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July 18, 2018

Mr. Patrick Mulligan
Tennessee Department of Environment and Conservation
Division of Solid Waste Management
3711 Middlebrook Pike
Knoxville, TN 37921-5602

RE: Groundwater Monitoring Report – 1st Semi-Annual Event
Matlock Bend Landfill
SNL #53-103-0203

Dear Mr. Mulligan:

Please find enclosed a copy of the groundwater monitoring report generated from the first semi-annual groundwater event of 2018 at the Matlock Bend Landfill. This package includes data pertaining to site information, geologic summary, groundwater sampling, analytical laboratory reports, statistical analysis, and groundwater elevations and flow.

If you have any questions and/or comments, please feel free to call at (423) 303-7101.

Sincerely,

A handwritten signature in blue ink that reads "Robert Hudson".

Robert Hudson
Environmental Compliance Coordinator

Enclosure

cc: Steve Field, Loudon County Solid Waste Department Chairman
Matt Dillard, Executive V.P. of Operations, Santek
Ron E. Vail, P.E., Executive V.P. of Engineering, Santek
Raymond Givens, Landfill Manager, Santek

**MATLOCK BEND LANDFILL – PHASE I & PHASE II/IV UPGRADE
GROUNDWATER MONITORING REPORT
1st SEMI-ANNUAL EVENT - 2018**

SANTEK PROJECT NO. 200-1810.2



**PREPARED BY:
SANTEK WASTE SERVICES, LLC
650 25TH STREET NW, SUITE 100
CLEVELAND, TN 37311**

JULY 2018

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1.0 INTRODUCTION

In accordance with the Tennessee Department of Environment and Conservation's Solid Waste Processing and Disposal Rule 0400-11-01-.04(7), Santek Waste Services, LLC (Santek) is submitting the groundwater monitoring report for the first semi-annual event for 2018 at the Matlock Bend Landfill. The sampling and analytical were performed in accordance with the Tennessee Department of Environment and Conservation's Solid Waste Processing and Disposal Rules as well as the site's approved groundwater monitoring plan dated December 1996. The groundwater monitoring plan is incorporated in the landfill's Operations Plan. The site's groundwater monitoring network consists of six monitoring wells, three downgradient wells for Phase I, two downgradient wells for Phase II/IV, with one upgradient well for both phases. MW-4R is the upgradient well for Phase I and Phase II/IV. MW-01, MW-1A, and MW-02 are the downgradient wells for Phase I; MW-03 and MW-05 are the downgradient wells for Phase II/IV. In accordance with the TDEC groundwater report review dated September 30, 2016, Santek is now monitoring the facility as one unit with one upgradient monitoring location (MW-4R). However, once Phase I ends the post-closure care period on January 21, 2028, the downgradient monitoring wells associated with Phase I will no longer continue to be monitored. Santek contracted with Environmental Monitoring Services, LLC (EMS) to perform the sampling. Statistical analyses were performed by Santek. Santek contracted with Analytical Environmental Services, Inc. (AES) to perform all analytical testing.

1.1 SITE INFORMATION

The Matlock Bend Landfill is located approximately five miles west of Loudon, TN, at latitude N 35° 44' 48" and longitude W 84° 24' 43". The site consists of 37.4 constructed acres of ridge-top and sloped hillside topography bordering Tennessee Highway 72 for approximately 250 feet extending northward 4,800 feet.

2.0 SAMPLING AND ANALYTICAL

The groundwater sampling event was performed by EMS on May 22 & 23, 2018. All samples were analyzed for Appendix I constituents, as well as the required additional 14 parameters at the Phase I wells (MW-01, MW-1A, MW-02, and MW-03). All samples were submitted to AES for analysis. A duplicate was obtained from MW-02. Field sampling logs are provided in Appendix A. Analytical results are provided in Appendix B.

3.0 STATISTICAL ANALYSIS

3.1 Statistical Analysis Method

Santek is submitting a control chart approach to satisfy the statistical analysis requirement. Well #4R is the upgradient (background) well. Wells #01, #1A, #02, #03 and #05 are the downgradient (compliance) wells. The Appendix I analytical results for this sampling event are used to compare the compliance wells to the background well concentrations for each constituent elevated above detection limit. Parameters not detected above the reporting limits are not included in the control chart comparison. Parameters detected above the reporting limits are compared to the average background concentration. The mean (average) for each well is determined by using the actual analytical value if it exceeds the detection limit, or by using the method detection limit (MDL) if the result was a nondetect. If the average background concentration is greater than the results for the compliance well, then no significant increase is indicated. If the average background concentration is less than the results of the compliance well, then the Tennessee (TN)

Regulatory Limits of the Tennessee Solid Waste regulations are used for additional comparison to indicate potentially elevated concentrations. If there is no published TN Regulatory Limit, the EPA Region 4 Screening Level is used.

In accordance with the February 23, 2018 TDEC Groundwater Report Review and the March 7, 2018 email to Mr. Patrick Mulligan, Santek instructed AES to lower the reporting limits for Appendix I VOCs and metals to the lab's practical quantification limit (PQL). Using the revised reporting limits, Santek recalculated the background data for all groundwater wells. The revised control charts are provided in Appendix C.

3.2 Statistical Analysis Summary

MW-01

The control chart for MW-01 indicates barium is above the report limit and background well's average. However, the result of this constituent does not exceed the TN Regulatory Limit which establishes the groundwater protection standards at this well.

MW-1A

The control chart for MW-1A indicates barium is above the report limit and background well's average. However, the result of this constituent does not exceed the TN Regulatory limit which establishes the groundwater protection standards at this well.

The control chart for MW-1A indicates zinc is above the report limit. However, the result of this constituent does not exceed the background well's average which establishes the groundwater protection standards at this well.

MW-02

The control chart for MW-02 indicates barium, beryllium, cadmium and nickel are above the report limit and background well's average. However, the results of these constituents do not exceed the TN Regulatory Limit which establishes the groundwater protection standards at this well.

The control chart for MW-02 indicates zinc is above the report limit and the background well's average. However, the result of this constituent does not exceed the EPA Region 4 Screening Level which establishes the groundwater protection standards at this well.

MW-03

The control chart for MW-03 indicates barium, lead, and nickel are above the report limit and background well's average. However, the results of these constituents do not exceed the TN Regulatory Limit which establishes the groundwater protection standards at this well.

The control chart for MW-03 indicates copper is above the report limit and the background well's average. However, the result of this constituent does not exceed the EPA Region 4 Screening Level which establishes the groundwater protection standards at this well.

The control chart for MW-03 indicates zinc is above the report limit. However, the result of this constituent does not exceed the background well's average which establishes the groundwater protection standards at this well.

The control chart for MW-03 indicates cobalt is above the report limit, background well's average and EPA Region 4 Screening Level. However, this detection is attributed to cobalt levels in the soils at the Landfill. Appendix G contains an Alternate Source Demonstration using soil samples collected from the Borrow Area at the Landfill. Table 1 in Appendix G details the cobalt levels for MW-03 on 5/23/18, the leachate, and the soil samples. The results indicate cobalt is naturally occurring in the soils approximately 350 times higher than the groundwater. Furthermore, cobalt is present in the leachate as well. However, the presence of this constituent in the leachate is attributable to the use of soils as daily and intermediate cover. Santek believes this report adequately identifies the source of cobalt being the site's natural soil. Therefore, no additional sampling and analysis is recommended for cobalt in MW-03.

MW-4R

MW-4R is the upgradient (background) well.

MW-05

The control chart for MW-05 indicates barium and zinc are above the report limit. However, the results of these constituents do not exceed the background well's average which establishes the groundwater protection standards at this well.

4.0 FLOW DIRECTION AND RATES

Phase I Geological Summary:

Geologic information of Phase I is based on a Hydrogeologic Evaluation dated January 18, 1984, by G.N. Pruitt (TNDSWM). Phase I is located on a discontinuous, highly dissected upland with elevations ranging from approximately 865 feet (MSL) to 1,020 feet (MSL). The evaluation indicates a thick cover of silty-clayey soil which covers the majority of the site, the absence of shallow groundwater, and the absence of perennial springs and streams. No bedrock outcrops were viewed on site; however, an exposed dolomite limestone ledge resides east of the southeast property boundary. This rock exposure appears to originate from either the uppermost part of the Longview dolomite formation or the lower portion of the Newalla dolomite formation, both belonging to the Knox Group. Phase I is located in the Valley and Ridge physiographic region consisting of northeast/southwest trending valleys and ridges.

Phase II/IV Geological Summary:

Geologic information for Phase II/IV is based on a Hydrogeologic Investigation Report prepared by Theta Engineering, Inc. dated January 11, 1996. Phase II/IV is located in the Valley and Ridge physiographic region consisting commonly of northeast/southwest trending valleys and ridges. This area consists of discontinuous, highly dissected upland with elevations ranging from approximately 865 feet to 1,020 feet. Bedrock formations include the Copper Ridge Dolomite Formation and the Longview Dolomite Formation, both of which belong to the Knox Group. The area is dominantly covered by silty-clayey soil originating from the Fullerton, Clarksville, and Nolichucky Series.

Groundwater Flow:

The overall groundwater flow of Phase I is towards the southwest and will eventually flow to the Tennessee River. The groundwater flow rate ranges from 9.44×10^{-4} ft/day at MW-02 to 2.53×10^{-3} ft/day at MW-1A. Groundwater flow direction of Phase II/IV locally flows towards the northwest and will

ultimately flow to the Tennessee River. The groundwater flow rate ranges from 2.51×10^{-3} ft/day at MW-03 to 5.89×10^{-3} ft/day at MW-05. Groundwater flow rate and direction have been determined for each well and are included in Appendix D. A groundwater potentiometric contour map along with the Phase I and Phase II/IV limits is included in Appendix E.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The groundwater monitoring network at this site is adequately monitoring the uppermost aquifer and no changes are recommended at this time.

APPENDIX A

EMServices

Environmental Monitoring Services, LLC
Phone (770) 823-7174

May 30, 2018

Robert Hudson
Santek Waste Services
650 25th Street NW, Suite 100
Cleveland, TN 37311

RE: Groundwater monitoring at Loudon County Phase I Landfill

Robert,

On May 22nd and 23rd, we completed the semi-annual groundwater monitoring at the referenced site. The sampling activities were performed in accordance with the site's operating permit and EPA Region IV SESD SOP's.

After collecting the water level, we calculated the purge volume to three well volumes using a standard formula. At each well, purging continued until at least three well-volumes were removed and the field parameters were stable, or until the well was dry. The purge water was captured in 5-gallon buckets to quantify the purge volumes.

We employed a submersible pump for the purging of wells MW-01, 1A, 02, and 03. The pump used was attached to Teflon-lined tubing. The tubing and pump were washed after sampling the well using a Liquinox soap solution followed by a water rinse.

The wells were sampled using the same pump used to purge the well. The VOC and fluoride samples were collected immediately. If turbidity was at an unacceptable level when purging was complete (all other parameters stable), the well was allowed to settle overnight but less than 24 hours. The wells that were initially purged and sampled with a submersible pump but had high turbidities later had metals samples collected using a new disposable poly bailer attached to new nylon string.

During the purging process, pH, conductivity, temperature and turbidity readings were collected and recorded in the logbook. Turbidity readings were again recorded at the time of metals sample collection if the well was allowed to settle. Field readings were recorded from the initial water pulled (0 gallons), well volume 1, well volume 2, well volume 2.5 and well volume 3. Stability was based on volume, rather than time (though the time between measurements fell within range of accepted guidance). The stability criteria used based on accepted guidance was at least 3 sets of readings within the following ranges: pH (± 0.1 SU), SC ($\pm 10\%$), Temperature ($\pm 1^{\circ}\text{C}$), and Turbidity (<10 NTU). If the measurements weren't stable as defined by the above criteria at the completion of purging 3 well volumes, purging continued and readings recorded generally every 0.5 well volume up to 5 well volumes. These readings were recorded from a YSI Pro Plus which was calibrated each morning. Turbidity readings were collected using a Hach 2100Q, which is cal-checked prior to use. The Hach meters contain a factory calibration which is checked in-house using formazine standards.

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The samples were collected in containers provided by the laboratory. These containers were of types, sizes and preserved in a manner consistent with SW-846 and other guidance. Upon filling, the containers were placed on ice. The samples were hand-delivered under chain of custody to Analytical Environmental Services, (AES), located in Atlanta, Georgia.

We appreciate the opportunity to work with you on this project and look forward to any feedback you have.

Respectfully,



Jeff Johnson

Attachments: Groundwater Field Data

FIELD SAMPLING LOG		WELL NO: MW-01
Location: Loudon County Landfill		Site: Matlock Bend Phase I
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5-22-18	(Time) 1330	Purge End: (Date) 5-22-18 (Time) 1347
Purged by: J Muller		
Depth Measurement Ref. Point*	830.87 ft	Well Casing. ID: 2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 45.00 (-) Orig. DTW: 7.10 (=) Wtr. Col. Thick: 37.90

2"=0.163 Gals./ft. (=) 6.18 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 18.53 Total Purge Gals.

GW elev. Ref. 830.87 ft. (-) DTW: 7.10 ft. = 823.77 ft.

Purge/Sample Method: Disposable Poly Bailer or SS Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.39 (gallons per minute)

Weather: cloudy (45 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
1330	0.00	7.31	483	14.7	≥100		beige, no odor
1335	6.25	6.35	497	14.9	≥100		beige, no odor
1338	9.50	6.36	504	15.0	≥100		beige, no odor
1341	12.50	6.42	510	15.1	≥100		beige, no odor
1344	15.50	6.43	519	15.2	930		beige, no odor
1347	18.75	6.45	521	15.4	870		beige, no odor

Turbidity at metals sample collection: 5 NTU's, 5-23-18, 1105

Comments: beige, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: MW-1A	
Location: Loudon County Landfill		Site: Matlock Bend Phase I	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) 5-22-18	(Time) 1253	Purge End: (Date) 5-22-18	(Time) 1304
Purged by: T Muller, D Ellis			
Depth Measurement Ref. Point*	805.13 ft	Well Casing, ID:	2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 38.00 (-) Orig. DTW: 14.15 (=) Wtr. Col. Thick: 23.85

2"=0.163 Gals./ft. (=) 3.89 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 11.66 Total Purge Gals.

GW elev. Ref. 805.13 ft. (-) DTW: 14.15 ft. = 790.98 ft.

Purge/Sample Method: Disposable Poly Bailer or SS Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.36 (gallons per minute)

Weather: cloudy (85°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
1253	0.00	6.76	728	15.1	58		cloudy, no odor
1256	4.00	6.60	756	14.8	60		cloudy, no odor
1258	6.00	6.43	751	14.7	70		cloudy, no odor
1300	8.00	6.43	807	15.0	128		cloudy, no odor
1302	9.75	6.44	810	15.1	195		cloudy, no odor
1304	11.75	6.46	809	15.1	251		cloudy, no odor

Turbidity at metals sample collection: 3 NTU's, 5-23-18, 1658

Comments: cloudy, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: MW-02
Location: Loudon County Landfill		Site: Matlock Bend Phase I
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5-23-18	(Time) 1003	Purge End: (Date) 5-23-18 (Time) 1014
Purged by: J Muller, D Eglis		
Depth Measurement Ref. Point*	825.20 ft	Well Casing. ID: 4"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 43.10 (-) Orig. DTW: 11.10 (=) Wtr. Col. Thick: 32.00

2"=0.653 Gals./ft. (=) 5.22 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 15.65 Total Purge Gals.

