

**MATLOCK BEND LANDFILL – PHASE I & PHASE II/IV UPGRADE  
GROUNDWATER MONITORING REPORT  
1<sup>st</sup> SEMI-ANNUAL EVENT - 2015**

**SANTEK PROJECT NO. 200-1510.1 & 200-1510.2**



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

**MAY 2015**



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

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

May 26, 2015

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

RE: Groundwater Monitoring Report – 1<sup>st</sup> Semi-Annual Event  
Matlock Bend Landfill – Phase I  
SNL #53-103-0203

Dear Mr. Miller:

Please find enclosed a copy of the groundwater monitoring report generated from the first semi-annual groundwater event of 2015 at the Matlock Bend Landfill – Phase I. This package includes data pertaining to site information, geologic summary, groundwater sampling, analytical laboratory reports, statistical analysis, and groundwater elevations and flow.

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

Sincerely,

A handwritten signature in blue ink that reads "Will Martin".

Will Martin  
Environmental Compliance Coordinator

A handwritten signature in blue ink that reads "Ron E. Vail".

Ron E. Vail, P.E.  
V.P. of Engineering  
TN. Registration No. 109716

Enclosures

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

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### **Leachate**

- Leachate Field Log
- Leachate Analytical Data
- Leachate Control Chart

MATLOCK BEND LANDFILL  
PHASE I

**MATLOCK BEND LANDFILL – PHASE I  
GROUNDWATER MONITORING REPORT  
1<sup>st</sup> SEMI-ANNUAL EVENT - 2015**

**SANTEK PROJECT NO. 200-1510.1**



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

**MAY 2015**

## **1.0 INTRODUCTION**

In accordance with the Tennessee Department of Environment and Conservation's Solid Waste Processing and Disposal Rule 1200-1-7-.04(7), Santek Waste Services, Inc. (Santek) is submitting the groundwater monitoring report for the first semi-annual event for 2015 at the Matlock Bend Landfill - Phase I. 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 MW-01, MW-1A, MW-02 and MW-03. Sampling and statistical analyses were performed by Santek. Santek contracted with Analytical Environmental Services, Inc. (AES) to perform all analytical testing.

### **1.1 SITE INFORMATION**

Phase I of 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 23 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 on March 31 and April 1, 2015. Samples were analyzed for Appendix I constituents, as well as the required additional 14 parameters. 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. Data pertaining to leachate monitoring is provided in the appendix labeled Leachate.

### **3.0 STATISTICAL ANALYSIS**

#### **3.1 Statistical Analysis Method**

Santek is submitting a control chart approach to satisfy the statistical analysis requirement. Well #03 is the upgradient (background) well. Wells #01, #1A and #02 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 Appendix I limits from pages .01-17, 18 of the regulations are used for additional comparison 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**

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

#### **MW-02**

The control chart for MW-02 indicates zinc\* is above the report limit and the background wells average. However, it is felt that the result of this constituent is not indicative of a release from the landfill, but rather attributable to local soil constituents.

#### **MW-03**

MW-03 is the upgradient (background) well.

## **4.0 FLOW DIRECTION AND RATES**

### **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.

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  $2.07 \times 10^{-3}$  ft/day at MW-03 to  $4.19 \times 10^{-3}$  ft/day at MW-02. Groundwater flow rate and direction have been determined for each well and are included in Appendix D. A groundwater potentiometric contour map 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.

\*Indicates Appendix I limit is not available.

**APPENDIX A**

DATE: 3/31/15

| FIELD SAMPLING LOG   |  | WELL NO: MW-01     |
|--|--|--------------------|
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santeck Waste Services, Inc.                                      |  | Project No:        |
| Purge Start: (Date) 3/31/15 (Time) 2:40      Purge End: (Date) 3/31/15 (Time) 3:05 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 830.87 ft  |  | Well Csg. ID: 2"   |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba .

Measure Well TD: 45.00 (-) Orig. DTW: 5.83 (=) Wtr. Col. Thick: 39.17 .

$2''=0.16$   
 (x)  $4''=0.65$  Gals./ft. (=) 6.3 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 18.9 Total Purge Gals.  
 $6''=1.47$

GW elev. Ref. 830.87 ft. (-) DTW 5.83 ft. = 825.04 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_.  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_.

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: gpm

Weather: Sunny (70's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|----------|
| 2:41        |              | -                  |                   |                           | 16.95     | 6.05 | 0.380               | 1.5             |       | Clear    |
| 2:47        |              | 6.5                |                   |                           | 17.67     | 6.04 | 0.369               | 702             |       | Muddy    |
| 2:56        |              | 12.5               |                   |                           | 17.71     | 6.07 | 0.379               | 512             |       | Murky    |
| 3:05        |              | 19.0               |                   |                           | 17.48     | 6.05 | 0.371               | 648             |       | Murky    |

Average Linear velocity  $v = \frac{Ki}{n}$  Where  
 $n$ K= Hydraulic Conductivity (ft/min)  
*i* = Gradient (ft/R)  
*n* = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. ft. } (-) \text{ GW elev. ft.}] \cdot \frac{\text{distance ft}}{\text{ft day}}$$

$$v = \text{ft./min.} = \text{ft day}$$

.18 Clay/Silt  
 .20 Silt w/sand  
 .25 sand  
 .3 sand and gravel

Comments: Metals Sample Turbidity = 24.1 NTU's. VOC's taken on 3/31/15 @ 3:06 p.m. Metals taken on 4/1/15 @ 11:30 a.m. Allowed well to settle overnight.

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

DATE: 3/31/15

| FIELD SAMPLING LOG   |  | WELL NO: MW-1A     |
|--|--|--------------------|
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santeck Waste Services, Inc.                                      |  | Project No:        |
| Purge Start: (Date) 3/31/15 (Time) 3:33      Purge End: (Date) 3/31/15 (Time) 3:50 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 805.13 ft  |  | Well Csg. ID: 2"   |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba .

Measure Well TD: 38.00 (-) Orig. DTW: 13.03 (=) Wtr. Col. Thick: 24.97 .

$2''=0.16$   
 $(x) \quad 4''=0.65 \text{ Gals./ft. } (=) \quad 4.0 \text{ Gals./Csg. Vol. } (x) \quad 3 \text{ Csg. Vol. } (=) \quad 12.0 \text{ Total Purge Gals.}$   
 $6''=1.47$

GW elev. Ref. 805.13 ft. (-) DTW 13.03 ft. = 792.10 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_.  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_.

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Partly Cloudy (70's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|----------|
| 3:34        |              | -                  |                   |                           | 17.77     | 6.05 | 0.489               | 3.3             |       | Clear    |
| 3:39        |              | 4                  |                   |                           | 17.29     | 6.08 | 0.542               | 258             |       | Cloudy   |
| 3:44        |              | 8                  |                   |                           | 16.99     | 6.16 | 0.553               | 414             |       | Cloudy   |
| 3:50        |              | 12                 |                   |                           | 16.88     | 6.15 | 0.548               | 369             |       | Cloudy   |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

K= Hydraulic Conductivity (ft/min)  
i = Gradient (ft/ft)  
n = effective porosity

$v = [K \text{ ft/min. } (x) \text{ GW elev. } \text{ ft. } (-) \text{ GW elev. } \text{ ft. } ] - \text{ ft}$  .18 Clay/Silt  
distance \_\_\_\_\_ ft .20 Sat w/sand  
 $v = \text{ ft/min. } = \text{ ft day}$  .25 sand  
.3 sand and gravel

Comments: Metals Sample Turbidity = 47.2 NTU's. VOC's taken on 3/31/15 @ 3:51 p.m. Metals taken on 4/1/15 @ 11:45 a.m. Allowed well to settle overnight. \*Duplicate taken here.

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

DATE: 3/31/15

|  |  |                    |
|--|--|--------------------|
| <b>FIELD SAMPLING LOG</b>  |  | WELL NO: MW-02     |
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santek Waste Services, Inc.                                       |  | Project No:        |
| Purge Start: (Date) 3/31/15 (Time) 1:50      Purge End: (Date) 3/31/15 (Time) 2:05 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 825.20 ft      Well Csg. ID: 2"                      |  |                    |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba

Measure Well TD: 43.10 (-) Orig. DTW: 11.65 (=) Wtr. Col. Thick: 31.45

$2''=0.16$   
(x)  $4''=0.65$  Gals./ft. (=) 5.0 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 15.0 Total Purge Gals.  
 $6''=1.47$

GW elev. Ref. 825.20 ft. (-) DTW 11.65 ft. = 813.55 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_  
 Bailer (indicate type) Poly/Disposable

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Sunny (70's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments              |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|-----------------------|
| 1:50        |              | -                  |                   |                           | 20.52     | 4.60 | 0.094               | 4.3             |       | Clear                 |
| 1:54        |              | 5.0                |                   |                           | 19.11     | 4.65 | 0.059               | 41.6            |       | Clear                 |
| 1:59        |              | 10.0               |                   |                           | 18.89     | 4.66 | 0.057               | 831             |       | Muddy                 |
| 2:04        |              | 12.5               |                   |                           | 18.68     | 4.71 | 0.056               | 940             |       | Muddy,<br>*purged dry |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

\*Purged dry at 12.5 gallons.

K= Hydraulic Conductivity (ft/min)

i = Gradient (ft/ft)

n = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. ft.} (-) \text{ GW elev. ft.}] - \frac{\text{distance ft}}{\text{ft./min. ft day}}$$

.18 Clay/Silt  
.20 Silt w/sand  
.25 sand  
.3 sand and gravel

Comments: Metals Sample Turbidity = 17.4 NTU's. VOC's taken on 3/31/15 @ 2:06 p.m. Metals taken on 4/1/15 @ 9:40 a.m. Allowed well to settle overnight.

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

DATE: 4/1/15

|  |  |                    |
|--|--|--------------------|
| <b>FIELD SAMPLING LOG</b>  |  | WELL NO: MW-03     |
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santek Waste Services, Inc.                                       |  | Project No:        |
| Purge Start: (Date) 4/1/15 (Time) 10:21      Purge End: (Date) 4/1/15 (Time) 10:32 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 867.86 ft  |  | Well Csg. ID: 2"   |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba

Measure Well TD: 41.60 (-) Orig. DTW: 12.92 (=) Wtr. Col. Thick: 28.68  
12.80 (water level on 3/31/15)(x) 4"=0.65 Gals./ft. (=) 4.6 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 13.8 Total Purge Gals.  
6"=1.47

GW elev. Ref. 867.86 ft. (-) DTW 12.80 ft. = 855.06 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Sunny (60's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments               |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|------------------------|
| 10:22       |              | -                  |                   |                           | 14.81     | 4.99 | 0.074               | 4.9             |       | Clear                  |
| 10:29       |              | 5.0                |                   |                           | 15.51     | 4.92 | 0.069               | 66.4            |       | Clear                  |
| 10:32       |              | 6.0                |                   |                           | 15.55     | 4.93 | 0.065               | 107             |       | Cloudy,<br>*purged dry |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

\*Purged dry at 6.0 gallons.

K= Hydraulic Conductivity (ft/min)

i = Gradient (ft/ft)

n = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. ft. } (-) \text{ GW elev. ft.}] - \text{ ft} \quad .18 \text{ Clay/Silt}$$

$$\text{distance ft} \quad .20 \text{ Silt w/sand}$$

$$v = \text{ ft./min.} = \text{ ft day} \quad .25 \text{ sand}$$

$$\quad \quad \quad .3 \text{ sand and gravel}$$

Comments: Metals Sample Turbidity = 21.4 NTU's. VOC's taken on 4/1/15 @ 10:38 a.m. Metals taken on 4/1/15 @ 12:45 p.m. Water level taken on 3/31/15.

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

**APPENDIX B**



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

May 05, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504164

Analytical Environmental Services, Inc. received 5 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

Chantelle Kanhai  
Project Manager



ANALYTICAL ENVIRONMENTAL SERVICES, INC  
3080 Presidential Drive, Atlanta GA 30340-3704  
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1504164

Date: 4/11/15 Page 1 of 1

| COMPANY:<br><i>Santek Waste Services, Inc.</i>   | ADDRESS:<br>650 25th Street NW, Suite 100, Cleveland, TN 37311 | TESTS REQUESTED   |                        |                                |   |           |                    |          |                                  |                 |      | No. of Containers |                                  |  |  |          |    |
|--|--|---|------------------------|--------------------------------|---|-----------|--------------------|----------|----------------------------------|-----------------|------|-------------------|----------------------------------|--|--|----------|----|
|  |  | TDS   |                        |                                |   |           | ANALYSIS REQUESTED |          |                                  |                 |      |                   |                                  |  |  |          |    |
|  |  | Inorganic Anions  | Organic Molecules      | Total Metals                   | Dissolved Metals  | COD       | TOC                | Chloride | NH <sub>3</sub> -NH <sub>4</sub> | Total Nitrogen  | VOCs |                   | PCP/PAHs                         |  |  |          |    |
| #  | SAMPLE ID  | SAMPLING  |                        | Matrix<br>(See codes)          | PRESERVATION (See codes)                                    |           |                    |          |                                  |                 |      |                   |                                  |  | REMARKS  |          |    |
|  |  | DATE  | TIME                   |                                | Grob  | Composite | Total              | Mg/Ca    | Alk                              | CO <sub>2</sub> | TOC  | Chloride          | NH <sub>3</sub> -NH <sub>4</sub> | PCP/PAHs   |  |          |    |
| 1  | Leachate   | 4/11/15   | 12:15                  | X                              | O   | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  | Leachate | 9  |
| 2  | Trip Blank   | 4/11/15   | 2:30                   | X                              | W   | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 9  |
| 3  | Equip. Blank   | 4/11/15   | 2:45                   | X                              | W   | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 9  |
| 4  | MW-L4R   | 3/31/15   | 12:01                  | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 85 |
| 5  | L  | 4/11/15   | 11:15                  | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 1  |
| 6  | MW-05  | 3/31/15   | 11:29                  | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 85 |
| 7  | L  | 4/11/15   | 10:59                  | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 1  |
| 8  | Duplicate  | 3/31/15   |                        | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 87 |
| 9  | L  | 4/11/15   |                        | X                              | GW  | X         | X                  | X        | X                                | X               | X    | X                 | X                                | X  | X  |          | 2  |
| 10   |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  |  |  |          |    |
| 11   |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  |  |  |          |    |
| 12   |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  |  |  |          |    |
| 13   |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  |  |  |          |    |
| 14   |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  |  |  |          |    |
| RELINQUISHED BY:   |  | DATE/TIME   | RECEIVED BY            | DATE/TIME                      | PROJECT INFORMATION   |           |                    |          |                                  |                 |      |                   |                                  |  | RECEIPT  |          |    |
| <i>Robert Hudson</i>   |  | 4/11/15   | <i>Jessica Pacurar</i> | 4/2/15 10:50                   | PROJECT NAME: <i>Leviston Co (Matlock Bend) LF 1st semi</i> |           |                    |          |                                  |                 |      |                   |                                  |  | Total # of Containers  |          |    |
|  |  |   |                        |                                | PROJECT #: <i>Anaerobic Gw Event 2015</i>                   |           |                    |          |                                  |                 |      |                   |                                  |  | Turnaround Time Request                                      |          |    |
|  |  |   |                        |                                | SITE ADDRESS: <i></i>                                       |           |                    |          |                                  |                 |      |                   |                                  |  | <input checked="" type="checkbox"/> Standard 5 Business Days |          |    |
|  |  |   |                        |                                | SEND REPORT TO: <i>Will Martin</i>                          |           |                    |          |                                  |                 |      |                   |                                  |  | <input type="checkbox"/> 2 Business Day Rush                 |          |    |
|  |  |   |                        |                                | INVOICE TO: (IF DIFFERENT FROM ABOVE)                       |           |                    |          |                                  |                 |      |                   |                                  |  | <input type="checkbox"/> Next Business Day Rush              |          |    |
| SPECIAL INSTRUCTIONS/COMMENTS:   |  | SHIPMENT METHOD   |                        | QUOTE #: <i></i> PO #: <i></i> |   |           |                    |          |                                  |                 |      |                   |                                  | <input type="checkbox"/> Same Day Rush (auth req.) |  |          |    |
| <i>See Chantelle K. and Project History</i>  |  | <input checked="" type="checkbox"/> AIR / / VIA:<br>IN / / VIA:<br>CLIENT <input checked="" type="checkbox"/> UPS MAIL COURIER<br>GREYHOUND OTHER |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  | <input type="checkbox"/> Other _____               |  |          |    |
| 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.<br>SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE. |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  | STATE PROGRAM GROUP                                |  |          |    |
|  |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  | E-mail? Y/N: <i></i> Fax? Y/N: <i></i>             |  |          |    |
|  |  |   |                        |                                |   |           |                    |          |                                  |                 |      |                   |                                  | DATA PACKAGE: I II III IV                          |  |          |    |

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Banks) 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/I+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

**Client:** Santek Environmental Inc.  
**Project:** Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW  
**Lab ID:** 1504164

**Case Narrative**

Samples "MW-4R" and "MW-05" were analyzed under work order 1504188.

**Sample Receiving Nonconformance:**

The containers submitted for Total Metals, Cyanide, Nitrogen, Ammonia (as N), Chemical Oxygen Demand and Total Organic Carbon for sample "LEACHATE" as received did not meet method specified pH range for the requested test methods. No attempt to further adjust the pH was made due to sample matrix.

**Volatile Organic Compounds Analysis by Method 8260B:**

Sample 1504164-001 as received did not meet method specified preservation requirements of pH <2.

**Ion Chromotography Analysis by Method 300:**

Due to sample matrix, sample 1504164-001 required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Santek Waste Services

Work Order Number 1504164

Checklist completed by Ioana Pacurar 4/2/15  
Signature Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (0°≤6°C)\* Yes  No

Cooler #1 3.1C Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted Yes  No

Water - pH acceptable upon receipt? Yes X 4/3/15 No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by JP

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

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

**Analytical Environmental Services, Inc**

Date: 5-May-15

|                      |   |                     |
|----------------------|---|---------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Dates Report</b> |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV |                     |
| <b>Lab Order:</b>    | 1504164   |                     |

| Lab Sample ID | Client Sample ID | Collection Date     | Matrix  | Test Name                           | TCLP Date            | Prep Date  | Analysis Date |
|---------------|------------------|---------------------|---------|-------------------------------------|----------------------|------------|---------------|
| 1504164-001A  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015 |               |
| 1504164-001B  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015 |               |
| 1504164-001C  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-001C  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-001C  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/08/2015 |               |
| 1504164-001D  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015 |               |
| 1504164-001E  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015 |               |
| 1504164-001E  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Chemical Oxygen Demand (COD)        |                      | 04/06/2015 |               |
| 1504164-001E  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Total Organic Carbon by SM5310B     |                      | 04/06/2015 |               |
| 1504164-001F  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015 |               |
| 1504164-001G  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Inorganic Anions by IC              |                      | 04/03/2015 |               |
| 1504164-001G  | LEACHATE         | 4/1/2015 12:15:00PM | Aqueous | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015 |               |
| 1504164-002A  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015 |               |
| 1504164-002B  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015 |               |
| 1504164-002C  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-002C  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-002C  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/08/2015 |               |
| 1504164-002D  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015 |               |
| 1504164-002E  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015 |               |
| 1504164-002E  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Chemical Oxygen Demand (COD)        |                      | 04/06/2015 |               |
| 1504164-002E  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Total Organic Carbon by SM5310B     |                      | 04/06/2015 |               |
| 1504164-002F  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015 |               |
| 1504164-002G  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Inorganic Anions by IC              |                      | 04/02/2015 |               |
| 1504164-002G  | TRIP BLANK       | 4/1/2015 2:30:00PM  | Aqueous | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015 |               |
| 1504164-003A  | EQUIP. BLANK     | 4/1/2015 2:45:00PM  | Aqueous | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015 |               |
| 1504164-003B  | EQUIP. BLANK     | 4/1/2015 2:45:00PM  | Aqueous | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/08/2015 |               |
| 1504164-003C  | EQUIP. BLANK     | 4/1/2015 2:45:00PM  | Aqueous | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-003C  | EQUIP. BLANK     | 4/1/2015 2:45:00PM  | Aqueous | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504164-003C  | EQUIP. BLANK     | 4/1/2015 2:45:00PM  | Aqueous | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/08/2015 |               |

## Analytical Environmental Services, Inc

Date: 6-May-15

| Client:       | Santek Environmental Inc. | Project Name:        | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV | Lab Order:                          | 1504164              | Dates Report |               |  |
|---------------|---------------------------|----------------------|---|-------------------------------------|----------------------|--------------|---------------|--|
| Lab Sample ID | Client Sample ID          | Collection Date      | Matrix  | Test Name                           | TCLP Date            | Prep Date    | Analysis Date |  |
| 1504164-003D  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-003F  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |
| 1504164-004A  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015   |               |  |
| 1504164-004B  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015   |               |  |
| 1504164-004C  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-004E  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/06/2015   |               |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/03/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

AES

April 10, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504147

Analytical Environmental Services, Inc. received 8 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

A handwritten signature in black ink that reads "Chantelle Kanhai".

