

July 26, 2017



650 25th Street, N.W., Suite 100
Cleveland, Tennessee 37311
(423) 303-7101

Email: mail@santekenviro.com
Internet: www.santekenviro.com

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 2017 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 black ink that reads "Robert Hudson". The signature is written in a cursive style with a long horizontal line extending to the right.

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 - 2017**

SANTEK PROJECT NO. 200-1710.1



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

JULY 2017

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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, Inc. (Santek) is submitting the groundwater monitoring report for the first semi-annual event for 2017 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 35.3 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 25 & 26, 2017. 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-1A. 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.

Arsenic, beryllium, cobalt, lead, and thallium are exceptions as the average background concentrations for these parameters exceed the TN Regulatory Limit or EPA Region 4 Screening Level due to higher report limits during past sampling events. For these parameters, the TN Regulatory Limit or EPA Region 4 Screening Level will be used initially for comparison. If parameters are detected above these limits/levels, the detections will be compared to the background results obtained during the sampling event to indicate potentially elevated concentrations. Control charts are provided in Appendix C.

3.2 Statistical Analysis Summary

MW-01

There were no inorganic or organic constituents detected above the report limits during this event.

MW-1A

There were no inorganic or organic constituents detected above the report limits during this event.

MW-02

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

The control chart for MW-02 indicates beryllium is above the report limit. However, the result of this constituent does not exceed the TN Regulatory Limit which establishes the groundwater protection standards at this well.

MW-03

The control chart for MW-03 indicates thallium is above the report limit. 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-03 indicates cobalt is above the report limit and the EPA Region 4 Screening Level. However, the result of this constituent is below the background well result for cobalt during this event.

MW-4R

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

MW-05

The control chart for MW-02 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.

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 2.25×10^{-3} ft/day at MW-1A to 3.39×10^{-3} ft/day at MW-02. 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 2.60×10^{-3} ft/day at MW-03 to 5.81×10^{-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) 516-2081 Fax (678) 445-3276

May 31, 2017

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 25th and 26th, 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 for several hours or 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 YSI Pro Plus's which were calibrated each morning. Turbidity readings were collected using a Hach DR-820 or a Hach 2100Q, which are zeroed periodically throughout the day. The Hach meters contain a factory calibration which is checked in-house using formazine standards.

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Woodstock, GA 30189
inquiry@emservicesonline.com

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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 delivered under chain of custody via lab courier 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) <u>5/25/17</u> (Time) <u>1107</u>		Purge End: (Date) <u>5/25/17</u> (Time) <u>1126</u>	
Purged by: <u>RKerry</u>			
Depth Measurement Ref. Point*	<u>830.87</u>	ft	Well Casing. ID: <u>2"</u>

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 45.00 (-) Orig. DTW: 3.82 (=) Wtr. Col. Thick: 41.18

2"=0.163 Gals./ft. (=) 6.71 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 20.14 Total Purge Gals.

GW elev. Ref. 830.87 ft. (-) DTW: 3.82 ft. = 827.05 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 0.86 (gallons per minute)

Weather: C (°F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1107	0.0	7.18	378	14.5	252	cloudy, no odor
1111	6.75	6.34	381	14.5	992	cloudy, no odor
1114	10.25	6.25	383	14.7	437	cloudy, no odor
1117	13.50	6.24	385	14.6	368	cloudy, no odor
1120	17.00	6.23	386	14.4	270	cloudy, no odor
1123	20.25	6.23	387	14.5	191	cloudy, no odor
1126	22.50	6.23	388	14.4	183	cloudy, no odor

Turbidity at metals sample collection: 9 NTU's 5/26/17 @ 0740

Comments: orange, 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-1A	
Location: Loudon County Landfill		Site: Matlock Bend Phase I	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) <u>5/25/17</u> (Time) <u>1019</u>		Purge End: (Date) <u>5/25/17</u> (Time) <u>1032</u>	
Purged by: <u>RKery</u>			
Depth Measurement Ref. Point*	<u>805.13</u>	ft	Well Casing. ID: <u>2"</u>

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 38.00 (-) Orig. DTW: 7.63 (=) Wtr. Col. Thick: 30.37

2"=0.163 Gals./ft. (=) 4.95 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 14.85 Total Purge Gals.

GW elev. Ref. 805.13 ft. (-) DTW: 7.63 ft. = 797.50 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 1.25 (gallons per minute)

Weather: cloudy (55 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1019	0.0	5.80	571	14.2	57	cloudy, no odor
1022	5.00	5.89	693	14.6	90	cloudy, no odor
1024	7.50	5.99	730	14.2	97	cloudy, no odor
1026	10.00	6.05	755	14.1	200	cloudy, no odor
1028	12.50	6.09	763	14.2	321	cloudy, no odor
1030	15.00	6.11	767	14.2	502	cloudy, no odor
1032	17.50	6.13	769	14.2	530	cloudy, no odor

Turbidity at metals sample collection: 0 NTU's 5/26/17 @ 0748

Comments: Duplicate pulled here 5/25/17 @ 1700
cloudy, no odor 5/26/17 @ 1700

*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) <u>5-25-17</u> (Time) <u>1143</u>		Purge End: (Date) <u>5-25-17</u> (Time) <u>1159</u>	
Purged by: <u>J Muller</u>			
Depth Measurement Ref. Point* <u>825.20</u> ft		Well Casing. ID: <u>4"</u>	

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 43.10 (-) Orig. DTW: 7.33 (=) Wtr. Col. Thick: 35.77

2"=0.653 Gals./ft. (=) 5.83 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 17.49 Total Purge Gals.

GW elev. Ref. 825.20 ft. (-) DTW: 7.33 ft. = 817.87 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 0.67 (gallons per minute)

Weather: Cloudy (60 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
<u>1143</u>	<u>0</u>	<u>6.20</u>	<u>51</u>	<u>15.1</u>	<u>0</u>	<u>clear, no odor</u>
<u>1154</u>	<u>6.00</u>	<u>4.09</u>	<u>52</u>	<u>15.0</u>	<u>9</u>	<u>clear, no odor</u>
1159 <u>1159</u>	<u>8.75</u>	<u>4.13</u>	<u>47</u>	<u>15.1</u>	<u>0</u>	<u>clear, no odor</u>

Turbidity at metals sample collection: 0 NTU's

Comments: purged dry at 1.5 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-03	
Location: Loudon County Landfill		Site: Matlock Bend Phases I / II / IV	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) <u>5-25-17</u> (Time) <u>1043</u>		Purge End: (Date) <u>5-25-17</u> (Time) <u>1059</u>	
Purged by: <u>J Muller</u>			
Depth Measurement Ref. Point* <u>867.86</u> ft		Well Casing. ID: <u>2"</u>	

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 41.60 (-) Orig. DTW: 15.03 (=) Wtr. Col. Thick: 26.57
 2"=0.163 Gals./ft. (=) 4.33 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 12.99 Total Purge Gals.

GW elev. Ref. 867.86 ft. (-) DTW: 15.03 ft. = 852.83 ft.

Purge/Sample Method: Disposable Poly Bailer or SS Electric Submersible Pump
 Decon. Method: Field Appendix B
 Purge Water Containerized? (No)

Average Purge Rate: 0.56 (gallons per minute)
 Weather: cloudy (60 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1043	0	4.99	269	15.0	4	clear no odor
1051	4.50	5.25	261	15.4	31	clear no odor
1059	6.50	5.27	276	15.5	7	clear no odor
	8.75					
	11.00					
	13.00					

Turbidity at metals sample collection: 7 NTU's

Comments: purged dry at 1.5 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: Equipment Blank	
Location: Loudon County Landfill		Site: Matlock Bend	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) <u>5/25/17</u> (Time) <u>1425</u>		Purge End: (Date) <u>-</u> (Time) <u>-</u>	
Purged by: <u>RKM</u>			
Depth Measurement Ref. Point*	<u>N/A</u>	ft.	Well Csg. ID: <u>N/A</u>

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: cloudy (60 °F)

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

EMServices

Environmental Monitoring Services, LLC

Phone (770) 516-2081

Fax (678) 445-3276

May 31, 2017

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 25th and 26th, 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, 4R 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. We also collected a leachate sample via direct grab.

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 for several hours or 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 YSI Pro Plus's which were calibrated each morning. Turbidity readings were collected using a Hach DR-820 or Hach

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2100Q, which are zeroed periodically throughout the day. 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 delivered under chain of custody via lab courier 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) <u>5-25-17</u> (Time) <u>1043</u>		Purge End: (Date) <u>5-25-17</u> (Time) <u>1059</u>	
Purged by: <u>J Muller</u>			
Depth Measurement Ref. Point* <u>867.86</u> ft.		Well Casing. ID: <u>2"</u>	

Equipment Used to Measure (Make, Model, etc)

DTW Slope pH YSI Cond. YSI T° YSI

Measure Well TD: 41.60 (-) Orig. DTW: 15.03 (=) Wtr. Col. Thick: 26.57
 2"=0.163 Gals./ft. (=) 4.33 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 13.00 ^{12.99} Total Purge Gals.

GW elev. Ref. 867.86 ft. (-) DTW: 15.03 ft. = 852.83 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 0.56 (gallons per minute)

Weather: cloudy (60 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
1043	0	4.99	269	15.0	4	<u>clear</u> <u>no odor</u>	
1051	4.50	5.25	261	15.4	31	<u>clear</u> <u>no odor</u>	
1059	6.50	5.27	276	15.5	7	<u>clear</u> <u>no odor</u>	
	8.75						
	<u>11.00</u>						
	13.00						

Turbidity at metals sample collection: 7 NTU's

Comments: purged dry at 1.5 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) 5-25-17 (Time) 1239	Purge End: (Date) 5-25-17 (Time) 1305
Purged by: J Muller, R Kerr	
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: 95.53 (=) Wtr. Col. Thick: 10.97

2"=0.163 Gals./ft. (=) 1.79 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 5.36 Total Purge Gals.

GW elev. Ref. 992.32 ft. (-) DTW: 95.53 ft. = 896.82 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 0.11 (gallons per minute)

Weather: cloudy (60 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1239	0	4.97	112	18.1	77	clear, no odor cloudy
1258	2.00	5.79	245	18.4	265	beige, no odor
1305	2.75	6.05	182	19.8	310	beige, no odor
	3.75					
	4.50					
	5.50					

Turbidity at metals sample collection: 20 NTU's 0740 metals collected

Comments: purged dry at 1.5WV 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-05	
Location: Loudon County Landfill		Site: Matlock Bend Phases II/IV	
Client/Operator: Santek Waste Services, Inc.		Project No:	
Purge Start: (Date) 5-25-17 (Time) 1322		Purge End: (Date) 5-25-17 (Time) 1410	
Purged by: J Muller, R Kerr			
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: 83.82 (=) Wtr. Col. Thick: 88.89

(x) 2"=0.163 Gals./ft. (=) 14.49 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 43.47 Total Purge Gals.

GW elev. Ref. 936.84 ft. (-) DTW: 83.82 ft. = 853.02 ft.

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

Decon. Method: Field Appendix B

Purge Water Containerized? (No)

Average Purge Rate: 0.91 (gallons per minute)

Weather: cloudy (65 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1322	0	6.65	226	16.0	22	clear, no odor
1338	14.50	7.22	230	16.3	28	clear, no odor
1346	21.75	7.34	236	16.3	60	cloudy, no odor
1354	29.00	7.37	230	16.3	18	clear, no odor
1402	36.25	7.39	230	16.3	8	clear, no odor
1410	43.50	7.38	230	16.3	5	clear, no odor

Turbidity at metals sample collection: 5 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>5/25/17</u> (Time) <u>1425</u>		Purge End: (Date) <u>—</u> (Time) <u>—</u>	
Purged by: <u>RKerr</u>			
Depth Measurement Ref. Point*	<u>N/A</u>	ft	Well Csg. ID: <u>N/A</u>

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: cloudy (60 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)		Comments
	<u>—</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 09, 2017

Robert Hudson
Santek Environmental Inc.

650 25th Street NW, Suite 100
Cleveland TN 37311

RE: Loudon County (Matlock Bend) Landfill Phase 1

Dear Robert Hudson:

Order No: 1705Q20

Analytical Environmental Services, Inc. received 10 samples on May 26, 2017 2:41 pm
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.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective
07/01/16-06/30/17 and Total Coliforms and E. coli, effective 04/25/17-04/24/20.

-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical
Materials, effective 07/01/16-06/30/17.

-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.

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



COMPANY: SanteK Environmental Inc.		ADDRESS: 650 25th St NW, Ste 100, Cleveland, TN 37311				ANALYSIS REQUESTED										Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers	
PHONE: 423/303-7101		FAX:				TN App VOC (8200) TN App VOC (8201) TN App Metals + PAHs (8202, 8203, 8204) Diss, Mn LOD TDS E, Cl, NO ₃ , SO ₄ CN TOC, NH ₃										REMARKS			
SAMPLED BY: J Muller, R Kerr		SIGNATURE: <i>[Signature]</i>				PRESERVATION (See codes)													
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)											REMARKS		
		DATE	TIME				H+I	I	N	I	SEI	I	I	Wash	SEI				
1	MW-01	5-25-17	1126	X		GW	2	2										10	
2	L→	5-26-17	0740	X		GW			1									1	
3	MW-1A	5-25-17	1032	X		GW	2	2										10	
4	L→	5-26-17	0748	X		GW			1									1	
5	MW-02	5-25-17	1159	X		GW	2	2										11	
6	MW-03	5-25-17	1059	X		GW	2	2										shared w/ Phase 11/IV	
7	Duplicate	5-25-17	1700	X		GW	2	2										10	
8	L→	5-26-17	1700	X		GW			1									1	
9	Equipment Blank	5-25-17	1425	X		GW	2	2										shared w/ Phase 11/IV	
10	Trip Blank	5-25-17	0900	X		W	2	2										shared w/ Phase 11/IV	
11																			
12																			
13																			
14																			
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION										RECEIPT	
1: <i>[Signature]</i>		5/26/17 1300		1: <i>[Signature]</i>		5-26-17 1502		PROJECT NAME: Loudon County (Maplock Bend) Landfill Phase 1										Total # of Containers 77	
2: <i>[Signature]</i>		5-26-17 2:41		2: <i>[Signature]</i>		5/26/17 241		PROJECT #:										Turnaround Time Request	
3:				3:				SITE ADDRESS: 21712 Hwy 72 N, Loudon, TN 37774										<input checked="" type="radio"/> Standard 5 Business Days	
								SEND REPORT TO: Robert Hudson										<input type="radio"/> 2 Business Day Rush	
								INVOICE TO: (IF DIFFERENT FROM ABOVE)										<input type="radio"/> Next Business Day Rush	
								QUOTE #:										<input type="radio"/> Same Day Rush (auth req.)	
								PO#:										<input type="radio"/> Other	
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD														STATE PROGRAM (if any): TN	
				OUT / / VIA:														E-mail? <input checked="" type="radio"/> Y / <input checked="" type="radio"/> N Fax? <input checked="" type="radio"/> Y / <input checked="" type="radio"/> N	
				IN / / VIA:														DATA PACKAGE: I <input checked="" type="radio"/> II <input type="radio"/> III <input type="radio"/> IV	
				CLIENT FedEx UPS MAIL <input checked="" type="radio"/> COURIER															
				GREYHOUND OTHER															

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS 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 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 SAM+I = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

<p>Client: Santek Environmental Inc. Project: Loudon County (Matlock Bend) Landfill Phase 1 Lab ID: 1705Q20</p>	<p>Case Narrative</p>
-------------------------------------------------------------------------------------------------------------------------	------------------------------

Sample Receiving Nonconformance:

Sample ID MW-03 as received did not meet specified pH range for the requested test methods 6020 and 7470 of <2. Lab attempted to adjust pH at receipt using the maximum allowable amount of preservative, however, the required pH was not obtained. The lab proceeded at the request of Robert Hudson via phone 05-26-17.

The turn around time on the Chain of Custody was listed as a 2 day rush, however the TAT was changed to standard per Robert Hudson via email 05-26-17.

Micro-extractable VOC Analysis by Method 8011:

Matrix spike duplicate analyses were not performed with Batch 243324 due to insufficient sample volume.

Total Organic Carbon Analysis by Method SM5310B:

Due to sample matrix, samples 1705Q20-001H, -003H, -005H, -006H, and -007H required dilution during preparation and/or analysis resulting in elevated reporting limits.

SAMPLE/COOLER RECEIPT CHECKLIST

Clear

Save as

1. Client Name: Santek Environmental Inc.

AES Work Order Number: 1705Q20

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 2.3 °C Cooler 2 Temperature 1.8 °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). AJ 5/26/17

	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 type="radio"/>	<input checked="" 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: _____

I certify that I have completed sections 16-27 (dated initials). AJ 5/26/17

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

I certify that I have completed sections 28-30 (dated initials). AJ 5/26/17





ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 09, 2017

Robert Hudson
Santek Environmental Inc.

650 25th Street NW, Suite 100
Cleveland TN 37311

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

Dear Robert Hudson:

Order No: 1705Q25

Analytical Environmental Services, Inc. received 6 samples on 5/26/2017 2:41:00 PM
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.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective
07/01/16-06/30/17 and Total Coliforms and E. coli, effective 04/25/17-04/24/20.

-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical
Materials, effective 07/01/16-06/30/17.

-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.