GW elev. Ref. 825.20 ft. (-) DTW: 814.10 ft. = 814.10

Purge/Sample Method: Disposable Poly Bailer or SS Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.11 (gallons per minute)

Weather: sunny (80°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1003	0.06	4.89	86	19.5	6	clear, no odor
1008	5.25	4.39	54	16.3	8	clear, no odor
1014	8.00	4.02	84	16.2	3	clear, no odor

Turbidity at metals sample collection: 3 NTU's

Comments: purged dry @ 15 wv
Dug collected here clear, no odor
@ 1200

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: MW-03
Location: Loudon County Landfill		Site: Matlock Bend Phases I / II / IV
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5-23-18 (Time) 0924	Purge End: (Date) 5-23-18 (Time) 0929	
Purged by: J Muller, D Ellis		
Depth Measurement Ref. Point* 867.86 ft		Well Casing. ID: 2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 41.60 (-) Orig. DTW: 14.82 (=) Wtr. Col. Thick: 26.78

2"=0.163 Gals./ft. (=) 4.37 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 13.10 Total Purge Gals.

GW elev. Ref. 867.86 ft. (-) DTW: 853.04 ft. = 14.82 ft.

Purge/Sample Method: Disposable Poly Bailer or 8S Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.11 (gallons per minute)

Weather: sunny (78 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
0924	0.00	4.91	271	15.2	9		clear, no odor
0929	4.58	5.12	276	15.8	9		clear, no odor
0932	6.75						
	8.75						
	11.00						
	10.00						
	13.25						

Turbidity at metals sample collection: 9 NTU's

Comments: purged dry at 1 wv
clear, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

EMServices

Environmental Monitoring Services, LLC
Phone (770) 823-7174

May 30, 2018

Robert Hudson
Santek Waste Services
650 25th Street NW, Suite 100
Cleveland, TN 37311

RE: Groundwater monitoring at Loudon County Phase II/IV Landfill

Robert,

On May 22nd and 23rd, we completed the semi-annual groundwater monitoring at the referenced site. The sampling activities were performed in accordance with the site's operating permit and EPA Region IV SESD SOP's.

After collecting the water level, we calculated the purge volume to three well volumes using a standard formula. At each well, purging continued until at least three well volumes were removed and the field parameters were stable, or until the well was dry. The purge water was captured in 5 gallon buckets to quantify the purge volumes.

We employed a submersible pump for the purging of wells MW-03 and 05. The pump used was attached to Teflon-lined tubing. The tubing and pump were washed after sampling the well using a Liquinox soap solution followed by a water rinse. Well MW-4R was purged using a disposable poly bailer attached to new nylon string. We also collected a leachate sample via direct grab.

The wells were sampled using the same pump or bailer used to purge the well. The VOC and fluoride samples were collected immediately. If turbidity was at an unacceptable level when purging was complete (all other parameters stable), the well was allowed to settle overnight, but less than 24 hours. The wells that were initially purged and sampled with a submersible pump but had high turbidities later had metals samples collected using a new disposable poly bailer attached to new nylon string.

During the purging process, pH, conductivity, temperature and turbidity readings were collected and recorded in the logbook. Turbidity readings were again recorded at the time of metals sample collection if the well was allowed to settle. Field readings were recorded from the initial water pulled (0 gallons), well-volume 1, well-volume 2, well-volume 2.5 and well-volume 3. Stability was based on volume, rather than time (though the time between measurements fell within range of accepted guidance). The stability criteria used based on accepted guidance was at least 3 sets of readings within the following ranges: pH (± 0.1 SU), SC ($\pm 10\%$), Temperature ($\pm 1^{\circ}\text{C}$), and Turbidity (<10 NTU). If the measurements weren't stable as defined by the above criteria at the completion of purging 3 well volumes, purging continued and readings recorded generally every 0.5 well volume up to 5 well volumes. These readings were recorded from a YSI Pro Plus which was calibrated each morning. Turbidity readings were collected using a Hach 2100Q, which is

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cal-checked prior to use. The Hach meters contain a factory calibration which is checked in-house using formazine standards.

The samples were collected in containers provided by the laboratory. These containers were of types, sizes and preserved in a manner consistent with SW-846 and other guidance. Upon filling, the containers were placed on ice. The samples were hand-delivered under chain of custody to Analytical Environmental Services, (AES), located in Atlanta, Georgia.

We appreciate the opportunity to work with you on this project, and look forward to any feedback you have.

Respectfully,



Jeff Johnson

Attachments: Groundwater Field Data

FIELD SAMPLING LOG		WELL NO: MW-03
Location: Loudon County Landfill		Site: Matlock Bend Phases I / II / IV
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5/23/18 (Time) 0924	Purge End: (Date) 5/23/18 (Time) 0929	
Purged by: J Muller, D Ellis		
Depth Measurement Ref. Point* 867.86 ft		Well Casing. ID: 2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 41.60 (-) Orig. DTW: 14.82 (=) Wtr. Col. Thick: 26.78

2"=0.163 Gals./ft. (=) 4.37 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 13.10 Total Purge Gals.

GW elev. Ref. 867.86 ft. (-) DTW: 14.82 ft. = 853.04 ft.

Purge/Sample Method: Disposable Poly Bailer or 8S Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.11 (gallons per minute)

Weather: sunny (78 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
0924	0.00	4.91	271	15.2	9		clear, no odor
0929	4.50	5.12	276	15.8	9		clear, no odor
0932	6.75						
	8.75						
	11.00						
	10.00						
	13.25						

Turbidity at metals sample collection: 9 NTU's

Comments: purged dry at 1 wv
clear, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: MW-4R
Location: Loudon County Landfill		Site: Matlock Bend Phases II/IV
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5-22-18 (Time) 1424	Purge End: (Date) (436 (Time) 1436	
Purged by: J Muller, D Ellis		
Depth Measurement Ref. Point* 992.32 ft		Well Casing. ID: 2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 106.50 (-) Orig. DTW: 96.06 (=) Wtr. Col. Thick: 10.44

2"=0.163 Gals./ft. (=) 1.70 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 5.11 Total Purge Gals.

GW elev. Ref. 992.32 ft. (-) DTW: 96.06 ft. = 896.26 ft.

Purge/Sample Method: Disposable Poly Bailer, or SS Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: _____ (gallons per minute)

Weather: _____ (°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
1424	0.00	6.10	83.00	19.1	508		cloudy, no odor
1430	1.75	6.14	91.2	16.3	414		cloudy, no odor
1436	2.75	6.13	122	16.5	293		
	3.80						
	4.25						
	5.25						

Turbidity at metals sample collection: 8 NTU's, 5-23-18, 1111

Comments: purged dry @ 1.5 wv
cloudy, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: MW-05
Location: Loudon County Landfill		Site: Matlock Bend Phases II/IV
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date) 5-22-18	(Time) 1507	Purge End: (Date) 5-22-18 (Time) 1542
Purged by: J Muller, B DEllis		
Depth Measurement Ref. Point*	936.84 ft	Well Casing. ID: 2"

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 172.71 (-) Orig. DTW: 83.68 (=) Wtr. Col. Thick: 89.03

(x) 2"=0.163 Gals./ft. (=) 14.51 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 43.54 Total Purge Gals.

GW elev. Ref. 936.84 ft. (-) DTW: 43.68 ft. = 853.16 ft.

Purge/Sample Method: Disposable Poly Bailer or SS Electric Submersible Pump

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.36 (gallons per minute)

Weather: partly cloudy (85°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1507	0.06	7.19	274	18.2	754	cloudy, no odor
1518	14.75	7.66	274	19.5	84	cloudy, no odor
1524	28.00	7.60	265	16.4	22	clear, no odor
1530	29.25	7.62	265	16.4	14	clear, no odor
1536	36.50	7.65	265	16.3	9	clear, no odor
1542	43.75	7.67	265	16.4	8	clear, no odor

Turbidity at metals sample collection: 8 NTU's

Comments: clear, no odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

FIELD SAMPLING LOG		WELL NO: Equipment Blank	
Location: Loudon County Landfill		Site: Matlock Bend	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) <u>5/23/18</u> (Time) <u>1206</u>	Purge End: (Date) —	(Time) —	
Purged by: <u>J Muller</u>			
Depth Measurement Ref. Point*	N/A	ft	Well Csg. ID: N/A

Equipment Used to Measure (Make, Model, etc)

DTW N/A pH YSI Cond. YSI T° YSI

Measure Well TD: N/A (-) Orig. DTW: N/A (=) Wtr. Col. Thick: N/A

(x) 2"=0.163 Gals./ft. (=) N/A Gals./Csg. Vol. (x) 3 Csg. Vol. (=) N/A Total Purge Gals.

GW elev. Ref. N/A ft. (-) DTW: N/A ft. = N/A ft.

Purge/Sample Method: Directly filling containers

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: N/A (gallons per minute)

Weather: _____ (°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
<u>1206</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	

Turbidity at metals sample collection: — NTU's

Comments: Lab provided DI Water

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

APPENDIX B



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 12, 2018

Robert Hudson
Santek Environmental Inc.
650 25th Street NW, Suite 100
Cleveland TN 37311

RE: Loudon County (Matlock Bend) LF Phase 1

Dear Robert Hudson:

Order No: 1805P09

Analytical Environmental Services, Inc. received 9 samples on 5/24/2018 9:00:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/17-06/30/18.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/17-06/30/18 and Total Coliforms/ E. coli, effective 04/25/17-04/24/20.

-NELAP/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/17-06/30/18.

-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/19.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Chris Pafford
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive Atlanta, GA 30340-3704

AES

Phone: (770) 457-8177 / Toll-Free: (800) 972-4889 / Fax: (770) 457-8188

WorkOrder: 1805P09

CHAIN OF CUSTODY

Date: S-24-18 Page 1 of 1

COMPANY: Santek Environmental Inc.		ADDRESS: 650 25th St NW, Ste 100 Cleveland, TN 37311		ANALYSIS REQUESTED								Number of Containers					
PHONE: 423/303-7101		EMAIL:		TMA, TLOL, (SOIL) TNA, TNL, (SOIL) TNS, TNC, (SOIL) DSS, M COD, NH ₃ TDS F, G, ND, S, T TOC													
SAMPLED BY: J Muller, D Ellis		SIGNATURE: <i>J Muller, D Ellis</i>		PRESERVATION (see codes)								REMARKS					
#	SAMPLEID	SAMPLED:		GRAB	COMPOSITE	MATRIX (see codes)	H	I	N	I	S	I	I	N	S	E	
1	MW-01	S-22-18	1347	X		GW	2	2	1	1	1	1	1	1	2		11
2	→	S-23-18	1105	X		GW			1								1
3	MW-1A	S-22-18	1334	X		GW	2	2	1	1	1	1	1	1	2		11
4	→	S-23-18	1058	X		GW			1								1
5	MW-02	S-23-18	1014	X		GW	2	2	1	1	1	1	1	1	2		12
6	MW-03	S-23-18	0929	X		GW	2	2	1	1	1	1	1	1	2		12
7	Duplicate	S-23-18	1200	X		GW	2	2	1	1	1	1	1	1	2		12
8	Equipment Blank	S-23-18	1206	X		W	2	2	1	1	1	1	1	1	2		12
9	Trip Blank	S-22-18	1223	X		W	2	2	1	1	1	1	1	1	2		12
10																	
11																	
12																	
13																	
14																	
RELINQUISHED BY:		DATE/TIME:		RECEIVED BY:		DATE/TIME:		PROJECT INFORMATION								RECEIPT	
J Muller 0900		1. Monroe 5/24/18		2. April 9. 0900am		3. London County (Matlock Bend) LF Phase I		PROJECT NAME: London County (Matlock Bend) LF Phase I								Total # of Containers 84	
								PROJECT #: 21712 Hwy 72 N, London, TN 37774								Turnaround Time (TAT) Request	
								SITE ADDRESS: 21712 Hwy 72 N, London, TN 37774								<input checked="" type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same-Day Rush (auth req.) <input type="checkbox"/> Other	
								SEND REPORT TO: Robert Hudson									
SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD		OUT: / /		VIA: /		INVOICE TO: (IF DIFFERENT FROM ABOVE)								STATE PROGRAM (if any): TN	
				IN: / /		VIA: /										E-mail? <input checked="" type="checkbox"/> Fax? <input type="checkbox"/>	
				client FedEx		UPS US mail courier Greyhound		QUOTE #: PO#:								DATA PACKAGE: I O II O IV O	
				other: _____													

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Samples are disposed of 30 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

Preservative Codes: HHI = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/MH = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original: Yellow Copy - Client

Page 2 of 29

Client: Santek Environmental Inc.
Project: Loudon County (Matlock Bend) LF Phase 1
Lab ID: 1805P09

Case Narrative**Sample Receiving Nonconformance:**

1805P09-001F and -003F were analyzed outside EPA/Method 300 specified holding time of 48 hours due to limited holding time remaining at sample receipt at the request of Robert Hudson via email 05-29-18.

Micro-extractable VOC Analysis by Method 8011:

Matrix spike duplicate analyses were not performed with Batch 261446 due to insufficient sample volume.



Clear

Save as

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Santek Environmental Inc.**

AES Work Order Number: **1805P09**

2. Carrier: FedEx UPS USPS Client Courier Other _____

	Yes	No	N/A	Details	Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/> leaking <input type="checkbox"/> other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
5. Custody seals intact on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
7. Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>	
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>	

13. Cooler 1 Temperature 0.3 °C Cooler 2 Temperature 2.2 °C Cooler 3 Temperature 0.6 °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials).

TD 5/24/18

	Yes	No	N/A	Details	Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
17. Custody seals present on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
18. Custody seals intact on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> illegible <input type="checkbox"/> no label <input type="checkbox"/> other <input type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>	
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	listed on COC <input checked="" type="checkbox"/> not listed on COC <input type="checkbox"/>	

27. Comments: _____

This section only applies to samples where pH can be checked at Sample Receipt.

I certify that I have completed sections 16-27 (dated initials).

MDP 5/24/18

	Yes	No	N/A	Details	Comments
28. Have containers needing chemical preservation been checked? *	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
29. Containers meet preservation guidelines?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
30. Was pH adjusted at Sample Receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials).