Chantelle Kanhai  
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) 457-3188

## CHAIN OF CUSTODY

Work Order: 1504147

Date: 4/11/15 Page: 1 of 1

| COMPANY<br>Santek Waste Services, Inc.  | ADDRESS<br>650 25th Street NW,<br>Suite 100, Cleveland, TN<br>37311 | ANALYSIS REQUESTED  |                              |                           |               |  |                          |  |     |          |  | Visit our website<br><a href="http://www.aesatlanta.com">www.aesatlanta.com</a><br>to check on the status of<br>your results, place bottle<br>orders, etc. |    |   |                |
|---|---|---|------------------------------|---------------------------|---------------|--|--------------------------|--|-----|----------|--|--|----|---|----------------|
|   |   | TDS   | Inorganic Anions by IC/ICPMS | Total Metals by ICP/ICPMS | Total Mercury | Dissolved Metals by ICP/ICPMS                          | Preservation (See codes) | REMARKS                                  |     |          |  |  |    |   |                |
|   |   | Grab  | Total Metals                 | Total Mercury             | App. T. Vac.  | Micro-Extr.  | Nitrogen, Ammonium       | COD                                      | TOC | Chloride |  |  |    |   |                |
| PHONE: (404) 303-7101                   | FAX: (404) 479-1952   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| SAMPLED BY: R. Hudson                   | SIGNATURE: Robert Hudson  |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| #                                       | SAMPLE ID   | SAMPLED   | DATE                         | TIME                      | Grab          | Composite  | MATRIX<br>(See codes)    |  |     |          |  |  |    |   |                |
| 1                                       | MW-03   |   | 4/11/15                      | 10:38                     | X             | GW   |                          | X X b X X X X X X X                      |     |          |  |  | 7  |   |                |
| 2                                       | ↪   |   | 4/11/15                      | 12:45                     | X             | GW   | XX XX X                  |  |     |          |  |  | 2  |   |                |
| 3                                       | MW-02   |   | 3/31/15                      | 2:06                      | X             | GW   |                          | X X X X X                                |     |          |  |  | 7  |   |                |
| 4                                       | ↪   |   | 4/10/15                      | 9:40                      | X             | GW   | XX X X X                 |  |     |          |  |  | 2  |   |                |
| 5                                       | MW-01   |   | 3/31/15                      | 3:06                      | X             | GW   |                          | X b X X X X X X X                        |     |          |  |  | 7  |   |                |
| 6                                       | ↪   |   | 4/11/15                      | 11:30                     | X             | GW   | XX X X X X               |  |     |          |  |  | 2  |   |                |
| 7                                       | MW-1A   |   | 3/31/15                      | 3:51                      | X             | GW   |                          | X X X X X X X X X                        |     |          |  |  | 7  |   |                |
| 8                                       | ↪   |   | 4/11/15                      | 11:45                     | X             | GW   | XX X X X X               |  |     |          |  |  | 2  |   |                |
| 9                                       |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| 10                                      |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| 11                                      |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| 12                                      |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| 13                                      |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| 14                                      |   |   |                              |                           |               |  |                          |  |     |          |  |  |    |   |                |
| RELINQUISHED BY                         |   | DATE/TIME   | RECEIVED BY                  |                           | DATE/TIME     | PROJECT INFORMATION                                    |                          |  |     |          |  | RECEIPT  |    |   |                |
| 1:                                      | Robert Hudson   | 4pm   | 1:                           | Jamie B                   | 4/11/15 10:50 | PROJECT NAME:<br>Loudon Co (Matlock Bend) LF 1st Semi- |                          |  |     |          |  | Total # of Containers  | 36 |   |                |
| 2:                                      |   |   | 2:                           |                           |               | PROJECT #: Annual GW Event 2015                        |                          |  |     |          |  | Turnaround Time Requested  |    |   |                |
| 3:                                      |   |   | 3:                           |                           |               | SITE ADDRESS:  |                          |  |     |          |  | <input checked="" type="checkbox"/> Standard 5 Business Days   |    |   |                |
| SPECIAL INSTRUCTIONS/COMMENTS:          |   | SHIPMENT METHOD   |                              |                           |               |  |                          | SEND REPORT TO: Will Martin              |     |          |  |  |    | <input type="checkbox"/> 2 Business Day Rush      |                |
| See Chantelle K. and<br>Project History |   | OUT VIA:<br>IN VIA:<br>CLIENT <input checked="" type="checkbox"/> UPS MAIL COURIER<br>GREYHOUND OTHER |                              |                           |               |  |                          | INVOICE TO:<br>(IF DIFFERENT FROM ABOVE) |     |          |  |  |    | <input type="checkbox"/> Next Business Day Rush   |                |
|   |   |   |                              |                           |               |  |                          |  |     |          |  |  |    | <input type="checkbox"/> Same Day Rush (auth req) |                |
|   |   |   |                              |                           |               |  |                          |  |     |          |  |  |    | <input type="checkbox"/> Other                    |                |
|   |   |   |                              |                           |               |  |                          |  |     |          |  |  |    | STATE PROGRAM (if any): _____                     |                |
|   |   |   |                              |                           |               |  |                          |  |     |          |  |  |    | E-mail Y/N: _____                                 | Fax Y/N: _____ |
|   |   |   |                              |                           |               |  |                          |  |     |          |  |  |    | DATA PACKAGE: I 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.

Page 2 of 17

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

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = ice only N = Nitric acid S+T = Sulfuric acid + ice SM+I = Sodium Bisulfite/Ethanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Santek Waste Services

Work Order Number 1504147

Checklist completed by Jason B 4/2/15  
Signature Date

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? ( $0^{\circ}\leq 6^{\circ}\text{C}$ )\* Yes  No

Cooler #1 3-2 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by JB

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

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

## Analytical Environmental Services, Inc

Date: 17-Apr-15

|               |   |  |  |              |
|---------------|---|--|--|--------------|
| Client:       | Santek Environmental Inc.                       |  |  | Dates Report |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV |  |  |              |
| Lab Order:    | 1504147   |  |  |              |

| Lab Sample ID | Client Sample ID | Collection Date     | Matrix      | Test Name                           | TCLP Date            | Prep Date  | Analysis Date |
|---------------|------------------|---------------------|-------------|-------------------------------------|----------------------|------------|---------------|
| 1504147-001A  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 04/04/2015 |               |
| 1504147-001B  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015 |               |
| 1504147-001C  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015 |               |
| 1504147-001D  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 04/09/2015 |               |
| 1504147-001O  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | Chemical Oxygen Demand (COD)        |                      |            | 04/06/2015    |
| 1504147-001O  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | Total Organic Carbon by SM5310B     |                      |            | 04/03/2015    |
| 1504147-001E  | MW-03            | 4/1/2015 10:38:00AM | Groundwater | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015 |               |
| 1504147-002A  | MW-03            | 4/1/2015 12:45:00PM | Groundwater | Inorganic Anions by IC              |                      |            | 04/02/2015    |
| 1504147-002A  | MW-03            | 4/1/2015 12:45:00PM | Groundwater | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015 |               |
| 1504147-002B  | MW-03            | 4/1/2015 12:45:00PM | Groundwater | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504147-002B  | MW-03            | 4/1/2015 12:45:00PM | Groundwater | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504147-002B  | MW-03            | 4/1/2015 12:45:00PM | Groundwater | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/06/2015 |               |
| 1504147-003A  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 04/04/2015 |               |
| 1504147-003B  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015 |               |
| 1504147-003C  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015 |               |
| 1504147-003D  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 04/09/2015 |               |
| 1504147-003D  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | Chemical Oxygen Demand (COD)        |                      |            | 04/06/2015    |
| 1504147-003D  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | Total Organic Carbon by SM5310B     |                      |            | 04/03/2015    |
| 1504147-003E  | MW-02            | 3/31/2015 2:06:00PM | Groundwater | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015 |               |
| 1504147-004A  | MW-02            | 4/1/2015 9:40:00AM  | Groundwater | Inorganic Anions by IC              |                      |            | 04/02/2015    |
| 1504147-004A  | MW-02            | 4/1/2015 9:40:00AM  | Groundwater | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015 |               |
| 1504147-004B  | MW-02            | 4/1/2015 9:40:00AM  | Groundwater | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504147-004B  | MW-02            | 4/1/2015 9:40:00AM  | Groundwater | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015 |               |
| 1504147-004B  | MW-02            | 4/1/2015 9:40:00AM  | Groundwater | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/06/2015 |               |
| 1504147-005A  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 04/04/2015 |               |
| 1504147-005B  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015 |               |
| 1504147-005C  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Dissolved Metals by ICP/MS          | 4/6/2015 2:19:00 PM  | 04/08/2015 |               |
| 1504147-005D  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 04/09/2015 |               |
| 1504147-005D  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Chemical Oxygen Demand (COD)        |                      |            | 04/06/2015    |

## Analytical Environmental Services, Inc

Date: 17-Apr-15

|               |   |              |
|---------------|---|--------------|
| Client:       | Santek Environmental Inc.                       |              |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV |              |
| Lab Order:    | 1504147   | Dates Report |

| Lab Sample ID | Client Sample ID | Collection Date     | Matrix      | Test Name                           | TCLP Date | Prep Date            | Analysis Date |
|---------------|------------------|---------------------|-------------|-------------------------------------|-----------|----------------------|---------------|
| 1504147-005D  | MW-01            | 3/31/2015 8:06:00PM | Groundwater | Total Organic Carbon by SM5310B     |           |                      | 04/03/2015    |
| 1504147-005E  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Cyanide                             |           | 4/8/2015 12:00:00 PM | 04/08/2015    |
| 1504147-006A  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/02/2015    |
| 1504147-006A  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Residue, Dissolved (TDS) by SM2540C |           | 4/7/2015 10:00:00 AM | 04/07/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | APPENDIX I METALS                   |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Total Metals by ICP/MS              |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | TOTAL MERCURY                       |           | 4/6/2015 9:20:00 AM  | 04/06/2015    |
| 1504147-007A  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | APPENDIX I VOLATILE ORGANICS        |           | 4/2/2015 4:15:00 PM  | 04/04/2015    |
| 1504147-007B  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | MICRO-EXTRACTABLE VOCs              |           | 4/6/2015 9:17:02 AM  | 04/06/2015    |
| 1504147-007C  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Dissolved Metals by ICP/MS          |           | 4/8/2015 2:19:00 PM  | 04/08/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Nitrogen, Ammonia (as N)            |           | 4/7/2015 7:00:00 PM  | 04/09/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Chemical Oxygen Demand (COD)        |           |                      | 04/06/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Total Organic Carbon by SM5310B     |           |                      | 04/03/2015    |
| 1504147-007E  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Cyanide                             |           | 4/8/2015 12:00:00 PM | 04/08/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/02/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/03/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Residue, Dissolved (TDS) by SM2540C |           | 4/7/2015 10:00:00 AM | 04/07/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | APPENDIX I METALS                   |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Total Metals by ICP/MS              |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | TOTAL MERCURY                       |           | 4/6/2015 9:20:00 AM  | 04/06/2015    |

## Analytical Environmental Services, Inc

Date: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-01               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 3:06:00 PM |
| <b>Lab ID:</b> 1504147-005   | <b>Matrix:</b> Groundwater                   |

| Analyses  | Result | Reporting Limit | Qual | Units  | BatchID | Dilution Factor  | Date Analyzed    | Analyst |
|---|--------|-----------------|------|--------|---------|------------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |        |         |                  |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L   | R289269 | 1                | 04/03/2015 18:54 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |        |         |                  |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L   | 205606  | 1                | 04/09/2015 16:12 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |        |         |                  |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.202           |      | ug/L   | 205555  | 1                | 04/06/2015 20:13 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L   | 205555  | 1                | 04/06/2015 20:13 | SH      |
| Surr: 4-Bromofluorobenzene                        | 99.8   | 64.7-140        | %REC | 205555 | 1       | 04/06/2015 20:13 | SH               |         |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |        |         |                  |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L   | 205685  | 1                | 04/08/2015 19:26 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |        |         |                  |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L   | 205704  | 1                | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |        |         |                  |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L   | R289240 | 1                | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |        |         |                  |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Acetone   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:54 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-01               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 3:06:00 PM |
| <b>Lab ID:</b> 1504147-005   | <b>Matrix:</b> Groundwater                   |

| Analyses | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed | Analyst |
|----------|--------|-----------------|------|-------|---------|-----------------|---------------|---------|
|----------|--------|-----------------|------|-------|---------|-----------------|---------------|---------|

| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |      | <b>(SW5030B)</b> |      |      |        |   |                  |    |
|---|------|------------------|------|------|--------|---|------------------|----|
| Carbon disulfide                            | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Carbon tetrachloride                        | BRL  | 5.0              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Chlorobenzene                               | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Chloroethane                                | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Chloroform                                  | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Chloromethane                               | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| cis-1,2-Dichloroethene                      | BRL  | 70               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| cis-1,3-Dichloropropene                     | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Dibromochloromethane                        | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Dibromomethane                              | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Ethylbenzene                                | BRL  | 700              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Iodomethane                                 | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Methylene chloride                          | BRL  | 5.0              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Styrene                                     | BRL  | 100              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Tetrachloroethene                           | BRL  | 5.0              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Toluene                                     | BRL  | 1000             |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| trans-1,2-Dichloroethene                    | BRL  | 100              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| trans-1,3-Dichloropropene                   | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| trans-1,4-Dichloro-2-butene                 | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Trichloroethene                             | BRL  | 5.0              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Trichlorofluoromethane                      | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Vinyl acetate                               | BRL  | 10               |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Vinyl chloride                              | BRL  | 2.0              |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Xylenes, Total                              | BRL  | 10000            |      | ug/L | 205488 | 1 | 04/04/2015 17:54 | CH |
| Surr: 4-Bromo fluoro benzene                | 82.2 | 70.6-123         | %REC |      | 205488 | 1 | 04/04/2015 17:54 | CH |
| Surr: Dibromo fluoro methane                | 118  | 78.7-124         | %REC |      | 205488 | 1 | 04/04/2015 17:54 | CH |
| Surr: Toluene-d8                            | 102  | 81.3-120         | %REC |      | 205488 | 1 | 04/04/2015 17:54 | CH |

**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: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-01               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 11:30:00 AM |
| <b>Lab ID:</b> 1504147-006   | <b>Matrix:</b> Groundwater                   |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 48200  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Iron                                       | 221    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Magnesium                                  | 27900  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Potassium                                  | 2530   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Sodium                                     | 9930   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 228    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:27 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 21.7   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:26 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:26 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 14:26 | JW      |
| Sulfate                                    | 3.52   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:26 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |
| Zinc                                       | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 14:37 | JS      |

**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: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-1A               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 3:51:00 PM |
| <b>Lab ID:</b> 1504147-007   | <b>Matrix:</b> Groundwater                   |

| Analyses  | Result | Reporting Limit | Qual | Units  | BatchID | Dilution Factor  | Date Analyzed    | Analyst |
|---|--------|-----------------|------|--------|---------|------------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |        |         |                  |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L   | R289269 | 1                | 04/03/2015 19:12 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |        |         |                  |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L   | 205606  | 1                | 04/09/2015 16:13 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |        |         |                  |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.200           |      | ug/L   | 205555  | 1                | 04/06/2015 20:42 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.050           |      | ug/L   | 205555  | 1                | 04/06/2015 20:42 | SH      |
| Surr: 4-Bromofluorobenzene                        | 102    | 64.7-140        | %REC | 205555 | 1       | 04/06/2015 20:42 | SH               |         |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |        |         |                  |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L   | 205685  | 1                | 04/08/2015 19:32 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |        |         |                  |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L   | 205704  | 1                | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |        |         |                  |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L   | R289240 | 1                | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |        |         |                  |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Acetone   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 18:18 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-1A               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 3:51:00 PM |
| <b>Lab ID:</b> 1504147-007   | <b>Matrix:</b> Groundwater                   |

| Analyses   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> <b>(SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| Carbon disulfide   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Carbon tetrachloride   | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Chlorobenzene  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Chloroethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Chloroform   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Chloromethane  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| cis-1,2-Dichloroethene                                       | BRL    | 70              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| cis-1,3-Dichloropropene                                      | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Dibromochloromethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Dibromomethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Ethylbenzene   | BRL    | 700             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Iodomethane  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Methylene chloride   | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Styrene  | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Tetrachloroethene  | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Toluene  | BRL    | 1000            |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| trans-1,2-Dichloroethene                                     | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| trans-1,3-Dichloropropene                                    | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| trans-1,4-Dichloro-2-butene                                  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Trichloroethene  | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Trichlorofluoromethane                                       | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Vinyl acetate  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Vinyl chloride   | BRL    | 2.0             |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Xylenes, Total   | BRL    | 10000           |      | ug/L  | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Surr: 4-Bromofluorobenzene                                   | 79.2   | 70.6-123        | %REC |       | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Surr: Dibromofluoromethane                                   | 114    | 78.7-124        | %REC |       | 205488  | 1               | 04/04/2015 18:18 | CH      |
| Surr: Toluene-d8   | 101    | 81.3-120        | %REC |       | 205488  | 1               | 04/04/2015 18:18 | CH      |

**Qualifiers:**

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
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- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
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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: 10-Apr-15

|                      |   |                          |                      |
|----------------------|---|--------------------------|----------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Client Sample ID:</b> | MW-1A                |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b>  | 4/1/2015 11:45:00 AM |
| <b>Lab ID:</b>       | 1504147-008                                     | <b>Matrix:</b>           | Groundwater          |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 67900  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Iron                                       | 734    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Magnesium                                  | 28800  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Potassium                                  | 9510   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Sodium                                     | 25100  | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 386    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:56 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 52.4   | 5.00            |      | mg/L  | R289400 | 5               | 04/03/2015 09:48 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:41 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 14:41 | JW      |
| Sulfate                                    | 25.0   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:41 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |
| Zinc                                       | 0.0273 | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 14:43 | JS      |

**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: 5-May-15

|  |                                    |
|--|------------------------------------|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> DUPLICATE |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015  |
| <b>Lab ID:</b> 1504164-004   | <b>Matrix:</b> Groundwater         |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289374 | 1               | 04/06/2015 18:20 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205608  | 1               | 04/09/2015 16:41 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.202           |      | ug/L  | 205555  | 1               | 04/06/2015 23:05 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 23:05 | SH      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 19:07 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Acetone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Carbon disulfide                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

**Analytical Environmental Services, Inc**

Date: 5-May-15

|  |                                    |
|--|------------------------------------|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> DUPLICATE |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015  |
| <b>Lab ID:</b> 1504164-004   | <b>Matrix:</b> Groundwater         |

| Analyses   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> <b>(SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| Carbon tetrachloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Chlorobenzene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Chloroethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Chloroform   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Chloromethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| cis-1,2-Dichloroethene                                       | BRL    | 70              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| cis-1,3-Dichloropropene                                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Dibromochloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Dibromomethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Ethylbenzene   | BRL    | 700             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Iodomethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Methylene chloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Styrene  | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Tetrachloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Toluene  | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| trans-1,2-Dichloroethene                                     | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| trans-1,3-Dichloropropene                                    | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| trans-1,4-Dichloro-2-butene                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Trichloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Trichlorofluoromethane                                       | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Vinyl acetate  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Vinyl chloride   | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Xylenes, Total   | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Surr: 4-Bromo fluoro benzene                                 | 80.2   | 70.6-123        |      | %REC  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Surr: Dibromo fluoro methane                                 | 117    | 78.7-124        |      | %REC  | 205572  | 1               | 04/04/2015 18:42 | CH      |
| Surr: Toluene-d8   | 101    | 81.3-120        |      | %REC  | 205572  | 1               | 04/04/2015 18:42 | CH      |

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: 5-May-15

|  |                                    |
|--|------------------------------------|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> DUPLICATE |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015   |
| <b>Lab ID:</b> 1504164-005   | <b>Matrix:</b> Groundwater         |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 65300  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Iron                                       | 1540   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Magnesium                                  | 28600  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Potassium                                  | 9270   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Sodium                                     | 24100  | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 390    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 14:08 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 52.1   | 5.00            |      | mg/L  | R289400 | 5               | 04/03/2015 10:18 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 18:51 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 18:51 | JW      |
| Sulfate                                    | 24.9   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 18:51 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |
| Zinc                                       | 0.0281 | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 17:09 | JS      |

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: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-02               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 2:06:00 PM |
| <b>Lab ID:</b> 1504147-003   | <b>Matrix:</b> Groundwater                   |

| Analyses  | Result | Reporting Limit | Qual | Units  | BatchID | Dilution Factor  | Date Analyzed    | Analyst |
|---|--------|-----------------|------|--------|---------|------------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |        |         |                  |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L   | R289269 | 1                | 04/03/2015 18:36 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |        |         |                  |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L   | 205606  | 1                | 04/09/2015 16:09 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |        |         |                  |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.202           |      | ug/L   | 205555  | 1                | 04/06/2015 19:45 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.050           |      | ug/L   | 205555  | 1                | 04/06/2015 19:45 | SH      |
| Sur: 4-Bromo fluorobenzene                        | 86.8   | 64.7-140        | %REC | 205555 | 1       | 04/06/2015 19:45 | SH               |         |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |        |         |                  |                  |         |
| Manganese   | 87.0   | 10.0            |      | ug/L   | 205685  | 1                | 04/08/2015 19:20 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |        |         |                  |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L   | 205704  | 1                | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |        |         |                  |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L   | R289240 | 1                | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |        |         |                  |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,2,3-Trichloropropene                            | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Acetone   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:31 | CH      |

**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: 10-Apr-15

|                      |   |                          |                      |
|----------------------|---|--------------------------|----------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Client Sample ID:</b> | MW-02                |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b>  | 3/31/2015 2:06:00 PM |
| <b>Lab ID:</b>       | 1504147-003                                     | <b>Matrix:</b>           | Groundwater          |

| Analyses                                    | Result | Reporting Limit  | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|------------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        | <b>(SW5030B)</b> |      |       |         |                 |                  |         |
| Carbon disulfide                            | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Carbon tetrachloride                        | BRL    | 5.0              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Chlorobenzene                               | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Chloroethane                                | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Chloroform                                  | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Chloromethane                               | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| cis-1,2-Dichloroethene                      | BRL    | 70               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| cis-1,3-Dichloropropene                     | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Dibromochloromethane                        | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Dibromomethane                              | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Ethylbenzene                                | BRL    | 700              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Iodomethane                                 | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Methylene chloride                          | BRL    | 5.0              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Styrene                                     | BRL    | 100              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Tetrachloroethene                           | BRL    | 5.0              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Toluene                                     | BRL    | 1000             |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| trans-1,2-Dichloroethene                    | BRL    | 100              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| trans-1,3-Dichloropropene                   | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| trans-1,4-Dichloro-2-butene                 | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Trichloroethene                             | BRL    | 5.0              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Trichlorofluoromethane                      | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Vinyl acetate                               | BRL    | 10               |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Vinyl chloride                              | BRL    | 2.0              |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Xylenes, Total                              | BRL    | 10000            |      | ug/L  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Surr: 4-Bromofluorobenzene                  | 81.3   | 70.6-123         |      | %REC  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Surr: Dibromofluoromethane                  | 119    | 78.7-124         |      | %REC  | 205488  | 1               | 04/04/2015 17:31 | CH      |
| Surr: Toluene-d8                            | 99.9   | 81.3-120         |      | %REC  | 205488  | 1               | 04/04/2015 17:31 | CH      |

**Qualifiers:** \* Value exceeds maximum contaminant level

BRL Below reporting limit

#### H. Holding times for preparation or analysis exceeded

N Aschta.net NELAC certified

B - Analyte detected in the associated method block

#### B Analyte detected in the assay

E Estimated (value above quantitation range)

### S Spike Recovery outside limits due to matrix

Narr. See *case narrative*.