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

CHAIN OF CUSTODY

Work Order: 105025

Date: 5-26-17 Page 1 of 1

COMPANY: <u>Scatek Environmental Inc.</u>		ADDRESS: <u>650 25th st NW, Ste 100 Cleveland, TN 37311</u>			ANALYSIS REQUESTED				Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers			
PHONE: <u>423/303-7101</u>		FAX:			PRESERVATION (See codes):									
SAMPLED BY: <u>J Muller, R Kent</u>		SIGNATURE: <u>[Signature]</u>			REMARKS									
#	SAMPLE ID	SAMPLED		Grab	Composite	Matrix (See codes)	ANALYSIS REQUESTED							
		DATE	TIME				H	I	N	I				
1	MW-03	5-25-17	1059	X		GW	2	2	1	1			shared w/ phase 1	6
2	MW-4R	5-25-17	1305	X		GW	2	2		1				5
3	L7	5-26-17	0740	X		GW			1					1
4	MW-05	5-25-17	1410	X		GW	2	2	1	1				6
5	Equipment Blank	5-25-17	1425	X		W	2	2	1	1			shared w/ phase 1	6
6	Tip Blank	5-25-17	0900	X		W	2	2	1	1			shared w/ phase 1	6
7														
8														
9														
10														
11														
12														
13														
14														

RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		PROJECT INFORMATION				RECEIPT	
1: <u>[Signature]</u>		5/26/17 1300		1: <u>[Signature]</u>		5-26-17 1:07		PROJECT NAME: <u>Lowder County (McHock Bend) Phase II/IV LP</u>				Total # of Containers: <u>30</u>	
2: <u>[Signature]</u>		5-26-17 2:41		2: <u>[Signature]</u>		5/26/17 2:41		PROJECT #: _____				Turnaround Time Request:	
3: _____		_____		3: _____		_____		SITE ADDRESS: <u>21712 Hwy 72 N Lowder, TN 37774</u>				<input type="radio"/> Standard 5 Business Days	
								SEND REPORT TO: <u>Robert Hudson</u>				<input checked="" type="radio"/> 2 Business Day Rush	
								INVOICE TO: _____				<input type="radio"/> Next Business Day Rush	
								(IF DIFFERENT FROM ABOVE)				<input type="radio"/> Same Day Rush (auth req.)	
								QUOTE #: _____ PO#: _____				<input type="radio"/> Other _____	
SPECIAL INSTRUCTIONS/COMMENTS:		SHIPMENT METHOD		OUT / / VIA:		IN / / VIA:						STATE PROGRAM (if any): <u>TN</u>	
		CLIENT FedEx UPS MAIL <u>COURIER</u> GREYHOUND OTHER _____										E-mail? <input checked="" type="checkbox"/> N; Fax? <input checked="" type="checkbox"/> Y	
												DATA PACKAGE: I <input checked="" type="radio"/> II III IV	

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES. SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

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

Client: Santek Environmental Inc.
Project: Loudon County (Matlock Bend) Phase II/IV LF
Lab ID: 1705Q25

Case Narrative

Sample Receiving Nonconformance:

The turn around time on the Chain of Custody was listed as a 2 day rush, however the TAT was changed to standard per Robert Hudson via email 05-26-17.

Micro-extractable VOC Analysis by Method 8011:

Matrix spike duplicate analyses were not performed with Batch 243325 due to insufficient sample volume.I

SAMPLE/COOLER RECEIPT CHECKLIST

Clear

Save as

1. Client Name: Santek Environmental Inc.

AES Work Order Number: 1705Q25

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 3.0 °C Cooler 2 Temperature 1.8 °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). AJ 5/26/17

	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 type="radio"/>	<input checked="" 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: _____

I certify that I have completed sections 16-27 (dated initials). AJ 5/26/17

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

I certify that I have completed sections 28-30 (dated initials). AJ 5/26/17

Locked

Analytical Environmental Services, Inc

Date: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-01
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 11:26:00 AM
Lab ID: 1705Q20-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	20.0		mg/L	R344664	20	05/31/2017 14:00	JM
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	270	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 13:45	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	243324	1	05/31/2017 12:42	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 12:42	AW
Surr: 4-Bromofluorobenzene	103	69.4-134		%REC	243324	1	05/31/2017 12:42	AW
Inorganic Anions by IC E300.0								
Chloride	20.1	1.00		mg/L	R344266	1	05/26/2017 19:25	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 19:25	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 19:25	JM
Sulfate	3.44	1.00		mg/L	R344266	1	05/26/2017 19:25	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	BRL	0.0100		mg/L	243633	1	06/05/2017 22:48	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 02:16	AR
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 02:16	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 02:16	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 02:16	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR

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-01
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 11:26:00 AM
Lab ID: 1705Q20-001	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	243483	1	06/01/2017 02:16	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 02:16	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 02:16	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 02:16	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 02:16	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 02:16	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 02:16	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 02:16	AR
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 02:16	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 02:16	AR
Surr: 4-Bromofluorobenzene	89	66.1-129		%REC	243483	1	06/01/2017 02:16	AR
Surr: Dibromofluoromethane	92.2	83.6-123		%REC	243483	1	06/01/2017 02:16	AR
Surr: Toluene-d8	95.6	81.8-118		%REC	243483	1	06/01/2017 02:16	AR

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-01
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/26/2017 7:40:00 AM
Lab ID: 1705Q20-002	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					(SW3005A)			
Calcium	47.2	0.100		mg/L	243302	1	06/08/2017 16:20	JR
Iron	0.273	0.100		mg/L	243302	1	06/08/2017 16:20	JR
Magnesium	28.5	0.100		mg/L	243302	1	06/08/2017 16:20	JR
Potassium	2.54	0.500		mg/L	243302	1	06/08/2017 16:20	JR
Sodium	9.40	0.500		mg/L	243302	1	06/08/2017 16:20	JR
Mercury, Total SW7470A					(SW7470A)			
Mercury	BRL	0.00200		mg/L	243660	1	06/06/2017 19:52	AS
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 00:48	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 19:34	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 00:48	JR
Beryllium	BRL	0.00100		mg/L	243302	1	06/02/2017 00:48	JR
Cadmium	BRL	0.00125		mg/L	243302	1	06/02/2017 00:48	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 00:48	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 00:48	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 01:46	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 00:48	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 00:48	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 00:48	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 00:48	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 00:48	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 00:48	JR
Zinc	BRL	0.0100		mg/L	243302	1	06/02/2017 00:48	JR

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-1A
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 10:32:00 AM
Lab ID: 1705Q20-003	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	20.0		mg/L	R344664	20	05/31/2017 14:56	JM
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	505	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 13:47	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.196		ug/L	243324	1	05/31/2017 17:27	AW
1,2-Dibromoethane	BRL	0.049		ug/L	243324	1	05/31/2017 17:27	AW
Surr: 4-Bromofluorobenzene	97.7	69.4-134		%REC	243324	1	05/31/2017 17:27	AW
Inorganic Anions by IC E300.0								
Chloride	128	10.0		mg/L	R344266	10	05/26/2017 19:55	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 19:40	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 19:40	JM
Sulfate	36.2	1.00		mg/L	R344266	1	05/26/2017 19:40	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	BRL	0.0100		mg/L	243633	1	06/05/2017 22:55	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 02:43	AR
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 02:43	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 02:43	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 02:43	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR

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-1A
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 10:32:00 AM
Lab ID: 1705Q20-003	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	243483	1	06/01/2017 02:43	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 02:43	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 02:43	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 02:43	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 02:43	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 02:43	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 02:43	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 02:43	AR
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 02:43	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 02:43	AR
Surr: 4-Bromofluorobenzene	88.6	66.1-129		%REC	243483	1	06/01/2017 02:43	AR
Surr: Dibromofluoromethane	96	83.6-123		%REC	243483	1	06/01/2017 02:43	AR
Surr: Toluene-d8	97.4	81.8-118		%REC	243483	1	06/01/2017 02:43	AR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-1A
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/26/2017 7:48:00 AM
Lab ID: 1705Q20-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					(SW3005A)			
Calcium	76.6	0.500		mg/L	243302	5	06/08/2017 16:57	JR
Iron	BRL	0.100		mg/L	243302	1	06/08/2017 16:26	JR
Magnesium	28.4	0.100		mg/L	243302	1	06/08/2017 16:26	JR
Potassium	15.3	0.500		mg/L	243302	1	06/08/2017 16:26	JR
Sodium	46.6	0.500		mg/L	243302	1	06/08/2017 16:26	JR
Mercury, Total SW7470A					(SW7470A)			
Mercury	BRL	0.00200		mg/L	243660	1	06/06/2017 20:02	AS
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 00:55	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 19:59	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 00:55	JR
Beryllium	BRL	0.00100		mg/L	243302	1	06/02/2017 00:55	JR
Cadmium	BRL	0.00125		mg/L	243302	1	06/02/2017 00:55	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 00:55	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 00:55	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 01:50	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 00:55	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 00:55	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 00:55	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 00:55	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 00:55	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 00:55	JR
Zinc	BRL	0.0100		mg/L	243302	1	06/02/2017 00:55	JR

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) Landfill Phase 1	Collection Date: 5/25/2017 5:00:00 PM
Lab ID: 1705Q20-007	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	20.0		mg/L	R344664	20	05/31/2017 15:51	JM
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	487	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 13:56	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	243324	1	05/31/2017 18:52	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 18:52	AW
Surr: 4-Bromofluorobenzene	104	69.4-134		%REC	243324	1	05/31/2017 18:52	AW
Inorganic Anions by IC E300.0								
Chloride	126	10.0		mg/L	R344266	10	05/30/2017 15:49	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 20:39	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 20:39	JM
Sulfate	35.3	1.00		mg/L	R344266	1	05/26/2017 20:39	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	BRL	0.0100		mg/L	243633	1	06/05/2017 23:33	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 04:04	AR
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 04:04	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 04:04	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 04:04	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: DUPLICATE
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 5:00:00 PM
Lab ID: 1705Q20-007	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	243483	1	06/01/2017 04:04	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 04:04	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 04:04	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 04:04	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 04:04	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 04:04	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:04	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 04:04	AR
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 04:04	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 04:04	AR
Surr: 4-Bromofluorobenzene	88.1	66.1-129		%REC	243483	1	06/01/2017 04:04	AR
Surr: Dibromofluoromethane	92.8	83.6-123		%REC	243483	1	06/01/2017 04:04	AR
Surr: Toluene-d8	96.6	81.8-118		%REC	243483	1	06/01/2017 04:04	AR

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) Landfill Phase 1	Collection Date: 5/26/2017 5:00:00 PM
Lab ID: 1705Q20-008	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					(SW3005A)			
Calcium	85.9	0.500		mg/L	243302	5	06/08/2017 17:04	JR
Iron	BRL	0.100		mg/L	243302	1	06/08/2017 16:39	JR
Magnesium	28.8	0.100		mg/L	243302	1	06/08/2017 16:39	JR
Potassium	15.9	0.500		mg/L	243302	1	06/08/2017 16:39	JR
Sodium	47.6	0.500		mg/L	243302	1	06/08/2017 16:39	JR
Mercury, Total SW7470A					(SW7470A)			
Mercury	BRL	0.00200		mg/L	243660	1	06/06/2017 20:12	AS
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 01:07	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 20:12	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 01:07	JR
Beryllium	BRL	0.00100		mg/L	243302	1	06/02/2017 01:07	JR
Cadmium	BRL	0.00125		mg/L	243302	1	06/02/2017 01:07	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 01:07	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 01:07	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 01:57	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 01:07	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 01:07	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 01:07	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 01:07	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 01:07	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 01:07	JR
Zinc	BRL	0.0100		mg/L	243302	1	06/02/2017 01:07	JR

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-02
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 11:59:00 AM
Lab ID: 1705Q20-005	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	10.0		mg/L	R344664	10	05/31/2017 15:14	JM
Total Metals by ICP/MS SW6020B (SW3005A)								
Calcium	1.92	0.100		mg/L	243302	1	06/08/2017 16:32	JR
Iron	0.265	0.100		mg/L	243302	1	06/08/2017 16:32	JR
Magnesium	1.36	0.100		mg/L	243302	1	06/08/2017 16:32	JR
Potassium	2.43	0.500		mg/L	243302	1	06/08/2017 16:32	JR
Sodium	2.15	0.500		mg/L	243302	1	06/08/2017 16:32	JR
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	63	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 13:49	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.199		ug/L	243324	1	05/31/2017 17:55	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 17:55	AW
Surr: 4-Bromofluorobenzene	101	69.4-134		%REC	243324	1	05/31/2017 17:55	AW
Mercury, Total SW7470A (SW7470A)								
Mercury	BRL	0.00200		mg/L	243660	1	06/06/2017 20:05	AS
Inorganic Anions by IC E300.0								
Chloride	2.58	1.00		mg/L	R344266	1	05/26/2017 20:09	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 20:09	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 20:09	JM
Sulfate	BRL	1.00		mg/L	R344266	1	05/26/2017 20:09	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	0.0989	0.0100		mg/L	243633	1	06/05/2017 23:20	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	17.2	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 03:10	AR

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) Landfill Phase 1	Collection Date: 5/25/2017 11:59:00 AM
Lab ID: 1705Q20-005	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	10		ug/L	243483	1	06/01/2017 03:10	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 03:10	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 03:10	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 03:10	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 03:10	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 03:10	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 03:10	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 03:10	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 03:10	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 03:10	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 03:10	AR

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) Landfill Phase 1	Collection Date: 5/25/2017 11:59:00 AM
Lab ID: 1705Q20-005	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B					(SW5030B)			
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 03:10	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 03:10	AR
Surr: 4-Bromofluorobenzene	87.9	66.1-129		%REC	243483	1	06/01/2017 03:10	AR
Surr: Dibromofluoromethane	94.8	83.6-123		%REC	243483	1	06/01/2017 03:10	AR
Surr: Toluene-d8	97.2	81.8-118		%REC	243483	1	06/01/2017 03:10	AR
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 01:01	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 20:05	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 01:01	JR
Beryllium	0.00170	0.00100		mg/L	243302	1	06/02/2017 01:01	JR
Cadmium	0.00145	0.00125		mg/L	243302	1	06/02/2017 01:01	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 01:01	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 01:01	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 01:53	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 01:01	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 01:01	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 01:01	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 01:01	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 01:01	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 01:01	JR
Zinc	0.0406	0.0100		mg/L	243302	1	06/02/2017 01:01	JR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-03
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 10:59:00 AM
Lab ID: 1705Q20-006	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	BRL	20.0		mg/L	R344664	20	05/31/2017 15:33	JM
Total Metals by ICP/MS SW6020B (SW3005A)								
Calcium	12.3	0.100		mg/L	243390	1	06/08/2017 13:57	JR
Iron	0.139	0.100		mg/L	243390	1	06/08/2017 13:57	JR
Magnesium	4.29	0.100		mg/L	243390	1	06/08/2017 13:57	JR
Potassium	5.07	0.500		mg/L	243390	1	06/08/2017 13:57	JR
Sodium	42.3	0.500		mg/L	243390	1	06/08/2017 13:57	JR
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	155	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	4.57	0.200		mg/L	243542	1	06/02/2017 13:54	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.199		ug/L	243324	1	05/31/2017 18:23	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 18:23	AW
Surr: 4-Bromofluorobenzene	99.9	69.4-134		%REC	243324	1	05/31/2017 18:23	AW
Mercury, Total SW7470A (SW7470A)								
Mercury	BRL	0.00200		mg/L	243660	1	06/06/2017 20:08	AS
Inorganic Anions by IC E300.0								
Chloride	44.6	1.00		mg/L	R344266	1	05/26/2017 20:24	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 20:24	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 20:24	JM
Sulfate	26.7	1.00		mg/L	R344266	1	05/26/2017 20:24	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	1.69	0.0100		mg/L	243633	1	06/05/2017 23:26	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 03:37	AR

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-03
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 10:59:00 AM
Lab ID: 1705Q20-006	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	10		ug/L	243483	1	06/01/2017 03:37	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 03:37	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 03:37	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 03:37	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 03:37	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 03:37	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 03:37	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 03:37	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 03:37	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 03:37	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 03:37	AR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-03
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 10:59:00 AM
Lab ID: 1705Q20-006	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B					(SW5030B)			
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 03:37	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 03:37	AR
Surr: 4-Bromofluorobenzene	89.1	66.1-129		%REC	243483	1	06/01/2017 03:37	AR
Surr: Dibromofluoromethane	94.6	83.6-123		%REC	243483	1	06/01/2017 03:37	AR
Surr: Toluene-d8	98.2	81.8-118		%REC	243483	1	06/01/2017 03:37	AR
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243390	1	06/02/2017 02:59	JR
Arsenic	BRL	0.00250		mg/L	243390	1	06/02/2017 02:59	JR
Barium	BRL	0.500		mg/L	243390	1	06/02/2017 02:59	JR
Beryllium	BRL	0.00100		mg/L	243390	1	06/02/2017 02:59	JR
Cadmium	BRL	0.00125		mg/L	243390	1	06/02/2017 02:59	JR
Chromium	BRL	0.0250		mg/L	243390	1	06/02/2017 02:59	JR
Cobalt	0.0110	0.00500		mg/L	243390	1	06/02/2017 02:59	JR
Copper	BRL	0.00500		mg/L	243390	1	06/02/2017 02:59	JR
Lead	BRL	0.00375		mg/L	243390	1	06/02/2017 02:59	JR
Nickel	BRL	0.0250		mg/L	243390	1	06/02/2017 02:59	JR
Selenium	BRL	0.0100		mg/L	243390	1	06/02/2017 02:59	JR
Silver	BRL	0.00250		mg/L	243390	1	06/02/2017 02:59	JR
Thallium	0.000737	0.000500		mg/L	243390	1	06/02/2017 02:59	JR
Vanadium	BRL	0.00500		mg/L	243390	1	06/02/2017 02:59	JR
Zinc	BRL	0.0100		mg/L	243390	1	06/02/2017 02:59	JR

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-4R
Project Name: Loudon County (Matlock Bend) Phase II/IV LF	Collection Date: 5/25/2017 1:05:00 PM
Lab ID: 1705Q25-002	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011				(SW8011)				
1,2-Dibromo-3-chloropropane	BRL	0.203		ug/L	243325	1	06/01/2017 02:28	AW
1,2-Dibromoethane	BRL	0.051		ug/L	243325	1	06/01/2017 02:28	AW
Surr: 4-Bromofluorobenzene	92.9	69.4-134		%REC	243325	1	06/01/2017 02:28	AW
Inorganic Anions by IC E300.0								
Fluoride	BRL	4.00		mg/L	R344522	1	06/01/2017 19:02	JM
APPENDIX I VOLATILE ORGANICS SW8260B				(SVV5030B)				
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 05:25	AR
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 05:25	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 05:25	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 05:25	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 05:25	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 05:25	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR

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-4R
Project Name: Loudon County (Matlock Bend) Phase II/IV LF	Collection Date: 5/25/2017 1:05:00 PM
Lab ID: 1705Q25-002	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B					(SW5030B)			
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 05:25	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 05:25	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 05:25	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 05:25	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 05:25	AR
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 05:25	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 05:25	AR
Surr: 4-Bromofluorobenzene	87	66.1-129		%REC	243483	1	06/01/2017 05:25	AR
Surr: Dibromofluoromethane	94.5	83.6-123		%REC	243483	1	06/01/2017 05:25	AR
Surr: Toluene-d8	98.4	81.8-118		%REC	243483	1	06/01/2017 05:25	AR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-4R
Project Name: Loudon County (Matlock Bend) Phase II/IV LF	Collection Date: 5/26/2017 7:40:00 AM
Lab ID: 1705Q25-003	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Mercury, Total SW7470A					(SW7470A)			
Mercury	BRL	0.00200		mg/L	243660	1	06/07/2017 09:53	AS
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	BRL	0.00150		mg/L	243390	1	06/02/2017 04:19	JR
Arsenic	BRL	0.00250		mg/L	243390	1	06/05/2017 19:10	JR
Barium	BRL	0.500		mg/L	243390	1	06/02/2017 04:19	JR
Beryllium	BRL	0.00100		mg/L	243390	1	06/02/2017 04:19	JR
Cadmium	BRL	0.00125		mg/L	243390	1	06/02/2017 04:19	JR
Chromium	BRL	0.0250		mg/L	243390	1	06/02/2017 04:19	JR
Cobalt	0.0115	0.00500		mg/L	243390	1	06/05/2017 19:10	JR
Copper	0.00503	0.00500		mg/L	243390	1	06/05/2017 19:10	JR
Lead	BRL	0.00375		mg/L	243390	1	06/02/2017 04:19	JR
Nickel	BRL	0.0250		mg/L	243390	1	06/05/2017 19:10	JR
Selenium	BRL	0.0100		mg/L	243390	1	06/02/2017 04:19	JR
Silver	BRL	0.00250		mg/L	243390	1	06/02/2017 04:19	JR
Thallium	BRL	0.000500		mg/L	243390	1	06/02/2017 04:19	JR
Vanadium	BRL	0.00500		mg/L	243390	1	06/02/2017 04:19	JR
Zinc	0.0309	0.0100		mg/L	243390	1	06/08/2017 17:29	JR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: MW-05
Project Name: Loudon County (Matlock Bend) Phase II/IV LF	Collection Date: 5/25/2017 2:10:00 PM
Lab ID: 1705Q25-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011				(SW8011)				
1,2-Dibromo-3-chloropropane	BRL	0.201	S	ug/L	243325	1	05/31/2017 16:30	AW
1,2-Dibromoethane	BRL	0.050	S	ug/L	243325	1	05/31/2017 16:30	AW
Surr: 4-Bromofluorobenzene	101	69.4-134		%REC	243325	1	05/31/2017 16:30	AW
Mercury, Total SW7470A				(SW7470A)				
Mercury	BRL	0.00200		mg/L	243660	1	06/07/2017 09:56	AS
Inorganic Anions by IC E300.0								
Fluoride	BRL	4.00		mg/L	R344522	1	06/01/2017 19:17	JM
APPENDIX I VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 05:52	AR
1,1,2,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 05:52	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 05:52	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 05:52	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
Bromo chloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 05:52	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR

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
	DI 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) Phase II/IV LF	Collection Date: 5/25/2017 2:10:00 PM
Lab ID: 1705Q25-004	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B				(SW5030B)				
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 05:52	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 05:52	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 05:52	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 05:52	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 05:52	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 05:52	AR
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 05:52	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 05:52	AR
Surr: 4-Bromofluorobenzene	88.4	66.1-129		%REC	243483	1	06/01/2017 05:52	AR
Surr: Dibromofluoromethane	95.8	83.6-123		%REC	243483	1	06/01/2017 05:52	AR
Surr: Toluene-d8	97.5	81.8-118		%REC	243483	1	06/01/2017 05:52	AR

APPENDIX I METALS SW6020B				(SW3005A)				
Antimony	BRL	0.00150		mg/L	243390	1	06/02/2017 04:26	JR
Arsenic	BRL	0.00250		mg/L	243390	1	06/05/2017 19:16	JR
Barium	BRL	0.500		mg/L	243390	1	06/02/2017 04:26	JR
Beryllium	BRL	0.00100		mg/L	243390	1	06/02/2017 04:26	JR
Cadmium	BRL	0.00125		mg/L	243390	1	06/02/2017 04:26	JR
Chromium	BRL	0.0250		mg/L	243390	1	06/02/2017 04:26	JR
Cobalt	BRL	0.00500		mg/L	243390	1	06/05/2017 19:16	JR
Copper	BRL	0.00500		mg/L	243390	1	06/05/2017 19:16	JR
Lead	BRL	0.00375		mg/L	243390	1	06/02/2017 04:26	JR
Nickel	BRL	0.0250		mg/L	243390	1	06/05/2017 19:16	JR
Selenium	BRL	0.0100		mg/L	243390	1	06/02/2017 04:26	JR
Silver	BRL	0.00250		mg/L	243390	1	06/02/2017 04:26	JR
Thallium	BRL	0.000500		mg/L	243390	1	06/02/2017 04:26	JR
Vanadium	BRL	0.00500		mg/L	243390	1	06/02/2017 04:26	JR
Zinc	0.0104	0.0100		mg/L	243390	1	06/08/2017 17:35	JR

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: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 2:25:00 PM
Lab ID: 1705Q20-009	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	1.43	1.00		mg/L	R344664	1	05/31/2017 02:03	JM
Total Metals by ICP/MS SW6020B (SW3005A)								
Calcium	BRL	0.100		mg/L	243302	1	06/08/2017 16:45	JR
Iron	BRL	0.100		mg/L	243302	1	06/08/2017 16:45	JR
Magnesium	BRL	0.100		mg/L	243302	1	06/08/2017 16:45	JR
Potassium	BRL	0.500		mg/L	243302	1	06/08/2017 16:45	JR
Sodium	BRL	0.500		mg/L	243302	1	06/08/2017 16:45	JR
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	14	1		mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 13:58	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.201		ug/L	243324	1	05/31/2017 19:20	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 19:20	AW
Surr: 4-Bromofluorobenzene	107	69.4-134		%REC	243324	1	05/31/2017 19:20	AW
Mercury, Total SW7470A (SW7470A)								
Mercury	BRL	0.00200		mg/L	243457	1	06/07/2017 10:00	AS
Inorganic Anions by IC E300.0								
Chloride	1.28	1.00		mg/L	R344266	1	05/26/2017 20:53	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 20:53	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 20:53	JM
Sulfate	BRL	1.00		mg/L	R344266	1	05/26/2017 20:53	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	BRL	0.0100		mg/L	243633	1	06/05/2017 23:39	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 04:31	AR

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: EQUIPMENT BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 2:25:00 PM
Lab ID: 1705Q20-009	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	10		ug/L	243483	1	06/01/2017 04:31	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 04:31	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 04:31	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 04:31	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 04:31	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 04:31	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 04:31	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 04:31	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 04:31	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:31	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 04:31	AR

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 1	Collection Date: 5/25/2017 2:25:00 PM
Lab ID: 1705Q20-009	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B				(SW5030B)				
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 04:31	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 04:31	AR
Surr: 4-Bromofluorobenzene	88.1	66.1-129		%REC	243483	1	06/01/2017 04:31	AR
Surr: Dibromofluoromethane	93.4	83.6-123		%REC	243483	1	06/01/2017 04:31	AR
Surr: Toluene-d8	97.3	81.8-118		%REC	243483	1	06/01/2017 04:31	AR
APPENDIX I METALS SW6020B				(SW3005A)				
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 01:13	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 20:18	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 01:13	JR
Beryllium	BRL	0.00100		mg/L	243302	1	06/02/2017 01:13	JR
Cadmium	BRL	0.00125		mg/L	243302	1	06/02/2017 01:13	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 01:13	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 01:13	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 02:00	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 01:13	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 01:13	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 01:13	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 01:13	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 01:13	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 01:13	JR
Zinc	BRL	0.0100		mg/L	243302	1	06/02/2017 01:13	JR

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 1	Collection Date: 5/25/2017 9:00:00 AM
Lab ID: 1705Q20-010	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	R344664	1	05/31/2017 02:21	JM
Total Metals by ICP/MS SW6020B (SW3005A)								
Calcium	BRL	0.100		mg/L	243302	1	06/08/2017 16:51	JR
Iron	BRL	0.100		mg/L	243302	1	06/08/2017 16:51	JR
Magnesium	BRL	0.100		mg/L	243302	1	06/08/2017 16:51	JR
Potassium	BRL	0.500		mg/L	243302	1	06/08/2017 16:51	JR
Sodium	BRL	0.500		mg/L	243302	1	06/08/2017 16:51	JR
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	5	1	H	mg/L	243493	1	06/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	BRL	0.200		mg/L	243542	1	06/02/2017 14:03	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	243324	1	05/31/2017 19:48	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243324	1	05/31/2017 19:48	AW
Surr: 4-Bromofluorobenzene	103	69.4-134		%REC	243324	1	05/31/2017 19:48	AW
Mercury, Total SW7470A (SW7470A)								
Mercury	BRL	0.00200		mg/L	243457	1	06/07/2017 10:03	AS
Inorganic Anions by IC E300.0								
Chloride	BRL	1.00		mg/L	R344266	1	05/26/2017 21:08	JM
Fluoride	BRL	4.00		mg/L	R344266	1	05/26/2017 21:08	JM
Nitrogen, Nitrate (As N)	BRL	10.0		mg/L	R344266	1	05/26/2017 21:08	JM
Sulfate	BRL	1.00		mg/L	R344266	1	05/26/2017 21:08	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	BRL	0.0100		mg/L	243633	1	06/06/2017 19:23	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	BRL	10.0		mg/L	R344553	1	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243483	1	06/01/2017 04:57	AR

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: TRIP BLANK
Project Name: Loudon County (Matlock Bend) Landfill Phase 1	Collection Date: 5/25/2017 9:00:00 AM
Lab ID: 1705Q20-010	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	10		ug/L	243483	1	06/01/2017 04:57	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
1,1-Dichloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243483	1	06/01/2017 04:57	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243483	1	06/01/2017 04:57	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243483	1	06/01/2017 04:57	AR
2-Butanone	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
2-Hexanone	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Acetone	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Acrylonitrile	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Benzene	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
Bromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Bromodichloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Bromoform	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Bromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Carbon disulfide	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Carbon tetrachloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
Chlorobenzene	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Chloroethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Chloroform	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Chloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243483	1	06/01/2017 04:57	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Dibromochloromethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Dibromomethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Ethylbenzene	BRL	700		ug/L	243483	1	06/01/2017 04:57	AR
Iodomethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Methylene chloride	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
Styrene	BRL	100		ug/L	243483	1	06/01/2017 04:57	AR
Tetrachloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
Toluene	BRL	1000		ug/L	243483	1	06/01/2017 04:57	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243483	1	06/01/2017 04:57	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Trichloroethene	BRL	5.0		ug/L	243483	1	06/01/2017 04:57	AR
Trichlorofluoromethane	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR
Vinyl acetate	BRL	10		ug/L	243483	1	06/01/2017 04:57	AR

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 1	Collection Date: 5/25/2017 9:00:00 AM
Lab ID: 1705Q20-010	Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B				(SW5030B)				
Vinyl chloride	BRL	2.0		ug/L	243483	1	06/01/2017 04:57	AR
Xylenes, Total	BRL	10000		ug/L	243483	1	06/01/2017 04:57	AR
Surr: 4-Bromofluorobenzene	88	66.1-129		%REC	243483	1	06/01/2017 04:57	AR
Surr: Dibromofluoromethane	92.4	83.6-123		%REC	243483	1	06/01/2017 04:57	AR
Surr: Toluene-d8	97.4	81.8-118		%REC	243483	1	06/01/2017 04:57	AR

APPENDIX I METALS SW6020B				(SW3005A)				
Antimony	BRL	0.00150		mg/L	243302	1	06/02/2017 01:38	JR
Arsenic	BRL	0.00250		mg/L	243302	1	06/05/2017 20:24	JR
Barium	BRL	0.500		mg/L	243302	1	06/02/2017 01:38	JR
Beryllium	BRL	0.00100		mg/L	243302	1	06/02/2017 01:38	JR
Cadmium	BRL	0.00125		mg/L	243302	1	06/02/2017 01:38	JR
Chromium	BRL	0.0250		mg/L	243302	1	06/02/2017 01:38	JR
Cobalt	BRL	0.00500		mg/L	243302	1	06/02/2017 01:38	JR
Copper	BRL	0.00500		mg/L	243302	1	06/02/2017 02:11	JR
Lead	BRL	0.00375		mg/L	243302	1	06/02/2017 01:38	JR
Nickel	BRL	0.0250		mg/L	243302	1	06/02/2017 01:38	JR
Selenium	BRL	0.0100		mg/L	243302	1	06/02/2017 01:38	JR
Silver	BRL	0.00250		mg/L	243302	1	06/02/2017 01:38	JR
Thallium	BRL	0.000500		mg/L	243302	1	06/02/2017 01:38	JR
Vanadium	BRL	0.00500		mg/L	243302	1	06/02/2017 01:38	JR
Zinc	BRL	0.0100		mg/L	243302	1	06/02/2017 01:38	JR

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.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Lab Order: 1705Q20

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q20-001A	MW-01	5/25/2017 11:26:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-001B	MW-01	5/25/2017 11:26:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-001C	MW-01	5/25/2017 11:26:00AM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q20-001D	MW-01	5/25/2017 11:26:00AM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-001E	MW-01	5/25/2017 11:26:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-001F	MW-01	5/25/2017 11:26:00AM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q20-001G	MW-01	5/25/2017 11:26:00AM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-001H	MW-01	5/25/2017 11:26:00AM	Groundwater	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-001H	MW-01	5/25/2017 11:26:00AM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-002A	MW-01	5/26/2017 7:40:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-002A	MW-01	5/26/2017 7:40:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-002A	MW-01	5/26/2017 7:40:00AM	Groundwater	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-002A	MW-01	5/26/2017 7:40:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/06/2017
1705Q20-003A	MW-1A	5/25/2017 10:32:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-003B	MW-1A	5/25/2017 10:32:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-003C	MW-1A	5/25/2017 10:32:00AM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q20-003D	MW-1A	5/25/2017 10:32:00AM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-003E	MW-1A	5/25/2017 10:32:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-003F	MW-1A	5/25/2017 10:32:00AM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q20-003G	MW-1A	5/25/2017 10:32:00AM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-003H	MW-1A	5/25/2017 10:32:00AM	Groundwater	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-003H	MW-1A	5/25/2017 10:32:00AM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-004A	MW-1A	5/26/2017 7:48:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-004A	MW-1A	5/26/2017 7:48:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-004A	MW-1A	5/26/2017 7:48:00AM	Groundwater	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-004A	MW-1A	5/26/2017 7:48:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/06/2017
1705Q20-005A	MW-02	5/25/2017 11:59:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-005B	MW-02	5/25/2017 11:59:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-005C	MW-02	5/25/2017 11:59:00AM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Lab Order: 1705Q20

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q20-005D	MW-02	5/25/2017 11:59:00AM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-005E	MW-02	5/25/2017 11:59:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-005F	MW-02	5/25/2017 11:59:00AM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q20-005G	MW-02	5/25/2017 11:59:00AM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-005H	MW-02	5/25/2017 11:59:00AM	Groundwater	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-005H	MW-02	5/25/2017 11:59:00AM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-005I	MW-02	5/25/2017 11:59:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-005I	MW-02	5/25/2017 11:59:00AM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-005I	MW-02	5/25/2017 11:59:00AM	Groundwater	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-005I	MW-02	5/25/2017 11:59:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/06/2017
1705Q20-006A	MW-03	5/25/2017 10:59:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-006B	MW-03	5/25/2017 10:59:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-006C	MW-03	5/25/2017 10:59:00AM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q20-006D	MW-03	5/25/2017 10:59:00AM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-006E	MW-03	5/25/2017 10:59:00AM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-006F	MW-03	5/25/2017 10:59:00AM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q20-006G	MW-03	5/25/2017 10:59:00AM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-006H	MW-03	5/25/2017 10:59:00AM	Groundwater	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-006H	MW-03	5/25/2017 10:59:00AM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-006I	MW-03	5/25/2017 10:59:00AM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00AM	06/02/2017
1705Q20-006I	MW-03	5/25/2017 10:59:00AM	Groundwater	Total Metals by ICP/MS		5/31/2017 10:54:00AM	06/08/2017
1705Q20-006I	MW-03	5/25/2017 10:59:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/06/2017
1705Q20-007A	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-007B	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-007C	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q20-007D	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-007E	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-007F	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q20-007F	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Inorganic Anions by IC			05/30/2017

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Lab Order: 1705Q20

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q20-007G	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-007H	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-007H	DUPLICATE	5/25/2017 5:00:00PM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-008A	DUPLICATE	5/26/2017 5:00:00PM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-008A	DUPLICATE	5/26/2017 5:00:00PM	Groundwater	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-008A	DUPLICATE	5/26/2017 5:00:00PM	Groundwater	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-008A	DUPLICATE	5/26/2017 5:00:00PM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/06/2017
1705Q20-009A	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-009B	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-009C	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q20-009D	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-009E	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-009F	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Inorganic Anions by IC			05/26/2017
1705Q20-009G	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-009H	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-009H	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Total Organic Carbon by SM5310B			05/31/2017
1705Q20-009I	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-009I	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-009I	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-009I	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	TOTAL MERCURY		6/1/2017 1:34:00PM	06/07/2017
1705Q20-010A	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00PM	06/01/2017
1705Q20-010B	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	05/31/2017
1705Q20-010C	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/06/2017
1705Q20-010D	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Chemical Oxygen Demand (COD)			06/02/2017
1705Q20-010E	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q20-010F	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Inorganic Anions by IC			05/26/2017
1705Q20-010G	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q20-010H	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Nitrogen, Ammonia (as N)		6/2/2017 11:45:00AM	06/02/2017
1705Q20-010H	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Total Organic Carbon by SM5310B			05/31/2017

Client:	Santek Environmental Inc.	Dates Report
Project Name:	Loudon County (Matlock Bend) Landfill Phase 1	
Lab Order:	1705Q20	

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q20-010I	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00PM	06/02/2017
1705Q20-010I	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00PM	06/05/2017
1705Q20-010I	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Total Metals by ICP/MS		5/30/2017 5:37:00PM	06/08/2017
1705Q20-010I	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	TOTAL MERCURY		6/1/2017 1:34:00PM	06/07/2017

pH Adjustment Sheet

AES Sample ID number	Test Requested	pH as Received	Required pH	Preservative Required	Lot # of Preservative	Amount Added mL or Pellets*	Final pH	Tech's Initials	Date	Time
1705Q20-004A	Metals	4	1	HNO3	747-50	0.5 mL Pellets	1	AJ	5/26	7:05
-001H	TOC, NH3	6	1	H2SO4	705-47	1.0 mL Pellets	1	AJ	↓	↓
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				

