9	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 2.32 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 12

MNA
PFOA
DIOXANE

SAMPLE POINT ID Equipment Blank

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Rinsate blank over dispo bailer

Date 3/29/17 Time 0645 SWL ——

Appearance Clear

Weather Conditions Overcast 35°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	8.34	8.33
↓	Conductivity	µmhos/cm	1.1	1.0
↓	Temperature	Degrees Celsius	8.5	8.5
↓	Redox	millivolts	140	
LaMotte	Turbidity	NTU	0.6	

Calibration Date/Time 3/29/17 0630 7.00/10.00/4.00 1413 set 1413 0.0/10.0

OBSERVATIONS

Diss metals field filtered w/0.45u filter D.O. = N/A

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

MNA
PFA
DIOXANE

PROJECT Colesville 5th Quarter Wells LAB ID 3

SAMPLE POINT ID PW-7

PURGE INFORMATION

Well Depth (ft.) 64.23 Purge Date 3/28/17 Purge Method Pump

SWL (ft.) 41.23 BJM 3/28/17 Start Time 0825 Stop Time 0853

Standing Water (ft.) 23.00 Volume Purged gal. 11.1 # casings 3

Well Constant (gal/ft.) 0.163 Observations Turbid orange to slight orange with Iron bacteria

Well Volume (gal.) 3.7

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 0825 SWL 41.23

Appearance Clear w/ suspended Iron Bacteria

Weather Conditions PSun 37°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.09	6.08
↓	Conductivity	µmhos/cm	186	186
↓	Temperature	Degrees Celsius	9.2	9.2
↓	Redox	millivolts	88	
LaMotte	Turbidity	NTU	25.1	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 1.23 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 4 MNA PFA DIOXANE

SAMPLE POINT ID GMMW-7

PURGE INFORMATION

Well Depth (ft.) 71.96 Purge Date 3/28/17 Purge Method Pump

SWL (ft.) 48.55 Start Time 0921 Stop Time 0945

Standing Water (ft.) 23.41 Volume Purged gal. 4.0 # casings ~1 to dry

Well Constant (gal/ft.) 0.163 Observations Turbid tan-brown with suspended particles

Well Volume (gal.) 3.8

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 0905 SWL 48.91

Appearance Clear w/suspended particles

Weather Conditions PSun 38°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.88	6.88
↓	Conductivity	µmhos/cm	173	173
↓	Temperature	Degrees Celsius	10.3	10.3
↓	Redox	millivolts	227	
LaMotte	Turbidity	NTU	9.2	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 1.55 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

BJM 3/29/17

DUP MNA PFA DIOXANE

PROJECT Colesville 5th Quarter Wells LAB ID 5+6

SAMPLE POINT ID PW-3

PURGE INFORMATION

Well Depth (ft.) 30.97 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 10.07 Start Time 1000 Stop Time 1022

Standing Water (ft.) 20.90 Volume Purged gal. 5.5 # casings 1.6 today

Well Constant (gal/ft.) 0.163 Observations Turbid brown to turbid

Well Volume (gal.) 3.4 dark tan

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 0940 SWL 11.10

Appearance Clear to turbid, tan tint

Weather Conditions PSunn 38°

Sampling Technician (Print) BRIAN MALKIN Signature Brian Malkin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.85	6.86
↓	Conductivity	µmhos/cm	96	96
↓	Temperature	Degrees Celsius	7.9	7.9
↓	Redox	millivolts	238	237
LaMotte	Turbidity	NTU	4.7	4.9

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 11.39 mg/l / 11.41 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 7+8 QC MNA PFOA DIOXANE

SAMPLE POINT ID PW-4

PURGE INFORMATION

Well Depth (ft.) 23.16 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 17.32 Start Time 1040 Stop Time 1050

Standing Water (ft.) 5.84 Volume Purged gal. 2.9 # casings 3

Well Constant (gal/ft.) 0.163 Observations Tan tint to brown turbid

Well Volume (gal.) 0.95

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 1015 SWL 17.32

Appearance Clear

Weather Conditions Sun 40°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	5.91	5.90
↓	Conductivity	µmhos/cm	884	884
↓	Temperature	Degrees Celsius	9.8	9.8
↓	Redox	millivolts	310	
LaMotte	Turbidity	NTU	7.1	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 5.09 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 9 MNA PFOA DIOXANE

SAMPLE POINT ID GMMW-2

PURGE INFORMATION

Well Depth (ft.) 55.97 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 37.91 Start Time 1110 Stop Time 1122