NC Net cash used

6 Less than Baseline

#### Estimated Actual Average Below Reporting Limit

## Analytical Environmental Services, Inc

Date: 10-Apr-15

|  |   |
|--|---|
| <b>Client:</b> Santeck Environmental Inc.                            | <b>Client Sample ID:</b> MW-02              |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 9:40:00 AM |
| <b>Lab ID:</b> 1504147-004   | <b>Matrix:</b> Groundwater                  |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 1990   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Iron                                       | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Magnesium                                  | 1610   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Potassium                                  | 2440   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Sodium                                     | 2410   | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 9      | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:54 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 3.06   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:11 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:11 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 14:11 | JW      |
| Sulfate                                    | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 14:11 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |
| Zinc                                       | 0.273  | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 14:31 | JS      |

**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: 10-Apr-15

|               |   |                   |                      |
|---------------|---|-------------------|----------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | MW-03                |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 10:38:00 AM |
| Lab ID:       | 1504147-001                                     | Matrix:           | Groundwater          |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289269 | 1               | 04/03/2015 18:19 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205606  | 1               | 04/09/2015 16:08 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.203           |      | ug/L  | 205555  | 1               | 04/06/2015 18:47 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 18:47 | SH      |
| Surrogate: 4-Bromofluorobenzene                   | 94.3   | 64.7-140        |      | %REC  | 205555  | 1               | 04/06/2015 18:47 | SH      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | 139    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 19:13 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Acetone   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santeck Environmental Inc.                            | <b>Client Sample ID:</b> MW-03               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 10:38:00 AM |
| <b>Lab ID:</b> 1504147-001   | <b>Matrix:</b> Groundwater                   |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
|   |        |                 |      |       |         |                 | (SW5030B)        |         |
| Carbon disulfide                            | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Carbon tetrachloride                        | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chlorobenzene                               | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloroethane                                | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloroform                                  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloromethane                               | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| cis-1,2-Dichloroethene                      | BRL    | 70              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| cis-1,3-Dichloropropene                     | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Dibromochloromethane                        | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Dibromomethane                              | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Ethylbenzene                                | BRL    | 700             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Iodomethane                                 | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Methylene chloride                          | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Styrene                                     | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Tetrachloroethene                           | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Toluene                                     | BRL    | 1000            |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,2-Dichloroethene                    | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,3-Dichloropropene                   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,4-Dichloro-2-butene                 | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Trichloroethene                             | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Trichlorofluoromethane                      | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Vinyl acetate                               | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Vinyl chloride                              | BRL    | 2.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Xylenes, Total                              | BRL    | 10000           |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: 4-Bromofluorobenzene                  | 76     | 70.6-123        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: Dibromo fluromethane                  | 114    | 78.7-124        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: Toluene-d8                            | 98.2   | 81.3-120        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |

**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: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-03               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 12:45:00 PM |
| <b>Lab ID:</b> 1504147-002   | <b>Matrix:</b> Groundwater                   |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 1410   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Iron                                       | 113    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Magnesium                                  | 828    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Potassium                                  | 784    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Sodium                                     | 11800  | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 3      | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:52 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 18.2   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Sulfate                                    | 2.69   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Zinc                                       | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |

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: 5-May-15

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | TRIP BLANK          |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:30:00 PM |
| Lab ID:       | 1504164-002                                     | Matrix:           | Aqueous             |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289374 | 1               | 04/06/2015 17:52 | YS      |
| <b>Total Metals by ICP/MS SW6020A</b>             |        |                 |      |       |         |                 |                  |         |
| Calcium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Iron  | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Magnesium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Potassium   | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Sodium  | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b>        |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                          | BRL    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205608  | 1               | 04/09/2015 16:30 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.205           |      | ug/L  | 205555  | 1               | 04/06/2015 22:08 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 22:08 | SH      |
| <b>Mercury, Total SW7470A</b>                     |        |                 |      |       |         |                 |                  |         |
| Mercury   | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 14:00 | TA      |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |       |         |                 |                  |         |
| Chloride  | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Fluoride  | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Nitrogen, Nitrate (As N)                          | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Sulfate   | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 17:44 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> TRIP BLANK         |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 2:30:00 PM |
| <b>Lab ID:</b> 1504164-002   | <b>Matrix:</b> Aqueous                      |

| Analyses   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> <b>(SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| 1,1,2-Trichloroethane  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1-Dichloroethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1-Dichloroethene   | BRL    | 7.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2,3-Trichloropropane                                       | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichlorobenzene  | BRL    | 600             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichloroethane   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichloropropane  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,4-Dichlorobenzene  | BRL    | 75              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 2-Butanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 2-Hexanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 4-Methyl-2-pentanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Acetone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Acrylonitrile  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Benzene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromochloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromodichloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromoform  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromomethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Carbon disulfide   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Carbon tetrachloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chlorobenzene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloroethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloroform   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloromethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| cis-1,2-Dichloroethene                                       | BRL    | 70              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| cis-1,3-Dichloropropene                                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Dibromochloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Dibromomethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Ethylbenzene   | BRL    | 700             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Iodomethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Methylene chloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Styrene  | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Tetrachloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Toluene  | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,2-Dichloroethene                                     | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,3-Dichloropropene                                    | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,4-Dichloro-2-butene                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Trichloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Trichlorofluoromethane                                       | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Vinyl acetate  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Vinyl chloride   | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|  |   |
|--|---|
| <b>Client:</b> Santeck Environmental Inc.                            | <b>Client Sample ID:</b> TRIP BLANK         |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 2:30:00 PM |
| <b>Lab ID:</b> 1504164-002   | <b>Matrix:</b> Aqueous                      |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
| Xylenes, Total                              | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: 4-Bromofluorobenzene                  | 82.4   | 70.6-123        | %REC | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: Dibromofluoromethane                  | 110    | 78.7-124        | %REC | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: Toluene-d8                            | 98.8   | 81.3-120        | %REC | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| <b>APPENDIX I METALS SW6020A</b>            |        |                 |      |       |         |                 |                  |         |
| Antimony                                    | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Arsenic                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Barium                                      | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Beryllium                                   | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Cadmium                                     | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Chromium                                    | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Cobalt                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Copper                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Lead  | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Nickel                                      | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Selenium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Silver                                      | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Thallium                                    | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Vanadium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Zinc  | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |

|                    |  |  |
|--------------------|--|--|
| <b>Qualifiers:</b> | * 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: 5-May-15

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> EQUIP. BLANK       |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 2:45:00 PM |
| <b>Lab ID:</b> 1504164-003   | <b>Matrix:</b> Aqueous                      |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289374 | 1               | 04/06/2015 18:05 | YS      |
| <b>Total Metals by ICP/MS SW6020A</b>             |        |                 |      |       |         |                 |                  |         |
| Calcium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Iron  | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Magnesium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Potassium   | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Sodium  | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b>        |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                          | 1      | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205608  | 1               | 04/09/2015 16:25 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.204           |      | ug/L  | 205555  | 1               | 04/06/2015 22:36 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 22:36 | SH      |
| <b>Mercury, Total SW7470A</b>                     |        |                 |      |       |         |                 |                  |         |
| Mercury   | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 14:06 | TA      |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |       |         |                 |                  |         |
| Chloride  | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Fluoride  | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Nitrogen, Nitrate (As N)                          | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Sulfate   | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 19:01 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |

Qualifiers: \* Value exceeds maximum contaminant level

B 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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> EQUIP. BLANK       |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 2:45:00 PM |
| <b>Lab ID:</b> 1504164-003   | <b>Matrix:</b> Aqueous                      |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
|   |        |                 |      |       |         |                 | (SW5030B)        |         |
| 1,1,2-Trichloroethane                       | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1-Dichloroethane                          | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1-Dichloroethene                          | BRL    | 7.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2,3-Trichloropropane                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichlorobenzene                         | BRL    | 600             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichloroethane                          | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichloropropane                         | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,4-Dichlorobenzene                         | BRL    | 75              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 2-Butanone                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 2-Hexanone                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 4-Methyl-2-pentanone                        | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Acetone                                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Acrylonitrile                               | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Benzene                                     | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromochloromethane                          | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromodichloromethane                        | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromoform                                   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromomethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Carbon disulfide                            | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Carbon tetrachloride                        | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chlorobenzene                               | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloroethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloroform                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloromethane                               | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| cis-1,2-Dichloroethene                      | BRL    | 70              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| cis-1,3-Dichloropropene                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Dibromochloromethane                        | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Dibromomethane                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Ethylbenzene                                | BRL    | 700             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Iodomethane                                 | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Methylene chloride                          | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Styrene                                     | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Tetrachloroethene                           | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Toluene                                     | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,2-Dichloroethene                    | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,3-Dichloropropene                   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,4-Dichloro-2-butene                 | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Trichloroethene                             | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Trichlorofluoromethane                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Vinyl acetate                               | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Vinyl chloride                              | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> EQUIP. BLANK       |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 2:45:00 PM |
| <b>Lab ID:</b> 1504164-003   | <b>Matrix:</b> Aqueous                      |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
| <b>(SW5030B)</b>                            |        |                 |      |       |         |                 |                  |         |
| Xylenes, Total                              | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Surr: 4-Bromofluorobenzene                  | 79.8   | 70.6-123        | %REC | %REC  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Surr: Dibromofluoromethane                  | 116    | 78.7-124        | %REC | %REC  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Surr: Toluene-d8                            | 102    | 81.3-120        | %REC | %REC  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| <b>APPENDIX I METALS SW6020A</b>            |        |                 |      |       |         |                 |                  |         |
| <b>(SW3005A)</b>                            |        |                 |      |       |         |                 |                  |         |
| Antimony                                    | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Arsenic                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Barium                                      | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Beryllium                                   | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Cadmium                                     | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Chromium                                    | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Cobalt                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Copper                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Lead  | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Nickel                                      | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Selenium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Silver                                      | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Thallium                                    | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Vanadium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Zinc  | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |

**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

## APPENDIX C

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

| INORGANIC | APPENDIX I ID#16 | 3-23-84 | | 6-2-84 | | 7-13-84 | | 10-11-84 | | 12-1-84 | | 3-2-85 | | 10-30-85 | | 4-12-86 | | 11-2-86 | | 3-21-87 | | 9-20-87 | | 03-19-88 | | 10-29-88 | | 3-18-89 | | 03-23-89 | | 09-06-89 | | 4-21-90 | | 8-30-90 | | 4-21-91 | | 9-22-91 | | 4-21-92 | | 9-20-92 | | 4-21-93 | | 9-22-93 | | 4-21-94 | | 9-22-94 | | 4-21-95 | | 9-22-95 | | 4-21-96 | | 9-22-96 | | 4-21-97 | | 9-22-97 | | 4-21-98 | | 9-22-98 | | 4-21-99 | | 9-22-99 | | 4-21-00 | | 9-22-00 | | 4-21-01 | | 9-22-01 | | 4-21-02 | | 9-22-02 | | 4-21-03 | | 9-22-03 | | 4-21-04 | | 9-22-04 | | 4-21-05 | | 9-22-05 | | 4-21-06 | | 9-22-06 | | 4-21-07 | | 9-22-07 | | 4-21-08 | | 9-22-08 | | 4-21-09 | | 9-22-09 | | 4-21-10 | | 9-22-10 | | 4-21-11 | | 9-22-11 | | 4-21-12 | | 9-22-12 | | 4-21-13 | | 9-22-13 | | 4-21-14 | | 9-22-14 | | 4-21-15 | | 9-22-15 | | 4-21-16 | | 9-22-16 | | 4-21-17 | | 9-22-17 | | 4-21-18 | | 9-22-18 | | 4-21-19 | | 9-22-19 | | 4-21-20 | | 9-22-20 | | 4-21-21 | | 9-22-21 | | 4-21-22 | | 9-22-22 | | 4-21-23 | | 9-22-23 | | 4-21-24 | | 9-22-24 | | 4-21-25 | | 9-22-25 | | 4-21-26 | | 9-22-26 | | 4-21-27 | | 9-22-27 | | 4-21-28 | | 9-22-28 | | 4-21-29 | | 9-22-29 | | 4-21-30 | | 9-22-30 | | 4-21-31 | | 9-22-31 | | 4-21-32 | | 9-22-32 | | 4-21-33 | | 9-22-33 | | 4-21-34 | | 9-22-34 | | 4-21-35 | | 9-22-35 | | 4-21-36 | | 9-22-36 | | 4-21-37 | | 9-22-37 | | 4-21-38 | | 9-22-38 | | 4-21-39 | | 9-22-39 | | 4-21-40 | | 9-22-40 | | 4-21-41 | | 9-22-41 | | 4-21-42 | | 9-22-42 | | 4-21-43 | | 9-22-43 | | 4-21-44 | | 9-22-44 | | 4-21-45 | | 9-22-45 | | 4-21-46 | | 9-22-46 | | 4-21-47 | | 9-22-47 | | 4-21-48 | | 9-22-48 | | 4-21-49 | | 9-22-49 | | 4-21-50 | | 9-22-50 | | 4-21-51 | | 9-22-51 | | 4-21-52 | | 9-22-52 | | 4-21-53 | | 9-22-53 | | 4-21-54 | | 9-22-54 | | 4-21-55 | | 9-22-55 | | 4-21-56 | | 9-22-56 | | 4-21-57 | | 9-22-57 | | 4-21-58 | | 9-22-58 | | 4-21-59 | | 9-22-59 | | 4-21-60 | | 9-22-60 | | 4-21-61 | | 9-22-61 | | 4-21-62 | | 9-22-62 | | 4-21-63 | | 9-22-63 | | 4-21-64 | | 9-22-64 | | 4-21-65 | | 9-22-65 | | 4-21-66 | | 9-22-66 | | 4-21-67 | | 9-22-67 | | 4-21-68 | | 9-22-68 | | 4-21-69 | | 9-22-69 | | 4-21-70 | | 9-22-70 | | 4-21-71 | | 9-22-71 | | 4-21-72 | | 9-22-72 | | 4-21-73 | | 9-22-73 | | 4-21-74 | | 9-22-74 | | 4-21-75 | | 9-22-75 | | 4-21-76 | | 9-22-76 | | 4-21-77 | | 9-22-77 | | 4-21-78 | | 9-22-78 | | 4-21-79 | | 9-22-79 | | 4-21-80 | | 9-22-80 | | 4-21-81 | | 9-22-81 | | 4-21-82 | | 9-22-82 | | 4-21-83 | | 9-22-83 | | 4-21-84 | | 9-22-84 | | 4-21-85 | | 9-22-85 | | 4-21-86 | | 9-22-86 | | 4-21-87 | | 9-22-87 | | 4-21-88 | | 9-22-88 | | 4-21-89 | | 9-22-89 | | 4-21-90 | | 9-22-90 | | 4-21-91 | | 9-22-91 | | 4-21-92 | | 9-22-92 | | 4-21-93 | | 9-22-93 | | 4-21-94 | | 9-22-94 | | 4-21-95 | | 9-22-95 | | 4-21-96 | | 9-22-96 | | 4-21-97 | | 9-22-97 | | 4-21-98 | | 9-22-98 | | 4-21-99 | | 9-22-99 | | 4-21-100 | | 9-22-100 | | 4-21-101 | | 9-22-101 | | 4-21-102 | | 9-22-102 | | 4-21-103 | | 9-22-103 | | 4-21-104 | | 9-22-104 | | 4-21-105 | | 9-22-105 | | 4-21-106 | | 9-22-106 | | 4-21-107 | | 9-22-107 | | 4-21-108 | | 9-22-108 | | 4-21-109 | | 9-22-109 | | 4-21-110 | | 9-22-110 | | 4-21-111 | | 9-22-111 | | 4-21-112 | | 9-22-112 | | 4-21-113 | | 9-22-113 | | 4-21-114 | | 9-22-114 | | 4-21-115 | | 9-22-115 | | 4-21-116 | | 9-22-116 | | 4-21-117 | | 9-22-117 | | 4-21-118 | | 9-22-118 | | 4-21-119 | | 9-22-119 | | 4-21-120 | | 9-22-120 | | 4-21-121 | | 9-22-121 | | 4-21-122 | | 9-22-122 | | 4-21-123 | | 9-22-123 | | 4-21-124 | | 9-22-124 | | 4-21-125 | | 9-22-125 | | 4-21-126 | | 9-22-126 | | 4-21-127 | | 9-22-127 | | 4-21-128 | | 9-22-128 | | 4-21-129 | | 9-22-129 | | 4-21-130 | | 9-22-130 | | 4-21-131 | | 9-22-131 | | 4-21-132 | | 9-22-132 | | 4-21-133 | | 9-22-133 | | 4-21-134 | | 9-22-134 | | 4-21-135 | | 9-22-135 | | 4-21-136 | | 9-22-136 | | 4-21-137 | | 9-22-137 | | 4-21-138 | | 9-22-138 | | 4-21-139 | | 9-22-139 | | 4-21-140 | | 9-22-140 | | 4-21-141 | | 9-22-141 | | 4-21-142 | | 9-22-142 | | 4-21-143 | | 9-22-143 | | 4-21-144 | | 9-22-144 | | 4-21-145 | | 9-22-145 | | 4-21-146 | | 9-22-146 | | 4-21-147 | | 9-22-147 | | 4-21-148 | | 9-22-148 | | 4-21-149 | | 9-22-149 | | 4-21-150 | | 9-22-150 | | 4-21-151 | | 9-22-151 | | 4-21-152 | | 9-22-152 | | 4-21-153 | | 9-22-153 | | 4-21-154 | | 9-22-154 | | 4-21-155 | | 9-22-155 | | 4-21-156 | | 9-22-156 | | 4-21-157 | | 9-22-157 | | 4-21-158 | | 9-22-158 | | 4-21-159 | | 9-22-159 | | 4-21-160 | | 9-22-160 | | 4-21-161 | | 9-22-161 | | 4-21-162 | | 9-22-162 | | 4-21-163 | | 9-22-163 | | 4-21-164 | | 9-22-164 | | 4-21-165 | | 9-22-165 | | 4-21-166 | | 9-22-166 | | 4-21-167 | | 9-22-167 | | 4-21-168 | | 9-22-168 | | 4-21-169 | | 9-22-169 | | 4-21-170 | | 9-22-170 | | 4-21-171 | | 9-22-171 | | 4-21-172 | | 9-22-172 | | 4-21-173 | | 9-22-173 | | 4-21-174 | | 9-22-174 | | 4-21-175 | | 9-22-175 | | 4-21-176 | | 9-22-176 | | 4-21-177 | | 9-22-177 | | 4-21-178 | | 9-22-178 | | 4-21-179 | | 9-22-179 | | 4-21-180 | | 9-22-180 | | 4-21-181 | | 9-22-181 | | 4-21-182 | | 9-22-182 | | 4-21-183 | | 9-22-183 | | 4-21-184 | | 9-22-184 | | 4-21-185 | | 9-22-185 | | 4-21-186 | | 9-22-186 | | 4-21-187 | | 9-22-187 | | 4-21-188 | | 9-22-188 | | 4-21-189 | | 9-22-189 | | 4-21-190 | | 9-22-190 | | 4-21-191 | | 9-22-191 | | 4-21-192 | | 9-22-192 | | 4-21-193 | | 9-22-193 | | 4-21-194 | | 9-22-194 | | 4-21-195 | | 9-22-195 | | 4-21-196 | | 9-22-196 | | 4-21-197 | | 9-22-197 | | 4-21-198 | | 9-22-198 | | 4-21-199 | | 9-22-199 | | 4-21-200 | | 9-22-200 | | 4-21-201 | | 9-22-201 | | 4-21-202 | | 9-22-202 | | 4-21-203 | | 9-22-203 | | 4-21-204 | | 9-22-204 | | 4-21-205 | | 9-22-205 | | 4-21-206 | | 9-22-206 | | 4-21-207 | | 9-22-207 | | 4-21-208 | | 9-22-208 | | 4-21-209 | | 9-22-209 | | 4-21-210 | | 9-22-210 | | 4-21-211 | | 9-22-211 | | 4-21-212 | | 9-22-212 | | 4-21-213 | | 9-22-213 | | 4-21-214 | | 9-22-214 | | 4-21-215 | | 9-22-215 | | 4-21-216 | | 9-22-216 | | 4-21-217 | | 9-22-217 | | 4-21-218 | | 9-22-218 | | 4-21-219 | | 9-22-219 | | 4-21-220 | | 9-22-220 | | 4-21-221 | | 9-22-221 | | 4-21-222 | | 9-22-222 | | 4-21-223 | | 9-22-223 | | 4-21-224 | | 9-22-224 | | 4-21-225 | | 9-22-225 | | 4-21-226 | | 9-22-226 | | 4-21-227 | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 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**LOUDON COUNTY  
COMPLIANCE WELL  
MONITORING WELL #1A**

| INORGANIC   | APPENDIX I LIMITS | 1-17-07 | 3-22-07 | 6-15-07 | 6-14-07 | 11-1-07 | 3-27-08 | 10-13-08 | 4-2-09 | 10-2-09 | 4-7-10 | 10-6-10 | 1-5-11 | 10-5-11 | 3-15-12 | 10-3-12 | 3-28-13 | 9-25-13 | 3-25-14 | 9-24-14 | 4-1-15 | MW-1A AVG | MW-03 AVG |       |
|-------------|-------------------|---------|---------|---------|---------|---------|---------|----------|--------|---------|--------|---------|--------|---------|---------|---------|---------|---------|---------|---------|--------|-----------|-----------|-------|
| Antimony    | 6                 | 6       | 6       | 6       | 6       | 6       | 6       | 6        | 6      | 6       | 6      | 6       | 6      | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6      | 6.00      | 5.06      |       |
| Arsenic     | 50                | 50      | 50      | 50      | 50      | 50      | 50      | 50       | 50     | 50      | 50     | 50      | 50     | 50      | 50      | 50      | 50      | 50      | 50      | 50      | 50     | 50.00     | 38.23     |       |
| Barium      | 2000              | 2000    | 2000    | 2000    | 2000    | 2000    | 2000    | 2000     | 2000   | 2000    | 2000   | 2000    | 2000   | 2000    | 2000    | 2000    | 2000    | 2000    | 2000    | 2000    | 2000   | 2000.00   | 1384.43   |       |
| Beryllium   | 4                 | 4       | 4       | 4       | 4       | 4       | 4       | 4        | 4      | 4       | 4      | 4       | 4      | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4      | 4.00      | 3.83      |       |
| Cadmium     | 5                 | 5       | 5       | 5       | 5       | 5       | 5       | 5        | 5      | 5       | 5      | 5       | 5      | 5       | 5       | 5       | 5       | 5       | 5       | 5       | 5      | 5.00      | 5.02      |       |
| Chromium    | 100               | 100     | 100     | 100     | 100     | 100     | 100     | 100      | 100    | 100     | 100    | 100     | 100    | 100     | 100     | 100     | 100     | 100     | 100     | 100     | 100    | 100.00    | 72.79     |       |
| Cobalt      | NA                | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0     | 10.0   | 10.0    | 10.0   | 10.0    | 10.0   | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0   | 10.00     | 14.25     |       |
| Copper      | NA                | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0     | 10.0   | 10.0    | 10.0   | 10.0    | 10.0   | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0   | 10.00     | 21.40     |       |
| Fluoride*** | 4                 | 4.0     | 4.0     | 4.0     | 4.0     | 4.0     | 4.0     | 4.0      | 4.0    | 4.0     | 4.0    | 4.0     | 4.0    | 4.0     | 4.0     | 4.0     | 4.0     | 4.0     | 4.0     | 4.0     | 4.0    | 4.00      | 2.69      |       |
| Lead        | 115               | 50.0    | 50.0    | 50.0    | 50.0    | 50.0    | 15.0    | 15.0     | 15.0   | 15.0    | 15.0   | 15.0    | 15.0   | 15.0    | 15.0    | 15.0    | 15.0    | 15.0    | 15.0    | 15.0    | 15.0   | 15.00     | 41.49     |       |
| Mercury     | 2                 | 2       | 2       | 2       | 2       | 2       | 2       | 2        | 2      | 2       | 2      | 2       | 2      | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2      | 2.00      | 1.58      |       |
| Nickel      | 100               | 100     | 100     | 100     | 100     | 100     | 100     | 100      | 100    | 100     | 100    | 100     | 100    | 100     | 100     | 100     | 100     | 100     | 100     | 100     | 100    | 100.00    | 77.36     |       |
| Selenium    | 10                | 10      | 10      | 10      | 10      | 10      | 10      | 10       | 10     | 10      | 10     | 10      | 10     | 10      | 10      | 10      | 10      | 10      | 10      | 10      | 10     | 10.00     | 10.51     |       |
| Silver      | 50                | 50      | 50      | 50      | 50      | 50      | 50      | 50       | 50     | 50      | 50     | 50      | 50     | 50      | 50      | 50      | 50      | 50      | 50      | 50      | 50     | 50.00     | 36.09     |       |
| Thallium    | 2                 | 2       | 2       | 2       | 2       | 2       | 2       | 2        | 2      | 2       | 2      | 2       | 2      | 2       | 2       | 2       | 2       | 2       | 2       | 2       | 2      | 2.00      | 2.09      |       |
| Vanadium    | NA                | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0     | 10.0   | 10.0    | 10.0   | 10.0    | 10.0   | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0    | 10.0   | 10.00     | 13.81     |       |
| Zinc        | \$5000            | 39.0    | 20.0    | 22.9    | 20.0    | 23.2    | 20.0    | 31.4     | 20.0   | 20.0    | 35.2   | 20.0    | 20.0   | 20.0    | 30.5    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0   | 27.3      | 23.48     | 68.42 |