* Number of Pellets when adding NaOH

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Lab Order: 1705Q25

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q25-001A	MW-03	5/25/2017 10:59:00AM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00 PM	06/01/2017
1705Q25-001B	MW-03	5/25/2017 10:59:00AM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00 PM	05/31/2017
1705Q25-001C	MW-03	5/25/2017 10:59:00AM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/02/2017
1705Q25-001C	MW-03	5/25/2017 10:59:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00 PM	06/06/2017
1705Q25-001D	MW-03	5/25/2017 10:59:00AM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q25-002A	MW-4R	5/25/2017 1:05:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00 PM	06/01/2017
1705Q25-002B	MW-4R	5/25/2017 1:05:00PM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00 PM	06/01/2017
1705Q25-002C	MW-4R	5/25/2017 1:05:00PM	Groundwater	Inorganic Anions by IC			06/01/2017
1705Q25-003A	MW-4R	5/26/2017 7:40:00AM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/02/2017
1705Q25-003A	MW-4R	5/26/2017 7:40:00AM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/05/2017
1705Q25-003A	MW-4R	5/26/2017 7:40:00AM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/08/2017
1705Q25-003A	MW-4R	5/26/2017 7:40:00AM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00 PM	06/07/2017
1705Q25-004A	MW-05	5/25/2017 2:10:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00 PM	06/01/2017
1705Q25-004B	MW-05	5/25/2017 2:10:00PM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00 PM	05/31/2017
1705Q25-004C	MW-05	5/25/2017 2:10:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/02/2017
1705Q25-004C	MW-05	5/25/2017 2:10:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/05/2017
1705Q25-004C	MW-05	5/25/2017 2:10:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00 AM	06/08/2017
1705Q25-004C	MW-05	5/25/2017 2:10:00PM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00 PM	06/07/2017
1705Q25-004D	MW-05	5/25/2017 2:10:00PM	Groundwater	Inorganic Anions by IC			06/01/2017
1705Q25-005A	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00 PM	06/01/2017
1705Q25-005B	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00 PM	05/31/2017
1705Q25-005C	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00 PM	06/02/2017
1705Q25-005C	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00 PM	06/05/2017
1705Q25-005C	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	TOTAL MERCURY		6/1/2017 1:34:00 PM	06/07/2017
1705Q25-005D	EQUIPMENT BLANK	5/25/2017 2:25:00PM	Aqueous	Inorganic Anions by IC			05/26/2017
1705Q25-006A	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I VOLATILE ORGANICS		5/31/2017 12:44:00 PM	06/01/2017
1705Q25-006B	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00 PM	05/31/2017
1705Q25-006C	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00 PM	06/02/2017
1705Q25-006C	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	APPENDIX I METALS		5/30/2017 5:37:00 PM	06/05/2017

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Lab Order: 1705Q25

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q25-006C	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	TOTAL MERCURY		6/1/2017 1:34:00 PM	06/07/2017
1705Q25-006D	TRIP BLANK	5/25/2017 9:00:00AM	Aqueous	Inorganic Anions by IC			05/26/2017

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559367							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper BRL 0.0200

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559781							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony BRL 0.00600
 Arsenic BRL 0.0100
 Barium BRL 0.0200
 Beryllium BRL 0.00400
 Cadmium BRL 0.00500
 Chromium BRL 0.0200
 Cobalt BRL 0.0500
 Lead BRL 0.0100
 Nickel BRL 0.0400
 Selenium BRL 0.0500
 Silver BRL 0.00500
 Thallium BRL 0.00200
 Vanadium BRL 0.0500
 Zinc BRL 0.0200

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344584							
SampleType: MBLK	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7560426							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron BRL 0.100

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

BatchID: 243302

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 345019							
SampleType: MBLK	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/08/2017	Seq No: 7571568							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	BRL	0.100									
Iron	BRL	0.100									
Magnesium	BRL	0.100									
Potassium	BRL	0.100									
Sodium	BRL	0.500									

Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559368							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper	0.09284	0.0200	0.1000	0.0002030	92.6	80	120				
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Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559782							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	0.1049	0.00600	0.1000		105	80	120				
Arsenic	0.09333	0.0100	0.1000		93.3	80	120				
Barium	0.1055	0.0200	0.1000	0.0005320	105	80	120				
Beryllium	0.09692	0.00400	0.1000		96.9	80	120				
Cadmium	0.09719	0.00500	0.1000		97.2	80	120				
Chromium	0.09847	0.0200	0.1000	0.0007390	97.7	80	120				
Cobalt	0.09375	0.0500	0.1000		93.8	80	120				
Lead	0.1015	0.0100	0.1000		102	80	120				
Nickel	0.09223	0.0400	0.1000		92.2	80	120				
Selenium	0.09404	0.0500	0.1000		94.0	80	120				
Silver	0.009975	0.00500	0.0100	0.00003400	99.4	80	120				
Thallium	0.1010	0.00200	0.1000		101	80	120				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559782							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Vanadium	0.09685	0.0500	0.1000		96.8	80	120				
Zinc	0.09512	0.0200	0.1000	0.0006540	94.5	80	120				

Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344584							
SampleType: LCS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7560427							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	0.9464	0.100	1.000		94.6	80	120				
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Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 345019							
SampleType: LCS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/08/2017	Seq No: 7571569							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	0.9356	0.100	1.000		93.6	80	120				
Iron	0.9790	0.100	1.000		97.9	80	120				
Magnesium	0.9080	0.100	1.000		90.8	80	120				
Potassium	0.9529	0.100	1.000	0.01452	93.8	80	120				
Sodium	0.8489	0.500	1.000	0.01791	83.1	80	120				

Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559370							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper	0.09849	0.0200	0.1000	0.004447	94.0	75	125				
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Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559784							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase I
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
Sample Type: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559784							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	0.09429	0.00600	0.1000	0.0005890	93.7	75	125				
Arsenic	0.08759	0.0100	0.1000	0.002215	85.4	75	125				
Barium	0.3091	0.0200	0.1000	0.2111	98.0	75	125				
Beryllium	0.09855	0.00400	0.1000	0.0004550	98.1	75	125				
Cadmium	0.09821	0.00500	0.1000	0.001230	97.0	75	125				
Chromium	0.09345	0.0200	0.1000	0.003847	89.6	75	125				
Cobalt	0.09230	0.0500	0.1000	0.004258	88.0	75	125				
Lead	0.1046	0.0100	0.1000	0.002562	102	75	125				
Nickel	0.08925	0.0400	0.1000	0.004488	84.8	75	125				
Selenium	0.08560	0.0500	0.1000	0.0004390	85.2	75	125				
Silver	0.009820	0.00500	0.0100	0.0001000	97.2	75	125				
Thallium	0.1018	0.00200	0.1000	0.0003950	101	75	125				
Vanadium	0.09517	0.0500	0.1000	0.006062	89.1	75	125				
Zinc	0.1366	0.0200	0.1000	0.05003	86.6	75	125				

Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344584							
Sample Type: MS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7560429							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	7.296	0.100	1.000	6.514	78.2	75	125				
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Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 345019							
Sample Type: MS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/08/2017	Seq No: 7571571							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	11.95	0.100	1.000	11.31	64.0	75	125				S
Iron	11.54	0.100	1.000	10.68	86.0	75	125				
Magnesium	7.619	0.100	1.000	6.937	68.2	75	125				S

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: 1705P77-024BMS	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 345019							
SampleType: MS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/08/2017	Seq No: 7571571							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Potassium	3.952	0.100	1.000	3.065	88.7	75	125				
Sodium	24.97	0.500	1.000	25.23	-26.0	75	125				S

Sample ID: 1705P77-024BMSD	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559373							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper	0.1049	0.0200	0.1000	0.004447	100	75	125	0.09849	6.28	20	
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Sample ID: 1705P77-024BMSD	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559785							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	0.09219	0.00600	0.1000	0.0005890	91.6	75	125	0.09429	2.25	20	
Arsenic	0.08473	0.0100	0.1000	0.002215	82.5	75	125	0.08759	3.32	20	
Barium	0.3017	0.0200	0.1000	0.2111	90.6	75	125	0.3091	2.42	20	
Beryllium	0.09474	0.00400	0.1000	0.0004550	94.3	75	125	0.09855	3.94	20	
Cadmium	0.09841	0.00500	0.1000	0.001230	97.2	75	125	0.09821	0.203	20	
Chromium	0.09519	0.0200	0.1000	0.003847	91.3	75	125	0.09345	1.84	20	
Cobalt	0.09275	0.0500	0.1000	0.004258	88.5	75	125	0.09230	0.486	20	
Lead	0.1054	0.0100	0.1000	0.002562	103	75	125	0.1046	0.762	20	
Nickel	0.08886	0.0400	0.1000	0.004488	84.4	75	125	0.08925	0.438	20	
Selenium	0.08169	0.0500	0.1000	0.0004390	81.3	75	125	0.08560	4.67	20	
Silver	0.009999	0.00500	0.0100	0.0001000	99.0	75	125	0.009820	1.81	20	
Thallium	0.1030	0.00200	0.1000	0.0003950	103	75	125	0.1018	1.17	20	
Vanadium	0.09652	0.0500	0.1000	0.006062	90.5	75	125	0.09517	1.41	20	
Zinc	0.1380	0.0200	0.1000	0.05003	88.0	75	125	0.1366	1.02	20	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit
 < Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix
 B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: 1705P77-024BMSD	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344584							
SampleType: MSD	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7560430							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	7.547	0.100	1.000	6.514	103	75	125	7.296	3.38	20	
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Sample ID: 1705P77-024BMSD	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 345019							
SampleType: MSD	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243302	Analysis Date: 06/08/2017	Seq No: 7571572							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	12.05	0.100	1.000	11.31	74.0	75	125	11.95	0.833	20	S
Iron	11.54	0.100	1.000	10.68	86.0	75	125	11.54	0	20	
Magnesium	7.838	0.100	1.000	6.937	90.1	75	125	7.619	2.83	20	
Potassium	3.980	0.100	1.000	3.065	91.5	75	125	3.952	0.706	20	
Sodium	25.94	0.500	1.000	25.23	71.0	75	125	24.97	3.81	20	S

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase I
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243324

Sample ID: MB-243324	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377							
SampleType: MBLK	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243324	Analysis Date: 05/31/2017	Seq No: 7554682							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,2-Dibromo-3-chloropropane
 1,2-Dibromoethane
 Surr: 4-Bromofluorobenzene

BRL 0.040
 BRL 0.020
 4.986 0 5.000 99.7 69.4 134

Sample ID: LCS-243324	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377							
SampleType: LCS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243324	Analysis Date: 05/31/2017	Seq No: 7554683							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,2-Dibromo-3-chloropropane
 1,2-Dibromoethane
 Surr: 4-Bromofluorobenzene

0.09800 0.040 0.1000 98.0 60 140
 0.09500 0.020 0.1000 95.0 60 140
 5.301 0 5.000 106 69.4 134

Sample ID: LCSD-243324	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377							
SampleType: LCSD	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243324	Analysis Date: 05/31/2017	Seq No: 7554685							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,2-Dibromo-3-chloropropane
 1,2-Dibromoethane
 Surr: 4-Bromofluorobenzene

0.09800 0.040 0.1000 98.0 60 140 0.09800 0 20
 0.09600 0.020 0.1000 96.0 60 140 0.09500 1.05 20
 5.245 0 5.000 105 69.4 134 5.301 0 0

Sample ID: 1705Q20-001BMS	Client ID: MW-01	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377							
SampleType: MS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243324	Analysis Date: 05/31/2017	Seq No: 7554690							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,2-Dibromo-3-chloropropane
 1,2-Dibromoethane
 Surr: 4-Bromofluorobenzene

0.09659 0.040 0.0996 97.0 51.3 144
 0.09758 0.020 0.0996 98.0 57.7 132
 4.784 0 4.979 96.1 69.4 134

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: MB-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559943

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	BRL	0.00600									
Arsenic	BRL	0.0100									
Barium	BRL	0.0200									
Beryllium	BRL	0.00400									
Cadmium	BRL	0.00500									
Chromium	BRL	0.0200									
Cobalt	BRL	0.0500									
Copper	BRL	0.0200									
Lead	BRL	0.0100									
Nickel	BRL	0.0400									
Selenium	BRL	0.0500									
Silver	BRL	0.00500									
Thallium	BRL	0.00200									
Vanadium	BRL	0.0500									
Zinc	BRL	0.0200									

Sample ID: MB-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018
SampleType: MBLK	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571535

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	BRL	0.100									
Iron	BRL	0.100									
Magnesium	BRL	0.100									
Potassium	BRL	0.100									
Sodium	BRL	0.500									

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559944

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1049	0.00600	0.1000		105	80	120				
Arsenic	0.09720	0.0100	0.1000	0.0003020	96.9	80	120				
Barium	0.1059	0.0200	0.1000	0.0001990	106	80	120				
Beryllium	0.1004	0.00400	0.1000		100	80	120				
Cadmium	0.1004	0.00500	0.1000		100	80	120				
Chromium	0.1114	0.0200	0.1000	0.004256	107	80	120				
Cobalt	0.09718	0.0500	0.1000		97.2	80	120				
Copper	0.09508	0.0200	0.1000	0.001508	93.6	80	120				
Lead	0.1015	0.0100	0.1000		102	80	120				
Nickel	0.1033	0.0400	0.1000	0.002346	101	80	120				
Selenium	0.09930	0.0500	0.1000		99.3	80	120				
Silver	0.01025	0.00500	0.0100	0.00005200	102	80	120				
Thallium	0.1003	0.00200	0.1000		100	80	120				
Vanadium	0.09813	0.0500	0.1000	0.0004270	97.7	80	120				
Zinc	0.1082	0.0200	0.1000	0.003554	105	80	120				

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018
SampleType: LCS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571536

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	1.097	0.100	1.000	0.07192	103	80	120				
Iron	0.9963	0.100	1.000		99.6	80	120				
Magnesium	0.9162	0.100	1.000		91.6	80	120				
Potassium	0.9673	0.100	1.000		96.7	80	120				
Sodium	0.9071	0.500	1.000	0.03703	87.0	80	120				

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: 1705Q20-006IMS	Client ID: MW-03	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559947

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1029	0.00600	0.1000	0.0008790	102	75	125				
Arsenic	0.09026	0.0100	0.1000	0.0005500	89.7	75	125				
Barium	0.2064	0.0200	0.1000	0.1040	102	75	125				
Beryllium	0.09809	0.00400	0.1000		98.1	75	125				
Cadmium	0.09740	0.00500	0.1000	0.0003680	97.0	75	125				
Chromium	0.1008	0.0200	0.1000	0.001539	99.3	75	125				
Cobalt	0.1025	0.0500	0.1000	0.01097	91.5	75	125				
Copper	0.08859	0.0200	0.1000	0.002790	85.8	75	125				
Lead	0.1018	0.0100	0.1000	0.0008580	101	75	125				
Nickel	0.1040	0.0400	0.1000	0.01205	92.0	75	125				
Selenium	0.09003	0.0500	0.1000	0.0003690	89.7	75	125				
Silver	0.009767	0.00500	0.0100	0.00006400	97.0	75	125				
Thallium	0.1013	0.00200	0.1000	0.0007370	101	75	125				
Vanadium	0.09545	0.0500	0.1000		95.4	75	125				
Zinc	0.09775	0.0200	0.1000	0.004953	92.8	75	125				

Sample ID: 1705Q20-006IMS	Client ID: MW-03	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018
SampleType: MS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571517

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	13.16	0.100	1.000	12.27	89.0	75	125				
Iron	1.112	0.100	1.000	0.1392	97.3	75	125				
Magnesium	5.212	0.100	1.000	4.293	91.9	75	125				
Potassium	5.955	0.100	1.000	5.073	88.2	75	125				
Sodium	42.74	0.500	1.000	42.28	46.0	75	125				S

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: 1705Q20-006IMSD	Client ID: MW-03	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559949							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1011	0.00600	0.1000	0.0008790	100	75	125	0.1029	1.76	20	
Arsenic	0.08511	0.0100	0.1000	0.0005500	84.6	75	125	0.09026	5.87	20	
Barium	0.2115	0.0200	0.1000	0.1040	108	75	125	0.2064	2.44	20	
Beryllium	0.09513	0.00400	0.1000		95.1	75	125	0.09809	3.06	20	
Cadmium	0.09516	0.00500	0.1000	0.0003680	94.8	75	125	0.09740	2.33	20	
Chromium	0.09581	0.0200	0.1000	0.001539	94.3	75	125	0.1008	5.08	20	
Cobalt	0.09885	0.0500	0.1000	0.01097	87.9	75	125	0.1025	3.63	20	
Copper	0.08345	0.0200	0.1000	0.002790	80.7	75	125	0.08859	5.98	20	
Lead	0.1042	0.0100	0.1000	0.0008580	103	75	125	0.1018	2.33	20	
Nickel	0.09845	0.0400	0.1000	0.01205	86.4	75	125	0.1040	5.48	20	
Selenium	0.08619	0.0500	0.1000	0.0003690	85.8	75	125	0.09003	4.36	20	
Silver	0.009144	0.00500	0.0100	0.00006400	90.8	75	125	0.009767	6.59	20	
Thallium	0.1049	0.00200	0.1000	0.0007370	104	75	125	0.1013	3.49	20	
Vanadium	0.09432	0.0500	0.1000		94.3	75	125	0.09545	1.19	20	
Zinc	0.09047	0.0200	0.1000	0.004953	85.5	75	125	0.09775	7.74	20	

Sample ID: 1705Q20-006IMSD	Client ID: MW-03	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018							
SampleType: MSD	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571523							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	13.26	0.100	1.000	12.27	99.0	75	125	13.16	0.757	20	
Iron	1.094	0.100	1.000	0.1392	95.5	75	125	1.112	1.63	20	
Magnesium	5.413	0.100	1.000	4.293	112	75	125	5.212	3.78	20	
Potassium	6.059	0.100	1.000	5.073	98.6	75	125	5.955	1.73	20	
Sodium	44.83	0.500	1.000	42.28	255	75	125	42.74	4.77	20	S

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243457

Sample ID: MB-243457	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MBLK	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557558							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00020

Sample ID: LCS-243457	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: LCS	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557559							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003802 0.00020 0.0040 95.1 80 120

Sample ID: 1705P20-002BMS	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MS	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557561							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003802 0.00020 0.0040 95.1 70 130

Sample ID: 1705P20-002BMSD	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MSD	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557562							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003868 0.00020 0.0040 96.7 70 130 0.003802 1.72 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spiko Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: MB-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: MBLK	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556038