MDP 5/24/18

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client:	Santek Environmental Inc.
Project Name:	Loudon County (Matlock Bend) LF Phase 1
Lab Order:	1805P09

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1805P09-001A	MW-01	5/22/2018 1:47:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:19:00AM	06/01/2018	
1805P09-001B	MW-01	5/22/2018 1:47:00PM	Groundwater	MICRO-EXTRACTABLE VOCs	5/25/2018 4:19:46 PM	05/25/2018	
1805P09-001C	MW-01	5/22/2018 1:47:00PM	Groundwater	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P09-001D	MW-01	5/22/2018 1:47:00PM	Groundwater	Nitrogen, Ammonia (as N)	5/25/2018 7:51:11 AM	05/25/2018	
1805P09-001D	MW-01	5/22/2018 1:47:00PM	Groundwater	Chemical Oxygen Demand (COD)		05/31/2018	
1805P09-001E	MW-01	5/22/2018 1:47:00PM	Groundwater	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P09-001F	MW-01	5/22/2018 1:47:00PM	Groundwater	Inorganic Anions by IC		05/24/2018	
1805P09-001G	MW-01	5/22/2018 1:47:00PM	Groundwater	Cyanide	5/31/2018 11:15:00AM	05/31/2018	
1805P09-001H	MW-01	5/22/2018 1:47:00PM	Groundwater	Total Organic Carbon by SM5310B		05/25/2018	
1805P09-002A	MW-01	5/23/2018 11:05:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	05/31/2018	
1805P09-002A	MW-01	5/23/2018 11:05:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-002A	MW-01	5/23/2018 11:05:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	05/31/2018	
1805P09-002A	MW-01	5/23/2018 11:05:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-002A	MW-01	5/23/2018 11:05:00AM	Groundwater	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P09-003A	MW-1A	5/22/2018 1:04:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:19:00 AM	06/01/2018	
1805P09-003B	MW-1A	5/22/2018 1:04:00PM	Groundwater	MICRO-EXTRACTABLE VOCs	5/25/2018 4:19:46 PM	05/25/2018	
1805P09-003C	MW-1A	5/22/2018 1:04:00PM	Groundwater	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P09-003D	MW-1A	5/22/2018 1:04:00PM	Groundwater	Nitrogen, Ammonia (as N)	5/25/2018 7:51:11 AM	05/25/2018	
1805P09-003D	MW-1A	5/22/2018 1:04:00PM	Groundwater	Chemical Oxygen Demand (COD)		05/31/2018	
1805P09-003E	MW-1A	5/22/2018 1:04:00PM	Groundwater	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P09-003F	MW-1A	5/22/2018 1:04:00PM	Groundwater	Inorganic Anions by IC		05/24/2018	
1805P09-003G	MW-1A	5/22/2018 1:04:00PM	Groundwater	Cyanide	5/31/2018 11:15:00AM	05/31/2018	
1805P09-003H	MW-1A	5/22/2018 1:04:00PM	Groundwater	Total Organic Carbon by SM5310B		05/25/2018	
1805P09-004A	MW-1A	5/23/2018 10:58:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	05/31/2018	
1805P09-004A	MW-1A	5/23/2018 10:58:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-004A	MW-1A	5/23/2018 10:58:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	05/31/2018	
1805P09-004A	MW-1A	5/23/2018 10:58:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-004A	MW-1A	5/23/2018 10:58:00AM	Groundwater	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P09-005A	MW-02	5/23/2018 10:14:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:19:00AM	06/01/2018	

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client:	Santek Environmental Inc.	Project Name:	Loudon County (Matlock Bend) LF Phase 1	Lab Order:	1805P09	Dates Report		
Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name		TCLP Date	Prep Date	Analysis Date
1805P09-005B	MW-02	5/23/2018 10:14:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/25/2018 4:19:46 PM	05/25/2018	
1805P09-005C	MW-02	5/23/2018 10:14:00AM	Groundwater	APPENDIX I METALS		5/30/2018 10:41:00 AM	05/31/2018	
1805P09-005C	MW-02	5/23/2018 10:14:00AM	Groundwater	APPENDIX I METALS		5/30/2018 10:41:00AM	06/06/2018	
1805P09-005C	MW-02	5/23/2018 10:14:00AM	Groundwater	Total Metals by ICP/MS		5/30/2018 10:41:00AM	05/31/2018	
1805P09-005C	MW-02	5/23/2018 10:14:00AM	Groundwater	Total Metals by ICP/MS		5/30/2018 10:41:00AM	06/06/2018	
1805P09-005C	MW-02	5/23/2018 10:14:00AM	Groundwater	TOTAL MERCURY		5/31/2018 7:45:00 PM	06/01/2018	
1805P09-005D	MW-02	5/23/2018 10:14:00AM	Groundwater	Dissolved Metals by ICP/MS		6/1/2018 2:06:00 PM	06/01/2018	
1805P09-005E	MW-02	5/23/2018 10:14:00AM	Groundwater	Nitrogen, Ammonia (as N)		5/25/2018 7:51:11 AM	05/25/2018	
1805P09-005E	MW-02	5/23/2018 10:14:00AM	Groundwater	Chemical Oxygen Demand (COD)			05/31/2018	
1805P09-005F	MW-02	5/23/2018 10:14:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		5/29/2018 5:24:00 PM	05/29/2018	
1805P09-005G	MW-02	5/23/2018 10:14:00AM	Groundwater	Inorganic Anions by IC			05/24/2018	
1805P09-005H	MW-02	5/23/2018 10:14:00AM	Groundwater	Cyanide		5/31/2018 11:50:00 AM	05/31/2018	
1805P09-005I	MW-02	5/23/2018 10:14:00AM	Groundwater	Total Organic Carbon by SM5310B			05/25/2018	
1805P09-006A	MW-03	5/23/2018 9:29:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/29/2018 11:19:00 AM	05/30/2018	
1805P09-006B	MW-03	5/23/2018 9:29:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/25/2018 4:19:46 PM	05/26/2018	
1805P09-006C	MW-03	5/23/2018 9:29:00AM	Groundwater	APPENDIX I METALS		5/30/2018 10:41:00AM	05/31/2018	
1805P09-006C	MW-03	5/23/2018 9:29:00AM	Groundwater	APPENDIX I METALS		5/30/2018 10:41:00AM	06/06/2018	
1805P09-006C	MW-03	5/23/2018 9:29:00AM	Groundwater	Total Metals by ICP/MS		5/30/2018 10:41:00 AM	05/31/2018	
1805P09-006C	MW-03	5/23/2018 9:29:00AM	Groundwater	Total Metals by ICP/MS		5/30/2018 10:41:00AM	06/06/2018	
1805P09-006C	MW-03	5/23/2018 9:29:00AM	Groundwater	TOTAL MERCURY		5/31/2018 7:45:00 PM	06/01/2018	
1805P09-006D	MW-03	5/23/2018 9:29:00AM	Groundwater	Dissolved Metals by ICP/MS		6/1/2018 2:06:00 PM	06/01/2018	
1805P09-006E	MW-03	5/23/2018 9:29:00AM	Groundwater	Nitrogen, Ammonia (as N)		5/25/2018 7:51:11 AM	05/25/2018	
1805P09-006E	MW-03	5/23/2018 9:29:00AM	Groundwater	Chemical Oxygen Demand (COD)			05/31/2018	
1805P09-006F	MW-03	5/23/2018 9:29:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		5/29/2018 5:24:00 PM	05/29/2018	
1805P09-006G	MW-03	5/23/2018 9:29:00AM	Groundwater	Inorganic Anions by IC			05/24/2018	
1805P09-006H	MW-03	5/23/2018 9:29:00AM	Groundwater	Cyanide		5/31/2018 11:50:00 AM	05/31/2018	
1805P09-006I	MW-03	5/23/2018 9:29:00AM	Groundwater	Total Organic Carbon by SM5310B			05/25/2018	
1805P09-007A	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/29/2018 11:19:00 AM	06/01/2018	
1805P09-007B	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	MICRO-EXTRACTABLE VOCs		5/25/2018 4:19:46 PM	05/26/2018	

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client:	Santek Environmental Inc.	Dates Report
Project Name:	Loudon County (Matlock Bend) LF Phase 1	
Lab Order:	1805P09	

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1805P09-007C	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	05/31/2018	
1805P09-007C	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	06/06/2018	
1805P09-007C	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00AM	05/31/2018	
1805P09-007C	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-007C	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P09-007D	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P09-007E	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Nitrogen, Ammonia (as N)	5/25/2018 7:51:11 AM	05/25/2018	
1805P09-007E	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Chemical Oxygen Demand (COD)		05/31/2018	
1805P09-007F	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P09-007G	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Inorganic Anions by IC		05/24/2018	
1805P09-007H	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Cyanide	5/31/2018 11:50:00AM	05/31/2018	
1805P09-007I	DUPLICATE	5/23/2018 12:00:00PM	Groundwater	Total Organic Carbon by SM5310B		05/25/2018	
1805P09-008A	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:19:00AM	06/01/2018	
1805P09-008B	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	MICRO-EXTRACTABLE VOCs	5/25/2018 4:19:46 PM	05/26/2018	
1805P09-008C	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	APPENDIX I METALS	5/30/2018 10:41:00AM	05/31/2018	
1805P09-008C	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	APPENDIX I METALS	5/30/2018 10:41:00AM	06/06/2018	
1805P09-008C	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	06/06/2018	
1805P09-008C	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P09-008D	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P09-008E	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Nitrogen, Ammonia (as N)	5/25/2018 7:51:11 AM	05/25/2018	
1805P09-008E	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Chemical Oxygen Demand (COD)		05/31/2018	
1805P09-008F	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P09-008G	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Inorganic Anions by IC		05/24/2018	
1805P09-008H	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Cyanide	5/31/2018 11:50:00 AM	05/31/2018	
1805P09-008I	EQUIPMENT BLANK	5/23/2018 12:06:00PM	Aqueous	Total Organic Carbon by SM5310B		05/25/2018	
1805P09-009A	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:19:00AM	06/01/2018	
1805P09-009B	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	MICRO-EXTRACTABLE VOCs	5/25/2018 4:19:46 PM	05/26/2018	
1805P09-009C	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	APPENDIX I METALS	5/30/2018 10:41:00 AM	05/31/2018	
1805P09-009C	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Total Metals by ICP/MS	5/30/2018 10:41:00 AM	06/06/2018	

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.
Project Name: Loudon County (Matlock Bend) LF Phase 1
Lab Order: 1805P09

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1805P09-009C	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P09-009D	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P09-009E	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Nitrogen, Ammonia (as N)	5/25/2018 7:51:11 AM	05/25/2018	
1805P09-009E	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Chemical Oxygen Demand (COD)		05/31/2018	
1805P09-009F	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P09-009G	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Inorganic Anions by IC		05/24/2018	
1805P09-009H	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Cyanide	5/31/2018 11:50:00 AM	05/31/2018	
1805P09-009I	TRIP BLANK	5/22/2018 12:23:00PM	Aqueous	Total Organic Carbon by SM5310B		05/25/2018	



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 11, 2018

Robert Hudson
Santek Environmental Inc.
650 25th Street NW, Suite 100
Cleveland TN 37311

RE: Loudon County (Matlock Bend) Landfill Phase II/IV

Dear Robert Hudson:

Order No: 1805P11

Analytical Environmental Services, Inc. received 6 samples on 5/24/2018 9:00:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/17-06/30/18.
- State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/17-06/30/18 and Total Coliforms/ E. coli, effective 04/25/17-04/24/20.
- NELAP/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/17-06/30/18.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/19.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Chris Pafford
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive Atlanta, GA 30340-3704

Phone: (770) 457-8177 / Toll-Free: (800) 972-4889 / Fax: (770) 457-8188

Work Order: 1805P11

CHAIN OF CUSTODY

Date: 5/24/18 Page 1 of 1

COMPANY: Santek Environmental Inc.		ADDRESS: 650 25th St NW, Ste 100 Cleveland, TN 37311		ANALYSIS REQUESTED										Visit our website www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.	Number of Containers							
PHONE:	423/303-7101	EMAIL:		TN Appl/Vac (solid)	TN Appl/Vac (solid)	TN Appl/Vac (solid)	TN Appl/Neat (solid)	Fluoride														
SAMPLED BY:	J Muller, D Ellis	SIGNATURE:	<i>[Signature]</i>	PRESERVATION (see codes)										REMARKS								
#	SAMPLE ID	SAMPLED:		DATE	TIME	GRAB	COMPOSITE	MATRIX (see codes)	H	I	N	I										
1	MW-03	5/23/18 0929		X		GW		2 2 1 1							shared w/ phase 1							
2	MW-4R #1	5/20/18 1436		X		GW		2 2 1							6							
3	→	5/23/18 1111		X		GW		1							5							
4	MW-05	5/22/18 1542		X		GW		2 2 1 1							1							
5	Equipment Blank	5/23/18 1206		X		W		2 2 1 1							6							
6	Trip Blank	5/22/18 1223		X		W		2 2 1 1							shared w/ phase 1							
7															6							
8															shared w/ phase 1							
9															6							
10															shared w/ phase 1							
11															6							
12															shared w/ phase 1							
13															6							
14															shared w/ phase 1							
RElinquished By:		DATE/TIME:		RECEIVED BY:		DATE/TIME:		PROJECT INFORMATION										RECEIPT				
1. <i>Allen 0900</i>		5/24/18		Monique Amon		9:11 AM		PROJECT NAME: Lauder County (Matlock Bend) Landfill Phase II/IV										Total # of Containers 30				
2.								PROJECT #: _____										Turnaround Time (TAT) Request				
3.								SITE ADDRESS: 2171.2 Hwy 72N, Landon, TN 37774										<input checked="" type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same Day Rush (auth req.) <input type="checkbox"/> Other _____				
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD				INVOICE TO: (IF DIFFERENT FROM ABOVE)										STATE/FEDERAL (if any) <i>TN</i>				
				OUT: / /	VIA: _____													E-mail? <input checked="" type="checkbox"/> Fax? <input type="checkbox"/>	DATA PACKAGE: <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			
				In: / /	VIA: _____																	
				<input checked="" type="checkbox"/> FedEx	UPS	US mail	courier	Greyhound														
				other: _____																		

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Samples are disposed of 30 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

Preservative Codes: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client
Page 2 of 15

Client: Santek Environmental Inc.
Project: Loudon County (Matlock Bend) Landfill Phase II/IV
Lab ID: 1805P11

Case Narrative

Sample Receiving Non-conformance:

Sample information on the Chain of Custody (COC) did not match that on the labels. 1805P 11-002 listed as collected at 14:36 on the COC was labeled 14:45. Sample logged in according to the COC.

Micro-extractable VOC Analysis by Method 8011 :

Matrix spike duplicate analyses were not performed with Batch 261446, 261447, 261592 due to insufficient sample volume.