**T = TREATMENT TECHNIQUE ACTION LEVEL**

‡ = NATIONAL SECONDARY DRINKING WATER STANDARD

\* PARAMETER NOT TESTED FOR

**\*\*RESAMPLE DATE**

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

**OODON COUNTY  
OMPLIANCE WELL  
NITORING WELL #02**

↑ = TREATMENT TECHNIQUE ACTION LEVEL

† = TREATMENT TECHNIQUE ACTION LEVEL  
‡ = NATIONAL SECONDARY DRINKING WATER STANDARD

\* PARAMETER NOT TESTED FOR  
RESCUEABLE RATE

\*\*\*RESAMPLE DATE  
\*\*\*ALL DATA IN ug/L EXCEPT

ALL DATA IN UGT EXCEPT FLUORIDE (MGT)

LONDON COUNTY  
MONITORING WELL

|  | MONITORING | ORGANIC | APPENDIX I | 3-21-94 | 6-2-94 | 10-19-94 | 12-1-94 | 1-24-95 | 1-28-95 | 2-11-95 | 2-14-95 | 2-21-95 | 2-24-95 | 3-10-95 | 3-13-95 | 3-16-95 | 3-19-95 | 3-22-95 | 3-25-95 | 3-28-95 | 4-1-95 | 4-4-95 | 4-7-95 | 4-10-95 | 4-13-95 | 4-16-95 | 4-19-95 | 4-22-95 | 4-25-95 | 4-28-95 | 5-1-95 | 5-4-95 | 5-7-95 | 5-10-95 | 5-13-95 | 5-16-95 | 5-19-95 | 5-22-95 | 5-25-95 | 5-28-95 | 5-31-95 | 6-3-95 | 6-6-95 | 6-9-95 | 6-12-95 | 6-15-95 | 6-18-95 | 6-21-95 | 6-24-95 | 6-27-95 | 6-30-95 | 7-3-95 | 7-6-95 | 7-9-95 | 7-12-95 | 7-15-95 | 7-18-95 | 7-21-95 | 7-24-95 | 7-27-95 | 7-30-95 | 8-3-95 | 8-6-95 | 8-9-95 | 8-12-95 | 8-15-95 | 8-18-95 | 8-21-95 | 8-24-95 | 8-27-95 | 8-30-95 | 9-3-95 | 9-6-95 | 9-9-95 | 9-12-95 | 9-15-95 | 9-18-95 | 9-21-95 | 9-24-95 | 9-27-95 | 9-30-95 | 10-3-95 | 10-6-95 | 10-9-95 | 10-12-95 | 10-15-95 | 10-18-95 | 10-21-95 | 10-24-95 | 10-27-95 | 10-30-95 | 11-3-95 | 11-6-95 | 11-9-95 | 11-12-95 | 11-15-95 | 11-18-95 | 11-21-95 | 11-24-95 | 11-27-95 | 11-30-95 | 12-3-95 | 12-6-95 | 12-9-95 | 12-12-95 | 12-15-95 | 12-18-95 | 12-21-95 | 12-24-95 | 12-27-95 | 12-30-95 | 1-2-96 | 1-5-96 | 1-8-96 | 1-11-96 | 1-14-96 | 1-17-96 | 1-20-96 | 1-23-96 | 1-26-96 | 1-29-96 | 2-1-96 | 2-4-96 | 2-7-96 | 2-10-96 | 2-13-96 | 2-16-96 | 2-19-96 | 2-22-96 | 2-25-96 | 2-28-96 | 3-3-96 | 3-6-96 | 3-9-96 | 3-12-96 | 3-15-96 | 3-18-96 | 3-21-96 | 3-24-96 | 3-27-96 | 3-30-96 | 4-2-96 | 4-5-96 | 4-8-96 | 4-11-96 | 4-14-96 | 4-17-96 | 4-20-96 | 4-23-96 | 4-26-96 | 4-29-96 | 5-2-96 | 5-5-96 | 5-8-96 | 5-11-96 | 5-14-96 | 5-17-96 | 5-20-96 | 5-23-96 | 5-26-96 | 5-29-96 | 6-1-96 | 6-4-96 | 6-7-96 | 6-10-96 | 6-13-96 | 6-16-96 | 6-19-96 | 6-22-96 | 6-25-96 | 6-28-96 | 7-1-96 | 7-4-96 | 7-7-96 | 7-10-96 | 7-13-96 | 7-16-96 | 7-19-96 | 7-22-96 | 7-25-96 | 7-28-96 | 7-31-96 | 8-3-96 | 8-6-96 | 8-9-96 | 8-12-96 | 8-15-96 | 8-18-96 | 8-21-96 | 8-24-96 | 8-27-96 | 8-30-96 | 9-2-96 | 9-5-96 | 9-8-96 | 9-11-96 | 9-14-96 | 9-17-96 | 9-20-96 | 9-23-96 | 9-26-96 | 9-29-96 | 10-2-96 | 10-5-96 | 10-8-96 | 10-11-96 | 10-14-96 | 10-17-96 | 10-20-96 | 10-23-96 | 10-26-96 | 10-29-96 | 11-1-96 | 11-4-96 | 11-7-96 | 11-10-96 | 11-13-96 | 11-16-96 | 11-19-96 | 11-22-96 | 11-25-96 | 11-28-96 | 12-1-96 | 12-4-96 | 12-7-96 | 12-10-96 | 12-13-96 | 12-16-96 | 12-19-96 | 12-22-96 | 12-25-96 | 12-28-96 | 1-1-97 | 1-4-97 | 1-7-97 | 1-10-97 | 1-13-97 | 1-16-97 | 1-19-97 | 1-22-97 | 1-25-97 | 1-28-97 | 2-1-97 | 2-4-97 | 2-7-97 | 2-10-97 | 2-13-97 | 2-16-97 | 2-19-97 | 2-22-97 | 2-25-97 | 2-28-97 | 3-3-97 | 3-6-97 | 3-9-97 | 3-12-97 | 3-15-97 | 3-18-97 | 3-21-97 | 3-24-97 | 3-27-97 | 3-30-97 | 4-2-97 | 4-5-97 | 4-8-97 | 4-11-97 | 4-14-97 | 4-17-97 | 4-20-97 | 4-23-97 | 4-26-97 | 4-29-97 | 5-2-97 | 5-5-97 | 5-8-97 | 5-11-97 | 5-14-97 | 5-17-97 | 5-20-97 | 5-23-97 | 5-26-97 | 5-29-97 | 6-1-97 | 6-4-97 | 6-7-97 | 6-10-97 | 6-13-97 | 6-16-97 | 6-19-97 | 6-22-97 | 6-25-97 | 6-28-97 | 7-1-97 | 7-4-97 | 7-7-97 | 7-10-97 | 7-13-97 | 7-16-97 | 7-19-97 | 7-22-97 | 7-25-97 | 7-28-97 | 7-31-97 | 8-3-97 | 8-6-97 | 8-9-97 | 8-12-97 | 8-15-97 | 8-18-97 | 8-21-97 | 8-24-97 | 8-27-97 | 8-30-97 | 9-2-97 | 9-5-97 | 9-8-97 | 9-11-97 | 9-14-97 | 9-17-97 | 9-20-97 | 9-23-97 | 9-26-97 | 9-29-97 | 10-2-97 | 10-5-97 | 10-8-97 | 10-11-97 | 10-14-97 | 10-17-97 | 10-20-97 | 10-23-97 | 10-26-97 | 10-29-97 | 11-1-97 | 11-4-97 | 11-7-97 | 11-10-97 | 11-13-97 | 11-16-97 | 11-19-97 | 11-22-97 | 11-25-97 | 11-28-97 | 12-1-97 | 12-4-97 | 12-7-97 | 12-10-97 | 12-13-97 | 12-16-97 | 12-19-97 | 12-22-97 | 12-25-97 | 12-28-97 | 1-1-98 | 1-4-98 | 1-7-98 | 1-10-98 | 1-13-98 | 1-16-98 | 1-19-98 | 1-22-98 | 1-25-98 | 1-28-98 | 2-1-98 | 2-4-98 | 2-7-98 | 2-10-98 | 2-13-98 | 2-16-98 | 2-19-98 | 2-22-98 | 2-25-98 | 2-28-98 | 3-3-98 | 3-6-98 | 3-9-98 | 3-12-98 | 3-15-98 | 3-18-98 | 3-21-98 | 3-24-98 | 3-27-98 | 3-30-98 | 4-2-98 | 4-5-98 | 4-8-98 | 4-11-98 | 4-14-98 | 4-17-98 | 4-20-98 | 4-23-98 | 4-26-98 | 4-29-98 | 5-2-98 | 5-5-98 | 5-8-98 | 5-11-98 | 5-14-98 | 5-17-98 | 5-20-98 | 5-23-98 | 5-26-98 | 5-29-98 | 6-1-98 | 6-4-98 | 6-7-98 | 6-10-98 | 6-13-98 | 6-16-98 | 6-19-98 | 6-22-98 | 6-25-98 | 6-28-98 | 7-1-98 | 7-4-98 | 7-7-98 | 7-10-98 | 7-13-98 | 7-16-98 | 7-19-98 | 7-22-98 | 7-25-98 | 7-28-98 | 7-31-98 | 8-3-98 | 8-6-98 | 8-9-98 | 8-12-98 | 8-15-98 | 8-18-98 | 8-21-98 | 8-24-98 | 8-27-98 | 8-30-98 | 9-2-98 | 9-5-98 | 9-8-98 | 9-11-98 | 9-14-98 | 9-17-98 | 9-20-98 | 9-23-98 | 9-26-98 | 9-29-98 | 10-2-98 | 10-5-98 | 10-8-98 | 10-11-98 | 10-14-98 | 10-17-98 | 10-20-98 | 10-23-98 | 10-26-98 | 10-29-98 | 11-1-98 | 11-4-98 | 11-7-98 | 11-10-98 | 11-13-98 | 11-16-98 | 11-19-98 | 11-22-98 | 11-25-98 | 11-28-98 | 12-1-98 | 12-4-98 | 12-7-98 | 12-10-98 | 12-13-98 | 12-16-98 | 12-19-98 | 12-22-98 | 12-25-98 | 12-28-98 | 1-1-99 | 1-4-99 | 1-7-99 | 1-10-99 | 1-13-99 | 1-16-99 | 1-19-99 | 1-22-99 | 1-25-99 | 1-28-99 | 2-1-99 | 2-4-99 | 2-7-99 | 2-10-99 | 2-13-99 | 2-16-99 | 2-19-99 | 2-22-99 | 2-25-99 | 2-28-99 | 3-3-99 | 3-6-99 | 3-9-99 | 3-12-99 | 3-15-99 | 3-18-99 | 3-21-99 | 3-24-99 | 3-27-99 | 3-30-99 | 4-2-99 | 4-5-99 | 4-8-99 | 4-11-99 | 4-14-99 | 4-17-99 | 4-20-99 | 4-23-99 | 4-26-99 | 4-29-99 | 5-2-99 | 5-5-99 | 5-8-99 | 5-11-99 | 5-14-99 | 5-17-99 | 5-20-99 | 5-23-99 | 5-26-99 | 5-29-99 | 6-1-99 | 6-4-99 | 6-7-99 | 6-10-99 | 6-13-99 | 6-16-99 | 6-19-99 | 6-22-99 | 6-25-99 | 6-28-99 | 7-1-99 | 7-4-99 | 7-7-99 | 7-10-99 | 7-13-99 | 7-16-99 | 7-19-99 | 7-22-99 | 7-25-99 | 7-28-99 | 7-31-99 | 8-3-99 | 8-6-99 | 8-9-99 | 8-12-99 | 8-15-99 | 8-18-99 | 8-21-99 | 8-24-99 | 8-27-99 | 8-30-99 | 9-2-99 | 9-5-99 | 9-8-99 | 9-11-99 | 9-14-99 | 9-17-99 | 9-20-99 | 9-23-99 | 9-26-99 | 9-29-99 | 10-2-99 | 10-5-99 | 10-8-99 | 10-11-99 | 10-14-99 | 10-17-99 | 10-20-99 | 10-23-99 | 10-26-99 | 10-29-99 | 11-1-99 | 11-4-99 | 11-7-99 | 11-10-99 | 11-13-99 | 11-16-99 | 11-19-99 | 11-22-99 | 11-25-99 | 11-28-99 | 12-1-99 | 12-4-99 | 12-7-99 | 12-10-99 | 12-13-99 | 12-16-99 | 12-19-99 | 12-22-99 | 12-25-99 | 12-28-99 | 1-1-00 | 1-4-00 | 1-7-00 | 1-10-00 | 1-13-00 | 1-16-00 | 1-19-00 | 1-22-00 | 1-25-00 | 1-28-00 | 2-1-00 | 2-4-00 | 2-7-00 | 2-10-00 | 2-13-00 | 2-16-00 | 2-19-00 | 2-22-00 | 2-25-00 | 2-28-00 | 3-3-00 | 3-6-00 | 3-9-00 | 3-12-00 | 3-15-00 | 3-18-00 | 3-21-00 | 3-24-00 | 3-27-00 | 3-30-00 | 4-2-00 | 4-5-00 | 4-8-00 | 4-11-00 | 4-14-00 | 4-17-00 | 4-20-00 | 4-23-00 | 4-26-00 | 4-29-00 | 5-2-00 | 5-5-00 | 5-8-00 | 5-11-00 | 5-14-00 | 5-17-00 | 5-20-00 | 5-23-00</ |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**APPENDIX D**

## GROUNDWATER DATA

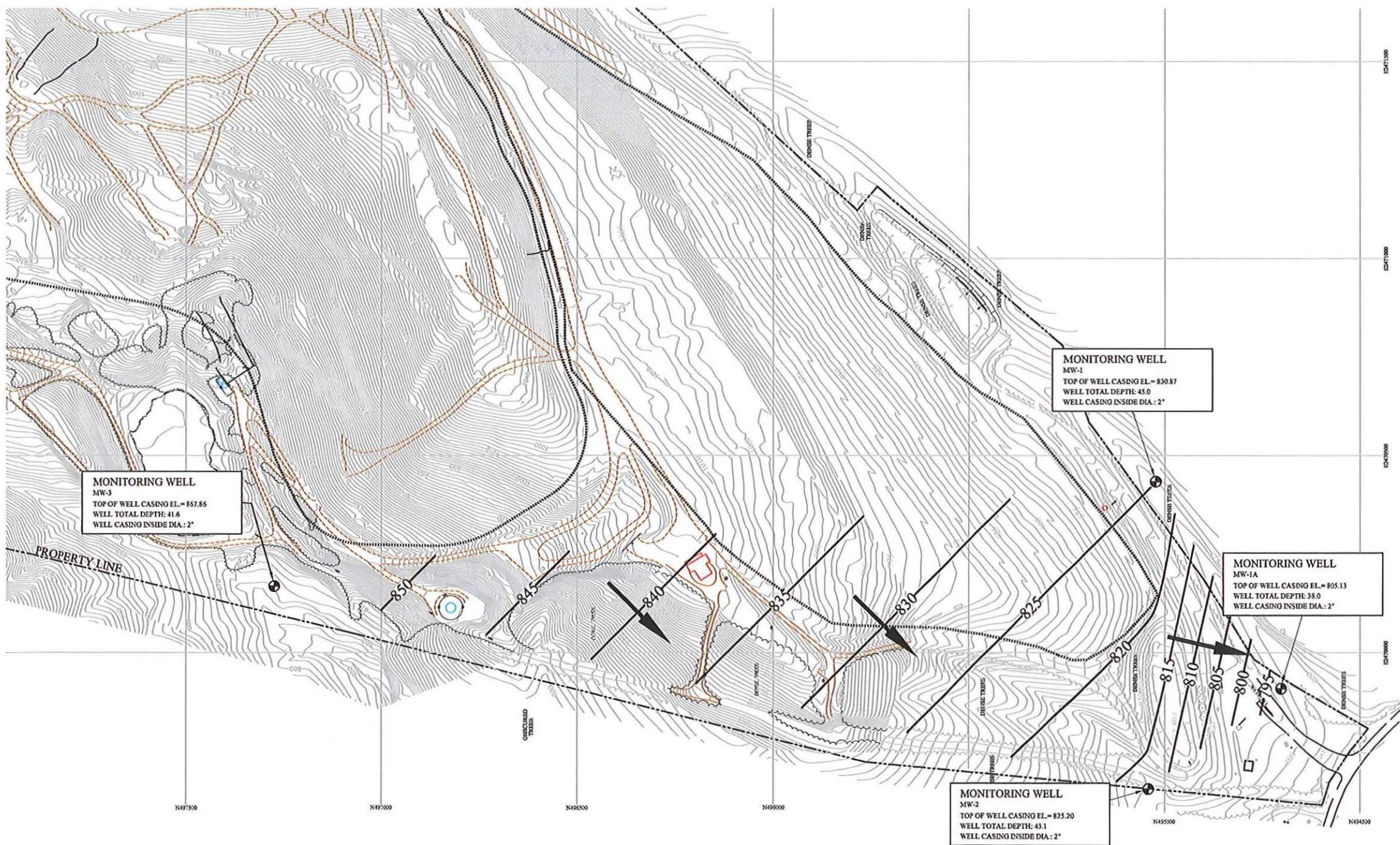
Matlock Bend Landfill (Phase I)

March 31, 2015

| Well No. | Elev. Of<br>TOC | Depth to<br>GW (ft<br>below TOC) | Water<br>Elevation | Contour<br>Elevation | Distance | Hydraulic<br>Conductivity | Effective<br>Porosity<br>(n) | Hydraulic<br>Gradient | Average Linear<br>Velocity |          | Directions |
|----------|-----------------|----------------------------------|--------------------|----------------------|----------|---------------------------|------------------------------|-----------------------|----------------------------|----------|------------|
|          |                 |                                  |                    |                      |          |                           |                              |                       | ft/min                     | ft/day   |            |
| MW-01    | 830.87          | 5.83                             | 825.04             | 825                  | 5        | 4.70E-06                  | 0.18                         | 8.00E-03              | 2.09E-07                   | 3.01E-04 | SW         |
| MW-1A*   | 805.13          | 13.03                            | 792.10             | 795                  | 35       | 3.93E-06                  | 0.18                         | 8.29E-02              | 1.81E-06                   | 2.61E-03 | SW         |
| MW-02    | 825.20          | 11.65                            | 813.55             | 810                  | 40       | 5.90E-06                  | 0.18                         | 8.88E-02              | 2.91E-06                   | 4.19E-03 | SW         |
| MW-03    | 867.86          | 12.80                            | 855.06             | 850                  | 235      | 1.20E-05                  | 0.18                         | 2.15E-02              | 1.44E-06                   | 2.07E-03 | SW         |

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





**LEGEND:**

|  |                                  |
|--|----------------------------------|
|  | PROPERTY BOUNDARY                |
|  | WATER TABLE CONTOURS (INFERRRED) |
|  | AERIAL CONTOUR                   |
|  | ROAD                             |
|  | WASTE MANAGEMENT UNIT BOUNDARY   |
|  | GROUNDWATER MONITORING WELL      |
|  | GROUNDWATER FLOW DIRECTION       |

## NOTES:

1. POTENTIOMETRIC CONTOURS DEVELOPED FROM  
WATER ELEVATIONS TAKEN MARCH 31, 2015.

2. TOPOGRAPHIC CONTOURS SHOWN WERE PROVIDED BY  
SOUTHERN RESOURCES MAPPING CORP., NORTHPORT,  
ALABAMA. PHOTO DATED SEPTEMBER 18, 2014.

| GW.WELL NO. | WATER ELEV. |
|-------------|-------------|
| MW-1        | 825.04      |
| MW-1A       | 792.10      |
| MW-2        | 813.55      |
| MW-3        | 855.06      |



**2015 SEMI-ANNUAL (SPRING) GROUNDWATER  
POTENTIOMETRIC CONTOUR MAP**

**MATLOCK BEND LANDFILL-PHASE I  
LOUDON COUNTY, TENNESSEE**



**SANTEK ENVIRONMENTAL**  
650 25TH STREET NW  
SUITE 100  
CLEVELAND, TENNESSEE  
SCAL  
DATE  
DRAW  
CHECK  
APPR  
FILE  
JOB N

S-1

MATLOCK BEND LANDFILL  
PHASE II/IV



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

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

May 26, 2015

Mr. Ryan Miller

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

RE: Groundwater Monitoring Report – 1<sup>st</sup> Semi-Annual Event  
Matlock Bend Landfill – Phase II/IV Upgrade  
SNL #53-103-0203

Dear Mr. Miller:

Please find enclosed a copy of the groundwater monitoring report generated from the first semi-annual groundwater event of 2015 at the Matlock Bend Landfill – Phase II/IV. This package includes data pertaining to site information, geologic summary, groundwater sampling, analytical laboratory reports, statistical analysis, and groundwater elevations and flow.