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	BRL	5.0									
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,3-Trichloropropane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Acrylonitrile	BRL	5.0									
Benzene	BRL	5.0									
Bromochloromethane	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase I
 Workorder: 1705Q20

BatchID: 243483

Sample ID: MB-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: MBLK	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556038

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dibromomethane	BRL	5.0									
Ethylbenzene	BRL	5.0									
Iodomethane	BRL	10									
Methylene chloride	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
trans-1,4-Dichloro-2-butene	BRL	10									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl acetate	BRL	10									
Vinyl chloride	BRL	2.0									
Xylenes, Total	BRL	10									
Surr: 4-Bromofluorobenzene	46.71	0	50.00		93.4	66.1	129				
Surr: Dibromofluoromethane	46.93	0	50.00		93.9	83.6	123				
Surr: Toluene-d8	48.85	0	50.00		97.7	81.8	118				

Sample ID: LCS-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: LCS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556037

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.15	5.0	20.00		90.8	68	139				
Benzene	18.91	5.0	20.00		94.6	74	125				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase I
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: LCS-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
SampleType: LCS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556037

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	19.22	5.0	20.00		96.1	75.7	123				
Toluene	18.87	5.0	20.00		94.4	75.9	126				
Trichloroethene	19.44	5.0	20.00		97.2	70.6	129				
Surr: 4-Bromofluorobenzene	48.08	0	50.00		96.2	66.1	129				
Surr: Dibromofluoromethane	49.39	0	50.00		98.8	83.6	123				
Surr: Toluene-d8	49.22	0	50.00		98.4	81.8	118				

Sample ID: 1705Q21-001AMS	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413
SampleType: MS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555545

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	54.45	5.0	50.00		109	64.3	149				
Benzene	53.03	5.0	50.00		106	71.6	132				
Chlorobenzene	54.14	5.0	50.00		108	73.1	126				
Toluene	53.26	5.0	50.00		107	72.5	135				
Trichloroethene	52.13	5.0	50.00		104	70.2	132				
Surr: 4-Bromofluorobenzene	46.26	0	50.00		92.5	66.1	129				
Surr: Dibromofluoromethane	46.19	0	50.00		92.4	83.6	123				
Surr: Toluene-d8	48.57	0	50.00		97.1	81.8	118				

Sample ID: 1705Q21-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413
SampleType: MSD	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555546

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	49.16	5.0	50.00		98.3	64.3	149	54.45	10.2	30.8	
Benzene	51.53	5.0	50.00		103	71.6	132	53.03	2.87	20.7	
Chlorobenzene	52.72	5.0	50.00		105	73.1	126	54.14	2.66	26.6	
Toluene	51.57	5.0	50.00		103	72.5	135	53.26	3.22	23.2	

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
BRL	Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: 1705Q21-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413							
SampleType: MSD	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555546							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	49.43	5.0	50.00		98.9	70.2	132	52.13	5.32	27.7	
Surr: 4-Bromofluorobenzene	46.48	0	50.00		93.0	66.1	129	46.26	0	0	
Surr: Dibromofluoromethane	46.38	0	50.00		92.8	83.6	123	46.19	0	0	
Surr: Toluene-d8	48.46	0	50.00		96.9	81.8	118	48.57	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243493

Sample ID: MB-243493	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344564							
SampleType: MBLK	TestCode: Residue, Dissolved (TDS) by SM2540C	BatchID: 243493	Analysis Date: 06/01/2017	Seq No: 7559706							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Residue, Dissolved (TDS) BRL 10

Sample ID: 1705Q20-001EDUP	Client ID: MW-01	Units: mg/L	Prep Date: 06/01/2017	Run No: 344564							
SampleType: DUP	TestCode: Residue, Dissolved (TDS) by SM2540C	BatchID: 243493	Analysis Date: 06/01/2017	Seq No: 7559721							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Residue, Dissolved (TDS) 280.0 10 270.0 3.64 5

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
BRL	Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243542

Sample ID: MB-243542	Client ID:	Units: mg/L	Prep Date: 06/02/2017	Run No: 344559							
SampleType: MBLK	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243542	Analysis Date: 06/02/2017	Seq No: 7559900							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) BRL 0.200

Sample ID: LCS-243542	Client ID:	Units: mg/L	Prep Date: 06/02/2017	Run No: 344559							
SampleType: LCS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243542	Analysis Date: 06/02/2017	Seq No: 7559901							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.210 0.200 5.000 104 90 110

Sample ID: 1705Q20-005HMS	Client ID: MW-02	Units: mg/L	Prep Date: 06/02/2017	Run No: 344559							
SampleType: MS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243542	Analysis Date: 06/02/2017	Seq No: 7559907							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.070 0.200 5.000 101 90 110

Sample ID: 1706118-001AMS	Client ID:	Units: mg/L	Prep Date: 06/02/2017	Run No: 344559							
SampleType: MS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243542	Analysis Date: 06/02/2017	Seq No: 7560098							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.510 0.200 5.000 0.8210 93.8 90 110

Sample ID: 1705Q20-005HMSD	Client ID: MW-02	Units: mg/L	Prep Date: 06/02/2017	Run No: 344559							
SampleType: MSD	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243542	Analysis Date: 06/02/2017	Seq No: 7559908							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.070 0.200 5.000 101 90 110 5.070 0 30

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243607

Sample ID: MB-243607	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MBLK	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561664							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total BRL 0.010

Sample ID: LCS-243607	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: LCS	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561665							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2390 0.010 0.2500 95.6 85 115

Sample ID: 1705Q20-001GMS	Client ID: MW-01	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MS	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561683							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2730 0.010 0.2500 109 70 130

Sample ID: 1705Q20-001GMSD	Client ID: MW-01	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MSD	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561693							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2830 0.010 0.2500 113 70 130 0.2730 3.60 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243633

Sample ID: MB-243633	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MBLK	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566789							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese BRL 0.00500

Sample ID: LCS-243633	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: LCS	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566792							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.08865 0.00500 0.1000 88.7 80 120

Sample ID: 1705Q15-002DMS	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MS	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566794							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.1287 0.00500 0.1000 0.04800 80.7 75 125

Sample ID: 1705Q15-002DMSD	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MSD	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566795							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.1292 0.00500 0.1000 0.04800 81.2 75 125 0.1287 0.385 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: 243660

Sample ID: MB-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MBLK	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566603							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00020

Sample ID: LCS-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: LCS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566606							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.004880 0.00020 0.0050 97.6 80 120

Sample ID: 1705Q20-002AMS	Client ID: MW-01	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566608							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005527 0.00020 0.0050 0.0001346 108 70 130

Sample ID: 1705Q20-002AMSD	Client ID: MW-01	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MSD	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566609							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005814 0.00020 0.0050 0.0001346 114 70 130 0.005527 5.06 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: R344266

Sample ID: MB-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MBLK	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7551989							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	BRL	1.00									
Fluoride	BRL	0.200									
Nitrogen, Nitrate (As N)	BRL	0.250									
Sulfate	BRL	1.00									

Sample ID: LCS-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: LCS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7551988							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	10.27	1.00	10.00	0.1782	101	90	110				
Fluoride	4.778	0.200	5.000		95.6	90	110				
Nitrogen, Nitrate (As N)	4.731	0.250	5.000		94.6	90	110				
Sulfate	25.54	1.00	25.00	0.3314	101	90	110				

Sample ID: 1705Q20-010FMS	Client ID: TRIP BLANK	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552004							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	10.75	1.00	10.00	0.3582	104	90	110				
Fluoride	4.747	0.200	5.000		94.9	90	110				
Nitrogen, Nitrate (As N)	4.638	0.250	5.000		92.8	90	110				
Sulfate	25.27	1.00	25.00		101	90	110				

Sample ID: 1705Q20-010FMSD	Client ID: TRIP BLANK	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552008							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride	10.41	1.00	10.00	0.3582	101	90	110	10.75	3.17	20	
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Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt.Lim Reporting Limit S Spike Recovery outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

BatchID: R344266

Sample ID: 1705Q20-010FMSD	Client ID: TRIP BLANK	Units: mg/L	Prep Date:	Run No: 344266
Sample Type: MSD	Test Code: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552008

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Fluoride	4.831	0.200	5.000		96.6	90	110	4.747	1.75	20	
Nitrogen, Nitrate (As N)	4.698	0.250	5.000		94.0	90	110	4.638	1.28	20	
Sulfate	25.45	1.00	25.00		102	90	110	25.27	0.699	20	

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

BatchID: R344553

Sample ID: MB-R344553	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MBLK	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559642							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand BRL 10.0

Sample ID: LCS-R344553	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: LCS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559643							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 538.3 10.0 500.0 108 90 110

Sample ID: 1705Q15-002FMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559664							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 387.2 12.5 375.0 103 90 110

Sample ID: 1705R04-001CMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559666							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 647.1 12.5 375.0 257.2 104 90 110

Sample ID: 1705Q15-002FMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MSD	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559665							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 395.8 12.5 375.0 106 90 110 387.2 2.17 30

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill Phase 1
 Workorder: 1705Q20

ANALYTICAL QC SUMMARY REPORT

BatchID: R344664

Sample ID: MB-R344664	Client ID:	Units: mg/L	Prep Date:	Run No: 344664							
SampleType: MBLK	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344664	Analysis Date: 05/30/2017	Seq No: 7562309							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R344664	Client ID:	Units: mg/L	Prep Date:	Run No: 344664							
SampleType: LCS	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344664	Analysis Date: 05/30/2017	Seq No: 7562308							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.50 1.00 25.00 0.2483 97.0 90 110

Sample ID: 1705Q20-001HMS	Client ID: MW-01	Units: mg/L	Prep Date:	Run No: 344664							
SampleType: MS	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344664	Analysis Date: 05/31/2017	Seq No: 7562351							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 476.2 20.0 500.0 95.2 80 120

Sample ID: 1705Q20-001HMSD	Client ID: MW-01	Units: mg/L	Prep Date:	Run No: 344664							
SampleType: MSD	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344664	Analysis Date: 05/31/2017	Seq No: 7562352							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 476.0 20.0 500.0 95.2 80 120 476.2 0.042 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559367							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper BRL 0.0200

Sample ID: MB-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559781							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony BRL 0.00600
 Arsenic BRL 0.0100
 Barium BRL 0.0200
 Beryllium BRL 0.00400
 Cadmium BRL 0.00500
 Chromium BRL 0.0200
 Cobalt BRL 0.0500
 Lead BRL 0.0100
 Nickel BRL 0.0400
 Selenium BRL 0.0500
 Silver BRL 0.00500
 Thallium BRL 0.00200
 Vanadium BRL 0.0500
 Zinc BRL 0.0200

Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559368							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Copper 0.09284 0.0200 0.1000 0.0002030 92.6 80 120

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: LCS-243302	Client ID:	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559782							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1049	0.00600	0.1000		105	80	120				
Arsenic	0.09333	0.0100	0.1000		93.3	80	120				
Barium	0.1055	0.0200	0.1000	0.0005320	105	80	120				
Beryllium	0.09692	0.00400	0.1000		96.9	80	120				
Cadmium	0.09719	0.00500	0.1000		97.2	80	120				
Chromium	0.09847	0.0200	0.1000	0.0007390	97.7	80	120				
Cobalt	0.09375	0.0500	0.1000		93.8	80	120				
Lead	0.1015	0.0100	0.1000		102	80	120				
Nickel	0.09223	0.0400	0.1000		92.2	80	120				
Selenium	0.09404	0.0500	0.1000		94.0	80	120				
Silver	0.009975	0.00500	0.0100	0.00003400	99.4	80	120				
Thallium	0.1010	0.00200	0.1000		101	80	120				
Vanadium	0.09685	0.0500	0.1000		96.8	80	120				
Zinc	0.09512	0.0200	0.1000	0.0006540	94.5	80	120				

Sample ID: 1705P77-024BMS	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559370							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Copper	0.09849	0.0200	0.1000	0.004447	94.0	75	125				

Sample ID: 1705P77-024BMS	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559784							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.09429	0.00600	0.1000	0.0005890	93.7	75	125				
Arsenic	0.08759	0.0100	0.1000	0.002215	85.4	75	125				
Barium	0.3091	0.0200	0.1000	0.2111	98.0	75	125				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: 1705P77-024BMS	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559784							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Beryllium	0.09855	0.00400	0.1000	0.0004550	98.1	75	125				
Cadmium	0.09821	0.00500	0.1000	0.001230	97.0	75	125				
Chromium	0.09345	0.0200	0.1000	0.003847	89.6	75	125				
Cobalt	0.09230	0.0500	0.1000	0.004258	88.0	75	125				
Lead	0.1046	0.0100	0.1000	0.002562	102	75	125				
Nickel	0.08925	0.0400	0.1000	0.004488	84.8	75	125				
Selenium	0.08560	0.0500	0.1000	0.0004390	85.2	75	125				
Silver	0.009820	0.00500	0.0100	0.0001000	97.2	75	125				
Thallium	0.1018	0.00200	0.1000	0.0003950	101	75	125				
Vanadium	0.09517	0.0500	0.1000	0.006062	89.1	75	125				
Zinc	0.1366	0.0200	0.1000	0.05003	86.6	75	125				

Sample ID: 1705P77-024BMSD	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344540							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/02/2017	Seq No: 7559373							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Copper	0.1049	0.0200	0.1000	0.004447	100	75	125	0.09849	6.28	20	

Sample ID: 1705P77-024BMSD	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559785							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.09219	0.00600	0.1000	0.0005890	91.6	75	125	0.09429	2.25	20	
Arsenic	0.08473	0.0100	0.1000	0.002215	82.5	75	125	0.08759	3.32	20	
Barium	0.3017	0.0200	0.1000	0.2111	90.6	75	125	0.3091	2.42	20	
Beryllium	0.09474	0.00400	0.1000	0.0004550	94.3	75	125	0.09855	3.94	20	
Cadmium	0.09841	0.00500	0.1000	0.001230	97.2	75	125	0.09821	0.203	20	
Chromium	0.09519	0.0200	0.1000	0.003847	91.3	75	125	0.09345	1.84	20	

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt.Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/TV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243302

Sample ID: 1705P77-024BMSD	Client ID: GWC-23	Units: mg/L	Prep Date: 05/30/2017	Run No: 344566							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243302	Analysis Date: 06/01/2017	Seq No: 7559785							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cobalt	0.09275	0.0500	0.1000	0.004258	88.5	75	125	0.09230	0.486	20	
Lead	0.1054	0.0100	0.1000	0.002562	103	75	125	0.1046	0.762	20	
Nickel	0.08886	0.0400	0.1000	0.004488	84.4	75	125	0.08925	0.438	20	
Selenium	0.08169	0.0500	0.1000	0.0004390	81.3	75	125	0.08560	4.67	20	
Silver	0.009999	0.00500	0.0100	0.0001000	99.0	75	125	0.009820	1.81	20	
Thallium	0.1030	0.00200	0.1000	0.0003950	103	75	125	0.1018	1.17	20	
Vanadium	0.09652	0.0500	0.1000	0.006062	90.5	75	125	0.09517	1.41	20	
Zinc	0.1380	0.0200	0.1000	0.05003	88.0	75	125	0.1366	1.02	20	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit
 < Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix
 B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/TV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243325

Sample ID: MB-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: MBLK	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554693

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	BRL	0.040									
1,2-Dibromoethane	BRL	0.020									
Surr: 4-Bromofluorobenzene	5.044	0	5.000		101	69.4	134				

Sample ID: LCS-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: LCS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554694

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	0.09800	0.040	0.1000		98.0	60	140				
1,2-Dibromoethane	0.09400	0.020	0.1000		94.0	60	140				
Surr: 4-Bromofluorobenzene	5.266	0	5.000		105	69.4	134				

Sample ID: LCSD-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: LCSD	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554695

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	0.09800	0.040	0.1000		98.0	60	140	0.09800	0	20	
1,2-Dibromoethane	0.09600	0.020	0.1000		96.0	60	140	0.09400	2.11	20	
Surr: 4-Bromofluorobenzene	5.262	0	5.000		105	69.4	134	5.266	0	0	

Sample ID: 1705Q25-004BMS	Client ID: MW-05	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: MS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554698

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	BRL	0.200	0.0999		102	51.3	144				
1,2-Dibromoethane	0.1019	0.050	0.0999		102	57.7	132				*
Surr: 4-Bromofluorobenzene	5.082	0.050	4.993		102	69.4	134				

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: MB-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MBLK	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559943							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	BRL	0.00600									
Arsenic	BRL	0.0100									
Barium	BRL	0.0200									
Beryllium	BRL	0.00400									
Cadmium	BRL	0.00500									
Chromium	BRL	0.0200									
Cobalt	BRL	0.0500									
Copper	BRL	0.0200									
Lead	BRL	0.0100									
Nickel	BRL	0.0400									
Selenium	BRL	0.0500									
Silver	BRL	0.00500									
Thallium	BRL	0.00200									
Vanadium	BRL	0.0500									
Zinc	BRL	0.0200									

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559944							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1049	0.00600	0.1000		105	80	120				
Arsenic	0.09720	0.0100	0.1000	0.0003020	96.9	80	120				
Barium	0.1059	0.0200	0.1000	0.0001990	106	80	120				
Beryllium	0.1004	0.00400	0.1000		100	80	120				
Cadmium	0.1004	0.00500	0.1000		100	80	120				
Chromium	0.1114	0.0200	0.1000	0.004256	107	80	120				
Cobalt	0.09718	0.0500	0.1000		97.2	80	120				
Copper	0.09508	0.0200	0.1000	0.001508	93.6	80	120				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/TV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559944							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.1015	0.0100	0.1000		102	80	120				
Nickel	0.1033	0.0400	0.1000	0.002346	101	80	120				
Selenium	0.09930	0.0500	0.1000		99.3	80	120				
Silver	0.01025	0.00500	0.0100	0.00005200	102	80	120				
Thallium	0.1003	0.00200	0.1000		100	80	120				
Vanadium	0.09813	0.0500	0.1000	0.0004270	97.7	80	120				
Zinc	0.1082	0.0200	0.1000	0.003554	105	80	120				