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-01
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 1:47:00 PM
Lab ID: 1805P09-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	1.00		mg/L	R371389	1	05/25/2018 22:21	ME
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	324	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:21	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	261446	1	05/25/2018 22:29	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/25/2018 22:29	ZH
Surr: 4-Bromofluorobenzene	118	70.4-134		%REC	261446	1	05/25/2018 22:29	ZH
Inorganic Anions by IC EPA 300.0								
Chloride	24.9	1.00		mg/L	R371378	1	05/24/2018 18:55	MP
Fluoride	BRL	1.00		mg/L	R371378	1	05/24/2018 18:55	MP
Nitrogen, Nitrate (As N)	BRL	10.0	H	mg/L	R371378	1	05/24/2018 18:55	MP
Sulfate	3.44	1.00		mg/L	R371378	1	05/24/2018 18:55	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	BRL	10.0		ug/L	261697	1	06/01/2018 18:56	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	23.3	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 16:19	NP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-01
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 1:47:00 PM
Lab ID: 1805P09-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Acetone	BRL	50		ug/L	261561	1	06/01/2018 16:19	NP
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:19	NP
Vinyl acetate	BRL	10		ug/L	261561	1	06/01/2018 16:19	NP
Vinyl chloride	BRL	2.0		ug/L	261561	1	06/01/2018 16:19	NP
Surr: 4-Bromofluorobenzene	93.2	68-127	%REC		261561	1	06/01/2018 16:19	NP
Surr: Dibromofluoromethane	96.1	84.4-122	%REC		261561	1	06/01/2018 16:19	NP
Surr: Toluene-d8	104	80.1-116	%REC		261561	1	06/01/2018 16:19	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-01
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 11:05:00 AM
Lab ID: 1805P09-002	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B								
Calcium	58100	100		ug/L	261481	2	06/06/2018 22:23	DP
Iron	124	100		ug/L	261481	1	06/06/2018 22:29	DP
Magnesium	32700	100		ug/L	261481	1	06/06/2018 22:29	DP
Potassium	2860	100		ug/L	261481	1	05/31/2018 19:16	DP
Sodium	12400	500		ug/L	261481	1	06/06/2018 22:29	DP
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 00:35	AS
APPENDIX I METALS SW6020B								
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:16	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:16	DP
Barium	0.0294	0.0100		mg/L	261481	1	06/06/2018 22:29	TA
Beryllium	BRL	0.00100		mg/L	261481	1	05/31/2018 19:16	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/31/2018 19:16	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:16	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/31/2018 19:16	DP
Copper	BRL	0.00200		mg/L	261481	1	05/31/2018 19:16	DP
Lead	BRL	0.00100		mg/L	261481	1	05/31/2018 19:16	DP
Nickel	BRL	0.00500		mg/L	261481	1	05/31/2018 19:16	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:16	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:16	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:16	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:16	DP
Zinc	BRL	0.0100		mg/L	261481	1	05/31/2018 19:16	DP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	MW-1A					
Project Name:	Loudon County (Matlock Bend) LF Phase 1	Collection Date:	5/22/2018 1:04:00 PM					
Lab ID:	1805P09-003	Matrix:	Groundwater					
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	2.21	1.00		mg/L	R371389	1	05/25/2018 22:04	ME
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	574	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:22	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.201		ug/L	261446	1	05/25/2018 23:27	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/25/2018 23:27	ZH
Surr: 4-Bromofluorobenzene	119	70.4-134		%REC	261446	1	05/25/2018 23:27	ZH
Inorganic Anions by IC EPA 300.0								
Chloride	86.7	10.0		mg/L	R371351	10	05/24/2018 20:36	MP
Fluoride	BRL	1.00		mg/L	R371351	1	05/24/2018 20:21	MP
Nitrogen, Nitrate (As N)	BRL	10.0	H	mg/L	R371351	1	05/24/2018 20:21	MP
Sulfate	28.2	1.00		mg/L	R371351	1	05/24/2018 20:21	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	BRL	10.0		ug/L	261697	1	06/01/2018 18:58	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 16:45	NP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: MW-1A
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 1:04:00 PM
Lab ID: 1805P09-003	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B		(SW5030B)						
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Acetone	BRL	50		ug/L	261561	1	06/01/2018 16:45	NP
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	06/01/2018 16:45	NP
Vinyl acetate	BRL	10		ug/L	261561	1	06/01/2018 16:45	NP
Vinyl chloride	BRL	2.0		ug/L	261561	1	06/01/2018 16:45	NP
Surr: 4-Bromofluorobenzene	89.7	68-127	%REC		261561	1	06/01/2018 16:45	NP
Surr: Dibromofluoromethane	96.3	84.4-122	%REC		261561	1	06/01/2018 16:45	NP
Surr: Toluene-d8	104	80.1-116	%REC		261561	1	06/01/2018 16:45	NP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-1A
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 10:58:00 AM
Lab ID: 1805P09-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B								
Calcium	72200	100		ug/L	261481	2	06/06/2018 22:36	DP
Iron	BRL	100		ug/L	261481	1	05/31/2018 19:18	DP
Magnesium	28800	100		ug/L	261481	1	06/06/2018 22:42	DP
Potassium	10600	100		ug/L	261481	1	05/31/2018 19:18	DP
Sodium	31100	500		ug/L	261481	1	06/06/2018 22:42	DP
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 00:47	AS
APPENDIX I METALS SW6020B								
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:18	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:18	DP
Barium	0.0693	0.0100		mg/L	261481	1	06/06/2018 22:42	TA
Beryllium	BRL	0.00100		mg/L	261481	1	05/31/2018 19:18	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/31/2018 19:18	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:18	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/31/2018 19:18	DP
Copper	BRL	0.00200		mg/L	261481	1	05/31/2018 19:18	DP
Lead	BRL	0.00100		mg/L	261481	1	05/31/2018 19:18	DP
Nickel	BRL	0.00500		mg/L	261481	1	05/31/2018 19:18	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:18	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:18	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:18	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:18	DP
Zinc	0.0125	0.0100		mg/L	261481	1	06/06/2018 22:42	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: MW-02
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 10:14:00 AM
Lab ID: 1805P09-005	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	1.00		mg/L	R371389	1	05/25/2018 20:59	ME
Total Metals by ICP/MS SW6020B								
Calcium	1960	100		ug/L	261481	1	05/31/2018 19:20	DP
Iron	BRL	100		ug/L	261481	1	05/31/2018 19:20	DP
Magnesium	1730	100		ug/L	261481	1	06/06/2018 22:48	DP
Potassium	2500	100		ug/L	261481	1	05/31/2018 19:20	DP
Sodium	3190	500		ug/L	261481	1	06/06/2018 22:48	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	82	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:29	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	261446	1	05/25/2018 23:56	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/25/2018 23:56	ZH
Surr: 4-Bromofluorobenzene	120	70.4-134	%REC	261446	1	05/25/2018 23:56	ZH	
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 00:51	AS
Inorganic Anions by IC EPA 300.0								
Chloride	2.79	1.00		mg/L	R371378	1	05/24/2018 18:11	MP
Fluoride	BRL	1.00		mg/L	R371378	1	05/24/2018 18:11	MP
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R371378	1	05/24/2018 18:11	MP
Sulfate	BRL	1.00		mg/L	R371378	1	05/24/2018 18:11	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	88.6	10.0		ug/L	261697	1	06/01/2018 19:00	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santeck Environmental Inc.	Client Sample ID: MW-02
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 10:14:00 AM
Lab ID: 1805P09-005	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B								
						(SW5030B)		
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 15:27	NP
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
Acetone	BRL	50		ug/L	261561	1	06/01/2018 15:27	NP
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 15:27	NP
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 15:27	NP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 12-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	MW-02
Project Name:	Loudon County (Matlock Bend) LF Phase 1	Collection Date:	5/23/2018 10:14:00 AM
Lab ID:	1805P09-005	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B		(SW5030B)						
Trichlorofluoromethane	BRL	5.0		ug/L	261561	I	06/01/2018 15:27	NP
Vinyl acetate	BRL	10		ug/L	261561	I	06/01/2018 15:27	NP
Vinyl chloride	BRL	2.0		ug/L	261561	I	06/01/2018 15:27	NP
Surr: 4-Bromofluorobenzene	91.6	68-127	%REC		261561	I	06/01/2018 15:27	NP
Surr: Dibromofluoromethane	100	84.4-122	%REC		261561	I	06/01/2018 15:27	NP
Surr: Toluene-d8	99.2	80.1-116	%REC		261561	I	06/01/2018 15:27	NP

APPENDIX I METALS SW6020B		(SW3005A)						
Antimony	BRL	0.00150		mg/L	261481	I	05/31/2018 19:20	DP
Arsenic	BRL	0.00250		mg/L	261481	I	05/31/2018 19:20	DP
Barium	0.0523	0.0100		mg/L	261481	I	06/06/2018 22:48	TA
Beryllium	0.00178	0.00100		mg/L	261481	I	06/06/2018 22:48	TA
Cadmium	0.00162	0.000700		mg/L	261481	I	06/06/2018 22:48	TA
Chromium	BRL	0.00500		mg/L	261481	I	05/31/2018 19:20	DP
Cobalt	BRL	0.00500		mg/L	261481	I	05/31/2018 19:20	DP
Copper	BRL	0.00200		mg/L	261481	I	05/31/2018 19:20	DP
Lead	BRL	0.00100		mg/L	261481	I	05/31/2018 19:20	DP
Nickel	0.0269	0.00500		mg/L	261481	I	05/31/2018 19:20	DP
Selenium	BRL	0.00500		mg/L	261481	I	05/31/2018 19:20	DP
Silver	BRL	0.00100		mg/L	261481	I	05/31/2018 19:20	DP
Thallium	BRL	0.000500		mg/L	261481	I	05/31/2018 19:20	DP
Vanadium	BRL	0.00500		mg/L	261481	I	05/31/2018 19:20	DP
Zinc	0.278	0.0100		mg/L	261481	I	06/06/2018 22:48	TA

Qualifiers:

- * Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: DUPLICATE
Project Name: Loudon County (Matlock Bend) LF Phase I	Collection Date: 5/23/2018 12:00:00 PM
Lab ID: 1805P09-007	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	1.00		mg/L	R371389	1	05/25/2018 21:15	ME
Total Metals by ICP/MS SW6020B								
Calcium	1940	100		ug/L	261481	1	05/31/2018 19:24	DP
Iron	BRL	100		ug/L	261481	1	05/31/2018 19:24	DP
Magnesium	1540	100		ug/L	261481	1	06/06/2018 23:07	DP
Potassium	2390	100		ug/L	261481	1	05/31/2018 19:24	DP
Sodium	2830	500		ug/L	261481	1	06/06/2018 23:07	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	8	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:33	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.201		ug/L	261446	1	05/26/2018 01:22	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/26/2018 01:22	ZH
Surr: 4-Bromofluorobenzene	125	70.4-134	%REC	261446	1	05/26/2018 01:22	ZH	
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 00:59	AS
Inorganic Anions by IC EPA 300.0								
Chloride	2.81	1.00		mg/L	R371378	1	05/24/2018 18:40	MP
Fluoride	BRL	1.00		mg/L	R371378	1	05/24/2018 18:40	MP
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R371378	1	05/24/2018 18:40	MP
Sulfate	BRL	1.00		mg/L	R371378	1	05/24/2018 18:40	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	87.9	10.0		ug/L	261697	1	06/01/2018 19:04	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: DUPLICATE
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 12:00:00 PM
Lab ID: 1805P09-007	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 00:26	CC
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Acetone	BRL	50		ug/L	261561	1	06/01/2018 00:26	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santeck Environmental Inc.	Client Sample ID: DUPLICATE
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 12:00:00 PM
Lab ID: 1805P09-007	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B		(SW5030B)						
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:26	CC
Vinyl acetate	BRL	10		ug/L	261561	1	06/01/2018 00:26	CC
Vinyl chloride	BRL	2.0		ug/L	261561	1	06/01/2018 00:26	CC
Surr: 4-Bromofluorobenzene	76	68-127	%REC		261561	1	06/01/2018 00:26	CC
Surr: Dibromofluoromethane	116	84.4-122	%REC		261561	1	06/01/2018 00:26	CC
Surr: Toluene-d8	93.4	80.1-116	%REC		261561	1	06/01/2018 00:26	CC

APPENDIX I METALS SW6020B		(SW3005A)						
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:24	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:24	DP
Barium	0.0491	0.0100		mg/L	261481	1	06/06/2018 23:07	TA
Beryllium	0.00189	0.00100		mg/L	261481	1	06/06/2018 23:07	TA
Cadmium	0.00169	0.000700		mg/L	261481	1	06/06/2018 23:07	TA
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:24	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/31/2018 19:24	DP
Copper	BRL	0.00200		mg/L	261481	1	05/31/2018 19:24	DP
Lead	0.00114	0.00100		mg/L	261481	1	05/31/2018 19:24	DP
Nickel	0.0261	0.00500		mg/L	261481	1	05/31/2018 19:24	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:24	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:24	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:24	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:24	DP
Zinc	0.265	0.0100		mg/L	261481	1	06/06/2018 23:07	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc	Client Sample ID: MW-03
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 9:29:00 AM
Lab ID: 1805P09-006	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	2.21	1.00		mg/L	R371389	1	05/25/2018 20:09	ME
Total Metals by ICP/MS SW6020B								
Calcium	12700	100		ug/L	261481	1	06/06/2018 23:01	DP
Iron	1370	100		ug/L	261481	1	06/06/2018 23:01	DP
Magnesium	4340	100		ug/L	261481	1	06/06/2018 23:01	DP
Potassium	4350	100		ug/L	261481	1	05/31/2018 19:22	DP
Sodium	28900	500		ug/L	261481	1	06/06/2018 23:01	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	180	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	1.93	0.200		mg/L	261401	1	05/25/2018 08:31	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.199		ug/L	261446	1	05/26/2018 00:25	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/26/2018 00:25	ZH
Surr: 4-Bromofluorobenzene	117	70.4-134		%REC	261446	1	05/26/2018 00:25	ZH
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 00:55	AS
Inorganic Anions by IC EPA 300.0								
Chloride	35.8	1.00		mg/L	R371378	1	05/24/2018 18:26	MP
Fluoride	BRL	1.00		mg/L	R371378	1	05/24/2018 18:26	MP
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R371378	1	05/24/2018 18:26	MP
Sulfate	25.3	1.00		mg/L	R371378	1	05/24/2018 18:26	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	2360	10.0		ug/L	261697	1	06/01/2018 19:02	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
(SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 12-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	MW-03
Project Name:	Loudon County (Matlock Bend) LF Phase 1	Collection Date:	5/23/2018 9:29:00 AM
Lab ID:	1805P09-006	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B								
							(SW5030B)	
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
2-Butanone	BRL	50		ug/L	261561	1	05/30/2018 12:01	CC
2-Hexanone	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Acetone	BRL	50		ug/L	261561	1	05/30/2018 12:01	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Benzene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Bromoform	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Bromomethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Chloroethane	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Chloroform	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Chloromethane	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Dibromomethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Ethylbenzene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Iodomethane	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
m,p-Xylene	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Methylene chloride	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
o-Xylene	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Styrene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Tetrachloroethene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Toluene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Trichloroethene	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC

Qualifiers: * Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-03
Project Name: Loudon County (Matlock Bend) LF Phase I	Collection Date: 5/23/2018 9:29:00 AM
Lab ID: 1805P09-006	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B								
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	05/30/2018 12:01	CC
Vinyl acetate	BRL	10		ug/L	261561	1	05/30/2018 12:01	CC
Vinyl chloride	BRL	2.0		ug/L	261561	1	05/30/2018 12:01	CC
Surr: 4-Bromofluorobenzene	84.5	68-127	%REC		261561	1	05/30/2018 12:01	CC
Surr: Dibromofluoromethane	119	84.4-122	%REC		261561	1	05/30/2018 12:01	CC
Surr: Toluene-d8	100	80.1-116	%REC		261561	1	05/30/2018 12:01	CC
APPENDIX I METALS SW6020B								
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:22	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:22	DP
Barium	0.102	0.0100		mg/L	261481	1	06/06/2018 23:01	TA
Beryllium	BRL	0.00100		mg/L	261481	1	05/31/2018 19:22	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/31/2018 19:22	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:22	DP
Cobalt	0.0133	0.00500		mg/L	261481	1	05/31/2018 19:22	DP
Copper	0.00335	0.00200		mg/L	261481	1	06/06/2018 23:01	TA
Lead	0.00214	0.00100		mg/L	261481	1	05/31/2018 19:22	DP
Nickel	0.0105	0.00500		mg/L	261481	1	05/31/2018 19:22	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:22	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:22	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:22	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:22	DP
Zinc	0.0155	0.0100		mg/L	261481	1	06/06/2018 23:01	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 11-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	MW-4R
Project Name:	Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date:	5/22/2018 2:36:00 PM
Lab ID:	1805P11-002	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.201		ug/L	261592	1	05/30/2018 22:01	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261592	1	05/30/2018 22:01	ZH
Surr: 4-Bromofluorobenzene	111	70.4-134	%REC		261592	1	05/30/2018 22:01	ZH
Inorganic Anions by IC E300.0								
Fluoride	BRL	1.00		mg/L	R371549	1	05/25/2018 17:50	MP
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
2-Butanone	BRL	50		ug/L	261561	1	05/29/2018 22:04	CC
2-Hexanone	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Acetone	BRL	50		ug/L	261561	1	05/29/2018 22:04	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Benzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Bromoform	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Bromomethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Chloroethane	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Chloroform	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Chloromethane	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Dibromomethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Ethylbenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Iodomethane	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC

Qualifiers: * Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: MW-4R
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/22/2018 2:36:00 PM
Lab ID: 1805P11-002	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B		(SW5030B)						
m,p-Xylene	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Methylene chloride	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
o-Xylene	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Styrene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Tetrachloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Toluene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Trichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:04	CC
Vinyl acetate	BRL	10		ug/L	261561	1	05/29/2018 22:04	CC
Vinyl chloride	BRL	2.0		ug/L	261561	1	05/29/2018 22:04	CC
Surr: 4-Bromofluorobenzene	79.1	68-127	%REC		261561	1	05/29/2018 22:04	CC
Surr: Dibromofluoromethane	121	84.4-122	%REC		261561	1	05/29/2018 22:04	CC
Surr: Toluene-d8	97.6	80.1-116	%REC		261561	1	05/29/2018 22:04	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc
Date: 11-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	MW-4R
Project Name:	Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date:	5/23/2018 11:11:00 AM
Lab ID:	1805P11-003	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Mercury, Total SW7470A							(SW7470A)	
Mercury	BRL	0.00050		mg/L	261481	1	06/01/2018 01:23	AS
APPENDIX I METALS SW6020B							(SW3005A)	
Antimony	BRL	0.00150		mg/L	261481	1	05/29/2018 17:29	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/29/2018 17:29	DP
Barium	0.0118	0.0100		mg/L	261481	1	05/29/2018 17:29	DP
Beryllium	BRL	0.00100		mg/L	261481	1	05/29/2018 17:29	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/29/2018 17:29	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/29/2018 17:29	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/29/2018 17:29	DP
Copper	BRL	0.00200		mg/L	261481	1	05/29/2018 17:29	DP
Lead	BRL	0.00100		mg/L	261481	1	05/29/2018 17:29	DP
Nickel	0.00830	0.00500		mg/L	261481	1	05/29/2018 17:29	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/29/2018 17:29	DP
Silver	BRL	0.00100		mg/L	261481	1	05/29/2018 17:29	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/29/2018 17:29	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/29/2018 17:29	DP
Zinc	0.0166	0.0100		mg/L	261481	1	05/29/2018 17:29	DP