Standing Water (ft.) 18.06 Volume Purged gal. 4.0 # casings ~1.3 to dry

Well Constant (gal/ft.) 0.163 Observations Clear to gray turbid tint

Well Volume (gal.) 2.9

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 1045 SWL 37.99

Appearance Clear to slightly turbid gray

Weather Conditions P Sun 40°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.41	6.41
↓	Conductivity	µmhos/cm	522	523
↓	Temperature	Degrees Celsius	12.1	12.1
↓	Redox	millivolts	157	
LaMotte	Turbidity	NTU	9.2	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 0.48 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 10 MNA PFOA DIOXANE

SAMPLE POINT ID GMMW-6

PURGE INFORMATION

Well Depth (ft.) 55.87 Purge Date 3/28/17 Purge Method Bailer

SWL (ft.) 39.39 Start Time 1210 Stop Time 1220

Standing Water (ft.) 16.48 Volume Purged gal. 4.0 # casings ~1,5 to dry

Well Constant (gal/ft.) 0.163 Observations Gray tint to turbid gray

Well Volume (gal.) BJM 3/28/17 2.7

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 1120 SWL 40.27

Appearance Slightly turbid gray-tan tint

Weather Conditions Sun 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.54	6.55
↓	Conductivity	µmhos/cm	836	835
↓	Temperature	Degrees Celsius	11.9	11.9
↓	Redox	millivolts	-17	
LaMotte	Turbidity	NTU	11.1	

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 0.57 mg/l

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville 5th Quarter Wells LAB ID 11 MNA PFOA DIOXANE

SAMPLE POINT ID GMMW-5

PURGE INFORMATION

Well Depth (ft.) 70.21 Purge Date 3/28/17 Purge Method Pump

SWL (ft.) 49.29 Start Time 1310 Stop Time 1320

Standing Water (ft.) 20.92 Volume Purged gal. 3.5 # casings 1 today

Well Constant (gal/ft.) 0.163 Observations Turbid black

Well Volume (gal.) 3.4

SAMPLING INFORMATION

Sample Method Bailer

Date 3/29/17 Time 1150 SWL 50.70

Appearance Very slight gray tint

Weather Conditions P Sun 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.01	7.00
	Conductivity	µmhos/cm	399	399
	Temperature	Degrees Celsius	12.1	12.1
↓	Redox	millivolts	-42	
LaMotte	Turbidity	NTU	13.6	[redacted]

Calibration Date/Time 3/29/17 0630

OBSERVATIONS D.O. = 0.64 mg/l

ALL DISSOLVED METALS FILTERED IN FIELD WITH 0.45µ filter

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

R1704240

PROJECT Colesville LF LAB ID

SAMPLE POINT ID F-6

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0725 SWL —

Appearance Clear

Weather Conditions Clear 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.79	7.79
↓	Conductivity	µmhos/cm	91	90
	Temperature	Degrees Celsius	6.8	6.8
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715 7.00/10.00/4.00 1413 set 1413

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville LF LAB ID

SAMPLE POINT ID SW-4

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0732 SWL —

Appearance Clear

Weather Conditions Clear, 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.82	7.82
	Conductivity	µmhos/cm	88	88
↓	Temperature	Degrees Celsius	6.8	6.8
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Landfill LAB ID

SAMPLE POINT ID SP-4

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0745 SWL —

Appearance Clear

Weather Conditions Clear, 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.41	7.41
↓	Conductivity	µmhos/cm	334	333
↓	Temperature	Degrees Celsius	7.6	7.6
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Landfill LAB ID

SAMPLE POINT ID SW-3

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0750 SWL —

Appearance Clear

Weather Conditions Clear, 43°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.78	7.77
↓	Conductivity	µmhos/cm	93	93
	Temperature	Degrees Celsius	6.8	6.8
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville LF LAB ID _____

SAMPLE POINT ID SP-3

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0758 SWL —

Appearance Clear

Weather Conditions Clear, 43°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.42	7.42
	Conductivity	µmhos/cm	223	223
↓	Temperature	Degrees Celsius	7.8	7.7
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS _____

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colville Landfill LAB ID

SAMPLE POINT ID SW-2

PURGE INFORMATION

Well Depth (ft.) Purge Date @ Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0812 SWL —