Sample ID: 1705Q20-006IMS	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559947							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1029	0.00600	0.1000	0.0008790	102	75	125				
Arsenic	0.09026	0.0100	0.1000	0.0005500	89.7	75	125				
Barium	0.2064	0.0200	0.1000	0.1040	102	75	125				
Beryllium	0.09809	0.00400	0.1000		98.1	75	125				
Cadmium	0.09740	0.00500	0.1000	0.0003680	97.0	75	125				
Chromium	0.1008	0.0200	0.1000	0.001539	99.3	75	125				
Cobalt	0.1025	0.0500	0.1000	0.01097	91.5	75	125				
Copper	0.08859	0.0200	0.1000	0.002790	85.8	75	125				
Lead	0.1018	0.0100	0.1000	0.0008580	101	75	125				
Nickel	0.1040	0.0400	0.1000	0.01205	92.0	75	125				
Selenium	0.09003	0.0500	0.1000	0.0003690	89.7	75	125				
Silver	0.009767	0.00500	0.0100	0.00006400	97.0	75	125				
Thallium	0.1013	0.00200	0.1000	0.0007370	101	75	125				
Vanadium	0.09545	0.0500	0.1000		95.4	75	125				
Zinc	0.09775	0.0200	0.1000	0.004953	92.8	75	125				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: 1705Q20-006IMSD	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559949							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1011	0.00600	0.1000	0.0008790	100	75	125	0.1029	1.76	20	
Arsenic	0.08511	0.0100	0.1000	0.0005500	84.6	75	125	0.09026	5.87	20	
Barium	0.2115	0.0200	0.1000	0.1040	108	75	125	0.2064	2.44	20	
Beryllium	0.09513	0.00400	0.1000		95.1	75	125	0.09809	3.06	20	
Cadmium	0.09516	0.00500	0.1000	0.0003680	94.8	75	125	0.09740	2.33	20	
Chromium	0.09581	0.0200	0.1000	0.001539	94.3	75	125	0.1008	5.08	20	
Cobalt	0.09885	0.0500	0.1000	0.01097	87.9	75	125	0.1025	3.63	20	
Copper	0.08345	0.0200	0.1000	0.002790	80.7	75	125	0.08859	5.98	20	
Lead	0.1042	0.0100	0.1000	0.0008580	103	75	125	0.1018	2.33	20	
Nickel	0.09845	0.0400	0.1000	0.01205	86.4	75	125	0.1040	5.48	20	
Selenium	0.08619	0.0500	0.1000	0.0003690	85.8	75	125	0.09003	4.36	20	
Silver	0.009144	0.00500	0.0100	0.00006400	90.8	75	125	0.009767	6.59	20	
Thallium	0.1049	0.00200	0.1000	0.0007370	104	75	125	0.1013	3.49	20	
Vanadium	0.09432	0.0500	0.1000		94.3	75	125	0.09545	1.19	20	
Zinc	0.09047	0.0200	0.1000	0.004953	85.5	75	125	0.09775	7.74	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243457

Sample ID: MB-243457	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MBLK	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557558							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00020

Sample ID: LCS-243457	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: LCS	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557559							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003802 0.00020 0.0040 95.1 80 120

Sample ID: 1705P20-002BMS	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MS	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557561							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003802 0.00020 0.0040 95.1 70 130

Sample ID: 1705P20-002BMSD	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344485							
SampleType: MSD	TestCode: Mercury, Total SW7470A	BatchID: 243457	Analysis Date: 06/01/2017	Seq No: 7557562							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.003868 0.00020 0.0040 96.7 70 130 0.003802 1.72 20

- Qualifiers:
- > Greater than Result value
 - BRL Below reporting limit
 - J Estimated value detected below Reporting Limit
 - Rpt Lim Reporting Limit
 - < Less than Result value
 - E Estimated (value above quantitation range)
 - N Analyte not NELAC certified
 - S Spike Recovery outside limits due to matrix
 - B Analyte detected in the associated method blank
 - H Holding times for preparation or analysis exceeded
 - R RPD outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: I705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: MB-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: MBLK	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556038

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	BRL	5.0									
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,3-Trichloropropane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Acrylonitrile	BRL	5.0									
Benzene	BRL	5.0									
Bromochloromethane	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: MB-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: MBLK	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556038

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dibromomethane	BRL	5.0									
Ethylbenzene	BRL	5.0									
Iodomethane	BRL	10									
Methylene chloride	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
trans-1,4-Dichloro-2-butene	BRL	10									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl acetate	BRL	10									
Vinyl chloride	BRL	2.0									
Xylenes, Total	BRL	10									
Surr: 4-Bromofluorobenzene	46.71	0	50.00		93.4	66.1	129				
Surr: Dibromofluoromethane	46.93	0	50.00		93.9	83.6	123				
Surr: Toluene-d8	48.85	0	50.00		97.7	81.8	118				

Sample ID: LCS-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: LCS	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556037

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.15	5.0	20.00		90.8	68	139				
Benzene	18.91	5.0	20.00		94.6	74	125				

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: 243483

Sample ID: LCS-243483	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344328
Sample Type: LCS	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7556037

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	19.22	5.0	20.00		96.1	75.7	123				
Toluene	18.87	5.0	20.00		94.4	75.9	126				
Trichloroethene	19.44	5.0	20.00		97.2	70.6	129				
Surr: 4-Bromofluorobenzene	48.08	0	50.00		96.2	66.1	129				
Surr: Dibromofluoromethane	49.39	0	50.00		98.8	83.6	123				
Surr: Toluene-d8	49.22	0	50.00		98.4	81.8	118				

Sample ID: 1705Q21-001AMS	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413
Sample Type: MS	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555545

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	54.45	5.0	50.00		109	64.3	149				
Benzene	53.03	5.0	50.00		106	71.6	132				
Chlorobenzene	54.14	5.0	50.00		108	73.1	126				
Toluene	53.26	5.0	50.00		107	72.5	135				
Trichloroethene	52.13	5.0	50.00		104	70.2	132				
Surr: 4-Bromofluorobenzene	46.26	0	50.00		92.5	66.1	129				
Surr: Dibromofluoromethane	46.19	0	50.00		92.4	83.6	123				
Surr: Toluene-d8	48.57	0	50.00		97.1	81.8	118				

Sample ID: 1705Q21-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413
Sample Type: MSD	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555546

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	49.16	5.0	50.00		98.3	64.3	149	54.45	10.2	30.8	
Benzene	51.53	5.0	50.00		103	71.6	132	53.03	2.87	20.7	
Chlorobenzene	52.72	5.0	50.00		105	73.1	126	54.14	2.66	26.6	
Toluene	51.57	5.0	50.00		103	72.5	135	53.26	3.22	23.2	

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
BRL	Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S Spike Recovery outside limits due to matrix	

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/TV LF
 Workorder: 1705Q25

BatchID: 243483

Sample ID: 1705Q21-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/31/2017	Run No: 344413
Sample Type: MSD	Test Code: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243483	Analysis Date: 05/31/2017	Seq No: 7555546

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Trichloroethene	49.43	5.0	50.00		98.9	70.2	132	52.13	5.32	27.7	
Surr: 4-Bromofluorobenzene	46.48	0	50.00		93.0	66.1	129	46.26	0	0	
Surr: Dibromofluoromethane	46.38	0	50.00		92.8	83.6	123	46.19	0	0	
Surr: Toluene-d8	48.46	0	50.00		96.9	81.8	118	48.57	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

BatchID: 243660

Sample ID: MB-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MBLK	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566603							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00020

Sample ID: LCS-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: LCS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566606							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.004880 0.00020 0.0050 97.6 80 120

Sample ID: 1705Q20-002AMS	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566608							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005527 0.00020 0.0050 0.0001346 108 70 130

Sample ID: 1705Q20-002AMSD	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MSD	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566609							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005814 0.00020 0.0050 0.0001346 114 70 130 0.005527 5.06 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: R344266

Sample ID: MB-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MBLK	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7555314							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride BRL 0.200

Sample ID: LCS-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: LCS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7555320							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 4.778 0.200 5.000 95.6 90 110

Sample ID: 1705Q25-006DMS	Client ID: TRIP BLANK	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7555352							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 4.747 0.200 5.000 94.9 90 110

Sample ID: 1705Q25-006DMSD	Client ID: TRIP BLANK	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7555353							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 4.831 0.200 5.000 96.6 90 110 4.747 1.75 20

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Phase II/IV LF
 Workorder: 1705Q25

ANALYTICAL QC SUMMARY REPORT

BatchID: R344522

Sample ID: MB-R344522	Client ID:	Units: mg/L	Prep Date:	Run No: 344522							
SampleType: MBLK	TestCode: Inorganic Anions by IC E300.0	BatchID: R344522	Analysis Date: 06/01/2017	Seq No: 7558942							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride BRL 0.200

Sample ID: LCS-R344522	Client ID:	Units: mg/L	Prep Date:	Run No: 344522							
SampleType: LCS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344522	Analysis Date: 06/01/2017	Seq No: 7558941							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 4.985 0.200 5.000 99.7 90 110

Sample ID: 1705P77-032DMS	Client ID: SWC-2	Units: mg/L	Prep Date:	Run No: 344522							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344522	Analysis Date: 06/01/2017	Seq No: 7558951							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 5.365 0.200 5.000 0.1253 105 90 110

Sample ID: 1705P77-038CMS	Client ID: SWC-9	Units: mg/L	Prep Date:	Run No: 344522							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344522	Analysis Date: 06/01/2017	Seq No: 7558963							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 5.238 - 0.200 5.000 0.09905 103 90 110

Sample ID: 1705P77-032DMSD	Client ID: SWC-2	Units: mg/L	Prep Date:	Run No: 344522							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R344522	Analysis Date: 06/01/2017	Seq No: 7558952							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride 5.335 0.200 5.000 0.1253 104 90 110 5.365 0.552 20

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

APPENDIX C

LONDON COUNTY
COMPLIANCE WELL
MONITORING WELL JAH

INSTRUMENT	UNITS	2-27-14	3-2-14	3-11-14	3-18-14	3-25-14	4-1-14	4-8-14	4-15-14	4-22-14	4-29-14	5-6-14	5-13-14	5-20-14	5-27-14	6-3-14	6-10-14	6-17-14	6-24-14	7-1-14	7-8-14	7-15-14	7-22-14	7-29-14	8-5-14	8-12-14	8-19-14	8-26-14	9-2-14	9-9-14	9-16-14	9-23-14	9-30-14	10-7-14	10-14-14	10-21-14	10-28-14	11-4-14	11-11-14	11-18-14	11-25-14	12-2-14	12-9-14	12-16-14	12-23-14	12-30-14	1-6-15	1-13-15	1-20-15	1-27-15	2-3-15	2-10-15	2-17-15	2-24-15	3-2-15	3-9-15	3-16-15	3-23-15	3-30-15	4-6-15	4-13-15	4-20-15	4-27-15	5-4-15	5-11-15	5-18-15	5-25-15	6-1-15	6-8-15	6-15-15	6-22-15	6-29-15	7-6-15	7-13-15	7-20-15	7-27-15	8-3-15	8-10-15	8-17-15	8-24-15	8-31-15	9-7-15	9-14-15	9-21-15	9-28-15	10-5-15	10-12-15	10-19-15	10-26-15	11-2-15	11-9-15	11-16-15	11-23-15	11-30-15	12-7-15	12-14-15	12-21-15	12-28-15	1-4-16	1-11-16	1-18-16	1-25-16	2-1-16	2-8-16	2-15-16	2-22-16	2-29-16	3-6-16	3-13-16	3-20-16	3-27-16	4-3-16	4-10-16	4-17-16	4-24-16	5-1-16	5-8-16	5-15-16	5-22-16	5-29-16	6-5-16	6-12-16	6-19-16	6-26-16	7-3-16	7-10-16	7-17-16	7-24-16	7-31-16	8-7-16	8-14-16	8-21-16	8-28-16	9-4-16	9-11-16	9-18-16	9-25-16	10-2-16	10-9-16	10-16-16	10-23-16	10-30-16	11-6-16	11-13-16	11-20-16	11-27-16	12-4-16	12-11-16	12-18-16	12-25-16	1-1-17	1-8-17	1-15-17	1-22-17	1-29-17	2-5-17	2-12-17	2-19-17	2-26-17	3-5-17	3-12-17	3-19-17	3-26-17	4-2-17	4-9-17	4-16-17	4-23-17	4-30-17	5-7-17	5-14-17	5-21-17	5-28-17	6-4-17	6-11-17	6-18-17	6-25-17	7-2-17	7-9-17	7-16-17	7-23-17	7-30-17	8-6-17	8-13-17	8-20-17	8-27-17	9-3-17	9-10-17	9-17-17	9-24-17	10-1-17	10-8-17	10-15-17	10-22-17	10-29-17	11-5-17	11-12-17	11-19-17	11-26-17	12-3-17	12-10-17	12-17-17	12-24-17	1-1-18	1-8-18	1-15-18	1-22-18	1-29-18	2-5-18	2-12-18	2-19-18	2-26-18	3-5-18	3-12-18	3-19-18	3-26-18	4-2-18	4-9-18	4-16-18	4-23-18	4-30-18	5-6-18	5-13-18	5-20-18	5-27-18	6-3-18	6-10-18	6-17-18	6-24-18	7-1-18	7-8-18	7-15-18	7-22-18	7-29-18	8-5-18	8-12-18	8-19-18	8-26-18	9-2-18	9-9-18	9-16-18	9-23-18	9-30-18	10-6-18	10-13-18	10-20-18	10-27-18	11-3-18	11-10-18	11-17-18	11-24-18	12-1-18	12-8-18	12-15-18	12-22-18	12-29-18	1-5-19	1-12-19	1-19-19	1-26-19	2-2-19	2-9-19	2-16-19	2-23-19	2-29-19	3-6-19	3-13-19	3-20-19	3-27-19	4-3-19	4-10-19	4-17-19	4-24-19	5-1-19	5-8-19	5-15-19	5-22-19	5-29-19	6-5-19	6-12-19	6-19-19	6-26-19	7-3-19	7-10-19	7-17-19	7-24-19	7-31-19	8-7-19	8-14-19	8-21-19	8-28-19	9-4-19	9-11-19	9-18-19	9-25-19	10-2-19	10-9-19	10-16-19	10-23-19	10-30-19	11-6-19	11-13-19	11-20-19	11-27-19	12-4-19	12-11-19	12-18-19	12-25-19	1-1-20	1-8-20	1-15-20	1-22-20	1-29-20	2-5-20	2-12-20	2-19-20	2-26-20	3-5-20	3-12-20	3-19-20	3-26-20	4-2-20	4-9-20	4-16-20	4-23-20	4-30-20	5-6-20	5-13-20	5-20-20	5-27-20	6-3-20	6-10-20	6-17-20	6-24-20	7-1-20	7-8-20	7-15-20	7-22-20	7-29-20	8-5-20	8-12-20	8-19-20	8-26-20	9-2-20	9-9-20	9-16-20	9-23-20	9-30-20	10-6-20	10-13-20	10-20-20	10-27-20	11-3-20	11-10-20	11-17-20	11-24-20	12-1-20	12-8-20	12-15-20	12-22-20	12-29-20	1-5-21	1-12-21	1-19-21	1-26-21	2-2-21	2-9-21	2-16-21	2-23-21	2-29-21	3-6-21	3-13-21	3-20-21	3-27-21	4-3-21	4-10-21	4-17-21	4-24-21	5-1-21	5-8-21	5-15-21	5-22-21	5-29-21	6-5-21	6-12-21	6-19-21	6-26-21	7-3-21	7-10-21	7-17-21	7-24-21	7-31-21	8-7-21	8-14-21	8-21-21	8-28-21	9-4-21	9-11-21	9-18-21	9-25-21	10-2-21	10-9-21	10-16-21	10-23-21	10-30-21	11-6-21	11-13-21	11-20-21	11-27-21	12-4-21	12-11-21	12-18-21	12-25-21	1-1-22	1-8-22	1-15-22	1-22-22	1-29-22	2-5-22	2-12-22	2-19-22	2-26-22	3-5-22	3-12-22	3-19-22	3-26-22	4-2-22	4-9-22	4-16-22	4-23-22	4-30-22	5-6-22	5-13-22	5-20-22	5-27-22	6-3-22	6-10-22	6-17-22	6-24-22	7-1-22	7-8-22	7-15-22	7-22-22	7-29-22	8-5-22	8-12-22	8-19-22	8-26-22	9-2-22	9-9-22	9-16-22	9-23-22	9-30-22	10-6-22	10-13-22	10-20-22	10-27-22	11-3-22	11-10-22	11-17-22	11-24-22	12-1-22	12-8-22	12-15-22	12-22-22	12-29-22	1-5-23	1-12-23	1-19-23	1-26-23	2-2-23	2-9-23	2-16-23	2-23-23	2-29-23	3-6-23	3-13-23	3-20-23	3-27-23	4-3-23	4-10-23	4-17-23	4-24-23	5-1-23	5-8-23	5-15-23	5-22-23	5-29-23	6-5-23	6-12-23	6-19-23	6-26-23	7-3-23	7-10-23	7-17-23	7-24-23	7-31-23	8-7-23	8-14-23	8-21-23	8-28-23	9-4-23	9-11-23	9-18-23	9-25-23	10-2-23	10-9-23	10-16-23	10-23-23	10-30-23	11-6-23	11-13-23	11-20-23	11-27-23	12-4-23	12-11-23	12-18-23	12-25-23	1-1-24	1-8-24	1-15-24	1-22-24	1-29-24	2-5-24	2-12-24	2-19-24	2-26-24	3-5-24	3-12-24	3-19-24	3-26-24	4-2-24	4-9-24	4-16-24	4-23-24	4-30-24	5-6-24	5-13-24	5-20-24	5-27-24	6-3-24	6-10-24	6-17-24	6-24-24	7-1-24	7-8-24	7-15-24	7-22-24	7-29-24	8-5-24	8-12-24	8-19-24	8-26-24	9-2-24	9-9-24	9-16-24	9-23-24	9-30-24	10-6-24	10-13-24	10-20-24	10-27-24	11-3-24	11-10-24	11-17-24	11-24-24	12-1-24	12-8-24	12-15-24	12-22-24	12-29-24	1-5-25	1-12-25	1-19-25	1-26-25	2-2-25	2-9-25	2-16-25	2-23-25	2-29-25	3-6-25	3-13-25	3-20-25	3-27-25	4-3-25	4-10-25	4-17-25	4-24-25	5-1-25	5-8-25	5-15-25	5-22-25	5-29-25	6-5-25	6-12-25	6-19-25	6-26-25	7-3-25	7-10-25	7-17-25	7-24-25	7-31-25	8-7-25	8-14-25	8-21-25	8-28-25	9-4-25	9-11-25	9-18-25	9-25-25	10-2-25	10-9-25	10-16-25	10-23-25	10-30-25	11-6-25	11-13-25	11-20-25	11-27-25	12-4-25	12-11-25	12-18-25	12-25-25	1-1-26	1-8-26	1-15-26	1-22-26	1-29-26	2-5-26	2-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APPENDIX D

GROUNDWATER DATA

Matlock Bend Landfill

May 25, 2017

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	3.82	827.05	825	25	4.70E-06	0.18	8.20E-02	2.14E-06	3.08E-03	S
MW-1A*	805.13	7.63	797.50	800	35	3.93E-06	0.18	7.14E-02	1.56E-06	2.25E-03	S
MW-02	825.20	7.33	817.87	815	40	5.90E-06	0.18	7.18E-02	2.35E-06	3.39E-03	S
MW-03	867.86	15.03	852.83	855	80	1.20E-05	0.18	2.71E-02	1.81E-06	2.60E-03	SW
MW-4R**	992.32	95.53	896.79	895	60	1.90E-05	0.18	2.98E-02	3.15E-06	4.53E-03	NW
MW-05	936.84	83.82	853.02	855	60	2.20E-05	0.18	3.30E-02	4.03E-06	5.81E-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

LEGEND:

- PROPERTY BOUNDARY
- 880 WATER TABLE CONTOURS (INFERRED)
- 950 AERIAL INDEX CONTOUR
- AERIAL CONTOUR
- ROAD
- GROUNDWATER MONITORING WELL
- GROUNDWATER FLOW DIRECTION
- PERMITTED LIMITS OF WASTE

NOTES:

1. POTENTIOMETRIC CONTOURS DEVELOPED FROM WATER ELEVATIONS TAKEN MAY 25, 2017.
2. TOPOGRAPHIC CONTOURS SHOWN WERE PROVIDED BY SOUTHERN RESOURCES MAPPING CORP., NORTHPORT, ALABAMA, PHOTOS DATED AUGUST 25, 2015 AND SEPTEMBER 15, 2016.