Qualifiers: * Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

> Greater than Result value

E Estimated (value above quantitation range)

S Spike Recovery outside limits due to matrix

Narr See case narrative

NC Not confirmed

< Less than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc**Date:** 11-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: MW-05
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/22/2018 3:42:00 PM
Lab ID: 1805P11-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.199		ug/L	261447	1	05/26/2018 12:50	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261447	1	05/26/2018 12:50	ZH
Surr: 4-Bromofluorobenzene	115	70.4-134	%REC		261447	1	05/26/2018 12:50	ZH
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 01:27	AS
Inorganic Anions by IC E300.0								
Fluoride	BRL	1.00		mg/L	R371549	1	05/25/2018 18:05	MP
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
2-Butanone	BRL	50		ug/L	261561	1	05/29/2018 22:31	CC
2-Hexanone	BRL	10		ug/L	261561	1	05/29/2018 22:31	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	05/29/2018 22:31	CC
Acetone	BRL	50		ug/L	261561	1	05/29/2018 22:31	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Benzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Bromoform	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Bromomethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Chloroethane	BRL	10		ug/L	261561	1	05/29/2018 22:31	CC
Chloroform	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Chloromethane	BRL	10		ug/L	261561	1	05/29/2018 22:31	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	05/29/2018 22:31	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: MW-05
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/22/2018 3:42:00 PM
Lab ID: 1805P11-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B**(SW5030B)**

Dibromomethane	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Ethylbenzene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Iodomethane	BRL	10	ug/L	261561	1	05/29/2018 22:31	CC
m,p-Xylene	BRL	10	ug/L	261561	1	05/29/2018 22:31	CC
Methylene chloride	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
o-Xylene	BRL	10	ug/L	261561	1	05/29/2018 22:31	CC
Styrene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Tetrachloroethene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Toluene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
trans-1,2-Dichloroethene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
trans-1,3-Dichloropropene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
trans-1,4-Dichloro-2-butene	BRL	10	ug/L	261561	1	05/29/2018 22:31	CC
Trichloroethene	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Trichlorofluoromethane	BRL	5.0	ug/L	261561	1	05/29/2018 22:31	CC
Vinyl acetate	BRL	10	ug/L	261561	1	05/29/2018 22:31	CC
Vinyl chloride	BRL	2.0	ug/L	261561	1	05/29/2018 22:31	CC
Surr: 4-Bromofluorobenzene	78.9	68-127	%REC	261561	1	05/29/2018 22:31	CC
Surr: Dibromofluoromethane	121	84.4-122	%REC	261561	1	05/29/2018 22:31	CC
Surr: Toluene-d8	100	80.1-116	%REC	261561	1	05/29/2018 22:31	CC

APPENDIX I METALS SW6020B**(SW3005A)**

Antimony	BRL	0.00150	mg/L	261481	1	05/29/2018 17:37	DP
Arsenic	BRL	0.00250	mg/L	261481	1	05/29/2018 17:37	DP
Barium	0.0102	0.0100	mg/L	261481	1	05/29/2018 17:37	DP
Beryllium	BRL	0.00100	mg/L	261481	1	05/29/2018 17:37	DP
Cadmium	BRL	0.000700	mg/L	261481	1	05/29/2018 17:37	DP
Chromium	BRL	0.00500	mg/L	261481	1	05/29/2018 17:37	DP
Cobalt	BRL	0.00500	mg/L	261481	1	05/29/2018 17:37	DP
Copper	BRL	0.00200	mg/L	261481	1	05/29/2018 17:37	DP
Lead	BRL	0.00100	mg/L	261481	1	05/29/2018 17:37	DP
Nickel	BRL	0.00500	mg/L	261481	1	05/29/2018 17:37	DP
Selenium	BRL	0.00500	mg/L	261481	1	05/29/2018 17:37	DP
Silver	BRL	0.00100	mg/L	261481	1	05/29/2018 17:37	DP
Thallium	BRL	0.000500	mg/L	261481	1	05/29/2018 17:37	DP
Vanadium	BRL	0.00500	mg/L	261481	1	05/29/2018 17:37	DP
Zinc	0.0117	0.0100	mg/L	261481	1	05/29/2018 17:37	DP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc**Date:** 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 12:06:00 PM
Lab ID: 1805P09-008	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	1.00		mg/L	R371389	1	05/25/2018 21:31	ME
Total Metals by ICP/MS SW6020B								
Calcium	BRL	100		ug/L	261481	1	06/06/2018 23:13	DP
Iron	BRL	100		ug/L	261481	1	06/06/2018 23:13	DP
Magnesium	BRL	100		ug/L	261481	1	06/06/2018 23:13	DP
Potassium	BRL	100		ug/L	261481	1	06/06/2018 23:13	DP
Sodium	BRL	500		ug/L	261481	1	06/06/2018 23:13	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	83	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:35	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.202		ug/L	261446	1	05/26/2018 01:51	ZH
1,2-Dibromoethane	BRL	0.051		ug/L	261446	1	05/26/2018 01:51	ZH
Surr: 4-Bromofluorobenzene	126	70.4-134	%REC	261446	1	05/26/2018 01:51	ZH	
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 01:03	AS
Inorganic Anions by IC EPA 300.0								
Chloride	BRL	1.00		mg/L	R371351	1	05/24/2018 17:59	MP
Fluoride	BRL	1.00		mg/L	R371351	1	05/24/2018 17:59	MP
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R371351	1	05/24/2018 17:59	MP
Sulfate	BRL	1.00		mg/L	R371351	1	05/24/2018 17:59	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	BRL	10.0		ug/L	261697	1	06/01/2018 18:41	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/23/2018 12:06:00 PM
Lab ID: 1805P09-008	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,2,2-Tetrachloroethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,1,2-Trichloroethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,1-Dichloroethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,1-Dichloroethene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,2,3-Trichloropropane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,2-Dichlorobenzene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,2-Dichloroethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,2-Dichloropropane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
1,4-Dichlorobenzene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
2-Butanone	BRL	50	ug/L	261561	1	06/01/2018 00:53	CC	
2-Hexanone	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
4-Methyl-2-pentanone	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
Acetone	BRL	50	ug/L	261561	1	06/01/2018 00:53	CC	
Acrylonitrile	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Benzene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Bromochloromethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Bromodichloromethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Bromoform	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Bromomethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Carbon disulfide	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Carbon tetrachloride	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Chlorobenzene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Chloroethane	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
Chloroform	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Chloromethane	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
cis-1,2-Dichloroethene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
cis-1,3-Dichloropropene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Dibromochloromethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Dibromomethane	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Ethylbenzene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Iodomethane	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
m,p-Xylene	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
Methylene chloride	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
o-Xylene	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
Styrene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Tetrachloroethene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
Toluene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
trans-1,2-Dichloroethene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
trans-1,3-Dichloropropene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	
trans-1,4-Dichloro-2-butene	BRL	10	ug/L	261561	1	06/01/2018 00:53	CC	
Trichloroethene	BRL	5.0	ug/L	261561	1	06/01/2018 00:53	CC	

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santeck Environmental Inc.	Client Sample ID: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) LF Phase I	Collection Date: 5/23/2018 12:06:00 PM
Lab ID: 1805P09-008	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B		(SW5030B)						
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Vinyl acetate	BRL	10		ug/L	261561	1	06/01/2018 00:53	CC
Vinyl chloride	BRL	2.0		ug/L	261561	1	06/01/2018 00:53	CC
Surr: 4-Bromofluorobenzene	77.6	68-127		%REC	261561	1	06/01/2018 00:53	CC
Surr: Dibromofluoromethane	113	84.4-122		%REC	261561	1	06/01/2018 00:53	CC
Surr: Toluene-d8	88.3	80.1-116		%REC	261561	1	06/01/2018 00:53	CC

APPENDIX I METALS SW6020B		(SW3005A)						
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:26	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:26	DP
Barium	BRL	0.0100		mg/L	261481	1	05/31/2018 19:26	DP
Beryllium	BRL	0.00100		mg/L	261481	1	05/31/2018 19:26	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/31/2018 19:26	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:26	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/31/2018 19:26	DP
Copper	BRL	0.00200		mg/L	261481	1	05/31/2018 19:26	DP
Lead	BRL	0.00100		mg/L	261481	1	05/31/2018 19:26	DP
Nickel	BRL	0.00500		mg/L	261481	1	05/31/2018 19:26	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:26	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:26	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:26	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:26	DP
Zinc	BRL	0.0100		mg/L	261481	1	06/06/2018 23:13	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 12-Jun-18

Client: Santeck Environmental Inc.	Client Sample ID: TRIP BLANK
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 12:23:00 PM
Lab ID: 1805P09-009	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	1.00		mg/L	R371389	1	05/25/2018 21:47	ME
Total Metals by ICP/MS SW6020B								
Calcium	BRL	100		ug/L	261481	1	06/06/2018 23:20	DP
Iron	BRL	100		ug/L	261481	1	06/06/2018 23:20	DP
Magnesium	BRL	100		ug/L	261481	1	06/06/2018 23:20	DP
Potassium	BRL	100		ug/L	261481	1	06/06/2018 23:20	DP
Sodium	BRL	500		ug/L	261481	1	06/06/2018 23:20	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	5	1		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	261401	1	05/25/2018 08:36	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	261446	1	05/26/2018 02:20	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/26/2018 02:20	ZH
Surr: 4-Bromofluorobenzene	117	70.4-134	%REC	261446	1	05/26/2018 02:20	ZH	
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 01:15	AS
Inorganic Anions by IC EPA 300.0								
Chloride	BRL	1.00		mg/L	R371351	1	05/24/2018 18:14	MP
Fluoride	BRL	1.00		mg/L	R371351	1	05/24/2018 18:14	MP
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R371351	1	05/24/2018 18:14	MP
Sulfate	BRL	1.00		mg/L	R371351	1	05/24/2018 18:14	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	BRL	10.0		ug/L	261697	1	06/01/2018 19:06	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R371737	1	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: TRIP BLANK
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 12:23:00 PM
Lab ID: 1805P09-009	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B								
							(SW5030B)	
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 01:20	CC
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Acetone	BRL	50		ug/L	261561	1	06/01/2018 01:20	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc**Date:** 12-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: TRIP BLANK
Project Name: Loudon County (Matlock Bend) LF Phase 1	Collection Date: 5/22/2018 12:23:00 PM
Lab ID: 1805P09-009	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B**(SW5030B)**

Trichlorofluoromethane	BRL	5.0	ug/L	261561	1	06/01/2018 01:20	CC
Vinyl acetate	BRL	10	ug/L	261561	1	06/01/2018 01:20	CC
Vinyl chloride	BRL	2.0	ug/L	261561	1	06/01/2018 01:20	CC
Surr: 4-Bromofluorobenzene	80.5	68-127	%REC	261561	1	06/01/2018 01:20	CC
Surr: Dibromofluoromethane	120	84.4-122	%REC	261561	1	06/01/2018 01:20	CC
Surr: Toluene-d8	91.2	80.1-116	%REC	261561	1	06/01/2018 01:20	CC

APPENDIX I METALS SW6020B**(SW3005A)**

Antimony	BRL	0.00150	mg/L	261481	1	05/31/2018 19:28	DP
Arsenic	BRL	0.00250	mg/L	261481	1	05/31/2018 19:28	DP
Barium	BRL	0.0100	mg/L	261481	1	05/31/2018 19:28	DP
Beryllium	BRL	0.00100	mg/L	261481	1	05/31/2018 19:28	DP
Cadmium	BRL	0.000700	mg/L	261481	1	05/31/2018 19:28	DP
Chromium	BRL	0.00500	mg/L	261481	1	05/31/2018 19:28	DP
Cobalt	BRL	0.00500	mg/L	261481	1	05/31/2018 19:28	DP
Copper	BRL	0.00200	mg/L	261481	1	05/31/2018 19:28	DP
Lead	BRL	0.00100	mg/L	261481	1	05/31/2018 19:28	DP
Nickel	BRL	0.00500	mg/L	261481	1	05/31/2018 19:28	DP
Selenium	BRL	0.00500	mg/L	261481	1	05/31/2018 19:28	DP
Silver	BRL	0.00100	mg/L	261481	1	05/31/2018 19:28	DP
Thallium	BRL	0.000500	mg/L	261481	1	05/31/2018 19:28	DP
Vanadium	BRL	0.00500	mg/L	261481	1	05/31/2018 19:28	DP
Zinc	BRL	0.0100	mg/L	261481	1	05/31/2018 19:28	DP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/23/2018 12:06:00 PM
Lab ID: 1805P11-005	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.202		ug/L	261446	1	05/26/2018 01:51	ZH
1,2-Dibromoethane	BRL	0.051		ug/L	261446	1	05/26/2018 01:51	ZH
Surr: 4-Bromofluorobenzene	I26	70.4-134	%REC		261446	1	05/26/2018 01:51	ZH
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 01:03	AS
Inorganic Anions by IC E300.0								
Fluoride	BRL	1.00		mg/L	R371356	1	05/24/2018 17:59	MP
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 00:53	CC
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 00:53	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 00:53	CC
Acetone	BRL	50		ug/L	261561	1	06/01/2018 00:53	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 00:53	CC
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 00:53	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 00:53	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 11-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/23/2018 12:06:00 PM
Lab ID: 1805P11-005	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B**(SW5030B)**

Dibromomethane	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Ethylbenzene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Iodomethane	BRL	10	ug/L	261561		06/01/2018 00:53	CC
m,p-Xylene	BRL	10	ug/L	261561		06/01/2018 00:53	CC
Methylene chloride	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
o-Xylene	BRL	10	ug/L	261561		06/01/2018 00:53	CC
Styrene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Tetrachloroethene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Toluene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
trans-1,2-Dichloroethene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
trans-1,3-Dichloropropene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
trans-1,4-Dichloro-2-butene	BRL	10	ug/L	261561		06/01/2018 00:53	CC
Trichloroethene	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Trichlorofluoromethane	BRL	5.0	ug/L	261561		06/01/2018 00:53	CC
Vinyl acetate	BRL	10	ug/L	261561		06/01/2018 00:53	CC
Vinyl chloride	BRL	2.0	ug/L	261561		06/01/2018 00:53	CC
Surr: 4-Bromofluorobenzene	77.6	68-127	%REC	261561		06/01/2018 00:53	CC
Surr: Dibromofluoromethane	113	84.4-122	%REC	261561		06/01/2018 00:53	CC
Surr: Toluene-d8	88.3	80.1-116	%REC	261561		06/01/2018 00:53	CC