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

Sincerely,

A handwritten signature in blue ink that reads "Will Martin".

Will Martin  
Environmental Compliance Coordinator

A handwritten signature in blue ink that reads "Ron E. Vail, P.E.".

Ron E. Vail, P.E.  
V.P. of Engineering  
TN. Registration No. 109716

Enclosures

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

**MATLOCK BEND LANDFILL – PHASE II/IV UPGRADE  
GROUNDWATER MONITORING REPORT  
1<sup>st</sup> SEMI-ANNUAL EVENT 2015**

**SANTEK PROJECT NO. 200-1510.2**



**PREPARED BY:  
SANTEK WASTE SERVICES, INC.  
650 25<sup>TH</sup> STREET NW, SUITE 100  
CLEVELAND, TN 37311**

**MAY 2015**

## **1.0 INTRODUCTION**

In accordance with the Tennessee Department of Environment and Conservation's Solid Waste Processing and Disposal Rule 1200-1-7-.04(7), Santek Waste Services, Inc. (Santek) is submitting the groundwater monitoring report for the first semi-annual event for 2015 at the Matlock Bend Landfill - Phase II/IV Upgrade. 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 MW-03, MW-4R and MW-05. According to the letter from TDEC dated December 11, 2008, Santek replaced MW-04 with MW-4R in the groundwater detection monitoring network. MW-04 is no longer being monitored. Historic results for MW-04 were taken between 11/2/96 through 3/27/08 and are included in the MW-4R control chart. Santek performed sampling and statistical analyses. Santek contracted with Analytical Environmental Services, Inc. (AES) to perform all analytical testing.

### **1.1 SITE INFORMATION**

Phase II/IV Upgrade is located along the northwest border of Phase I as a portion of the Matlock Bend Landfill. The area is approximately five miles west of Loudon, TN, on Tennessee Highway 72, at latitude N 35° 44' 48" and longitude W 84° 24' 43".

## **2.0 SAMPLING AND ANALYTICAL**

The groundwater sampling event was performed on March 31 and April 1, 2015. Samples were analyzed for Appendix I constituents. All samples were submitted to AES for analysis. 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 #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 wells, then no significant increase is indicated. If the average background concentration is less than the results for the compliance well, then the Appendix I limits from pages .01-17,18 of the

additional comparison to indicate potentially elevated concentrations. Control charts are provided in Appendix C.

### **3.2 Statistical Analysis Summary**

#### **MW-03**

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

#### **MW-4R**

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

#### **MW-05**

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

## **4.0 FLOW DIRECTION AND RATES**

### **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 direction of Phase II/IV locally flows towards the northwest and will ultimately flow to the Tennessee River. The groundwater flow rate ranges from  $1.15 \times 10^{-3}$  ft/day at MW-03 to  $6.62 \times 10^{-3}$  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 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.

\*Indicates Appendix I limit is not available.

**APPENDIX A**

DATE: 4/1/15

| FIELD SAMPLING LOG   |  | WELL NO: MW-03     |
|--|--|--------------------|
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santek Waste Services, Inc.                                       |  | Project No:        |
| Purge Start: (Date) 4/1/15 (Time) 10:21      Purge End: (Date) 4/1/15 (Time) 10:32 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 867.86 ft  |  | Well Csg. ID: 2"   |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba .

Measure Well TD: 41.60 (-) Orig. DTW: 12.92 (=) Wtr. Col. Thick: 28.68 .  
12.80 (water level on 3/31/15)2"=0.16  
(x) 4"=0.65 Gals./ft. (=) 4.6 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 13.8 Total Purge Gals.  
6"=1.47

GW elev. Ref. 867.86 ft. (-) DTW 12.80 ft. = 855.06 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: gpm

Weather: Sunny (60's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments               |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|------------------------|
| 10:22       |              | -                  |                   |                           | 14.81     | 4.99 | 0.074               | 4.9             |       | Clear                  |
| 10:29       |              | 5.0                |                   |                           | 15.51     | 4.92 | 0.069               | 66.4            |       | Clear                  |
| 10:32       |              | 6.0                |                   |                           | 15.55     | 4.93 | 0.065               | 107             |       | Cloudy,<br>*purged dry |
|             |              |                    |                   |                           |           |      |                     |                 |       |                        |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

\*Purged dry at 6.0 gallons.

K= Hydraulic Conductivity (ft/min)

i = Gradient (ft/ft)

n = effective porosity

 $v = [K \text{ ft/min.} (x) \text{ GW elev. ft.} (-) \text{ GW elev. ft.}] \cdot \frac{\text{distance ft}}{\text{ft}}$  .18 Clay/Silt  
.20 Silt w/sand $v = \text{ft./min.} = \text{ft day}$  .25 sand  
.3 sand and gravel

Comments: Metals Sample Turbidity = 21.4 NTU's. VOC's taken on 4/1/15 @ 10:38 a.m. Metals taken on 4/1/15 @ 12:45 p.m. Water level taken on 3/31/15.

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

DATE: 3/31/15

|  |  |                |
|--|--|----------------|
| <b>FIELD SAMPLING LOG</b>                    |  | WELL NO: MW-4R |
| Location: Loudon County                      | Site: Matlock Bend                     |                |
| Client/Operator: Santek Waste Services, Inc. | Project No:                            |                |
| Purge Start: (Date) 3/31/15 (Time) 11:46     | Purge End: (Date) 3/31/15 (Time) 12:00 |                |
| Purged by: Robert Hudson                     |  |                |
| Depth Measurement Ref. Point* 992.32 ft      | Well Csg. ID: 2"                       |                |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba

Measure Well TD: 106.50 (-) Orig. DTW: 95.97 (=) Wtr. Col. Thick: 10.53

$2''=0.16$   
 (x)  $4''=0.65$  Gals./ft. (=) 1.7 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 5.1 Total Purge Gals.  
 $6''=1.47$

GW elev. Ref. 992.32 ft. (-) DTW 95.97 ft. = 896.35 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Sunny (60's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments              |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|-----------------------|
| 11:47       |              | -                  |                   |                           | 19.49     | 6.41 | 0.291               | 60.6            |       | Clear                 |
| 11:51       |              | 2.0                |                   |                           | 17.11     | 6.44 | 0.264               | 928             |       | Muddy                 |
| 11:55       |              | 3.5                |                   |                           | 17.02     | 6.48 | 0.259               | >1000           |       | Muddy                 |
| 12:00       |              | 4.8                |                   |                           | 16.96     | 6.52 | 0.254               | >1000           |       | Muddy,<br>*purged dry |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

Purged dry at 4.8 gallons

K= Hydraulic Conductivity (ft/min)

i = Gradient (ft/ft)

n = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. } \text{ ft. } (-) \text{ GW elev. } \text{ ft.}] - \text{ ft}$$

$$v = \frac{\text{ft.}}{\text{ft/min.}} = \frac{\text{ft}}{\text{day}}$$

.18 Clay/Silt  
 .20 Silt w/sand  
 .25 sand  
 .3 sand and gravel

Comments: Metals Sample Turbidity = 35.2 NTU's. VOC's taken on 3/31/15 @ 12:01 p.m. Metals taken on 4/1/15 @ 11:15 a.m. Allowed well to settle overnight.

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

DATE: 3/31/15

| FIELD SAMPLING LOG   |  | WELL NO: MW-05     |
|--|--|--------------------|
| Location: Loudon County  |  | Site: Matlock Bend |
| Client/Operator: Santek Waste Services, Inc.   |  | Project No:        |
| Purge Start: (Date) 3/31/15 (Time) 10:08      Purge End: (Date) 3/31/15 (Time) 11:28 |  |                    |
| Purged by: Robert Hudson   |  |                    |
| Depth Measurement Ref. Point* 936.84 ft  |  | Well Csg. ID: 2"   |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba .

Measure Well TD: 172.71 (-) Orig. DTW: 88.72 (=) Wtr. Col. Thick: 83.99 .

$2''=0.16$   
 (x)  $4''=0.65$  Gals./ft. (=) 13.4 Gals./Csg. Vol. (x) 3 Csg. Vol. (=) 40.2 Total Purge Gals.  
 $6''=1.47$

GW elev. Ref. 936.84 ft. (-) DTW 88.72 ft. = 848.12 ft.

Purge/Sample Method:  Pump (indicate type) \_\_\_\_\_  
 Bailer (indicate type) Poly/Disposable \_\_\_\_\_

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Sunny (50's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|----------|
| 10:09       |              | -                  |                   |                           | 19.52     | 7.50 | 0.232               | 0.8             |       | Clear    |
| 10:33       |              | 13.5               |                   |                           | 18.41     | 7.64 | 0.228               | 30.4            |       | Clear    |
| 11:01       |              | 27.0               |                   |                           | 18.29     | 7.61 | 0.219               | 235             |       | Cloudy   |
| 11:28       |              | 40.5               |                   |                           | 18.21     | 7.62 | 0.216               | 449             |       | Murky    |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

K= Hydraulic Conductivity (ft/min)  
 i = Gradient (ft/ft)  
 n = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. ft.} (-) \text{ GW elev. ft.}] - \text{ distance ft}$$

$$v = \text{ ft./min.} = \text{ ft day}$$

.18 Clay/Silt  
 .20 Silt w/sand  
 .25 sand  
 .3 sand and gravel

Comments: Metals Sample Turbidity = 25.1 NTU's. VOC's taken on 3/31/15 @ 11:29 a.m. Metals taken on 4/1/15 @ 10:59 a.m. Allowed well to settle overnight.

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

**APPENDIX B**



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

May 05, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504164

Analytical Environmental Services, Inc. received 5 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

Chantelle Kanhai  
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

Work Order: 150411d4

Date: 9/11/15 Page 1 of 1

| COMPANY:<br><b>Santek Waste Services, Inc.</b>   |                | ADDRESS:<br>650 25th Street NW, Suite<br>100, Cleveland, TN 37311  |                  | ANALYSIS REQUESTED |   |                          |              |               |                    |             |                     |                           |     | Visit our website<br><a href="http://www.aesatlanta.com">www.aesatlanta.com</a><br>to check on the status of<br>your results, place bottle<br>orders, etc. |  | No. of Containers |          |
|--|----------------|--|------------------|--------------------|---|--------------------------|--------------|---------------|--------------------|-------------|---------------------|---------------------------|-----|--|--|-------------------|----------|
| PHONE:   | (423) 303-7101 | FAX:   | (423) 479-1952   | TDS                | Organic Acids   | Am. T. Metal             | Total Metals | Total Mercury | Dissolved Hydrogen | Am. T. VOCs | Nitrogen / Ammonium | COD                       | TOC |  |  |                   | Chloride |
| SAMPLED BY:  | R. Hudson      | SIGNATURE:   | Robert Hudson    |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| #  | SAMPLE ID      | SAMPLED  |                  |                    | Mainx<br>(See codes)                                  | PRESERVATION (See codes) |              |               |                    |             |                     |                           |     |  |  | REMARKS           |          |
|  |                | DATE   | TIME             | Grab               |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| 1  | Leachate       | 4/1/15   | 12:15            | X                  | O   | X                        | X            | X             | X                  | X           | X                   | X                         | X   | X  | X  | Leachate          | 9        |
| 2  | Tr. Blank      | 4/1/15   | 2:30             | X                  | W   | X                        | X            | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 9        |
| 3  | Equip. Blank   | 4/1/15   | 2:45             | X                  | W   | X                        | X            | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 9        |
| 4  | MW-L4R         | 3/31/15  | 12:01            | X                  | BW  | X                        |              | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 35       |
| 5  | L              | 4/1/15   | 11:15            | X                  | BW  | X                        | X            | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 1        |
| 6  | MW-05          | 3/31/15  | 11:29            | X                  | BW  | X                        |              | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 35       |
| 7  | L              | 4/1/15   | 10:59            | X                  | BW  | X                        |              | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 1        |
| 8  | Duplicate      | 3/31/15  |                  | X                  | BW  |                          |              |               |                    | X           | X                   | X                         | X   | X  | X  |                   | 87       |
| 9  | L              | 4/1/15   |                  | X                  | BW  | X                        | X            | X             | X                  | X           | X                   | X                         | X   | X  | X  |                   | 2        |
| 10   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| 11   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| 12   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| 13   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| 14   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |
| RELINQUISHED BY  |                | DATE/TIME  | RECEIVED BY      | DATE/TIME          | PROJECT INFORMATION                                   |                          |              |               |                    |             |                     |                           |     |  | RECEIPT  |                   |          |
| 1: Robert Hudson   |                | 4pm<br>4/1/15  | 1: Tania Pacurar | 4/2/15 1050        | PROJECT NAME:<br>London Co (Motlock Bend) LF 1st Semi |                          |              |               |                    |             |                     |                           |     |  | Total # of Containers                              |                   |          |
| 2:   |                |  |                  |                    | PROJECT #: Annual GW Event 2015                       |                          |              |               |                    |             |                     |                           |     |  | Turnaround Time Requested                          |                   |          |
| 3:   |                |  |                  |                    | SITE ADDRESS:   |                          |              |               |                    |             |                     |                           |     |  | <input type="radio"/> Standard 5 Business Days     |                   |          |
|  |                |  |                  |                    | SEND REPORT TO: Will Martin                           |                          |              |               |                    |             |                     |                           |     |  | <input type="radio"/> Standard 2 Business Day Rush |                   |          |
|  |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  | <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 (Easy):     |     |  |  |                   |          |
| See Chantelle K. and<br>Project History  |                | OUT: / / VIA:<br>IN: / / VIA:<br>CLIENT: <input checked="" type="checkbox"/> UPS MAIL COURIER<br>GREYHOUND OTHER |                  |                    |   |                          |              |               |                    |             |                     | E-mail? Y/N: Fax? Y/N     |     |  |  |                   |          |
|  |                |  |                  |                    |   |                          |              |               |                    |             |                     | DATA PACKAGE: I 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. |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     | STANDARD TAT OF SAMPLES.   |  |                   |          |
| SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.   |                |  |                  |                    |   |                          |              |               |                    |             |                     |                           |     |  |  |                   |          |

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.

MATERIAL CODES: A = Air    GV = Granular Water    SE = Sediment    So = Soil    SW = Surface Water    W = Water (Blanks)    DW = Drinking Water (Blanks)    O = Other (specify)    W/W = Waste Water  
 PRESERVATIVE CODES: H+I = Hydrochloric acid + ice    I = Ice only    N = Nitric acid    S+I = Sulfuric acid + ice    SAH+I = Sodium Bisulfite/Methanol + ice    O = Other (specify)    NW = None

PRESERVATIVE CODES: A+1 = Hydrochloric acid + ice    I = Ice only    N = Nitric acid    S+1 = Sulfuric acid + ice    S+N+I = Sodium Bicarbonate/Nitrobenzene + ice    O = Other (specify)    NA = None

**Client:** Santek Environmental Inc.  
**Project:** Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW  
**Lab ID:** 1504164

**Case Narrative**

Samples "MW-4R" and "MW-05" were analyzed under work order 1504188.

**Sample Receiving Nonconformance:**

The containers submitted for Total Metals, Cyanide, Nitrogen, Ammonia (as N), Chemical Oxygen Demand and Total Organic Carbon for sample "LEACHATE" as received did not meet method specified pH range for the requested test methods. No attempt to further adjust the pH was made due to sample matrix.

**Volatile Organic Compounds Analysis by Method 8260B:**

Sample 1504164-001 as received did not meet method specified preservation requirements of pH <2.

**Ion Chromotography Analysis by Method 300:**

Due to sample matrix, sample 1504164-001 required dilution during preparation and/or analysis resulting in elevated reporting limits.

**Analytical Environmental Services, Inc.**

## Sample/Cooler Receipt Checklist

Client Santek Waste ServicesWork Order Number 1504164Checklist completed by Ioana Pacurar Date 4/2/15  
SignatureCarrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_Shipping container/cooler in good condition? Yes  No  Not Present Custody seals intact on shipping container/cooler? Yes  No  Not Present Custody seals intact on sample bottles? Yes  No  Not Present Container/Temp Blank temperature in compliance? (0°≤6°C)\* Yes  No Cooler #1 3.12 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_Chain of custody present? Yes  No Chain of custody signed when relinquished and received? Yes  No Chain of custody agrees with sample labels? Yes  No Samples in proper container/bottle? Yes  No Sample containers intact? Yes  No Sufficient sample volume for indicated test? Yes  No All samples received within holding time? Yes  No Was TAT marked on the COC? Yes  No Proceed with Standard TAT as per project history? Yes  No  Not Applicable Water - VOA vials have zero headspace? No VOA vials submitted Yes  No Water - pH acceptable upon receipt? Yes X <sup>4/15/15</sup> No  Not Applicable Adjusted? \_\_\_\_\_ Checked by IPSample Condition: Good  Other(Explain) \_\_\_\_\_(For diffusive samples or AIHA lead) Is a known blank included? Yes  No 

See Case Narrative for resolution of the Non-Conformance.

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

## Analytical Environmental Services, Inc

Date: 5-May-15

| Client:       | Santek Environmental Inc. | Project Name:       | Loudon Co. (Mallock Bend) LF 1st Semi-Annual GV | Dates Report                        |           |             |               |
|---------------|---------------------------|---------------------|---|-------------------------------------|-----------|-------------|---------------|
| Lab Sample ID | Client Sample ID          | Collection Date     | Matrix  | Test Name                           | TCLP Date | Prep Date   | Analysis Date |
| 1504164-001A  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM  | 04/04/2015    |
| 1504164-001B  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM  | 04/06/2015    |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM  | 04/06/2015    |
| 1504164-001D  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015  | 2:19:00 PM  | 04/08/2015    |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015  | 7:40:00 PM  | 04/09/2015    |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Chemical Oxygen Demand (COD)        |           |             | 04/06/2015    |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Total Organic Carbon by SM5310B     |           |             | 04/06/2015    |
| 1504164-001F  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Cyanide                             | 4/8/2015  | 12:00:00 PM | 04/08/2015    |
| 1504164-001G  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Inorganic Anions by IC              |           |             | 04/03/2015    |
| 1504164-001G  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015  | 10:00:00 AM | 04/07/2015    |
| 1504164-002A  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM  | 04/04/2015    |
| 1504164-002B  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM  | 04/06/2015    |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM  | 04/06/2015    |
| 1504164-002D  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015  | 2:19:00 PM  | 04/08/2015    |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015  | 7:40:00 PM  | 04/09/2015    |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Chemical Oxygen Demand (COD)        |           |             | 04/06/2015    |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Total Organic Carbon by SM5310B     |           |             | 04/06/2015    |
| 1504164-002F  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Cyanide                             | 4/8/2015  | 12:00:00 PM | 04/08/2015    |
| 1504164-002G  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Inorganic Anions by IC              |           |             | 04/02/2015    |
| 1504164-002G  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015  | 10:00:00 AM | 04/07/2015    |
| 1504164-003A  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM  | 04/04/2015    |
| 1504164-003B  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM  | 04/06/2015    |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM | 04/08/2015    |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM  | 04/06/2015    |

## Analytical Environmental Services, Inc

Date: 5-May-15

| Client:       | Santek Environmental Inc. | Project Name:        | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV | Lab Order:                          | 1504164              | Dates Report |               |  |
|---------------|---------------------------|----------------------|---|-------------------------------------|----------------------|--------------|---------------|--|
| Lab Sample ID | Client Sample ID          | Collection Date      | Matrix  | Test Name                           | TCLP Date            | Prep Date    | Analysis Date |  |
| 1504164-003D  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-003F  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |
| 1504164-004A  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015   |               |  |
| 1504164-004B  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/8/2015 9:17:02 AM  | 04/06/2015   |               |  |
| 1504164-004C  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-004E  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/06/2015   |               |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/03/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

April 20, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504188

Analytical Environmental Services, Inc. received 4 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

Chantelle Kanhai  
Project Manager



## ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

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

## CHAIN OF CUSTODY

Work Order

1504188

Company: Suntek Water Services, Inc.

Address: 650 25th Street NW, Suite 100, Cleveland, TN 37311

Phone: (423) 323-7101

FAX: (423) 479-1952

Email Address: R.H. Green

Signature: Robert H. Green

Comments: 100% Lab

| ITEM              | SAMPLER | SAMPLED |       | Matrix<br>(Spec code) | ANALYSIS REQUESTED |                                 |                   |              |               |                  |                   |                     |     |     | PRESERVATION (See codes) | TEST CODE | NO. OF CONTAINERS |    |
|-------------------|---------|---------|-------|-----------------------|--------------------|---------------------------------|-------------------|--------------|---------------|------------------|-------------------|---------------------|-----|-----|--------------------------|-----------|-------------------|----|
|                   |         | DATE    | TIME  |                       | TDS                | Inorganic Anions                | As, Pb, T. Metals | Total Metals | Total Mercury | Dissolved Metals | As, Hg, V, Cu, Zn | Nitrogen & Ammonium | COD | TOC | Crivide                  |           |                   |    |
| 1. Leachate       |         | 4/1/15  | 12:15 | X                     | O                  | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          | Leachate  | 9                 |    |
| 2. T.C.P. Blank   |         | 4/1/15  | 2:30  | X                     | W                  | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          |           | 9                 |    |
| 3. Filtered Blank |         | 4/1/15  | 2:45  | X                     | W                  | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          |           | 9                 |    |
| 4. M100-4LR       |         | 3/31/15 | 12:01 | X                     | BW                 | X                               |                   |              |               |                  |                   |                     |     |     |                          |           |                   | 35 |
| 5. ↳              |         | 4/1/15  | 11:15 | X                     | GW                 | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          |           | 1                 |    |
| 6. M100-65        |         | 3/31/15 | 11:29 | X                     | GW                 | X                               |                   |              |               |                  |                   |                     |     |     |                          |           |                   | 35 |
| 7. ↳              |         | 4/1/15  | 10:59 | X                     | GW                 | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          |           | 1                 |    |
| 8. Duplicate      |         | 3/31/15 |       | X                     | GW                 |                                 |                   |              |               |                  |                   |                     |     |     |                          |           | R487              |    |
| 9. ↳              |         | 4/1/15  |       | X                     | GW                 | X X X X X X X X X X X X X X X X |                   |              |               |                  |                   |                     |     |     |                          |           | 2                 |    |
| 10.               |         |         |       |                       |                    |                                 |                   |              |               |                  |                   |                     |     |     |                          |           |                   |    |
| 11.               |         |         |       |                       |                    |                                 |                   |              |               |                  |                   |                     |     |     |                          |           |                   |    |
| 12.               |         |         |       |                       |                    |                                 |                   |              |               |                  |                   |                     |     |     |                          |           |                   |    |
| 13.               |         |         |       |                       |                    |                                 |                   |              |               |                  |                   |                     |     |     |                          |           |                   |    |
| 14.               |         |         |       |                       |                    |                                 |                   |              |               |                  |                   |                     |     |     |                          |           |                   |    |

RFI REQUESTED BY

DATE/TIME

RECEIVED BY

DATE/TIME

PROJECT INFORMATION

RECEIPT

Robert H. Green

4pm 4/1/15

Tania Pacurar

4/2/15 1050

Project Name: London Co (Matlock Bend) LF 1st Semi-  
Project #: Annual GW Event 2015

Total Containers: 79

Site Address:

Time: 48 hr Time Request

Send Report To: Will Martin

Business Days: 48

Invoice To: (If different from above)

2 Business Days: Day Rush

State Project #: POB: E-mail: NA Fax: Y/N

Data Pack #: I II III IV

QUOTE #: POB: QUOTE #: POB:

Page 2 of 10

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 TURNAROUND SAMPLES.  
SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

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

PRESENCE/ABSENCE TESTS: 1 = Yes, 2 = No, 3 = Hydrochloric acid + ice, 4 = ice only, 5 = Nitric acid, 6 = Sulfuric acid + ice, 7 = Sodium Bisulfate/Methanol + ice, 8 = Other (specify), 9 = None

White Copy = Original, Y = B+C Copy = Client

**Client:** Santek Environmental Inc.  
**Project:** Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW  
**Lab ID:** 1504188

**Case Narrative**

All of the other samples were analyzed under work order 1504164.