G.W. WELL NO.	WATER ELEV.
MW-01	827.05
MW-1A	797.50
MW-02	817.87
MW-03	852.83
MW-4R	896.79
MW-05	853.02



DATE	DRWN	CHKD	REVISION

PHASE I/II/IV 1ST SEMI- ANNUAL 2017
 POTENTIOMETRIC CONTOUR MAP
 MATLOCK BEND LANDFILL
 LOUDON COUNTY, TENNESSEE



SANTEK
 ENVIRONMENTAL
 650 23TH STREET NW
 SUITE 100
 CLEVELAND, TENNESSEE

SCALE: 1"=300'
 DATE: 7/20/17
 DRAWN BY: RH
 CHECKED BY: RH
 APPROVED BY: RJ
 FILE: 1710-51
 JOB NO: 200-1710

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

BatchID: 243443

Sample ID: MB-243443	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344363							
SampleType: MBLK	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243443	Analysis Date: 05/31/2017	Seq No: 7554489							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) BRL 0.200

Sample ID: LCS-243443	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344363							
SampleType: LCS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243443	Analysis Date: 05/31/2017	Seq No: 7554490							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.280 0.200 5.000 106 90 110

Sample ID: 1705O89-012AMS	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344363							
SampleType: MS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243443	Analysis Date: 05/31/2017	Seq No: 7554493							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 6.170 0.200 5.000 1.700 89.4 90 110 S

Sample ID: 1705P17-001CMS	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344363							
SampleType: MS	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243443	Analysis Date: 05/31/2017	Seq No: 7554495							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.220 0.200 5.000 104 90 110

Sample ID: 1705P17-001CMSD	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344363							
SampleType: MSD	TestCode: Nitrogen, Ammonia (as N) E350.1	BatchID: 243443	Analysis Date: 05/31/2017	Seq No: 7554496							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrogen, Ammonia (As N) 5.200 0.200 5.000 104 90 110 5.220 0.384 30

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

BatchID: 243493

Sample ID: MB-243493	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344564							
SampleType: MBLK	TestCode: Residue, Dissolved (TDS) by SM2540C	BatchID: 243493	Analysis Date: 06/01/2017	Seq No: 7559706							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Residue, Dissolved (TDS) . BRL 10

Sample ID: 1705Q20-001EDUP	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344564							
SampleType: DUP	TestCode: Residue, Dissolved (TDS) by SM2540C	BatchID: 243493	Analysis Date: 06/01/2017	Seq No: 7559721							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Residue, Dissolved (TDS) 280.0 10 270.0 3.64 5

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243607

Sample ID: MB-243607	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MBLK	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561664							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total BRL 0.010

Sample ID: LCS-243607	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: LCS	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561665							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2390 0.010 0.2500 95.6 85 115

Sample ID: 1705Q20-001GMS	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MS	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561683							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2730 0.010 0.2500 109 70 130

Sample ID: 1705Q20-001GMSD	Client ID:	Units: mg/L	Prep Date: 06/01/2017	Run No: 344640							
SampleType: MSD	TestCode: Cyanide SW9014	BatchID: 243607	Analysis Date: 06/01/2017	Seq No: 7561693							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cyanide, Total 0.2830 0.010 0.2500 113 70 130 0.2730 3.60 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243633

Sample ID: MB-243633	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MBLK	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566789							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese BRL 0.00500

Sample ID: LCS-243633	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: LCS	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566792							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.08865 0.00500 0.1000 88.7 80 120

Sample ID: 1705Q15-002DMS	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MS	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566794							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.1287 0.00500 0.1000 0.04800 80.7 75 125

Sample ID: 1705Q15-002DMSD	Client ID:	Units: mg/L	Prep Date: 06/05/2017	Run No: 344771							
SampleType: MSD	TestCode: Dissolved Metals by ICP/MS SW6020B	BatchID: 243633	Analysis Date: 06/05/2017	Seq No: 7566795							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese 0.1292 0.00500 0.1000 0.04800 81.2 75 125 0.1287 0.385 20

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

BatchID: 243660

Sample ID: MB-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MBLK	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566603							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury BRL 0.00020

Sample ID: LCS-243660	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: LCS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566606							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.004880 0.00020 0.0050 97.6 80 120

Sample ID: 1705Q20-002AMS	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MS	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566608							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005527 0.00020 0.0050 0.0001346 108 70 130

Sample ID: 1705Q20-002AMSD	Client ID:	Units: mg/L	Prep Date: 06/06/2017	Run No: 344826							
SampleType: MSD	TestCode: Mercury, Total SW7470A	BatchID: 243660	Analysis Date: 06/06/2017	Seq No: 7566609							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.005814 0.00020 0.0050 0.0001346 114 70 130 0.005527 5.06 20

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

BatchID: R344266

Sample ID: MB-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MBLK	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7551989							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride
 Fluoride
 Nitrogen, Nitrate (As N)
 Sulfate

BRL
 BRL
 BRL
 BRL

1.00
 0.200
 0.250
 1.00

Sample ID: LCS-R344266	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: LCS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7551988							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride
 Fluoride
 Nitrogen, Nitrate (As N)
 Sulfate

10.27
 4.778
 4.731
 25.54

1.00
 0.200
 0.250
 1.00

10.00
 5.000
 5.000
 25.00

0.1782
 95.6
 94.6
 101

101
 90
 90
 90

90
 90
 90
 90

110
 110
 110
 110

Sample ID: 1705Q20-010FMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MS	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552004							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride
 Fluoride
 Nitrogen, Nitrate (As N)
 Sulfate

10.75
 4.747
 4.638
 25.27

1.00
 0.200
 0.250
 1.00

10.00
 5.000
 5.000
 25.00

0.3582
 94.9
 92.8
 101

104
 90
 90
 90

90
 90
 90
 90

110
 110
 110
 110

Sample ID: 1705Q20-010FMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552008							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chloride

10.41

1.00

10.00

0.3582

101

90

110

10.75

3.17

20

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: R344266

Sample ID: 1705Q20-010FMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 344266							
SampleType: MSD	TestCode: Inorganic Anions by IC E300.0	BatchID: R344266	Analysis Date: 05/26/2017	Seq No: 7552008							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Fluoride	4.831	0.200	5.000		96.6	90	110	4.747	1.75	20	
Nitrogen, Nitrate (As N)	4.698	0.250	5.000		94.0	90	110	4.638	1.28	20	
Sulfate	25.45	1.00	25.00		102	90	110	25.27	0.699	20	

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: R344553

Sample ID: MB-R344553	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MBLK	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559642							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand BRL 10.0

Sample ID: LCS-R344553	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: LCS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559643							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 538.3 10.0 500.0 108 90 110

Sample ID: 1705Q15-002FMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559664							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 387.2 12.5 375.0 103 90 110

Sample ID: 1705R04-001CMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MS	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559666							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 647.1 12.5 375.0 257.2 104 90 110

Sample ID: 1705Q15-002FMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 344553							
SampleType: MSD	TestCode: Chemical Oxygen Demand (COD) E410.4	BatchID: R344553	Analysis Date: 06/02/2017	Seq No: 7559665							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Chemical Oxygen Demand 395.8 12.5 375.0 106 90 110 387.2 2.17 30

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: R344665

Sample ID: MB-R344665	Client ID:	Units: mg/L	Prep Date:	Run No: 344665							
SampleType: MBLK	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344665	Analysis Date: 05/31/2017	Seq No: 7562367							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total BRL 1.00

Sample ID: LCS-R344665	Client ID:	Units: mg/L	Prep Date:	Run No: 344665							
SampleType: LCS	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344665	Analysis Date: 05/31/2017	Seq No: 7562366							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 24.68 1.00 25.00 0.3004 97.5 90 110

Sample ID: 1705Q05-001AMS	Client ID:	Units: mg/L	Prep Date:	Run No: 344665							
SampleType: MS	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344665	Analysis Date: 05/31/2017	Seq No: 7562389							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 25.05 1.00 25.00 100 80 120

Sample ID: 1705Q05-001AMSD	Client ID:	Units: mg/L	Prep Date:	Run No: 344665							
SampleType: MSD	TestCode: Total Organic Carbon (TOC) by SM5310B	BatchID: R344665	Analysis Date: 05/31/2017	Seq No: 7562390							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Organic Carbon, Total 25.08 1.00 25.00 100 80 120 25.05 0.120 20

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

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) 5/25/17 (Time) 1345		Purge End: (Date) — (Time) —	
Purged by: <i>RW</i>			
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: cloudy (70 °F)

Actual Time	Vol. Purged (Gallons)	pH	SC (uS/cm)	Temp (°C)	Turbidity (NTU)	Comments
1345	—	7.60	9175	21.8	116	black, odor

Turbidity at metals sample collection: 116 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 09, 2017

Robert Hudson
Santek Environmental Inc.

650 25th Street NW, Suite 100
Cleveland TN 37311

RE: Loudon County (Matlock Bend) Landfill

Dear Robert Hudson:

Order No: 1705Q24

Analytical Environmental Services, Inc. received 1 samples on May 26, 2017 2:41 pm
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.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective
07/01/16-06/30/17 and Total Coliforms and E. coli, effective 04/25/17-04/24/20.

-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical
Materials, effective 07/01/16-06/30/17.

-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.

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

3785 Presidential Parkway, Atlanta GA 30340-3704

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

CHAIN OF CUSTODY

Work Order: 1705024

Date: 5-26-17 Page 1 of 1

COMPANY: Samtel Environmental Inc.		ADDRESS: 650 25th St NW, Ste 100 Cleveland, TN 37311		ANALYSIS REQUESTED						Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.		No # of Containers			
PHONE: 423/303-7101		FAX:		TN App VOC (8200) TN App VOC (6011) TN App Metals (incl. Pb) (Co, Cr, Ni, Ag, & Hg) DYS, Mn COD TDS F, Cl, NO ₃ , SO ₄ CN TOC, NH ₃											
SAMPLED BY: Miller, R		SIGNATURE: <i>[Signature]</i>		PRESERVATION (See codes)						REMARKS					
#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	H+I	I	N				I	S+I	F
1	Leachate	5-25-17	1345	X		GW	2	2	1	1	1	1	1	1	1
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: <i>[Signature]</i>		5/26/17 1300		1: <i>[Signature]</i>		5-26-17 1:02		PROJECT NAME: London County (Muttlock Bend) Landfill						Total # of Containers 11	
2: <i>[Signature]</i>		5-26-17 2:31		2: <i>[Signature]</i>		5/26/17 2:41		PROJECT #:						Turnaround Time Request	
3:				3:				SITE ADDRESS: 2712 Hwy 72N London, TN 37774						<input type="radio"/> Standard 5 Business Days	
								SEND REPORT TO: Robert Hudson						<input checked="" type="radio"/> 2 Business Day Rush	
								INVOICE TO: (IF DIFFERENT FROM ABOVE)						<input type="radio"/> Next Business Day Rush	
														<input type="radio"/> Same Day Rush (auth req.)	
														<input type="radio"/> Other	
SPECIAL INSTRUCTIONS/COMMENTS:				SHIPMENT METHOD										STATE PROGRAM (if any): TN	
				OUT / / VIA:										E-mail? <input checked="" type="radio"/> / N: Fax? <input checked="" type="radio"/> / Y	
				IN / / VIA:										DATA PACKAGE: I <input checked="" type="radio"/> II <input type="radio"/> III <input type="radio"/> IV	
				CLIENT FedEx UPS MAIL <input checked="" type="radio"/> COURIER											
				GREYHOUND OTHER											
								QUOTE #: PO#:							

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS 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 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

Client: Santek Environmental Inc.
Project: Loudon County (Matlock Bend) Landfill
Lab ID: 1705Q24

Case Narrative

Sample Receiving Nonconformance:

Samples 1705Q24-001C, -001E and -001H as received did not meet specified pH range for requested test methods 6020, 7470, 410.4, 350.1 and SM5310B of <2. Sample 1705Q24-001H did not meet specified pH range of >10 for method SW9014. Lab attempted to adjust pH at receipt using the maximum allowable amount of preservative, however, the required pH was not obtained. The laboratory proceeded with analysis per Robert Hudson via phone 05-26-17.

The turn around time on the Chain of Custody was listed as a 2 day rush, however the TAT was changed to standard per Robert Hudson via email 05-26-17

Ion Scan Analysis by Method 300.0:

Due to sample matrix, sample 1705Q24-001G required dilution during preparation and/or analysis resulting in elevated reporting limits.

Micro-extractable VOC Analysis by Method 8011:

Matrix spike duplicate analyses were not performed with Batch 243325 due to insufficient sample volume.

Analytical Environmental Services, Inc

Date: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: LEACHATE
Project Name: Loudon County (Matlock Bend) Landfill	Collection Date: 5/25/2017 1:45:00 PM
Lab ID: 1705Q24-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Organic Carbon (TOC) by SM5310B								
Organic Carbon, Total	465	20.0		mg/L	R344665	20	05/31/2017 10:45	JM
Total Metals by ICP/MS SW6020B (SW3005A)								
Calcium	106	0.500		mg/L	243390	5	06/08/2017 15:01	JR
Iron	8.08	0.500		mg/L	243390	5	06/08/2017 15:01	JR
Magnesium	77.6	0.500		mg/L	243390	5	06/08/2017 15:01	JR
Potassium	342	25.0		mg/L	243390	50	06/08/2017 15:17	JR
Sodium	738	25.0		mg/L	243390	50	06/08/2017 15:17	JR
Residue, Dissolved (TDS) by SM2540C								
Residue, Dissolved (TDS)	3340	10		mg/L	243493	1	05/01/2017 11:40	BD
Nitrogen, Ammonia (as N) E350.1 (E350.1)								
Nitrogen, Ammonia (As N)	975	100		mg/L	243443	500	05/31/2017 16:46	FS
MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011 (SW8011)								
1,2-Dibromo-3-chloropropane	BRL	0.200		ug/L	243325	1	06/01/2017 02:00	AW
1,2-Dibromoethane	BRL	0.050		ug/L	243325	1	06/01/2017 02:00	AW
Surr: 4-Bromofluorobenzene	79.2	69.4-134		%REC	243325	1	06/01/2017 02:00	AW
Mercury, Total SW7470A (SW7470A)								
Mercury	BRL	0.00200		mg/L	243660	1	06/07/2017 09:50	AS
Inorganic Anions by IC E300.0								
Chloride	919	20.0		mg/L	R344266	20	05/26/2017 21:23	JM
Fluoride	BRL	80.0		mg/L	R344266	20	05/26/2017 21:23	JM
Nitrogen, Nitrate (As N)	BRL	200		mg/L	R344266	20	05/26/2017 21:23	JM
Sulfate	44.5	20.0		mg/L	R344266	20	05/26/2017 21:23	JM
Dissolved Metals by ICP/MS SW6020B (SW3005A)								
Manganese	1.12	0.0100		mg/L	243633	1	06/05/2017 23:45	JR
Cyanide SW9014 (SW9010C)								
Cyanide, Total	BRL	0.200		mg/L	243607	1	06/01/2017 13:00	CG
Chemical Oxygen Demand (COD) E410.4								
Chemical Oxygen Demand	1170	100		mg/L	R344553	10	06/02/2017 11:00	LM
APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)								
1,1,1,2-Tetrachloroethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
1,1,1-Trichloroethane	BRL	200		ug/L	243375	1	05/30/2017 15:59	AR

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: 9-Jun-17

Client: Santek Environmental Inc.	Client Sample ID: LEACHATE
Project Name: Loudon County (Matlock Bend) Landfill	Collection Date: 5/25/2017 1:45:00 PM
Lab ID: 1705Q24-001	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	10		ug/L	243375	1	05/30/2017 15:59	AR
1,1,2-Trichloroethane	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
1,1-Dichloroethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
1,1-Dichloroethene	BRL	7.0		ug/L	243375	1	05/30/2017 15:59	AR
1,2,3-Trichloropropane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
1,2-Dichlorobenzene	BRL	600		ug/L	243375	1	05/30/2017 15:59	AR
1,2-Dichloroethane	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
1,2-Dichloropropane	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
1,4-Dichlorobenzene	BRL	75		ug/L	243375	1	05/30/2017 15:59	AR
2-Butanone	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
2-Hexanone	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
4-Methyl-2-pentanone	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Acetone	47	10		ug/L	243375	1	05/30/2017 15:59	AR
Acrylonitrile	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Benzene	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
Bromochloromethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Bromodichloromethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Bromoform	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Bromomethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Carbon disulfide	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Carbon tetrachloride	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
Chlorobenzene	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Chloroethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Chloroform	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Chloromethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
cis-1,2-Dichloroethene	BRL	70		ug/L	243375	1	05/30/2017 15:59	AR
cis-1,3-Dichloropropene	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Dibromochloromethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Dibromomethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Ethylbenzene	BRL	700		ug/L	243375	1	05/30/2017 15:59	AR
Iodomethane	ERL	10		ug/L	243375	1	05/30/2017 15:59	AR
Methylene chloride	ERL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
Styrene	BRL	100		ug/L	243375	1	05/30/2017 15:59	AR
Tetrachloroethene	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
Toluene	BRL	1000		ug/L	243375	1	05/30/2017 15:59	AR
trans-1,2-Dichloroethene	BRL	100		ug/L	243375	1	05/30/2017 15:59	AR
trans-1,3-Dichloropropene	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
trans-1,4-Dichloro-2-butene	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Trichloroethene	BRL	5.0		ug/L	243375	1	05/30/2017 15:59	AR
Trichlorofluoromethane	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR
Vinyl acetate	BRL	10		ug/L	243375	1	05/30/2017 15:59	AR