Appearance Clear

Weather Conditions Clear, 43°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	7.71	7.71
	Conductivity	µmhos/cm	83	81
↓	Temperature	Degrees Celsius	6.8	6.8
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Landfill LAB ID

SAMPLE POINT ID SP-2

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0818 SWL —

Appearance Clear

Weather Conditions Clear, 42°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.83	6.83
↓	Conductivity	µmhos/cm	233	237
	Temperature	Degrees Celsius	7.9	8.0
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Landfill LAB ID

SAMPLE POINT ID SP-5 EFF

PURGE INFORMATION

Well Depth (ft.) Purge Date Purge Method

SWL (ft.) Start Time Stop Time

Standing Water (ft.) Volume Purged gal. # casings

Well Constant (gal/ft.) Observations

Well Volume (gal.)

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0845 SWL —

Appearance Clear

Weather Conditions Clear 45°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.79	6.79
↓	Conductivity	µmhos/cm	355	355
↓	Temperature	Degrees Celsius	8.3	8.3
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Landfill LAB ID

SAMPLE POINT ID SP-5 INF

PURGE INFORMATION

Well Depth (ft.) 4.10 Purge Date 5/9/17 Purge Method Bailer

SWL (ft.) 0.31 Start Time 0850 Stop Time 0855

Standing Water (ft.) 3.69 Volume Purged gal. 1.8 # casings 3

Well Constant (gal/ft.) 0.163 Observations Slight tan tint w/

Well Volume (gal.) 0.6 suspended particles

SAMPLING INFORMATION

Sample Method Bailer

Date 5/9/17 Time 0856 SWL 0.31

Appearance Very slight tan tint

Weather Conditions Clear 45°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
Myron	pH	unit	6.42	6.42
↓	Conductivity	µmhos/cm	370	370
	Temperature	Degrees Celsius	6.9	6.9
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time 5/9/17 0715

OBSERVATIONS

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

~~R1703~~
R1704241

PROJECT Colesville Sediments LAB ID (1)

SAMPLE POINT ID Sediment down gradient before cleaning

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0825 SWL ——

Appearance Silty sand with some vegetation, brown

Weather Conditions Overcast 45°

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
	pH	unit		
	Conductivity	µmhos/cm		
	Temperature	Degrees Celsius		
	Redox	millivolts		
	Turbidity	NTU		

Calibration Date/Time ____/____/____ _____

OBSERVATIONS _____

Sampling procedures were performed in accordance with all applicable protocols.

FIELD MONITORING REPORT

PROJECT Colesville Sediments LAB ID 2

SAMPLE POINT ID SP-3 Sed

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 0933 SWL —

Recharge Time — Recharge Rate —

Appearance Rust orange, sandy

Weather Conditions Overcast 45° 48 hr. —

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
	pH	unit		
	Conductivity	µmhos/cm		
	Temperature	Degrees Celsius		

Calibration Date/Time ___/___/___ _____

OBSERVATIONS

FIELD MONITORING REPORT

PROJECT Colesville Sediments LAB ID (3)

SAMPLE POINT ID SP-3 Sed After Cleaning

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 1012 SWL —

Recharge Time — Recharge Rate —

Appearance Brown, orange sand-silt

Weather Conditions Overcast, 45° 48 hr. _____

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
	pH	unit		
	Conductivity	µmhos/cm		
	Temperature	Degrees Celsius		

Calibration Date/Time ___/___/___ _____

OBSERVATIONS

FIELD MONITORING REPORT

PROJECT Colesville Sediments LAB ID (4)

SAMPLE POINT ID SP-3 Sed Down Gradient after cleaning

PURGE INFORMATION

Well Depth (ft.) _____ Purge Date _____ Purge Method _____

SWL (ft.) _____ Start Time _____ Stop Time _____

Standing Water (ft.) _____ Volume Purged gal. _____ # casings _____

Well Constant (gal/ft.) _____ Observations _____

Well Volume (gal.) _____

SAMPLING INFORMATION

Sample Method Grab

Date 5/9/17 Time 1018 SWL —

Recharge Time — Recharge Rate —

Appearance Brown, sandy

Weather Conditions Overcast 45° 48 hr. —

Sampling Technician (Print) BRIAN MACKIN Signature Brian Mackin

Meter	Parameter	Unit	Replicate 1	Replicate 2
	pH	unit		
	Conductivity	umhos/cm		
	Temperature	Degrees Celsius		

Calibration Date/Time ___/___/___ _____

OBSERVATIONS

APPENDIX B

Laboratory Analytical Results