## Analytical Environmental Services, Inc.

## Sample/Cooler Receipt Checklist

Client Santek Waste ServiceWork Order Number 1504188Checklist completed by Toana Pacurar 4/2/15  
Signature \_\_\_\_\_ Date \_\_\_\_\_Carrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_Shipping container/cooler in good condition? Yes  No  Not Present Custody seals intact on shipping container/cooler? Yes  No  Not Present Custody seals intact on sample bottles? Yes  No  Not Present Container/Temp Blank temperature in compliance? (0°≤6°C)\* Yes  No Cooler #1 3.1°C Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_Chain of custody present? Yes  No Chain of custody signed when relinquished and received? Yes  No Chain of custody agrees with sample labels? Yes  No Samples in proper container/bottle? Yes  No Sample containers intact? Yes  No Sufficient sample volume for indicated test? Yes  No All samples received within holding time? Yes  No Was TAT marked on the COC? Yes  No Proceeded with Standard TAT as per project history? Yes  No  Not Applicable Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No Water - pH acceptable upon receipt? Yes  No  Not Applicable Adjusted? \_\_\_\_\_ Checked by IPSample Condition: Good  Other(Explain) \_\_\_\_\_(For diffusive samples or AIHA lead) Is a known blank included? Yes  No 

See Case Narrative for resolution of the Non-Conformance.

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



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

April 10, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504147

Analytical Environmental Services, Inc. received 8 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

Chantelle Kanhai  
Project Manager



## ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4839 / FAX: (770) 457-8183

## CHAIN OF CUSTODY

Work Order: 154147

Date: 4/11/15 Page: 1 of 1

No. of Contaminants

|   |               |  |             |   |   |   |       |  |   |   |   |   |
|---|---------------|--|-------------|---|---|---|-------|--|---|---|---|---|
| COMPANY:<br>Santek Waste Services, Inc. |               | ADDRESS:<br>650 25th Street NW,<br>Suite 100, Cleveland, TN<br>37311 |             | ANALYSIS REQUESTED<br>by<br>Geologic Analysis<br>App. T Metals<br>Total Metals<br>Total Mercury<br>Preservation (See codes) |   | TESTS<br>TDS<br>Dissolved Metals<br>App. T Volatiles<br>Micro-EPA<br>Nitrogen/Hydrogen<br>COD<br>TOC<br>Granide |       | Visit our website<br><a href="http://www.aesatlanta.com">www.aesatlanta.com</a><br>to check on the status of<br>your results, place bottle<br>orders, etc. |   |   |   |   |
| #                                       | SAMPLE ID     | SAMPLED  |             | Matrix<br>(See codes)   |   |   |       |  | REMARKS   |   |   |   |
|   |               | DATE   | TIME        |   | Crib  | Composite   | Total |  |   |   |   |   |
| 1                                       | MW-03         | 4/1/15   | 10:38       | X   | GW  | X   | X     | b  | X   | X   | X | 7 |
| 2                                       | L7            | 4/1/15   | 12:45       | X   | GW  | X   | X     | X  | X   | X   | X | 2 |
| 3                                       | MW-02         | 3/31/15  | 2:06        | X   | GW  | X   | X     | X  | X   | X   | X | 7 |
| 4                                       | L7            | 4/1/15   | 9:40        | X   | GW  | X   | X     | X  | X   | X   | X | 2 |
| 5                                       | MW-01         | 3/31/15  | 3:06        | X   | GW  | X   | X     | X  | X   | X   | X | 7 |
| 6                                       | L7            | 4/1/15   | 11:30       | X   | GW  | X   | X     | X  | X   | X   | X | 2 |
| 7                                       | MW-1A         | 3/31/15  | 3:51        | X   | GW  | X   | X     | X  | X   | X   | X | 7 |
| 8                                       | L7            | 4/1/15   | 11:45       | X   | GW  | X   | X     | X  | X   | X   | X | 2 |
| 9                                       |               |  |             |   |   |   |       |  |   |   |   |   |
| 10                                      |               |  |             |   |   |   |       |  |   |   |   |   |
| 11                                      |               |  |             |   |   |   |       |  |   |   |   |   |
| 12                                      |               |  |             |   |   |   |       |  |   |   |   |   |
| 13                                      |               |  |             |   |   |   |       |  |   |   |   |   |
| 14                                      |               |  |             |   |   |   |       |  |   |   |   |   |
| RELINQUISHED BY                         |               | DATE/TIME  | RECEIVED BY | DATE/TIME   | PROJECT INFORMATION   |   |       |  | RECEIPT   |   |   |   |
| 1:                                      | Robert Hudson | 4pm<br>4/1/15  | John B      | 4/1/15 10:50  | PROJECT NAME:<br>London Co (Matlock Bend) LF 1st Semi-                              |   |       |  | Total # of Containers 36                                  |   |   |   |
| 2:                                      |               |  |             |   | PROJECT #: Annual GW Event 2015   |   |       |  | Turnaround Time Requested                                 |   |   |   |
| 3:                                      |               |  |             |   | SITE ADDRESS:   |   |       |  | <input checked="" type="radio"/> Standard 5 Business Days |   |   |   |
| SPECIAL INSTRUCTIONS/COMMENTS:          |               | SHIPMENT METHOD  |             |   |   | SEND REPORT TO: Will Martin   |       |  |   | <input type="radio"/> 2 Business Day Rush       |   |   |
| See Chantelle K. and<br>Project History |               | OUT  | IN          | VIA:<br>CLIENT <input checked="" type="radio"/> UPS MAIL COURIER<br>GREYHOUND OTHER   | VIA:<br>CLIENT <input checked="" type="radio"/> UPS MAIL COURIER<br>GREYHOUND OTHER | INVOICE TO:<br>(IF DIFFERENT FROM ABOVE)  |       |  |   | <input type="radio"/> Next Business Day Rush    |   |   |
|   |               |  |             |   |   | QUOTE #: PO#:   |       |  |   | <input type="radio"/> Same Day Rush (with req.) |   |   |
|   |               |  |             |   |   |   |       |  |   | <input type="radio"/> Other                     |   |   |
|   |               |  |             |   |   |   |       |  |   | STATE PROGRAM (if any): _____                   |   |   |
|   |               |  |             |   |   |   |       |  |   | E-mail Y/N; Fax? Y/N                            |   |   |
|   |               |  |             |   |   |   |       |  |   | DATA PACKAGE: I 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 (Banks) DW = Drinking Water (Banks) O = Other (Specify) WW = Waste Water

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

White Copy - Original: Yellow Copy - Client

Page 2 of 17

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Santek Waste Services

Work Order Number 1504147

Checklist completed by Jason B 4/2/15  
Signature \_\_\_\_\_ Date \_\_\_\_\_

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? ( $0^{\circ}\leq 6^{\circ}\text{C}$ )\* Yes  No

Cooler #1 3-2 Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler #5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No

Water - pH acceptable upon receipt? Yes  No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by JB

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

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

## Analytical Environmental Services, Inc

Date: 17-Apr-15

| Client:       | Santek Environmental Inc. | Project Name:       | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV | Lab Order:                          | 1504147              | Dates Report |                    |  |
|---------------|---------------------------|---------------------|---|-------------------------------------|----------------------|--------------|--------------------|--|
| Lab Sample ID | Client Sample ID          | Collection Date     | Matrix  | Test Name                           | TCLP Date            | Prep Date    | Analysis Date      |  |
| 1504147-001A  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 4/04/2015    |                    |  |
| 1504147-001B  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/5/2015 9:17:02 AM  | 4/06/2015    |                    |  |
| 1504147-001C  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 4/08/2015    |                    |  |
| 1504147-001D  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 4/09/2015    |                    |  |
| 1504147-001D  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | 4/06/2015          |  |
| 1504147-001D  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | Total Organic Carbon by SM5310B     |                      |              | 4/03/2015          |  |
| 1504147-001E  | MW-03                     | 4/1/2015 10:38:00AM | Groundwater                                     | Cyanide                             | 4/8/2015 12:00:00 PM | 4/08/2015    |                    |  |
| 1504147-002A  | MW-03                     | 4/1/2015 12:45:00PM | Groundwater                                     | Inorganic Anions by IC              |                      |              | 4/02/2015          |  |
| 1504147-002A  | MW-03                     | 4/1/2015 12:45:00PM | Groundwater                                     | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 4/07/2015    |                    |  |
| 1504147-002B  | MW-03                     | 4/1/2015 12:45:00PM | Groundwater                                     | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 4/08/2015    |                    |  |
| 1504147-002B  | MW-03                     | 4/1/2015 12:45:00PM | Groundwater                                     | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 4/08/2015    |                    |  |
| 1504147-002B  | MW-03                     | 4/1/2015 12:45:00PM | Groundwater                                     | TOTAL MERCURY                       | 4/3/2015 9:20:00 AM  | 4/06/2015    |                    |  |
| 1504147-003A  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 4/04/2015    |                    |  |
| 1504147-003B  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 4/06/2015    |                    |  |
| 1504147-003C  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 4/08/2015    |                    |  |
| 1504147-003D  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 4/09/2015    |                    |  |
| 1504147-003D  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | 4/06/2015          |  |
| 1504147-003D  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | Total Organic Carbon by SM5310B     |                      |              | 4/03/2015          |  |
| 1504147-003E  | MW-02                     | 3/31/2015 2:06:00PM | Groundwater                                     | Cyanide                             | 4/8/2015 12:00:00 PM | 4/08/2015    |                    |  |
| 1504147-004A  | MW-02                     | 4/1/2015 9:40:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 4/02/2015          |  |
| 1504147-004A  | MW-02                     | 4/1/2015 9:40:00AM  | Groundwater                                     | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 4/07/2015    |                    |  |
| 1504147-004B  | MW-02                     | 4/1/2015 9:40:00AM  | Groundwater                                     | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 4/08/2015    |                    |  |
| 1504147-004B  | MW-02                     | 4/1/2015 9:40:00AM  | Groundwater                                     | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 4/08/2015    |                    |  |
| 1504147-004B  | MW-02                     | 4/1/2015 9:40:00AM  | Groundwater                                     | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 4/06/2015    |                    |  |
| 1504147-005A  | MW-01                     | 3/31/2015 3:06:00PM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/2/2015 4:15:00 PM  | 4/04/2015    |                    |  |
| 1504147-005B  | MW-01                     | 3/31/2015 3:06:00PM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 4/06/2015    |                    |  |
| 1504147-005C  | MW-01                     | 3/31/2015 3:06:00PM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 4/08/2015    |                    |  |
| 1504147-005D  | MW-01                     | 3/31/2015 3:06:00PM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:00:00 PM  | 4/09/2015    |                    |  |
| 1504147-005D  | MW-01                     | 3/31/2015 3:06:00PM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | Page 16 94/05/2015 |  |

Analytical Environmental Services, Inc

Date: 17-Apr-15

|               |   |              |
|---------------|---|--------------|
| Client:       | Santek Environmental Inc.                       | Dates Report |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV |              |
| Lab Order:    | 1504147   |              |

| Lab Sample ID | Client Sample ID | Collection Date     | Matrix      | Test Name                           | TCLP Date | Prep Date            | Analysis Date |
|---------------|------------------|---------------------|-------------|-------------------------------------|-----------|----------------------|---------------|
| 1504147-005D  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Total Organic Carbon by SM5310B     |           |                      | 04/03/2015    |
| 1504147-005E  | MW-01            | 3/31/2015 3:06:00PM | Groundwater | Cyanide                             |           | 4/8/2015 12:00:00 PM | 04/08/2015    |
| 1504147-006A  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/02/2015    |
| 1504147-006A  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Residue, Dissolved (TDS) by SM2540C |           | 4/7/2015 10:00:00 AM | 04/07/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | APPENDIX I METALS                   |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | Total Metals by ICP/MS              |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-006B  | MW-01            | 4/1/2015 11:30:00AM | Groundwater | TOTAL MERCURY                       |           | 4/6/2015 9:20:00 AM  | 04/06/2015    |
| 1504147-007A  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | APPENDIX I VOLATILE ORGANICS        |           | 4/2/2015 4:15:00 PM  | 04/04/2015    |
| 1504147-007B  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | MICRO-EXTRACTABLE VOCs              |           | 4/6/2015 9:17:02 AM  | 04/06/2015    |
| 1504147-007C  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Dissolved Metals by ICP/MS          |           | 4/8/2015 2:19:00 PM  | 04/08/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Nitrogen, Ammonia (as N)            |           | 4/7/2015 7:00:00 PM  | 04/09/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Chemical Oxygen Demand (COD)        |           |                      | 04/06/2015    |
| 1504147-007D  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Total Organic Carbon by SM5310B     |           |                      | 04/03/2015    |
| 1504147-007E  | MW-1A            | 3/31/2015 3:51:00PM | Groundwater | Cyanide                             |           | 4/8/2015 12:00:00 PM | 04/08/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/02/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Inorganic Anions by IC              |           |                      | 04/03/2015    |
| 1504147-008A  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Residue, Dissolved (TDS) by SM2540C |           | 4/7/2015 10:00:00 AM | 04/07/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | APPENDIX I METALS                   |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | Total Metals by ICP/MS              |           | 4/3/2015 10:54:00 AM | 04/08/2015    |
| 1504147-008B  | MW-1A            | 4/1/2015 11:45:00AM | Groundwater | TOTAL MERCURY                       |           | 4/6/2015 9:20:00 AM  | 04/06/2015    |

|                      |   |                          |                      |
|----------------------|---|--------------------------|----------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Client Sample ID:</b> | MW-03                |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b>  | 4/1/2015 10:38:00 AM |
| <b>Lab ID:</b>       | 1504147-001                                     | <b>Matrix:</b>           | Groundwater          |

| Analyses  | Result | Reporting Limit | Qual | Units  | BatchID | Dilution Factor  | Date Analyzed    | Analyst |
|---|--------|-----------------|------|--------|---------|------------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |        |         |                  |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L   | R289269 | 1                | 04/03/2015 18:19 | YS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |        |         |                  |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L   | 205606  | 1                | 04/09/2015 16:08 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |        |         |                  |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.203           |      | ug/L   | 205555  | 1                | 04/06/2015 18:47 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L   | 205555  | 1                | 04/06/2015 18:47 | SH      |
| Surr: 4-Bromofluorobenzene                        | 94.3   | 64.7-140        | %REC | 205555 | 1       | 04/06/2015 18:47 | SH               |         |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |        |         |                  |                  |         |
| Manganese   | 139    | 10.0            |      | ug/L   | 205685  | 1                | 04/08/2015 19:13 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |        |         |                  |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L   | 205704  | 1                | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |        |         |                  |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L   | R289240 | 1                | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |        |         |                  |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Acetone   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L   | 205488  | 1                | 04/04/2015 17:07 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-03               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 10:38:00 AM |
| <b>Lab ID:</b> 1504147-001   | <b>Matrix:</b> Groundwater                   |

| Analyses   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> <b>(SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| Carbon disulfide   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Carbon tetrachloride   | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chlorobenzene  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloroethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloroform   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Chloromethane  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| cis-1,2-Dichloroethene                                       | BRL    | 70              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| cis-1,3-Dichloropropene                                      | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Dibromochloromethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Dibromomethane   | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Ethylbenzene   | BRL    | 700             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Iodomethane  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Methylene chloride   | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Styrene  | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Tetrachloroethene  | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Toluene  | BRL    | 1000            |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,2-Dichloroethene                                     | BRL    | 100             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,3-Dichloropropene                                    | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| trans-1,4-Dichloro-2-butene                                  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Trichloroethene  | BRL    | 5.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Trichlorofluoromethane                                       | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Vinyl acetate  | BRL    | 10              |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Vinyl chloride   | BRL    | 2.0             |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Xylenes, Total   | BRL    | 10000           |      | ug/L  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: 4-Bromofluorobenzene                                   | 76     | 70.6-123        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: Dibromo fluromethane                                   | 114    | 78.7-124        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |
| Surr: Toluene-d8   | 98.2   | 81.3-120        |      | %REC  | 205488  | 1               | 04/04/2015 17:07 | CH      |

**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: 10-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-03               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 12:45:00 PM |
| <b>Lab ID:</b> 1504147-002   | <b>Matrix:</b> Groundwater                   |

| Analyses                                   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Metals by ICP/MS SW6020A</b>      |        |                 |      |       |         |                 |                  |         |
| Calcium                                    | 1410   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Iron                                       | 113    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Magnesium                                  | 828    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Potassium                                  | 784    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Sodium                                     | 11800  | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b> |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                   | 3      | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Mercury, Total SW7470A</b>              |        |                 |      |       |         |                 |                  |         |
| Mercury                                    | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:52 | TA      |
| <b>Inorganic Anions by IC E300.0</b>       |        |                 |      |       |         |                 |                  |         |
| Chloride                                   | 18.2   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Fluoride                                   | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Nitrogen, Nitrate (As N)                   | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| Sulfate                                    | 2.69   | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 13:56 | JW      |
| <b>APPENDIX I METALS SW6020A</b>           |        |                 |      |       |         |                 |                  |         |
| Antimony                                   | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Arsenic                                    | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Barium                                     | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Beryllium                                  | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Cadmium                                    | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Chromium                                   | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Cobalt                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Copper                                     | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Lead                                       | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Nickel                                     | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Selenium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Silver                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Thallium                                   | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Vanadium                                   | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |
| Zinc                                       | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 13:59 | JS      |

**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

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-4R                |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 12:01:00 PM |
| <b>Lab ID:</b> 1504188-001   | <b>Matrix:</b> Groundwater                    |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| <b>(SW8011)</b>                                   |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.203           |      | ug/L  | 205555  | 1               | 04/06/2015 23:34 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 23:34 | SH      |
| Surr: 4-Bromofluorobenzene                        | 96.7   | 64.7-140        | %REC |       | 205555  | 1               | 04/06/2015 23:34 | SH      |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |       |         |                 |                  |         |
| Fluoride  | BRL    | 4.00            |      | mg/L  | R289307 | 1               | 04/06/2015 18:47 | JW      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| <b>(SW5030B)</b>                                  |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,2-Dichloropropene                               | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Acetone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Carbon disulfide                                  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Carbon tetrachloride                              | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Chlorobenzene                                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Chloroethane                                      | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Chloroform  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Chloromethane                                     | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| cis-1,2-Dichloroethene                            | BRL    | 70              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| cis-1,3-Dichloropropene                           | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Dibromochloromethane                              | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Dibromomethane                                    | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Ethylbenzene                                      | BRL    | 700             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Iodomethane                                       | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-4R                |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 12:01:00 PM |
| <b>Lab ID:</b> 1504188-001   | <b>Matrix:</b> Groundwater                    |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| Methylene chloride                                    | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Styrene   | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Tetrachloroethene                                     | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Toluene   | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| trans-1,2-Dichloroethene                              | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| trans-1,3-Dichloropropene                             | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| trans-1,4-Dichloro-2-butene                           | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Trichloroethene                                       | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Trichlorofluoromethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Vinyl acetate   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Vinyl chloride  | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Xylenes, Total  | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Surr: 4-Bromofluorobenzene                            | 78.1   | 70.6-123        |      | %REC  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Surr: Dibromofluoromethane                            | 117    | 78.7-124        |      | %REC  | 205572  | 1               | 04/04/2015 19:30 | CH      |
| Surr: Toluene-d8                                      | 101    | 81.3-120        |      | %REC  | 205572  | 1               | 04/04/2015 19:30 | CH      |

**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: 20-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-4R               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 11:15:00 AM |
| <b>Lab ID:</b> 1504188-002   | <b>Matrix:</b> Groundwater                   |

| Analyses                         | Result | Reporting Limit | Qual | Units            | BatchID | Dilution Factor | Date Analyzed    | Analyst |  |  |
|----------------------------------|--------|-----------------|------|------------------|---------|-----------------|------------------|---------|--|--|
| <b>Mercury, Total</b> SW7470A    |        |                 |      | <b>(SW7470A)</b> |         |                 |                  |         |  |  |
| Mercury                          | BRL    | 0.00200         |      | mg/L             | 205536  | 1               | 04/06/2015 14:14 | TA      |  |  |
| <b>APPENDIX I METALS</b> SW6020A |        |                 |      | <b>(SW3005A)</b> |         |                 |                  |         |  |  |
| Antimony                         | BRL    | 0.00600         |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Arsenic                          | BRL    | 0.0500          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Barium                           | BRL    | 2.00            |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Beryllium                        | BRL    | 0.00400         |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Cadmium                          | BRL    | 0.00500         |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Chromium                         | BRL    | 0.100           |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Cobalt                           | 0.0266 | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Copper                           | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Lead                             | BRL    | 0.0150          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Nickel                           | BRL    | 0.100           |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Selenium                         | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Silver                           | BRL    | 0.0500          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Thallium                         | BRL    | 0.00200         |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Vanadium                         | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |
| Zinc                             | 0.0633 | 0.0200          |      | mg/L             | 205476  | 1               | 04/08/2015 17:21 | JS      |  |  |