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: LEACHATE
Project Name: Loudon County (Matlock Bend) Landfill	Collection Date: 5/25/2017 1:45:00 PM
Lab ID: 1705Q24-001	Matrix: Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
APPENDIX I VOLATILE ORGANICS SW8260B					(SW5030B)			
Vinyl chloride	BRL	2.0		ug/L	243375	1	05/30/2017 15:59	AR
Xylenes, Total	BRL	10000		ug/L	243375	1	05/30/2017 15:59	AR
Surr: 4-Bromofluorobenzene	96.3	66.1-129		%REC	243375	1	05/30/2017 15:59	AR
Surr: Dibromofluoromethane	95.7	83.6-123		%REC	243375	1	05/30/2017 15:59	AR
Surr: Toluene-d8	94.4	81.8-118		%REC	243375	1	05/30/2017 15:59	AR
APPENDIX I METALS SW6020B					(SW3005A)			
Antimony	0.0306	0.00150		mg/L	243390	1	06/02/2017 04:13	JR
Arsenic	0.0613	0.00500		mg/L	243390	2	06/05/2017 19:03	JR
Barium	0.523	0.500		mg/L	243390	1	06/02/2017 04:13	JR
Beryllium	BRL	0.00100		mg/L	243390	1	06/02/2017 04:13	JR
Cadmium	BRL	0.00125		mg/L	243390	1	06/02/2017 04:13	JR
Chromium	0.163	0.0250		mg/L	243390	1	06/02/2017 04:13	JR
Cobalt	0.0743	0.0100		mg/L	243390	2	06/05/2017 19:03	JR
Copper	0.0396	0.0100		mg/L	243390	2	06/05/2017 19:03	JR
Lead	0.0201	0.00375		mg/L	243390	1	06/02/2017 04:13	JR
Nickel	0.255	0.0500		mg/L	243390	2	06/05/2017 19:03	JR
Selenium	BRL	0.0100		mg/L	243390	1	06/08/2017 16:58	JR
Silver	BRL	0.00250		mg/L	243390	1	06/02/2017 04:13	JR
Thallium	BRL	0.000500		mg/L	243390	1	06/02/2017 04:13	JR
Vanadium	0.0538	0.00500		mg/L	243390	1	06/02/2017 04:13	JR
Zinc	0.206	0.0200		mg/L	243390	2	06/05/2017 19:03	JR

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

SAMPLE/COOLER RECEIPT CHECKLIST

Clear

Save as

1. Client Name: Santek Environmental Inc.

AES Work Order Number: 1705Q24

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 3.0 °C Cooler 2 Temperature 5.0 °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). AJ 5/26/17

	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 type="radio"/>	<input checked="" 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: _____

I certify that I have completed sections 16-27 (dated initials). AJ 5/26/17

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

I certify that I have completed sections 28-30 (dated initials). AJ 5/26/17



Client:	Santek Environmental Inc.	Dates Report
Project Name:	Loudon County (Matlock Bend) Landfill	
Lab Order:	1705Q24	

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1705Q24-001A	LEACHATE	5/25/2017 1:45:00PM	Groundwater	APPENDIX I VOLATILE ORGANICS		5/30/2017 12:22:00PM	05/30/2017
1705Q24-001B	LEACHATE	5/25/2017 1:45:00PM	Groundwater	MICRO-EXTRACTABLE VOCs		5/30/2017 3:30:00PM	06/01/2017
1705Q24-001C	LEACHATE	5/25/2017 1:45:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00AM	06/02/2017
1705Q24-001C	LEACHATE	5/25/2017 1:45:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00AM	06/05/2017
1705Q24-001C	LEACHATE	5/25/2017 1:45:00PM	Groundwater	APPENDIX I METALS		5/31/2017 10:54:00AM	06/08/2017
1705Q24-001C	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Total Metals by ICP/MS		5/31/2017 10:54:00AM	06/08/2017
1705Q24-001C	LEACHATE	5/25/2017 1:45:00PM	Groundwater	TOTAL MERCURY		6/6/2017 12:43:00PM	06/07/2017
1705Q24-001D	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Dissolved Metals by ICP/MS		6/5/2017 6:03:00PM	06/05/2017
1705Q24-001E	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Chemical Oxygen Demand (COD)			06/02/2017
1705Q24-001F	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Residue, Dissolved (TDS) by SM2540C		6/1/2017 11:40:00AM	06/01/2017
1705Q24-001G	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Inorganic Anions by IC			05/26/2017
1705Q24-001H	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Cyanide		6/1/2017 9:00:00AM	06/01/2017
1705Q24-001I	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Nitrogen, Ammonia (as N)		5/31/2017 3:45:00PM	05/31/2017
1705Q24-001I	LEACHATE	5/25/2017 1:45:00PM	Groundwater	Total Organic Carbon by SM5310B			05/31/2017

pH Adjustment Sheet

AES Sample ID number	Test Requested	pH as Received	Required pH	Preservative Required	Lot # of Preservative	Amount Added mL or Pellets*	Final pH	Tech's Initials	Date	Time
1705Q24-001C	Metals	7	1	HNO3	747-50	0.5 mL Pellets	7	AJ	5/26	7:04
-001E	LD	↓	↓	H2SO4	705-47	0.5 mL Pellets	↓	AJ	↓	↓
-001I	TOC, NH3	↓	↓	↓	↓	1.0 mL Pellets	↓	AJ	↓	↓
-001H	Cyanide	9	12	NaOH	23290	mL 10 Pellets	9	AJ	↓	↓
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				

* Number of Pellets when adding NaOH

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243325

Sample ID: MB-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: MBLK	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554693

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	BRL	0.040									
1,2-Dibromoethane	BRL	0.020									
Surr: 4-Bromofluorobenzene	5.044	0	5.000		101	69.4	134				

Sample ID: LCS-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: LCS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554694

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	0.09800	0.040	0.1000		98.0	60	140				
1,2-Dibromoethane	0.09400	0.020	0.1000		94.0	60	140				
Surr: 4-Bromofluorobenzene	5.266	0	5.000		105	69.4	134				

Sample ID: LCSD-243325	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: LCSD	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554695

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	0.09800	0.040	0.1000		98.0	60	140	0.09800	0	20	
1,2-Dibromoethane	0.09600	0.020	0.1000		96.0	60	140	0.09400	2.11	20	
Surr: 4-Bromofluorobenzene	5.262	0	5.000		105	69.4	134	5.266	0	0	

Sample ID: 1705Q25-004BMS	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344377
SampleType: MS	TestCode: MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011	BatchID: 243325	Analysis Date: 05/31/2017	Seq No: 7554698

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,2-Dibromo-3-chloropropane	BRL	0.200	0.0999		102	51.3	144				
1,2-Dibromoethane	0.1019	0.050	0.0999		102	57.7	132				*
Surr: 4-Bromofluorobenzene	5.082	0.050	4.993		102	69.4	134				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243375

Sample ID: MB-243375	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215							
SampleType: MBLK	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553698							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1,2-Tetrachloroethane	BRL	5.0									
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,3-Trichloropropane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Acrylonitrile	BRL	5.0									
Benzene	BRL	5.0									
Bromochloromethane	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

ANALYTICAL QC SUMMARY REPORT

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

BatchID: 243375

Sample ID: MB-243375	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215
SampleType: MBLK	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553698

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dibromomethane	BRL	5.0									
Ethylbenzene	BRL	5.0									
Iodomethane	BRL	10									
Methylene chloride	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
trans-1,4-Dichloro-2-butene	BRL	10									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl acetate	BRL	10									
Vinyl chloride	BRL	2.0									
Xylenes, Total	BRL	10									
Surr: 4-Bromofluorobenzene	47.67	0	50.00		95.3	66.1	129				
Surr: Dibromofluoromethane	48.17	0	50.00		96.3	83.6	123				
Surr: Toluene-d8	48.38	0	50.00		96.8	81.8	118				

Sample ID: LCS-243375	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215
SampleType: LCS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553697

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	45.19	5.0	50.00		90.4	68	139				
Benzene	46.79	5.0	50.00		93.6	74	125				

Qualifiers:	> Greater than Result value	< Less than Result value	B Analyte detected in the associated method blank
	BRL Below reporting limit	E Estimated (value above quantitation range)	H Holding times for preparation or analysis exceeded
	J Estimated value detected below Reporting Limit	N Analyte not NELAC certified	R RPD outside limits due to matrix
	Rpt Lim Reporting Limit	S Spike Recovery outside limits due to matrix	

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243375

Sample ID: LCS-243375	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215
SampleType: LCS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553697

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	48.19	5.0	50.00		96.4	75.7	123				
Toluene	49.17	5.0	50.00		98.3	75.9	126				
Trichloroethene	47.32	5.0	50.00		94.6	70.6	129				
Surr: 4-Bromofluorobenzene	46.86	0	50.00		93.7	66.1	129				
Surr: Dibromofluoromethane	47.62	0	50.00		95.2	83.6	123				
Surr: Toluene-d8	49.02	0	50.00		98.0	81.8	118				

Sample ID: 1705K82-001AMS	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215
SampleType: MS	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553699

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	56.31	5.0	50.00		113	64.3	149				
Benzene	54.09	5.0	50.00		108	71.6	132				
Chlorobenzene	55.82	5.0	50.00		112	73.1	126				
Toluene	54.84	5.0	50.00		110	72.5	135				
Trichloroethene	54.44	5.0	50.00		109	70.2	132				
Surr: 4-Bromofluorobenzene	46.08	0	50.00		92.2	66.1	129				
Surr: Dibromofluoromethane	48.58	0	50.00		97.2	83.6	123				
Surr: Toluene-d8	48.71	0	50.00		97.4	81.8	118				

Sample ID: 1705K82-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215
SampleType: MSD	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553700

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	52.48	5.0	50.00		105	64.3	149	56.31	7.04	30.8	
Benzene	53.07	5.0	50.00		106	71.6	132	54.09	1.90	20.7	
Chlorobenzene	53.42	5.0	50.00		107	73.1	126	55.82	4.39	26.6	
Toluene	53.70	5.0	50.00		107	72.5	135	54.84	2.10	23.2	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit
 < Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix
 B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243375

Sample ID: 1705K82-001AMSD	Client ID:	Units: ug/L	Prep Date: 05/30/2017	Run No: 344215							
SampleType: MSD	TestCode: APPENDIX I VOLATILE ORGANICS SW8260B	BatchID: 243375	Analysis Date: 05/30/2017	Seq No: 7553700							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Trichloroethene	52.65	5.0	50.00		105	70.2	132	54.44	3.34	27.7	
Surr: 4-Bromofluorobenzene	48.18	0	50.00		96.4	66.1	129	46.08	0	0	
Surr: Dibromofluoromethane	49.02	0	50.00		98.0	83.6	123	48.58	0	0	
Surr: Toluene-d8	49.09	0	50.00		98.2	81.8	118	48.71	0	0	

Quantifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: MB-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MBLK	TestCode: APPENDIX 1 METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559943							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	BRL	0.00600									
Arsenic	BRL	0.0100									
Barium	BRL	0.0200									
Beryllium	BRL	0.00400									
Cadmium	BRL	0.00500									
Chromium	BRL	0.0200									
Cobalt	BRL	0.0500									
Copper	BRL	0.0200									
Lead	BRL	0.0100									
Nickel	BRL	0.0400									
Selenium	BRL	0.0500									
Silver	BRL	0.00500									
Thallium	BRL	0.00200									
Vanadium	BRL	0.0500									
Zinc	BRL	0.0200									

Sample ID: MB-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018							
SampleType: MBLK	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571535							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	BRL	0.100									
Iron	BRL	0.100									
Magnesium	BRL	0.100									
Potassium	BRL	0.100									
Sodium	BRL	0.500									

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570
SampleType: LCS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559944

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1049	0.00600	0.1000		105	80	120				
Arsenic	0.09720	0.0100	0.1000	0.0003020	96.9	80	120				
Barium	0.1059	0.0200	0.1000	0.0001990	106	80	120				
Beryllium	0.1004	0.00400	0.1000		100	80	120				
Cadmium	0.1004	0.00500	0.1000		100	80	120				
Chromium	0.1114	0.0200	0.1000	0.004256	107	80	120				
Cobalt	0.09718	0.0500	0.1000		97.2	80	120				
Copper	0.09508	0.0200	0.1000	0.001508	93.6	80	120				
Lead	0.1015	0.0100	0.1000		102	80	120				
Nickel	0.1033	0.0400	0.1000	0.002346	101	80	120				
Selenium	0.09930	0.0500	0.1000		99.3	80	120				
Silver	0.01025	0.00500	0.0100	0.00005200	102	80	120				
Thallium	0.1003	0.00200	0.1000		100	80	120				
Vanadium	0.09813	0.0500	0.1000	0.0004270	97.7	80	120				
Zinc	0.1082	0.0200	0.1000	0.003554	105	80	120				

Sample ID: LCS-243390	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018
SampleType: LCS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571536

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	1.097	0.100	1.000	0.07192	103	80	120				
Iron	0.9963	0.100	1.000		99.6	80	120				
Magnesium	0.9162	0.100	1.000		91.6	80	120				
Potassium	0.9673	0.100	1.000		96.7	80	120				
Sodium	0.9071	0.500	1.000	0.03703	87.0	80	120				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: 1705Q20-006IMS	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MS	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559947							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	0.1029	0.00600	0.1000	0.0008790	102	75	125				
Arsenic	0.09026	0.0100	0.1000	0.0005500	89.7	75	125				
Barium	0.2064	0.0200	0.1000	0.1040	102	75	125				
Beryllium	0.09809	0.00400	0.1000		98.1	75	125				
Cadmium	0.09740	0.00500	0.1000	0.0003680	97.0	75	125				
Chromium	0.1008	0.0200	0.1000	0.001539	99.3	75	125				
Cobalt	0.1025	0.0500	0.1000	0.01097	91.5	75	125				
Copper	0.08859	0.0200	0.1000	0.002790	85.8	75	125				
Lead	0.1018	0.0100	0.1000	0.0008580	101	75	125				
Nickel	0.1040	0.0400	0.1000	0.01205	92.0	75	125				
Selenium	0.09003	0.0500	0.1000	0.0003690	89.7	75	125				
Silver	0.009767	0.00500	0.0100	0.00006400	97.0	75	125				
Thallium	0.1013	0.00200	0.1000	0.0007370	101	75	125				
Vanadium	0.09545	0.0500	0.1000		95.4	75	125				
Zinc	0.09775	0.0200	0.1000	0.004953	92.8	75	125				

Sample ID: 1705Q20-006IMS	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018							
SampleType: MS	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571517							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Calcium	13.16	0.100	1.000	12.27	89.0	75	125				
Iron	1.112	0.100	1.000	0.1392	97.3	75	125				
Magnesium	5.212	0.100	1.000	4.293	91.9	75	125				
Potassium	5.955	0.100	1.000	5.073	88.2	75	125				
Sodium	42.74	0.500	1.000	42.28	46.0	75	125				S

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: Santek Environmental Inc.
 Project Name: Loudon County (Matlock Bend) Landfill
 Workorder: 1705Q24

ANALYTICAL QC SUMMARY REPORT

BatchID: 243390

Sample ID: 1705Q20-006IMSD	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 344570							
SampleType: MSD	TestCode: APPENDIX I METALS SW6020B	BatchID: 243390	Analysis Date: 06/02/2017	Seq No: 7559949							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	0.1011	0.00600	0.1000	0.0008790	100	75	125	0.1029	1.76	20	
Arsenic	0.08511	0.0100	0.1000	0.0005500	84.6	75	125	0.09026	5.87	20	
Barium	0.2115	0.0200	0.1000	0.1040	108	75	125	0.2064	2.44	20	
Beryllium	0.09513	0.00400	0.1000		95.1	75	125	0.09809	3.06	20	
Cadmium	0.09516	0.00500	0.1000	0.0003680	94.8	75	125	0.09740	2.33	20	
Chromium	0.09581	0.0200	0.1000	0.001539	94.3	75	125	0.1008	5.08	20	
Cobalt	0.09885	0.0500	0.1000	0.01097	87.9	75	125	0.1025	3.63	20	
Copper	0.08345	0.0200	0.1000	0.002790	80.7	75	125	0.08859	5.98	20	
Lead	0.1042	0.0100	0.1000	0.0008580	103	75	125	0.1018	2.33	20	
Nickel	0.09845	0.0400	0.1000	0.01205	86.4	75	125	0.1040	5.48	20	
Selenium	0.08619	0.0500	0.1000	0.0003690	85.8	75	125	0.09003	4.36	20	
Silver	0.009144	0.00500	0.0100	0.00006400	90.8	75	125	0.009767	6.59	20	
Thallium	0.1049	0.00200	0.1000	0.0007370	104	75	125	0.1013	3.49	20	
Vanadium	0.09432	0.0500	0.1000		94.3	75	125	0.09545	1.19	20	
Zinc	0.09047	0.0200	0.1000	0.004953	85.5	75	125	0.09775	7.74	20	

Sample ID: 1705Q20-006IMSD	Client ID:	Units: mg/L	Prep Date: 05/31/2017	Run No: 345018							
SampleType: MSD	TestCode: Total Metals by ICP/MS SW6020B	BatchID: 243390	Analysis Date: 06/08/2017	Seq No: 7571523							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	13.26	0.100	1.000	12.27	99.0	75	125	13.16	0.757	20	
Iron	1.094	0.100	1.000	0.1392	95.5	75	125	1.112	1.63	20	
Magnesium	5.413	0.100	1.000	4.293	112	75	125	5.212	3.78	20	
Potassium	6.059	0.100	1.000	5.073	98.6	75	125	5.955	1.73	20	
Sodium	44.83	0.500	1.000	42.28	255	75	125	42.74	4.77	20	S

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

LEACHATE CONTROL CHART