APPENDIX I METALS SW6020B**(SW3005A)**

Antimony	BRL	0.00150	mg/L	261481		05/31/2018 19:26	DP
Arsenic	BRL	0.00250	mg/L	261481		05/31/2018 19:26	DP
Barium	BRL	0.0100	mg/L	261481		05/31/2018 19:26	DP
Beryllium	BRL	0.00100	mg/L	261481		05/31/2018 19:26	DP
Cadmium	BRL	0.000700	mg/L	261481		05/31/2018 19:26	DP
Chromium	BRL	0.00500	mg/L	261481		05/31/2018 19:26	DP
Cobalt	BRL	0.00500	mg/L	261481		05/31/2018 19:26	DP
Copper	BRL	0.00200	mg/L	261481		05/31/2018 19:26	DP
Lead	BRL	0.00100	mg/L	261481		05/31/2018 19:26	DP
Nickel	BRL	0.00500	mg/L	261481		05/31/2018 19:26	DP
Selenium	BRL	0.00500	mg/L	261481		05/31/2018 19:26	DP
Silver	BRL	0.00100	mg/L	261481		05/31/2018 19:26	DP
Thallium	BRL	0.000500	mg/L	261481		05/31/2018 19:26	DP
Vanadium	BRL	0.00500	mg/L	261481		05/31/2018 19:26	DP
Zinc	BRL	0.0100	mg/L	261481		06/06/2018 23:13	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: TRIP BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/22/2018 12:23:00 PM
Lab ID: 1805P11-006	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	261446	1	05/26/2018 02:20	ZH
1,2-Dibromoethane	BRL	0.050		ug/L	261446	1	05/26/2018 02:20	ZH
Surr: 4-Bromofluorobenzene	117	70.4-134	%REC		261446	1	05/26/2018 02:20	ZH
Mercury, Total SW7470A								
Mercury	BRL	0.00050		mg/L	261569	1	06/01/2018 01:15	AS
Inorganic Anions by IC E300.0								
Fluoride	BRL	1.00		mg/L	R371356	1	05/24/2018 18:14	MP
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1,1-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1,2-Trichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,1-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2,3-Trichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichloroethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,2-Dichloropropane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
1,4-Dichlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
2-Butanone	BRL	50		ug/L	261561	1	06/01/2018 01:20	CC
2-Hexanone	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
4-Methyl-2-pentanone	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Acetone	BRL	50		ug/L	261561	1	06/01/2018 01:20	CC
Acrylonitrile	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Benzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromodichloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromoform	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Bromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Carbon disulfide	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Carbon tetrachloride	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chlorobenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chloroethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Chloroform	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Chloromethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
cis-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
cis-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Dibromochloromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Client: Santek Environmental Inc.	Client Sample ID: TRIP BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase II/IV	Collection Date: 5/22/2018 12:23:00 PM
Lab ID: 1805P11-006	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B								
Dibromomethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Ethylbenzene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Iodomethane	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
m,p-Xylene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Methylene chloride	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
o-Xylene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Styrene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Tetrachloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Toluene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,2-Dichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,3-Dichloropropene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Trichloroethene	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Trichlorofluoromethane	BRL	5.0		ug/L	261561	1	06/01/2018 01:20	CC
Vinyl acetate	BRL	10		ug/L	261561	1	06/01/2018 01:20	CC
Vinyl chloride	BRL	2.0		ug/L	261561	1	06/01/2018 01:20	CC
Surr: 4-Bromofluorobenzene	80.5	68-127	%REC		261561	1	06/01/2018 01:20	CC
Surr: Dibromofluoromethane	120	84.4-122	%REC		261561	1	06/01/2018 01:20	CC
Surr: Toluene-d8	91.2	80.1-116	%REC		261561	1	06/01/2018 01:20	CC

APPENDIX I METALS SW6020B								
Antimony	BRL	0.00150		mg/L	261481	1	05/31/2018 19:28	DP
Arsenic	BRL	0.00250		mg/L	261481	1	05/31/2018 19:28	DP
Barium	BRL	0.0100		mg/L	261481	1	05/31/2018 19:28	DP
Beryllium	BRL	0.00100		mg/L	261481	1	05/31/2018 19:28	DP
Cadmium	BRL	0.000700		mg/L	261481	1	05/31/2018 19:28	DP
Chromium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:28	DP
Cobalt	BRL	0.00500		mg/L	261481	1	05/31/2018 19:28	DP
Copper	BRL	0.00200		mg/L	261481	1	05/31/2018 19:28	DP
Lead	BRL	0.00100		mg/L	261481	1	05/31/2018 19:28	DP
Nickel	BRL	0.00500		mg/L	261481	1	05/31/2018 19:28	DP
Selenium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:28	DP
Silver	BRL	0.00100		mg/L	261481	1	05/31/2018 19:28	DP
Thallium	BRL	0.000500		mg/L	261481	1	05/31/2018 19:28	DP
Vanadium	BRL	0.00500		mg/L	261481	1	05/31/2018 19:28	DP
Zinc	BRL	0.0100		mg/L	261481	1	05/31/2018 19:28	DP

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit



Clear

Save as

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Santek Environmental Inc.**AES Work Order Number: **1805P11**2. Carrier: FedEx UPS USPS Client Courier Other _____

	Yes	No	N/A	Details	Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/> leaking <input type="checkbox"/> other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
5. Custody seals intact on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
7. Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>	
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>	

13. Cooler 1 Temperature 0.3 °C Cooler 2 Temperature 0.6 °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials).

TD 5/24/18

	Yes	No	N/A	Details	Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
17. Custody seals present on sample containers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
18. Custody seals intact on sample containers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
19. Do sample container labels match the COC?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> illegible <input type="checkbox"/> no label <input type="checkbox"/> other <input checked="" type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>	
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	listed on COC <input checked="" type="checkbox"/> not listed on COC <input type="checkbox"/>	

27. Comments: _____

I certify that I have completed sections 16-27 (dated initials).

MDP 5/24/18

	Yes	No	N/A	Details	Comments
28. Have containers needing chemical preservation been checked? *	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
29. Containers meet preservation guidelines?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
30. Was pH adjusted at Sample Receipt?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials).

MDP 5/24/18

Checklist 6.9.17 Rev 2

Looked

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APPENDIX C

**LOUDON COUNTY
COMPLIANCE WELL
MONITORING WELL #01**

INORGANIC	TN REGULATORY LIMITS	11-17-17	3-26-18	5-7-18	5-23-18	MW-01 Avg.	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50	2.50
Barium	2000	33	30.6	29.8	29.4	30.70	13.63
Beryllium	4	1	1	1	1	1.00	1.00
Cadmium	5	0.7	0.7	0.7	0.7	0.70	0.70
Chromium	100	5	5	5	5	5.00	5.00
Cobalt	6**	5	5	5	5	5.00	7.15
Copper	800**	2	2	2	2	2.00	2.00
Fluoride*	4	1	1	1	1	1.00	1.00
Lead	15	1	1	1	1	1.00	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50	0.50
Nickel	100	5	5	5	5	5.00	8.82
Selenium	50	5	5	5	5	5.00	5.00
Silver	100	1	1	1	1	1.00	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50	0.50
Vanadium	86**	5	5	5	5	5.00	5.13
Zinc	6000**	10	10	10	10	10.00	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-26-18	5-7-18	5-22-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethylidene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichlorethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

**LOUDON COUNTY
COMPLIANCE WELL
MONITORING WELL #1A**

INORGANIC	TN REGULATORY LIMITS	11-16-17	3-7-18	5-3-18	5-23-18	MW-1A Avg.	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50	2.50
Barium	2000	87.1	67.2	104	69.3	81.90	13.63
Beryllium	4	1	1	1	1	1.00	1.00
Cadmium	5	0.7	0.7	0.7	0.7	0.70	0.70
Chromium	100	5	5	5	5	5.00	5.00
Cobalt	6**	5	5	5	5	5.00	7.15
Copper	800**	2	2	2.2	2	2.05	2.00
Fluoride*	4	1	1	1	1	1.00	1.00
Lead	15	1	1	1.39	1	1.10	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50	0.50
Nickel	100	5	5	5	5	5.00	8.82
Selenium	50	5	5	5	5	5.00	5.00
Silver	100	1	1	1	1	1.00	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50	0.50
Vanadium	86**	5	5	5	5	5.00	5.13
Zinc	6000**	10	14.3	14.9	12.5	12.93	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-7-18	5-3-18	5-22-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethyldene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

**LOUDON COUNTY
COMPLIANCE WELL
MONITORING WELL #02**

INORGANIC	TN REGULATORY LIMITS	11-16-17	3-7-18	5-7-18	5-23-18	MW-02 Avg.	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50	2.50
Barium	2000	68.8	38.5	54.3	52.3	53.48	13.63
Beryllium	4	1.87	1.38	2.45	1.78	1.87	1.00
Cadmium	5	2.27	1.34	1.92	1.62	1.79	0.70
Chromium	100	5	5	5	5	5.00	5.00
Cobalt	6**	5	5	5	5	5.00	7.15
Copper	800**	2	2	2	2	2.00	2.00
Fluoride*	4	1	1	1	1	1.00	1.00
Lead	15	1	1	1	1	1.00	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50	0.50
Nickel	100	33.7	21.8	28.4	26.9	27.70	8.82
Selenium	50	5	5	5	5	5.00	5.00
Silver	100	1	1	1	1	1.00	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50	0.50
Vanadium	86**	5	5	5	5	5.00	5.13
Zinc	6000**	350	219	296	278	285.75	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-7-18	5-7-18	5-23-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethylidene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

**LOUDON COUNTY
COMPLIANCE WELL
MONITORING WELL #03**

INORGANIC	TN REGULATORY LIMITS	11-16-17	3-26-18	5-7-18	5-23-18	MW-03 Avg.	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50	2.50
Barium	2000	62.7	53.7	79.8	102	74.55	13.63
Beryllium	4	1	1	1	1	1.00	1.00
Cadmium	5	0.7	0.7	0.7	0.7	0.70	0.70
Chromium	100	5	5	5	5	5.00	5.00
Cobalt	6**	9.74	5	10.3	13.3	9.59	7.15
Copper	800**	5.2	3.91	3.21	3.35	3.92	2.00
Fluoride*	4	1	1	1	1	1.00	1.00
Lead	15	1.39	1	1	2.14	1.38	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50	0.50
Nickel	100	7.5	7.51	8.75	10.5	8.57	8.82
Selenium	50	5	5	5	5	5.00	5.00
Silver	100	1	1	1	1	1.00	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50	0.50
Vanadium	86**	5	5	5	5	5.00	5.13
Zinc	6000**	11.9	28.2	10	15.5	16.40	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-26-18	5-7-18	5-23-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethylidene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichlorethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

**LOUDON COUNTY
BACKGROUND WELL
MONITORING WELL #4R**

INORGANIC	TN REGULATORY LIMITS	11-17-17	3-7-18	5-3-18	5-23-18	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50
Barium	2000	11.3	21.3	10.1	11.8	13.63
Beryllium	4	1	1	1	1	1.00
Cadmium	5	0.7	0.7	0.7	0.7	0.70
Chromium	100	5	5	5	5	5.00
Cobalt	6**	5	13.6	5	5	7.15
Copper	800**	2	2	2	2	2.00
Fluoride*	4	1	1	1	1	1.00
Lead	15	1	1	1	1	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50
Nickel	100	7.69	14.3	5	8.3	8.82
Selenium	50	5	5	5	5	5.00
Silver	100	1	1	1	1	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50
Vanadium	86**	5	5	5.53	5	5.13
Zinc	6000**	21.2	32.9	12.6	16.6	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-7-18	5-3-18	5-22-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethylidene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

**LOUDON COUNTY
COMPLIANCE WELL
MONITORING WELL #05**

INORGANIC	TN REGULATORY LIMITS	11-16-17	3-7-18	5-3-18	5-22-18	MW-05 Avg.	MW-4R Avg.
Antimony	6	1.5	1.5	1.5	1.5	1.50	1.50
Arsenic	10	2.5	2.5	2.5	2.5	2.50	2.50
Barium	2000	10	10	11.9	10.2	10.53	13.63
Beryllium	4	1	1	1	1	1.00	1.00
Cadmium	5	0.7	0.7	0.7	0.7	0.70	0.70
Chromium	100	5	5	5	5	5.00	5.00
Cobalt	6**	5	5	5	5	5.00	7.15
Copper	800**	2	2	2	2	2.00	2.00
Fluoride*	4	1	1	1	1	1.00	1.00
Lead	15	1	1	1	1	1.00	1.00
Mercury	2	0.5	0.5	0.5	0.5	0.50	0.50
Nickel	100	5	5	5	5	5.00	8.82
Selenium	50	5	5	5	5	5.00	5.00
Silver	100	1	1	1	1	1.00	1.00
Thallium	2	0.5	0.5	0.5	0.5	0.50	0.50
Vanadium	86**	5	5	5	5	5.00	5.13
Zinc	6000**	10.0	10.3	10.0	11.7	10.50	20.83

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

**EPA REGION 4 SCREENING LEVEL

ORGANIC	11-16-17	3-7-18	5-3-18	5-22-18
Acetone	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
Bromoform; Tribromomethane	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane; Ethyl chloride	ND	ND	ND	ND
Chloroform; Trichloromethane	ND	ND	ND	ND
Dibromochloromethane; Chlorodibromomethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane; DBCP	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND
o-Dichlorobenzene; 1,2-Dichlorobenzene	ND	ND	ND	ND
p-Dichlorobenzene; 1,4-Dichlorobenzene	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	ND	ND	ND	ND
1,1-Dichloroethane; Ethylidene chloride; Ethylidene dichloride	ND	ND	ND	ND
1,2-Dichloroethane; Ethylene dichloride	ND	ND	ND	ND
1,1-Dichlorethylene; 1,1-Dichloroethene; Vinylidene chloride	ND	ND	ND	ND
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	ND	ND	ND	ND
1,2-Dichloropropane; Propylene dichloride	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
2-Hexanone; Methyl butyl ketone	ND	ND	ND	ND
Methyl bromide; Bromomethane	ND	ND	ND	ND
Methyl chloride; Chloromethane	ND	ND	ND	ND
Methylene bromide; Dibromomethane	ND	ND	ND	ND
Methylene chloride; Dichloromethane	ND	ND	ND	ND
Methyl ethyl ketone; MEK; 2-Butanone	ND	ND	ND	ND
Methyl iodide; Iodomethane	ND	ND	ND	ND
4-Methyl-2-Pentanone; Methyl isobutyl ketone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane; Methylchloroform	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Trichloroethylene; Trichloroethene	ND	ND	ND	ND
Trichlorofluoromethane; CFC-11	ND	ND	ND	ND
1,2,3-Trichloropropane	ND	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND

APPENDIX D

GROUNDWATER DATA

Matlock Bend Landfill

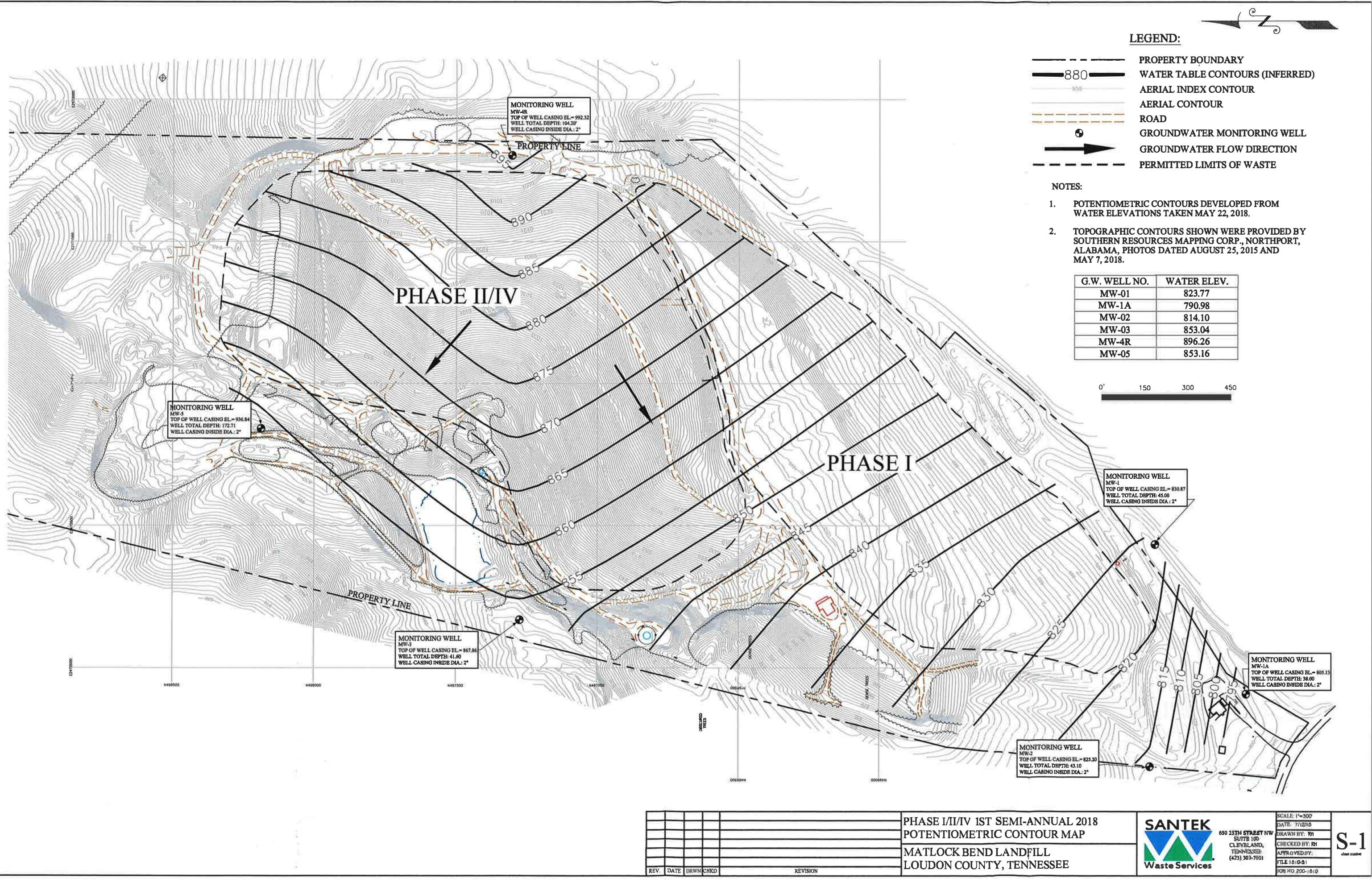
May 22, 2018

Well No.	Elev. Of TOC	Depth to GW (ft below TOC)	Water Elevation	Contour Elevation	Distance	Hydraulic Conductivity	Effective Porosity (n)	Hydraulic Gradient	Average Linear Velocity		Directions
									ft/min	ft/day	
MW-01	830.87	7.10	823.77	825	40	4.70E-06	0.18	3.08E-02	8.03E-07	1.16E-03	SW
MW-1A*	805.13	14.15	790.98	795	50	3.93E-06	0.18	8.04E-02	1.76E-06	2.53E-03	S
MW-02	825.20	11.10	814.10	815	45	5.90E-06	0.18	2.00E-02	6.56E-07	9.44E-04	SW
MW-03	867.86	14.82	853.04	855	75	1.20E-05	0.18	2.61E-02	1.74E-06	2.51E-03	SW
MW-4R**	992.32	96.06	896.26	895	40	1.90E-05	0.18	3.15E-02	3.32E-06	4.79E-03	NW
MW-05	936.84	83.68	853.16	855	55	2.20E-05	0.18	3.35E-02	4.09E-06	5.89E-03	NW

*-The hydraulic conductivity for MW-1A is an average from monitoring wells MW-01, MW-02 and MW-03.

**-The hydraulic conductivity for MW-4R is from MW-04.

APPENDIX E



APPENDIX F

LEACHATE FIELD LOG

FIELD SAMPLING LOG		WELL NO: Leachate
Location: Loudon County Landfill		Site: Matlock Bend
Client/Operator: Santek Waste Services, Inc.		Project No:
Purge Start: (Date)	S-23-18	(Time) 1143 Purge End: (Date) — (Time) —
Purged by:	J Muller, D Ellis	
Depth Measurement Ref. Point*	N/A ft	Well Casing. ID: N/A

Equipment Used to Measure (Make, Model, etc)

DTW N/A pH YSI Cond. YSI T° YSI

Measure Well TD: N/A (-) Orig. DTW: N/A (=) Wtr. Col. Thick: N/A

(x) 2"=0.163 Gals./ft. (=) N/A Gals./Csg. Vol. (x) 3 Csg. Vol. (=) N/A Total Purge Gals.

GW elev. Ref. N/A ft. (-) DTW: N/A ft. = N/A ft.

Purge/Sample Method: Directly into bottles

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: N/A (gallons per minute)

Weather: Sunny (85°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
1143 1143	—	7.60	14650	25.1	82		black, odor

Turbidity at metals sample collection: 82 NTU's

Comments: black, odor

*All Depths in Feet below Ref. Point on Wellhead, Generally Top of Casing (TOC) DTW= Depth to Water

LEACHATE ANALYTICAL RESULTS



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 11, 2018

Robert Hudson
Santek Environmental Inc.

650 25th Street NW
Cleveland TN 37311

RE: Loudon County (Matlock Bend) Landfill

Dear Robert Hudson:

Order No: 1805P10

Analytical Environmental Services, Inc. received 1 samples on 5/24/2018 9:00:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/17-06/30/18.
State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/17-06/30/18 and Total Coliforms/ E. coli, effective 04/25/17-04/24/20.

-NELAP/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/17-06/30/18.

-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/19.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Pafford".

Chris Pafford
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive Atlanta, GA 30340-3704

Phone: (770) 457-8177 / Toll-Free: (800) 972-4889 / Fax: (770) 457-8188

CHAIN OF CUSTODY

1805P10 Work Order 1805P07D
5/24/18

Date: 5/24/18 Page 1 of 1

COMPANY: Santek Environmental Inc.		ADDRESS: 650 25th St NW, Ste 100 Cleveland, TN 37311		ANALYSIS REQUESTED		Visit our website www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.	Number of Containers												
PHONE: 404/303-7101		EMAIL:		TN APP IND (SS20)	DISS Mn			CO₂, NH₃	TDS	F, Cl, ND₃, SO₄	CN	TOL							
SAMPLED BY: J Muller, D Ellis		SIGNATURE: 		SAMPLED:	GRAB	COMPOSITE	MATRIX (See Codes)	PRESERVATION (see codes)				REMARKS							
#	SAMPLE ID	DATE	TIME					H	I	N	T	S	I	T	N	O	S	E	
1	Leachate	5/23-18	1143	X			GW	2	2	1	1	1	1	1	1	2			12
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
RELINQUISHED BY:		DATE/TIME:		RECEIVED BY:		DATE/TIME:		PROJECT INFORMATION										RECEIPT	
1. 0900		1. 5/22/18 9:00 AM						PROJECT NAME: Loudon County (Matlock Bend) Landfill										Total # of Containers 12	
2.		2.						PROJECT #: 										Turnaround Time (TAT) Request	
3.		3.						SITE ADDRESS: 21712 Hwy 72 N, Loudon, TN 37774										<input checked="" type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same-Day Rush (auth req.) <input type="checkbox"/> Other	
SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD		OUT / / VIA:		IN: / / VIA:		INVOICE TO: (IF DIFFERENT FROM ABOVE)										STATE PROGRAM AND AREA: TN	
		client FedEx UPS US mail counter Greyhound other _____																E-mail? <input checked="" type="checkbox"/> Fax? <input type="checkbox"/>	
								QUOTE #: _____ PO#: _____										DATA PACKAGE: I <input type="checkbox"/> II <input type="checkbox"/> III <input checked="" type="checkbox"/> IV <input type="checkbox"/>	

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT.
Samples are disposed of 30 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SD = Soil SW = Surface Water WW = Waste Water W = Water (Banks) DW = Drinking Water (Banks) O = Other (specify)

Preservative Codes: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+H = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Page 2 of 9

Client: Santek Environmental Inc.
Project: Loudon County (Matlock Bend) Landfill
Lab ID: 1805P10

Case Narrative

Sample Receiving Non-conformance:

Samples 1805P10-001C, -001E and -001I as received did not meet specified pH range for the requested test methods of <2. The laboratory attempted to adjust pH at receipt using the maximum allowable amount of preservative however, the required pH was not obtained. The laboratory proceeded with the analyses per client history for leachate samples.

Micro-extractable VOC Analysis by Method 8011:

Matrix spike duplicate analyses were not performed with Batch 261446 due to insufficient sample volume.

Ion Scan Analysis by Method EPA 300:

Due to sample matrix, sample 1805P10-001G required dilution during analysis resulting in elevated reporting limits.

Mercury Analysis by Method 7470A:

Due to sample matrix, sample 1805P10-001C required dilution during preparation and/or analysis resulting in elevated reporting limits.

Client:	Santek Environmental Inc.	Client Sample ID:	LEACHATE					
Project Name:	Loudon County (Matlock Bend) Landfill	Collection Date:	5/23/2018 11:43:00 AM					
Lab ID:	1805P10-001	Matrix:	Groundwater					
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	880	50.0		mg/L	R371389	50	05/25/2018 22:37	ME
Total Metals by ICP/MS SW6020B								
Calcium	114	5.00		mg/L	261481	50	06/07/2018 15:13	DP
Iron	5.91	0.100		mg/L	261481	1	06/06/2018 23:51	DP
Magnesium	79.8	5.00		mg/L	261481	50	06/07/2018 15:13	DP
Potassium	532	5.00		mg/L	261481	50	06/07/2018 15:13	DP
Sodium	1190	25.0		mg/L	261481	50	06/07/2018 15:13	DP
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	6790	10		mg/L	261539	1	05/29/2018 17:24	BD
Nitrogen, Ammonia (as N) E350.1								
Nitrogen, Ammonia (As N)	1480	100		mg/L	261469	500	05/29/2018 10:23	JM
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011								
1,2-Dibromo-3-chloropropane	BRL	0.039		ug/L	261446	1	05/26/2018 02:48	ZH
1,2-Dibromoethane	BRL	0.020		ug/L	261446	1	05/26/2018 02:48	ZH
Mercury, Total SW7470A								
Mercury	BRL	0.00500		mg/L	261569	1	06/01/2018 01:19	AS
Inorganic Anions by IC EPA 300.0								
Chloride	1310	50.0		mg/L	R371645	50	05/30/2018 13:28	MP
Fluoride	BRL	10.0		mg/L	R371351	10	05/24/2018 19:46	MP
Nitrogen, Nitrate (As N)	BRL	100		mg/L	R371351	10	05/24/2018 19:46	MP
Sulfate	37.1	10.0		mg/L	R371351	10	05/24/2018 19:46	MP
Dissolved Metals by ICP/MS SW6020B								
Manganese	0.787	0.0100		mg/L	261697	1	06/01/2018 19:08	TA
Cyanide SW9014								
Cyanide, Total	BRL	0.200		mg/L	261651	1	05/31/2018 14:00	AK
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	3640	250		mg/L	R371737	25	05/31/2018 15:30	CG
APPENDIX I VOLATILE ORGANICS SW8260B								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
1,1,1-Trichloroethane	BRL	200		ug/L	261543	1	05/31/2018 14:56	OM
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

E Estimated (value above quantitation range)
S Spike Recovery outside limits due to matrix
Narr See case narrative
NC Not confirmed
< Less than Result value
J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 11-Jun-18

Client:	Santek Environmental Inc.	Client Sample ID:	LEACHATE
Project Name:	Loudon County (Matlock Bend) Landfill	Collection Date:	5/23/2018 11:43:00 AM
Lab ID:	1805P10-001	Matrix:	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,2-Trichloroethane	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
1,1-Dichloroethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
1,1-Dichloroethene	BRL	7.0		ug/L	261543	1	05/31/2018 14:56	OM
1,2,3-Trichloropropane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
1,2-Dichlorobenzene	BRL	600		ug/L	261543	1	05/31/2018 14:56	OM
1,2-Dichloroethane	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
1,2-Dichloropropane	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
1,4-Dichlorobenzene	BRL	75		ug/L	261543	1	05/31/2018 14:56	OM
2-Butanone	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
2-Hexanone	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
4-Methyl-2-pentanone	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Acetone	49	10		ug/L	261543	1	05/31/2018 14:56	OM
Acrylonitrile	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Benzene	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
Bromochloromethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Bromodichloromethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Bromoform	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Bromomethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Carbon disulfide	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Carbon tetrachloride	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
Chlorobenzene	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Chloroethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Chloroform	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Chloromethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
cis-1,2-Dichloroethene	BRL	70		ug/L	261543	1	05/31/2018 14:56	OM
cis-1,3-Dichloropropene	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Dibromochloromethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Dibromomethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Ethylbenzene	BRL	700		ug/L	261543	1	05/31/2018 14:56	OM
Iodomethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Methylene chloride	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
Styrene	BRL	100		ug/L	261543	1	05/31/2018 14:56	OM
Tetrachloroethene	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
Toluene	BRL	1000		ug/L	261543	1	05/31/2018 14:56	OM
trans-1,2-Dichloroethene	BRL	100		ug/L	261543	1	05/31/2018 14:56	OM
trans-1,3-Dichloropropene	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Trichloroethene	BRL	5.0		ug/L	261543	1	05/31/2018 14:56	OM
Trichlorofluoromethane	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Vinyl acetate	BRL	10		ug/L	261543	1	05/31/2018 14:56	OM
Vinyl chloride	BRL	2.0		ug/L	261543	1	05/31/2018 14:56	OM

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc**Date:** 11-Jun-18

Client: Santek Environmental Inc.	Client Sample ID: LEACHATE
Project Name: Loudon County (Matlock Bend) Landfill	Collection Date: 5/23/2018 11:43:00 AM
Lab ID: 1805P10-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
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APPENDIX I VOLATILE ORGANICS SW8260B**(SW5030B)**

Xylenes, Total	BRL	10000	ug/L	261543	1	05/31/2018 14:56	OM
Surr: 4-Bromofluorobenzene	103	68-127	%REC	261543	1	05/31/2018 14:56	OM
Surr: Dibromofluoromethane	110	84.4-122	%REC	261543	1	05/31/2018 14:56	OM
Surr: Toluene-d8	104	80.1-116	%REC	261543	1	05/31/2018 14:56	OM

APPENDIX I METALS SW6020B**(SW3005A)**

Antimony	0.0107	0.00150	mg/L	261481	1	05/31/2018 19:30	DP
Arsenic	0.109	0.00250	mg/L	261481	1	06/06/2018 23:51	TA
Barium	0.556	0.0100	mg/L	261481	1	06/06/2018 23:51	TA
Beryllium	BRL	0.00100	mg/L	261481	10	06/06/2018 23:45	TA
Cadmium	0.00132	0.000700	mg/L	261481	1	06/06/2018 23:51	TA
Chromium	0.296	0.00500	mg/L	261481	1	05/31/2018 19:30	DP
Cobalt	0.0975	0.00500	mg/L	261481	1	05/31/2018 19:30	DP
Copper	0.0330	0.00200	mg/L	261481	1	06/06/2018 23:51	TA
Lead	0.0274	0.00100	mg/L	261481	1	05/31/2018 19:30	DP
Nickel	0.327	0.00500	mg/L	261481	1	05/31/2018 19:30	DP
Selenium	BRL	0.00500	mg/L	261481	1	06/06/2018 23:51	TA
Silver	BRL	0.00100	mg/L	261481	1	05/31/2018 19:30	DP
Thallium	BRL	0.000500	mg/L	261481	1	05/31/2018 19:30	DP
Vanadium	BRL	0.00500	mg/L	261481	1	05/31/2018 19:30	DP
Zinc	0.301	0.0100	mg/L	261481	1	06/06/2018 23:51	TA

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit



Clear

Save as

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Santek Environmental Inc.**

AES Work Order Number: **1805P10**2. Carrier: FedEx UPS USPS Client Courier Other _____

	Yes	No	N/A	Details	Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/> leaking <input type="checkbox"/> other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
5. Custody seals intact on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
7. Cooler temperature(s) within limits of 0-8°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>	
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>	

13. Cooler 1 Temperature 2.2 °C Cooler 2 Temperature °C Cooler 3 Temperature °C Cooler 4 Temperature °C
 14. Cooler 5 Temperature °C Cooler 6 Temperature °C Cooler 7 Temperature °C Cooler 8 Temperature °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials).