**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

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-05                |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 11:29:00 AM |
| <b>Lab ID:</b> 1504188-003   | <b>Matrix:</b> Groundwater                    |

| Analyses  | Result | Reporting Limit | Qual | Units  | BatchID | Dilution Factor  | Date Analyzed    | Analyst |
|---|--------|-----------------|------|--------|---------|------------------|------------------|---------|
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |        |         |                  |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.203           |      | ug/L   | 205555  | 1                | 04/07/2015 00:02 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L   | 205555  | 1                | 04/07/2015 00:02 | SH      |
| Surr: 4-Bromo fluorobenzene                       | 102    | 64.7-140        | %REC | 205555 | 1       | 04/07/2015 00:02 | SH               |         |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |        |         |                  |                  |         |
| Fluoride  | BRL    | 4.00            |      | mg/L   | R289307 | 1                | 04/06/2015 19:01 | JW      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |        |         |                  |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,1,2-Trichloroethane                             | BRL    | 5.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,1-Dichloroethane                                | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,1-Dichloroethene                                | BRL    | 7.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,2,3-Trichloropropane                            | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,2-Dichlorobenzene                               | BRL    | 600             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,2-Dichloroethane                                | BRL    | 5.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,2-Dichloropropane                               | BRL    | 5.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 1,4-Dichlorobenzene                               | BRL    | 75              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 2-Butanone  | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 2-Hexanone  | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| 4-Methyl-2-pentanone                              | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Acetone   | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Acrylonitrile                                     | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Benzene   | BRL    | 5.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Bromochloromethane                                | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Bromodichloromethane                              | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Bromoform   | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Bromomethane                                      | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Carbon disulfide                                  | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Carbon tetrachloride                              | BRL    | 5.0             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Chlorobenzene                                     | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Chloroethane                                      | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Chloroform  | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Chloromethane                                     | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| cis-1,2-Dichloroethene                            | BRL    | 70              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| cis-1,3-Dichloropropene                           | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Dibromochloromethane                              | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Dibromomethane                                    | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Ethylbenzene                                      | BRL    | 700             |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |
| Iodomethane                                       | BRL    | 10              |      | ug/L   | 205572  | 1                | 04/04/2015 19:54 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Apr-15

|  |   |
|--|---|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-05                |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 3/31/2015 11:29:00 AM |
| <b>Lab ID:</b> 1504188-003   | <b>Matrix:</b> Groundwater                    |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)</b> |        |                 |      |       |         |                 |                  |         |
| Methylene chloride                                    | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Styrene   | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Tetrachloroethene                                     | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Toluene   | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| trans-1,2-Dichloroethene                              | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| trans-1,3-Dichloropropene                             | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| trans-1,4-Dichloro-2-butene                           | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Trichloroethene                                       | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Trichlorofluoromethane                                | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Vinyl acetate   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Vinyl chloride  | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Xylenes, Total  | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Surr: 4-Bromo fluorobenzene                           | 81     | 70.6-123        | %REC |       | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Surr: Dibromo fluoromethane                           | 119    | 78.7-124        | %REC |       | 205572  | 1               | 04/04/2015 19:54 | CH      |
| Surr: Toluene-d8                                      | 103    | 81.3-120        | %REC |       | 205572  | 1               | 04/04/2015 19:54 | CH      |

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: 20-Apr-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> MW-05               |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 10:59:00 AM |
| <b>Lab ID:</b> 1504188-004   | <b>Matrix:</b> Groundwater                   |

| Analyses                         | Result | Reporting Limit | Qual | Units            | BatchID | Dilution Factor | Date Analyzed    | Analyst |  |  |
|----------------------------------|--------|-----------------|------|------------------|---------|-----------------|------------------|---------|--|--|
| <b>Mercury, Total</b> SW7470A    |        |                 |      | <b>(SW7470A)</b> |         |                 |                  |         |  |  |
| Mercury                          | BRL    | 0.00200         |      | mg/L             | 205536  | 1               | 04/06/2015 14:16 | TA      |  |  |
| <b>APPENDIX I METALS</b> SW6020A |        |                 |      | <b>(SW3005A)</b> |         |                 |                  |         |  |  |
| Antimony                         | BRL    | 0.00600         |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Arsenic                          | BRL    | 0.0500          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Barium                           | BRL    | 2.00            |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Beryllium                        | BRL    | 0.00400         |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Cadmium                          | BRL    | 0.00500         |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Chromium                         | BRL    | 0.100           |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Cobalt                           | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Copper                           | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Lead                             | BRL    | 0.0150          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Nickel                           | BRL    | 0.100           |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Selenium                         | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Silver                           | BRL    | 0.0500          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Thallium                         | BRL    | 0.00200         |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Vanadium                         | BRL    | 0.0100          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |
| Zinc                             | BRL    | 0.0200          |      | mg/L             | 205476  | 1               | 04/08/2015 17:27 | JS      |  |  |

**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: 5-May-15

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | TRIP BLANK          |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:30:00 PM |
| Lab ID:       | 1504164-002                                     | Matrix:           | Aqueous             |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289374 | 1               | 04/06/2015 17:52 | YS      |
| <b>Total Metals by ICP/MS SW6020A</b>             |        |                 |      |       |         |                 |                  |         |
| Calcium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Iron  | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Magnesium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Potassium   | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Sodium  | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b>        |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                          | BRL    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205608  | 1               | 04/09/2015 16:30 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.205           |      | ug/L  | 205555  | 1               | 04/06/2015 22:08 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 22:08 | SH      |
| <b>Mercury, Total SW7470A</b>                     |        |                 |      |       |         |                 |                  |         |
| Mercury   | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 14:00 | TA      |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |       |         |                 |                  |         |
| Chloride  | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Fluoride  | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Nitrogen, Nitrate (As N)                          | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| Sulfate   | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:37 | JW      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 17:44 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | TRIP BLANK          |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:30:00 PM |
| Lab ID:       | 1504164-002                                     | Matrix:           | Aqueous             |

| Analyses                                    | Result | Reporting Limit  | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|------------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        | <b>(SW5030B)</b> |      |       |         |                 |                  |         |
| 1,1,2-Trichloroethane                       | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1-Dichloroethane                          | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,1-Dichloroethene                          | BRL    | 7.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2,3-Trichloropropane                      | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichlorobenzene                         | BRL    | 600              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichloroethane                          | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,2-Dichloropropane                         | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 1,4-Dichlorobenzene                         | BRL    | 75               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 2-Butanone                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 2-Hexanone                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| 4-Methyl-2-pentanone                        | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Acetone                                     | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Acrylonitrile                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Benzene                                     | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromochloromethane                          | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromodichloromethane                        | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromoform                                   | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Bromomethane                                | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Carbon disulfide                            | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Carbon tetrachloride                        | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chlorobenzene                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloroethane                                | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloroform                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Chloromethane                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| cis-1,2-Dichloroethene                      | BRL    | 70               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| cis-1,3-Dichloropropene                     | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Dibromochloromethane                        | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Dibromomethane                              | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Ethylbenzene                                | BRL    | 700              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Iodomethane                                 | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Methylene chloride                          | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Styrene                                     | BRL    | 100              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Tetrachloroethene                           | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Toluene                                     | BRL    | 1000             |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,2-Dichloroethene                    | BRL    | 100              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,3-Dichloropropene                   | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| trans-1,4-Dichloro-2-butene                 | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Trichloroethene                             | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Trichlorofluoromethane                      | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Vinyl acetate                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Vinyl chloride                              | BRL    | 2.0              |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|                      |   |                          |                     |
|----------------------|---|--------------------------|---------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Client Sample ID:</b> | TRIP BLANK          |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b>  | 4/1/2015 2:30:00 PM |
| <b>Lab ID:</b>       | 1504164-002                                     | <b>Matrix:</b>           | Aqueous             |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
| Xylenes, Total                              | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: 4-Bromofluorobenzene                  | 82.4   | 70.6-123        |      | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: Dibromofluoromethane                  | 110    | 78.7-124        |      | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| Surr: Toluene-d8                            | 98.8   | 81.3-120        |      | %REC  | 205572  | 1               | 04/04/2015 15:55 | CH      |
| <b>APPENDIX I METALS SW6020A</b>            |        |                 |      |       |         |                 |                  |         |
| Antimony                                    | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Arsenic                                     | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Barium                                      | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Beryllium                                   | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Cadmium                                     | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Chromium                                    | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Cobalt                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Copper                                      | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Lead  | BRL    | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Nickel                                      | BRL    | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Selenium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Silver                                      | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Thallium                                    | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Vanadium                                    | BRL    | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |
| Zinc  | BRL    | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 16:56 | JS      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | EQUIP. BLANK        |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:45:00 PM |
| Lab ID:       | 1504164-003                                     | Matrix:           | Aqueous             |

| Analyses  | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |        |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | BRL    | 1.00            |      | mg/L  | R289374 | 1               | 04/06/2015 18:05 | YS      |
| <b>Total Metals by ICP/MS SW6020A</b>             |        |                 |      |       |         |                 |                  |         |
| Calcium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Iron  | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Magnesium   | BRL    | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Potassium   | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| Sodium  | BRL    | 500             |      | ug/L  | 205476  | 1               | 04/08/2015 17:02 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b>        |        |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                          | 1      | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |        |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | BRL    | 0.200           |      | mg/L  | 205608  | 1               | 04/09/2015 16:25 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |        |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL    | 0.204           |      | ug/L  | 205555  | 1               | 04/06/2015 22:36 | SH      |
| 1,2-Dibromoethane                                 | BRL    | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 22:36 | SH      |
| <b>Mercury, Total SW7470A</b>                     |        |                 |      |       |         |                 |                  |         |
| Mercury   | BRL    | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 14:06 | TA      |
| <b>Inorganic Anions by IC E300.0</b>              |        |                 |      |       |         |                 |                  |         |
| Chloride  | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Fluoride  | BRL    | 4.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Nitrogen, Nitrate (As N)                          | BRL    | 10.0            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| Sulfate   | BRL    | 1.00            |      | mg/L  | R289400 | 1               | 04/02/2015 17:52 | JW      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |        |                 |      |       |         |                 |                  |         |
| Manganese   | BRL    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 19:01 | JS      |
| <b>Cyanide SW9014</b>                             |        |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL    | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |        |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | BRL    | 10.0            |      | mg/L  | R289240 | 1               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |        |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1,1-Trichloroethane                             | BRL    | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | EQUIP. BLANK        |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:45:00 PM |
| Lab ID:       | 1504164-003                                     | Matrix:           | Aqueous             |

| Analyses   | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|--|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> <span style="float: right;">(SW5030B)</span> |        |                 |      |       |         |                 |                  |         |
| 1,1,2-Trichloroethane  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1-Dichloroethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,1-Dichloroethene   | BRL    | 7.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2,3-Trichloropropane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichlorobenzene  | BRL    | 600             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichloroethane   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,2-Dichloropropane  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 1,4-Dichlorobenzene  | BRL    | 75              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 2-Butanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 2-Hexanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| 4-Methyl-2-pentanone   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Acetone  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Acrylonitrile  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Benzene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromochloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromodichloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromoform  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Bromomethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Carbon disulfide   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Carbon tetrachloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chlorobenzene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloroethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloroform   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Chloromethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| cis-1,2-Dichloroethene   | BRL    | 70              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| cis-1,3-Dichloropropene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Dibromochloromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Dibromomethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Ethylbenzene   | BRL    | 700             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Iodomethane  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Methylene chloride   | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Styrene  | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Tetrachloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Toluene  | BRL    | 1000            |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,2-Dichloroethene   | BRL    | 100             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,3-Dichloropropene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| trans-1,4-Dichloro-2-butene  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Trichloroethene  | BRL    | 5.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Trichlorofluoromethane   | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Vinyl acetate  | BRL    | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |
| Vinyl chloride   | BRL    | 2.0             |      | ug/L  | 205572  | 1               | 04/04/2015 16:19 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|               |   |                   |                     |
|---------------|---|-------------------|---------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | EQUIP. BLANK        |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 2:45:00 PM |
| Lab ID:       | 1504164-003                                     | Matrix:           | Aqueous             |

| Analyses | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed | Analyst |
|----------|--------|-----------------|------|-------|---------|-----------------|---------------|---------|
|----------|--------|-----------------|------|-------|---------|-----------------|---------------|---------|

**APPENDIX I VOLATILE ORGANICS SW8260B (SW5030B)**

|                                 |      |          |      |        |   |                  |    |
|---------------------------------|------|----------|------|--------|---|------------------|----|
| Xylenes, Total                  | BRL  | 10000    | ug/L | 205572 | 1 | 04/04/2015 16:19 | CH |
| Surrogate: 4-Bromofluorobenzene | 79.8 | 70.6-123 | %REC | 205572 | 1 | 04/04/2015 16:19 | CH |
| Surrogate: Dibromofluoromethane | 116  | 78.7-124 | %REC | 205572 | 1 | 04/04/2015 16:19 | CH |
| Surrogate: Toluene-d8           | 102  | 81.3-120 | %REC | 205572 | 1 | 04/04/2015 16:19 | CH |

**APPENDIX I METALS SW6020A (SW3005A)**

|           |     |         |      |        |   |                  |    |
|-----------|-----|---------|------|--------|---|------------------|----|
| Antimony  | BRL | 0.00600 | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Arsenic   | BRL | 0.0500  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Barium    | BRL | 2.00    | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Beryllium | BRL | 0.00400 | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Cadmium   | BRL | 0.00500 | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Chromium  | BRL | 0.100   | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Cobalt    | BRL | 0.0100  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Copper    | BRL | 0.0100  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Lead      | BRL | 0.0150  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Nickel    | BRL | 0.100   | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Selenium  | BRL | 0.0100  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Silver    | BRL | 0.0500  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Thallium  | BRL | 0.00200 | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Vanadium  | BRL | 0.0100  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |
| Zinc      | BRL | 0.0200  | mg/L | 205476 | 1 | 04/08/2015 17:02 | JS |

|             |  |  |
|-------------|--|--|
| 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 |

## **APPENDIX C**



AUDITORY COUNTRY

| PERIOD X (I) |      | 11-2-56 |      | 12-1-56 |      | 11-1-56 |      |
|--------------|------|---------|------|---------|------|---------|------|
| 6            | 6    | 5       | 13   | 5       | 5    | 5       | 5    |
| 50           | 50   | 152     | 42   | 60      | 60   | 60      | 60   |
| 2000         | 2000 | 120     | 50   | 16      | 40   | 2       | 2    |
| 5            | 5    | 5       | 5    | 5       | 5    | 5       | 5    |
| 100          | 100  | 130     | 50   | 60      | 40   | 30      | 30   |
| NA.          | NA.  | 10      | 30   | 50      | 50   | 30      | 30   |
| NA.          | NA.  | 10      | 50   | 60      | 60   | 60      | 60   |
| 4            | 4    | 0.20    | 0.20 | 0.20    | 0.20 | 0.20    | 0.20 |
| 115          | 115  | 200     | 70   | 140     | 60   | 60      | 60   |
|              |      | 2       | 1    | 1       | 1    | 1       | 1    |
|              |      | 310     | 110  | 210     | 120  | 120     | 120  |
|              |      | 100     | 100  | 100     | 100  | 100     | 100  |
|              |      | 10      | 10   | 10      | 10   | 10      | 10   |
|              |      | 5       | 5    | 5       | 5    | 5       | 5    |
|              |      | 2       | 1    | 1       | 1    | 1       | 1    |
|              |      | 200     | 100  | 130     | 60   | 60      | 60   |
|              |      | NA.     | NA.  | NA.     | NA.  | NA.     | NA.  |
|              |      | 1000    | 700  | 1300    | 740  | 740     | 740  |

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

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

† = TREATMENT TECHNIQUE ACTION LEVEL  
NATIONAL SECONDARY DRINKING WATER C

**‡ = NATIONAL SECONDARY DRINKING WATER STANDARD**

**APPENDIX D**

## GROUNDWATER DATA

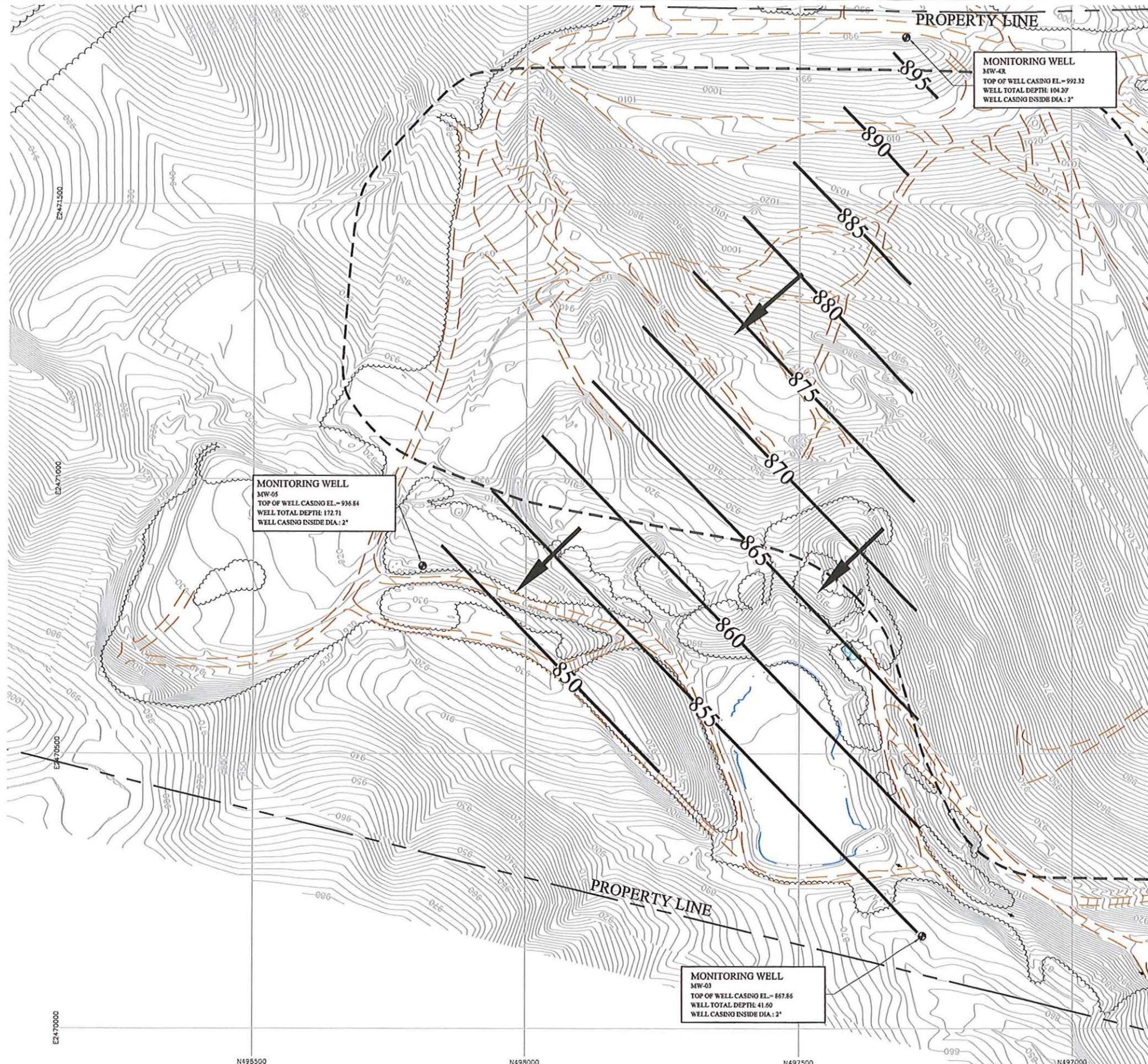
Matlock Bend Landfill (Phase II/IV)

March 31, 2015

| Well No. | Elev. Of<br>TOC | Depth to<br>GW (ft<br>below TOC) | Water<br>Elevation | Contour<br>Elevation | Distance | Hydraulic<br>Conductivity | Effective<br>Porosity<br>(n) | Hydraulic<br>Gradient | Average Linear<br>Velocity |          | Directions |
|----------|-----------------|----------------------------------|--------------------|----------------------|----------|---------------------------|------------------------------|-----------------------|----------------------------|----------|------------|
|          |                 |                                  |                    |                      |          |                           |                              |                       | ft/min                     | ft/day   |            |
| MW-03    | 867.86          | 12.80                            | 855.06             | 855                  | 5        | 1.20E-05                  | 0.18                         | 1.20E-02              | 8.00E-07                   | 1.15E-03 | NW         |
| MW-4R*   | 992.32          | 95.97                            | 896.35             | 895                  | 35       | 1.90E-05                  | 0.18                         | 3.86E-02              | 4.07E-06                   | 5.86E-03 | NW         |
| MW-05    | 936.84          | 88.72                            | 848.12             | 850                  | 50       | 2.20E-05                  | 0.18                         | 3.76E-02              | 4.60E-06                   | 6.62E-03 | NW         |

\*-Hydraulic conductivity for MW-4R is from MW-04

**APPENDIX E**



LEGEND:



PROPERTY BOUNDARY  
 WATER TABLE CONTOURS (INFERRED)  
 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 MARCH 31, 2015.
  2. TOPOGRAPHIC CONTOURS SHOWN WERE PROVIDED BY SOUTHERN RESOURCES MAPPING CORP., NORTHPORT, ALABAMA, DATED SEPTEMBER 18, 2014.

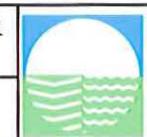
| G.W. WELL NO. | WATER ELEV. |
|---------------|-------------|
| MW-03         | 855.06      |
| MW-4R         | 896.35      |
| MW-05         | 848.12      |



A horizontal scale bar with a black and white checkered pattern. It has numerical labels at 0', 100', 200', and 300'.

2015 SEMI-ANNUAL (SPRING) GROUNDWATER  
POTENTIOMETRIC CONTOUR MAP

MATLOCK BEND LANDFILL-PHASE II/IV  
LOUDON COUNTY, TENNESSEE



**SANTEK**  
**ENVIRONMENTAL**

S-2

**LEACHATE**

## **LEACHATE FIELD LOG**

DATE: 4/1/15

| FIELD SAMPLING LOG                           |                   | WELL NO: Leachate  |
|--|-------------------|--------------------|
| Location: Loudon County                      |                   | Site: Matlock Bend |
| Client/Operator: Santek Waste Services, Inc. |                   | Project No:        |
| Purge Start: (Date) 4/1/15 (Time) 12:15      | Purge End: (Date) | (Time)             |
| Purged by: Robert Hudson                     |                   |                    |
| Depth Measurement Ref. Point* N/A ft         | Well Csg. ID: 2"  |                    |

Equipment Used to Measure (Make, Model, etc)

DTW Solinst pH Horiba Cond. Horiba T° Horiba .