TD 5/24/18

	Yes	No	N/A	Details	Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
17. Custody seals present on sample containers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
18. Custody seals intact on sample containers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> illegible <input type="checkbox"/> no label <input type="checkbox"/> other <input type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>	
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
26. Were trip blanks submitted?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	listed on COC <input type="checkbox"/> not listed on COC <input checked="" type="checkbox"/>	

27. Comments: _____

This section only applies to samples where pH can be checked at Sample Receipt.

I certify that I have completed sections 16-27 (dated initials).

MDP 5/24/18

	Yes	No	N/A	Details	Comments
28. Have containers needing chemical preservation been checked? *	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
29. Containers meet preservation guidelines?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
30. Was pH adjusted at Sample Receipt?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials).

MDP 5/24/18

Checklist 6.9.17 Rev 2

Locked

Page 7 of 9

Analytical Environmental Services, Inc

Date: 11-Jun-18

Client: Santek Environmental Inc.
Project Name: Loudon County (Matlock Bend) Landfill
Lab Order: 1805P10

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1805P10-001A	LEACHATE	5/23/2018 11:43:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS	5/29/2018 11:59:00AM	05/31/2018	
1805P10-001B	LEACHATE	5/23/2018 11:43:00AM	Groundwater	MICRO-EXTRACTABLE VOCs	5/25/2018 4:19:46 PM	05/26/2018	
1805P10-001C	LEACHATE	5/23/2018 11:43:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	05/31/2018	
1805P10-001C	LEACHATE	5/23/2018 11:43:00AM	Groundwater	APPENDIX I METALS	5/30/2018 10:41:00AM	06/06/2018	
1805P10-001C	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00AM	06/06/2018	
1805P10-001C	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Total Metals by ICP/MS	5/30/2018 10:41:00AM	06/07/2018	
1805P10-001C	LEACHATE	5/23/2018 11:43:00AM	Groundwater	TOTAL MERCURY	5/31/2018 7:45:00 PM	06/01/2018	
1805P10-001D	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Dissolved Metals by ICP/MS	6/1/2018 2:06:00 PM	06/01/2018	
1805P10-001E	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Nitrogen, Ammonia (as N)	5/29/2018 9:02:59 AM	05/29/2018	
1805P10-001E	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Chemical Oxygen Demand (COD)		05/31/2018	
1805P10-001F	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C	5/29/2018 5:24:00 PM	05/29/2018	
1805P10-001G	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Inorganic Anions by IC		05/24/2018	
1805P10-001G	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Inorganic Anions by IC		05/30/2018	
1805P10-001H	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Cyanide	5/31/2018 11:50:00AM	05/31/2018	
1805P10-001I	LEACHATE	5/23/2018 11:43:00AM	Groundwater	Total Organic Carbon by SM5310B		05/25/2018	

AES, Inc.
3080 Presidential Drive
Atlanta GA 30340

pH Adjustment Sheet

* Number of Pellets when adding NaOH

LEACHATE CONTROL CHART

LOUDON COUNTY LEACHATE

INORGANIC	APPENDIX I LIMITS	4-17-02	4-29-04	4-11-05	3-27-06	3-22-07	3-27-08	4-2-09	4-7-10	1-5-11	3-15-12	3-28-13	3-25-14	4-1-15	5-24-16	5-25-17	5-23-18	Leachate AVG
Antimony	6	6	6	6	6	6	6	60	6	6	8.75	60.00	6	8.23	30.60	10.70	14.89	
Arsenic	50	50	224	168	79.3	50.7	50.0	50.0	500.0	50.0	50.0	69.7	500.0	69.6	116.0	61.3	109.0	137.35
Barium	2000	2000	2610	2790	2000	2000	2000	2000	20000	2000	2000	2000	2000	2000	687	523	556	2947.88
Beryllium	4	4	4	4	4	4	4	4	40	4	4	4	4	4	4	1	1	5.88
Cadmium	5	5	5	5	5	5	5	50	5	5	5	5	5	5	5	1.25	1.32	7.35
Chromium	100	100	106	145	100	100	100	100	1000	100	100	136	1000	230	584	163	296	272.50
Cobalt	6**	19.5	36.5	53.0	40.1	30.6	25.5	14.4	1000.0	37.2	10.0	87.1	100.0	82.6	151.0	74.3	97.5	116.21
Copper	800**	10	31.9	14.6	10	10	10	10	1000	10	10	15.9	100.0	25.3	88.3	39.6	33.0	88.68
Flouride*	4	4	4	4	4	4	80	80	40	400	40	40	400	200	200	80	10	99.38
Lead	†15	50	57.1	50	50	50	15	15	150	15	15	150	30.4	116.0	20.1	27.4	51.63	
Mercury	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0.5	1.91
Nickel	100	100	100	144	114	100	100	100	1000	100	100	258	1000	240	618	255	327	291.00
Selenium	10	10	10	10.5	20.2	12.2	21.3	10.0	100.0	12.8	10.0	14.1	100.0	13.1	69.7	10.0	5.0	26.81
Silver	50	50	50	50	50	50	50	50	500	50	50	500	50	5	2.5	1.0	97.41	
Thallium	2	2	3.5	2	2	10.5	2.0	2.0	20.0	2.0	2.0	2.0	20.0	2.0	0.5	0.5	4.69	
Vanadium	86**	10	55.4	34.3	14.2	14.2	11.4	10.0	100.0	25.5	10.0	48.5	108.0	101.0	158.0	53.8	5.0	47.46
Zinc	6000**	44.4	918	209	66.5	32.5	66.8	67.5	420	176	191	1640	922	512	770	206	301	408.92

*ALL DATA IN UG/L EXCEPT FLUORIDE (MG/L)

† = TREATMENT TECHNIQUE ACTION LEVEL

****EPA REGION 4 SCREENING LEVEL**

4/7/10 reporting limits for some constituents are elevated due to a high dilution factor

APPENDIX G

Cobalt Alternate Source Demonstration

Presented in Table 1 below are the cobalt results for MW-03 and the leachate collected during the 1st semi-annual monitoring event of 2018, as well as soil samples from the Borrow Area at the Landfill. The results indicate cobalt is naturally occurring in the soils approximately 350 times higher than the groundwater. Furthermore, cobalt is present in the leachate as well. However, the presence of cobalt in the leachate is attributable to the use of soils as daily and intermediate cover. Santek believes this report adequately identifies the source of cobalt being the site's natural soil. Therefore, no additional sampling and analysis is recommended for cobalt in MW-03.

Table 1 - Cobalt Alternate Source Demonstration

<u>Location</u>	<u>Cobalt (ppm)</u>
MW-03 (5/23/18)	0.0133
Leachate (5/23/18)	0.0975
Borrow Area A Sample	6.60
Borrow Area B Sample	1.98
Borrow Area C Sample	5.42
Borrow Area Average	4.67



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

December 21, 2016

Robert Hudson
Santek Environmental Inc.
650 25th Street NW
Cleveland TN 37311

TEL: (423) 303-7101
FAX: (423) 479-1952

RE: Loudon (Matlock Bend) LF Borrow Pit

Dear Robert Hudson:

Order No: 1612642

Analytical Environmental Services, Inc. received 3 samples on 12/7/2016 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

- NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
- NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
- NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Chris Pafford
Project Manager



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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive, Atlanta GA 30340-3704

AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order:

1612642

COMPANY: <u>Santek Waste Services, Inc.</u>		ADDRESS: 650 25 th Street NW, Suite 100, Cleveland, TN 37311		ANALYSIS REQUESTED				Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.			
PHONE: (423) 303-7101		FAX: (423) 479-1952		<i>Metals by ICP/MS</i>				No # of Containers			
SAMPLED BY: R. Hudson		SIGNATURE: <u>Robert Hudson</u>									
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)		REMARKS		
		DATE	TIME								
1	A-Sample	11/29/16	3:31	X	SO	X			1		
2	B-Sample	11/29/16	3:29	X	SO	X			1		
3	C-Sample	11/29/16	3:27	X	SO	X			1		
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
RELINQUISHED BY		DATE/TIME	RECEIVED BY	DATE/TIME	PROJECT INFORMATION				RECEIPT		
<u>Robert Hudson</u>		12/6/16 11am	<u>Megan</u>	12/7/16 10:30	PROJECT NAME: <u>Lauder (Matlock Bend) LF Borrow Pit</u>				Total # of Containers		
2:		2:			PROJECT #: <u>Soil Samples</u>				Turnaround Time Request:		
3:		3:			SITE ADDRESS:				<input type="checkbox"/> Standard 5 Business Days <input type="checkbox"/> 2 Business Day Rush <input type="checkbox"/> Next Business Day Rush <input type="checkbox"/> Same Day Rush (auth req.) Other _____		
SPECIAL INSTRUCTIONS/COMMENTS: <u>See Chris Pafford</u>		SHIPMENT METHOD <input checked="" type="checkbox"/> OHP <input type="checkbox"/> / <input type="checkbox"/> / IN / / VIA: CLIENT <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> UPS MAIL COURIER GREYHOUND OTHER _____				INVOICE TO: (IF DIFFERENT FROM ABOVE) QUOTE #: _____ PO#: _____				STATE PROGRAM (if any): _____ E-mail? <input type="checkbox"/> Fax? <input type="checkbox"/> DATA PACKAGE: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	
SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COCAES WILL PROCEED AS STANDARD TAT. SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.											

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MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H = Hydrochloric acid + ice I = Ice only N = Nitric acid S (1) = Sulfuric acid + ice S (M) = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

^c White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc

Date: 21-Dec-16

Client:	Santek Environmental Inc.	Client Sample ID:	A-SAMPLE					
Project Name:	Loudon (Matlock Bend) LF Borrow Pit	Collection Date:	11/29/2016 3:31:00 AM					
Lab ID:	1612642-001	Matrix:	Soil					
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B								(SW7471B)
Mercury	BRL	0.0919		mg/Kg-dry	234606	1	12/12/2016 11:46	JR
Metals by ICP/MS SW6020B								(SW3050B)
Antimony	241	232		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Arsenic	8490	6970		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Barium	32600	4650		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Beryllium	186	46.5		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Cadmium	BRL	46.5		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Chromium	21700	9300		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Cobalt	6610	2320		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Copper	4760	930		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Lead	14300	465		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Nickel	3260	2320		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Selenium	BRL	2320		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Silver	BRL	46.5		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Thallium	178	46.5		ug/Kg-dry	234549	10	12/15/2016 02:56	JS
Vanadium	599	269		ug/Kg-dry	R332264	10	12/15/2016 02:56	JS
Zinc	33100	4650		ug/Kg-dry	234549	10	12/18/2016 04:38	JS
PERCENT MOISTURE D2216								
Percent Moisture	7.01	0		wt%	R332013	1	12/13/2016 10:00	BD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 21-Dec-16

Client:	Santek Environmental Inc.	Client Sample ID:	B-SAMPLE					
Project Name:	Loudon (Matlock Bend) LF Borrow Pit	Collection Date:	11/29/2016 3:29:00 AM					
Lab ID:	1612642-002	Matrix:	Soil					
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B								(SW7471B)
Mercury	BRL	0.0997		ug/Kg-dry	234606	1	12/12/2016 11:48	JR
Metals by ICP/MS SW6020B								(SW3050B)
Antimony	375	199		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Arsenic	16200	5960		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Barium	18300	3970		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Beryllium	143	39.7		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Cadmium	BRL	39.7		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Chromium	19800	7950		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Cobalt	1980	199		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Copper	8930	795		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Lead	14400	397		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Nickel	4740	1990		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Selenium	BRL	1990		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Silver	BRL	39.7		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Thallium	183	39.7		ug/Kg-dry	234549	10	12/15/2016 03:02	JS
Vanadium	1140	266		ug/Kg-dry	R332264	10	12/15/2016 03:02	JS
Zinc	24900	3970		ug/Kg-dry	234549	10	12/18/2016 04:44	JS
PERCENT MOISTURE D2216								
Percent Moisture	6.08	0		wt%	R332013	1	12/13/2016 10:00	BD

Qualifiers: * Value exceeds maximum contaminant level

E Estimated (value above quantitation range)

BRL Below reporting limit

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

Narr See case narrative

N Analyte not NELAC certified

NC Not confirmed

B Analyte detected in the associated method blank

< Less than Result value

> Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 21-Dec-16

Client: Santek Environmental Inc.	Client Sample ID: C-SAMPLE							
Project Name: Loudon (Matlock Bend) LF Borrow Pit	Collection Date: 11/29/2016 3:27:00 AM							
Lab ID: 1612642-003	Matrix: Soil							
Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TOTAL MERCURY SW7471B		(SW7471B)						
Mercury	BRL	0.110		mg/Kg-dry	234606	1	12/12/2016 11:34	JR
Metals by ICP/MS SW6020B		(SW3050B)						
Antimony	420	241		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Arsenic	24000	7230		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Barium	20200	4820		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Beryllium	251	48.2		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Cadmium	BRL	48.2		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Chromium	24800	9650		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Cobalt	5420	2410		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Copper	11500	965		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Lead	17500	482		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Nickel	4820	241		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Selenium	BRL	2410		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Silver	BRL	48.2		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Thallium	175	48.2		ug/Kg-dry	234549	10	12/15/2016 03:08	JS
Vanadium	1160	6.02		ug/Kg-dry	R332264	10	12/15/2016 03:08	JS
Zinc	44700	4820		ug/Kg-dry	234549	10	12/18/2016 04:51	JS
PERCENT MOISTURE D2216								
Percent Moisture	16.9	0		wt%	R332013	1	12/13/2016 10:00	BD

Qualifiers: * Value exceeds maximum contaminant level

BRL Below reporting limit

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client SantekWork Order Number 1612642Checklist completed by Jessica McNamee 12/17/10
Signature DateCarrier name: FedEx UPS Courier Client US Mail Other _____Shipping container/cooler in good condition? Yes No Not Present Custody seals intact on shipping container/cooler? Yes No Not Present Custody seals intact on sample bottles? Yes No Not Present Container/Temp Blank temperature in compliance? (0° \leq 6°C)* Yes No
*jm12642*Cooler #1 Ambient Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler #5 _____ Cooler #6 _____Chain of custody present? Yes No Chain of custody signed when relinquished and received? Yes No Chain of custody agrees with sample labels? Yes No Samples in proper container/bottle? Yes No Sample containers intact? Yes No Sufficient sample volume for indicated test? Yes No All samples received within holding time? Yes No Was TAT marked on the COC? Yes No Proceed with Standard TAT as per project history? Yes No Not Applicable Water - VOA vials have zero headspace? No VOA vials submitted Yes No Water - pH acceptable upon receipt? Yes No Not Applicable

Adjusted? _____ Checked by _____

Sample Condition: Good Other(Explain) _____(For diffusive samples or AIHA lead) Is a known blank included? Yes No **See Case Narrative for resolution of the Non-Conformance.**

* Samples do not have to comply with the given range for certain parameters.