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

2"=0.16  
 (x) 4"=0.65 Gals./ft. (=) \_\_\_\_\_ Gals./Csg. Vol. (x) \_\_\_\_\_ Csg. Vol. (=) \_\_\_\_\_ Total Purge Gals.  
 6"=1.47

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

Purge/Sample Method:  Directly into bottles

Decon. Method: Distilled Rinse

Purge Wtr. Containerized? (N) Avg Purge Rate: \_\_\_\_\_ gpm

Weather: Sunny ( 60's °F)

| Actual Time | Elapsed Time | Vol. Purged (Gals) | Depth to Wtr (ft) | Depth of Pump Intake (ft) | Temp (°C) | pH   | Cond. (umhos) mS/cm | Turbidity (NTU) | Other | Comments                      |
|-------------|--------------|--------------------|-------------------|---------------------------|-----------|------|---------------------|-----------------|-------|-------------------------------|
| 12:15       |              | -                  | -                 | -                         | 22.48     | 7.38 | 13.9                | 225             |       | Black/dark brown, strong odor |
|             |              |                    |                   |                           |           |      |                     |                 |       |                               |
|             |              |                    |                   |                           |           |      |                     |                 |       |                               |
|             |              |                    |                   |                           |           |      |                     |                 |       |                               |

Average Linear velocity  $v = \frac{Ki}{n}$  Where

K= Hydraulic Conductivity (ft/min)

i = Gradient (ft/ft)

n = effective porosity

$$v = [K \text{ ft/min.} (x) \text{ GW elev. } \text{ ft. } (-) \text{ GW elev. } \text{ ft}] - \text{ ft}$$

$$\text{distance } \text{ ft}$$

$$v = \text{ ft./min.} = \text{ ft day}$$

.18 Clay/Silt

.20 Silt w/sand

.25 sand

.3 sand and gravel

Comments: Metals Sample Turbidity = 225 NTU's.

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

## **LEACHATE ANALYTICAL DATA**



## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

May 05, 2015

Will Martin  
Santek Environmental Inc.  
650 25th Street NW, Suite 100  
Cleveland TN 37311

TEL: (423) 476-9160  
FAX: (423) 479-1952

RE: Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW

Dear Will Martin:

Order No: 1504164

Analytical Environmental Services, Inc. received 5 samples on 4/2/2015 10:50:00 AM for the analyses presented in following report.

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

AES' certifications are as follows:

- NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/14-06/30/15.
- AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

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.

Chantelle Kanhai  
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: 15041164

1/1/15 Page 1 of 1

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 Bisulfite/Methanol + ice    O = Other (specify)    NA = None

White

Page 2 of 18

White Copy - Original; Yellow Copy - Client

**Client:** Santeck Environmental Inc.  
**Project:** Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW  
**Lab ID:** 1504164

**Case Narrative**

Samples "MW-4R" and "MW-05" were analyzed under work order 1504188.

**Sample Receiving Nonconformance:**

The containers submitted for Total Metals, Cyanide, Nitrogen, Ammonia (as N), Chemical Oxygen Demand and Total Organic Carbon for sample "LEACHATE" as received did not meet method specified pH range for the requested test methods. No attempt to further adjust the pH was made due to sample matrix.

**Volatile Organic Compounds Analysis by Method 8260B:**

Sample 1504164-001 as received did not meet method specified preservation requirements of pH <2.

**Ion Chromotography Analysis by Method 300:**

Due to sample matrix, sample 1504164-001 required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client Santek Waste Services

Work Order Number 1504164

Checklist completed by Ioana Pacurar Date 4/2/15  
Signature

Carrier name: FedEx  UPS  Courier  Client  US Mail  Other \_\_\_\_\_

Shipping container/cooler in good condition? Yes  No  Not Present

Custody seals intact on shipping container/cooler? Yes  No  Not Present

Custody seals intact on sample bottles? Yes  No  Not Present

Container/Temp Blank temperature in compliance? (0°≤6°C)\* Yes  No

Cooler #1 3.1C Cooler #2 \_\_\_\_\_ Cooler #3 \_\_\_\_\_ Cooler #4 \_\_\_\_\_ Cooler#5 \_\_\_\_\_ Cooler #6 \_\_\_\_\_

Chain of custody present? Yes  No

Chain of custody signed when relinquished and received? Yes  No

Chain of custody agrees with sample labels? Yes  No

Samples in proper container/bottle? Yes  No

Sample containers intact? Yes  No

Sufficient sample volume for indicated test? Yes  No

All samples received within holding time? Yes  No

Was TAT marked on the COC? Yes  No

Proceed with Standard TAT as per project history? Yes  No  Not Applicable

Water - VOA vials have zero headspace? No VOA vials submitted Yes  No

Water - pH acceptable upon receipt? Yes XCP  
4/3/15 No  Not Applicable

Adjusted? \_\_\_\_\_ Checked by JP

Sample Condition: Good  Other(Explain) \_\_\_\_\_

(For diffusive samples or AIHA lead) Is a known blank included? Yes  No

See Case Narrative for resolution of the Non-Conformance.

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

## Analytical Environmental Services, Inc

Date: 5-May-15

| Client:       | Santek Environmental Inc. | Project Name:       | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV | Lab Order:                          | 1504164   | Dates Report |               |  |
|---------------|---------------------------|---------------------|---|-------------------------------------|-----------|--------------|---------------|--|
| Lab Sample ID | Client Sample ID          | Collection Date     | Matrix  | Test Name                           | TCLP Date | Prep Date    | Analysis Date |  |
| 1504164-001A  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM   | 04/04/2015    |  |
| 1504164-001B  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM   | 04/06/2015    |  |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-001C  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM   | 04/06/2015    |  |
| 1504164-001D  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015  | 2:19:00 PM   | 04/08/2015    |  |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015  | 7:40:00 PM   | 04/09/2015    |  |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Chemical Oxygen Demand (COD)        |           |              | 04/06/2015    |  |
| 1504164-001E  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Total Organic Carbon by SM5310B     |           |              | 04/06/2015    |  |
| 1504164-001F  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Cyanide                             | 4/8/2015  | 12:00:00 PM  | 04/08/2015    |  |
| 1504164-001G  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Inorganic Anions by IC              |           |              | 04/03/2015    |  |
| 1504164-001G  | LEACHATE                  | 4/1/2015 12:15:00PM | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015  | 10:00:00 AM  | 04/07/2015    |  |
| 1504164-002A  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM   | 04/04/2015    |  |
| 1504164-002B  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM   | 04/06/2015    |  |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-002C  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM   | 04/06/2015    |  |
| 1504164-002D  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015  | 2:19:00 PM   | 04/08/2015    |  |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015  | 7:40:00 PM   | 04/09/2015    |  |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Chemical Oxygen Demand (COD)        |           |              | 04/06/2015    |  |
| 1504164-002E  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Total Organic Carbon by SM5310B     |           |              | 04/06/2015    |  |
| 1504164-002F  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Cyanide                             | 4/8/2015  | 12:00:00 PM  | 04/08/2015    |  |
| 1504164-002G  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Inorganic Anions by IC              |           |              | 04/02/2015    |  |
| 1504164-002G  | TRIP BLANK                | 4/1/2015 2:30:00PM  | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015  | 10:00:00 AM  | 04/07/2015    |  |
| 1504164-003A  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | APPENDIX I VOLATILE ORGANICS        | 4/4/2015  | 1:01:00 PM   | 04/04/2015    |  |
| 1504164-003B  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | MICRO-EXTRACTABLE VOCs              | 4/6/2015  | 9:17:02 AM   | 04/06/2015    |  |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | APPENDIX I METALS                   | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | Total Metals by ICP/MS              | 4/3/2015  | 10:54:00 AM  | 04/08/2015    |  |
| 1504164-003C  | EQUIP. BLANK              | 4/1/2015 2:45:00PM  | Aqueous   | TOTAL MERCURY                       | 4/6/2015  | 9:20:00 AM   | 04/06/2015    |  |

## Analytical Environmental Services, Inc

Date: 5-May-15

| Client:       | Santek Environmental Inc. | Project Name:        | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GV | Lab Order:                          | 1504164              | Dates Report |               |  |
|---------------|---------------------------|----------------------|---|-------------------------------------|----------------------|--------------|---------------|--|
| Lab Sample ID | Client Sample ID          | Collection Date      | Matrix  | Test Name                           | TCLP Date            | Prep Date    | Analysis Date |  |
| 1504164-003D  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-003E  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-003F  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-003G  | EQUIP. BLANK              | 4/1/2015 2:45:00PM   | Aqueous   | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |
| 1504164-004A  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | APPENDIX I VOLATILE ORGANICS        | 4/4/2015 1:01:00 PM  | 04/04/2015   |               |  |
| 1504164-004B  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | MICRO-EXTRACTABLE VOCs              | 4/6/2015 9:17:02 AM  | 04/06/2015   |               |  |
| 1504164-004C  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Dissolved Metals by ICP/MS          | 4/8/2015 2:19:00 PM  | 04/08/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Nitrogen, Ammonia (as N)            | 4/7/2015 7:40:00 PM  | 04/09/2015   |               |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Chemical Oxygen Demand (COD)        |                      |              | 04/06/2015    |  |
| 1504164-004D  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Total Organic Carbon by SM5310B     |                      |              | 04/06/2015    |  |
| 1504164-004E  | DUPLICATE                 | 3/31/2015 12:00:00AM | Groundwater                                     | Cyanide                             | 4/8/2015 12:00:00 PM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | APPENDIX I METALS                   | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Total Metals by ICP/MS              | 4/3/2015 10:54:00 AM | 04/08/2015   |               |  |
| 1504164-005A  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | TOTAL MERCURY                       | 4/6/2015 9:20:00 AM  | 04/06/2015   |               |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/02/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Inorganic Anions by IC              |                      |              | 04/03/2015    |  |
| 1504164-005B  | DUPLICATE                 | 4/1/2015 12:00:00AM  | Groundwater                                     | Residue, Dissolved (TDS) by SM2540C | 4/7/2015 10:00:00 AM | 04/07/2015   |               |  |

## Analytical Environmental Services, Inc

Date: 5-May-15

|               |   |                   |                      |
|---------------|---|-------------------|----------------------|
| Client:       | Santek Environmental Inc.                       | Client Sample ID: | LEACHATE             |
| Project Name: | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | Collection Date:  | 4/1/2015 12:15:00 PM |
| Lab ID:       | 1504164-001                                     | Matrix:           | Aqueous              |

| Analyses  | Result  | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|---------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>Total Organic Carbon (TOC) by SM5310B</b>      |         |                 |      |       |         |                 |                  |         |
| Organic Carbon, Total                             | 758     | 100             |      | mg/L  | R289374 | 100             | 04/06/2015 17:40 | YS      |
| <b>Total Metals by ICP/MS SW6020A</b>             |         |                 |      |       |         |                 |                  |         |
| Calcium   | 97800   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Iron  | 11700   | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Magnesium   | 117000  | 100             |      | ug/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Potassium   | 577000  | 50000           |      | ug/L  | 205476  | 100             | 04/08/2015 15:27 | JS      |
| Sodium  | 1170000 | 50000           |      | ug/L  | 205476  | 100             | 04/08/2015 15:27 | JS      |
| <b>Residue, Dissolved (TDS) by SM2540C</b>        |         |                 |      |       |         |                 |                  |         |
| Residue, Dissolved (TDS)                          | 5450    | 1               |      | mg/L  | 205629  | 1               | 04/07/2015 10:00 | JS      |
| <b>Nitrogen, Ammonia (as N) E350.1</b>            |         |                 |      |       |         |                 |                  |         |
| Nitrogen, Ammonia (As N)                          | 1460    | 20.0            |      | mg/L  | 205608  | 100             | 04/09/2015 16:29 | FS      |
| <b>MICRO-EXTRACTABLE VOLATILE ORGANICS SW8011</b> |         |                 |      |       |         |                 |                  |         |
| 1,2-Dibromo-3-chloropropane                       | BRL     | 0.203           |      | ug/L  | 205555  | 1               | 04/06/2015 21:39 | SH      |
| 1,2-Dibromoethane                                 | BRL     | 0.051           |      | ug/L  | 205555  | 1               | 04/06/2015 21:39 | SH      |
| <b>Mercury, Total SW7470A</b>                     |         |                 |      |       |         |                 |                  |         |
| Mercury   | BRL     | 0.00200         |      | mg/L  | 205536  | 1               | 04/06/2015 13:58 | TA      |
| <b>Inorganic Anions by IC E300.0</b>              |         |                 |      |       |         |                 |                  |         |
| Chloride  | 1270    | 50.0            |      | mg/L  | R289400 | 50              | 04/03/2015 10:03 | JW      |
| Fluoride  | BRL     | 200             |      | mg/L  | R289400 | 50              | 04/03/2015 10:03 | JW      |
| Nitrogen, Nitrate (As N)                          | BRL     | 500             |      | mg/L  | R289400 | 50              | 04/03/2015 10:03 | JW      |
| Sulfate   | BRL     | 50.0            |      | mg/L  | R289400 | 50              | 04/03/2015 10:03 | JW      |
| <b>Dissolved Metals by ICP/MS SW6020A</b>         |         |                 |      |       |         |                 |                  |         |
| Manganese   | 1050    | 10.0            |      | ug/L  | 205685  | 1               | 04/08/2015 18:34 | JS      |
| <b>Cyanide SW9014</b>                             |         |                 |      |       |         |                 |                  |         |
| Cyanide, Total                                    | BRL     | 0.200           |      | mg/L  | 205704  | 1               | 04/08/2015 12:00 | PF      |
| <b>Chemical Oxygen Demand (COD) E410.4</b>        |         |                 |      |       |         |                 |                  |         |
| Chemical Oxygen Demand                            | 2520    | 50.0            |      | mg/L  | R289240 | 5               | 04/06/2015 09:30 | CH      |
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b>       |         |                 |      |       |         |                 |                  |         |
| 1,1,1,2-Tetrachloroethane                         | BRL     | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,1,1-Trichloroethane                             | BRL     | 200             |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,1,2,2-Tetrachloroethane                         | BRL     | 10              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |

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

&lt; Less than Result value

&gt; Greater than Result value

J Estimated value detected below Reporting Limit

|                      |   |                          |                      |
|----------------------|---|--------------------------|----------------------|
| <b>Client:</b>       | Santek Environmental Inc.                       | <b>Client Sample ID:</b> | LEACHATE             |
| <b>Project Name:</b> | Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b>  | 4/1/2015 12:15:00 PM |
| <b>Lab ID:</b>       | 1504164-001                                     | <b>Matrix:</b>           | Aqueous              |

| Analyses                                    | Result | Reporting Limit  | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|------------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        | <b>(SW5030B)</b> |      |       |         |                 |                  |         |
| 1,1,2-Trichloroethane                       | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,1-Dichloroethane                          | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,1-Dichloroethene                          | BRL    | 7.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,2,3-Trichloropropane                      | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,2-Dichlorobenzene                         | BRL    | 600              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,2-Dichloroethane                          | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,2-Dichloropropane                         | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 1,4-Dichlorobenzene                         | BRL    | 75               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 2-Butanone                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 2-Hexanone                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| 4-Methyl-2-pentanone                        |        | 22               | 10   | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Acetone                                     | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Acrylonitrile                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Benzene                                     | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Bromochloromethane                          | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Bromodichloromethane                        | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Bromoform                                   | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Bromomethane                                | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Carbon disulfide                            | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Carbon tetrachloride                        | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Chlorobenzene                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Chloroethane                                | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Chloroform                                  | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Chloromethane                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| cis-1,2-Dichloroethene                      | BRL    | 70               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| cis-1,3-Dichloropropene                     | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Dibromochloromethane                        | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Dibromomethane                              | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Ethylbenzene                                | BRL    | 700              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Iodomethane                                 | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Methylene chloride                          | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Styrene                                     | BRL    | 100              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Tetrachloroethene                           | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Toluene                                     | BRL    | 1000             |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| trans-1,2-Dichloroethene                    | BRL    | 100              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| trans-1,3-Dichloropropene                   | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| trans-1,4-Dichloro-2-butene                 | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Trichloroethene                             | BRL    | 5.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Trichlorofluoromethane                      | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Vinyl acetate                               | BRL    | 10               |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Vinyl chloride                              | BRL    | 2.0              |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |

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

&gt; 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

&lt; Less than Result value

J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 5-May-15

|  |  |
|--|--|
| <b>Client:</b> Santek Environmental Inc.                             | <b>Client Sample ID:</b> LEACHATE            |
| <b>Project Name:</b> Loudon Co. (Matlock Bend) LF 1st Semi-Annual GW | <b>Collection Date:</b> 4/1/2015 12:15:00 PM |
| <b>Lab ID:</b> 1504164-001   | <b>Matrix:</b> Aqueous                       |

| Analyses                                    | Result | Reporting Limit | Qual | Units | BatchID | Dilution Factor | Date Analyzed    | Analyst |
|---|--------|-----------------|------|-------|---------|-----------------|------------------|---------|
| <b>APPENDIX I VOLATILE ORGANICS SW8260B</b> |        |                 |      |       |         |                 |                  |         |
| Xylenes, Total                              | BRL    | 10000           |      | ug/L  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Surr: 4-Bromofluorobenzene                  | 103    | 70.6-123        | %REC | %REC  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Surr: Dibromo fluromethane                  | 109    | 78.7-124        | %REC | %REC  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| Surr: Toluene-d8                            | 101    | 81.3-120        | %REC | %REC  | 205572  | 1               | 04/04/2015 22:40 | CH      |
| <b>APPENDIX I METALS SW6020A</b>            |        |                 |      |       |         |                 |                  |         |
| Antimony                                    | BRL    | 0.00600         |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Arsenic                                     | 0.0696 | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Barium                                      | BRL    | 2.00            |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Beryllium                                   | BRL    | 0.00400         |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Cadmium                                     | BRL    | 0.00500         |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Chromium                                    | 0.230  | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Cobalt                                      | 0.0826 | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Copper                                      | 0.0253 | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Lead  | 0.0304 | 0.0150          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Nickel                                      | 0.240  | 0.100           |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Selenium                                    | 0.0131 | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Silver                                      | BRL    | 0.0500          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Thallium                                    | BRL    | 0.00200         |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Vanadium                                    | 0.101  | 0.0100          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |
| Zinc  | 0.512  | 0.0200          |      | mg/L  | 205476  | 1               | 04/08/2015 15:15 | JS      |

**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

## LEACHATE CONTROL CHART

**LOUDON COUNTY**  
**LEACHATE**

| INORGANIC | APPENDIX | LIMITS | 4-17-02 | 4-29-04 | 4-11-05 | 3-27-06 | 3-22-07 | 3-27-08 | 4-2-09 | 4-7-10 | 1-5-11 | 3-15-12 | 3-28-13 | 3-25-14 | 4-1-15 | Leachate AVG |
|-----------|----------|--------|---------|---------|---------|---------|---------|---------|--------|--------|--------|---------|---------|---------|--------|--------------|
| Antimony  |          | 6      | 6       | 6       | 6       | 6       | 6       | 6       | 6      | 60     | 6      | 6       | 8.75    | 60.00   | 6      | 14.52        |
| Arsenic   |          | 50     | 50      | 224     | 168     | 79.3    | 50.7    | 50.0    | 50.0   | 500.0  | 50.0   | 50.0    | 69.7    | 500.0   | 69.6   | 147.02       |
| Barium    |          | 2000   | 2000    | 2610    | 2790    | 2000    | 2000    | 2000    | 2000   | 2000   | 2000   | 2000    | 2000    | 2000    | 2000   | 3492.31      |
| Beryllium |          | 4      | 4       | 4       | 4       | 4       | 4       | 4       | 4      | 40     | 4      | 4       | 4       | 4       | 4      | 6.77         |
| Cadmium   |          | 5      | 5       | 5       | 5       | 5       | 5       | 5       | 5      | 50     | 5      | 5       | 5       | 5       | 5      | 8.46         |
| Chromium  |          | 100    | 100     | 106     | 145     | 100     | 100     | 100     | 100    | 1000   | 100    | 100     | 136     | 1000    | 230    | 255.15       |
| Cobalt    |          | NA     | 19.5    | 36.5    | 53.0    | 40.1    | 30.6    | 25.5    | 14.4   | 1000.0 | 37.2   | 10.0    | 87.1    | 100.0   | 82.6   | 118.19       |
| Copper    |          | NA     | 10      | 31.9    | 14.6    | 10      | 10      | 10      | 10     | 1000   | 10     | 10      | 15.9    | 100.0   | 25.3   | 96.75        |
| Fluoride* |          | 4      | 4       | 4       | 4       | 4       | 4       | 4       | 80     | 80     | 40     | 40      | 40      | 400     | 200    | 100.00       |
| Lead      |          | †15    | 50      | 57.1    | 50      | 50      | 50      | 15      | 15     | 150    | 15     | 15      | 15      | 150     | 30.4   | 50.96        |
| Mercury   |          | 2      | 2       | 2       | 2       | 2       | 2       | 2       | 2      | 2      | 2      | 2       | 2       | 2       | 2      | 2.00         |
| Nickel    |          | 100    | 100     | 100     | 144     | 114     | 100     | 100     | 100    | 1000   | 100    | 100     | 258     | 1000    | 240    | 265.85       |
| Selenium  |          | 10     | 10      | 10      | 10.5    | 20.2    | 12.2    | 21.3    | 10.0   | 100.0  | 12.8   | 10.0    | 14.1    | 100.0   | 13.1   | 26.48        |
| Silver    |          | 50     | 50      | 50      | 50      | 50      | 50      | 50      | 50     | 500    | 50     | 50      | 50      | 500     | 50     | 119.23       |
| Thallium  |          | 2      | 2       | 3.5     | 2       | 2       | 10.5    | 2.0     | 2.0    | 20.0   | 2.0    | 2.0     | 2.0     | 20.0    | 2.0    | 5.54         |
| Vanadium  |          | NA     | 10      | 55.4    | 34.3    | 14.2    | 14.2    | 11.4    | 10.0   | 100.0  | 25.5   | 10.0    | 48.5    | 108.0   | 101.0  | 41.73        |
| Zinc      |          | ‡5000  | 44.4    | 918     | 209     | 66.5    | 32.5    | 66.8    | 67.5   | 420.0  | 176.0  | 191.0   | 1640.0  | 922.0   | 512.0  | 405.05       |

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

† = TREATMENT TECHNIQUE ACTION LEVEL

‡ = NATIONAL SECONDARY DRINKING WATER STANDARD

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

| ORGANIC   | 4-17-02 | 4-29-04 | 4-11-05 | 3-27-06 | 3-22-07 | 3-27-08 | 4-2-09 | 4-7-10 | 1-5-11 | 3-15-12 | 3-28-13 | 3-25-14 | 4-1-15 |    |
|---|---------|---------|---------|---------|---------|---------|--------|--------|--------|---------|---------|---------|--------|----|
| Acetone   | ND      | 360     | 140     | 25      | 130     | 160     | 230    | 1300   | 230    | 1500    | 2000    | 2000    | ND     | ND |
| Acrylonitrile   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Benzene   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Bromochloromethane  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Bromodichloromethane  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Bromoform; Tribromomethane                                    | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Carbon disulfide  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Carbon tetrachloride  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Chlorobenzene   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Chloroethane; Ethyl chloride                                  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Chloroform; Trichloromethane                                  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Dibromochloromethane; Chlorodibromomethane                    | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,2-Dibromo-3-chloropropane; DBCP                             | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,2-Dibromoethane   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| o-Dichlorobenzene; 1,2-Dichlorobenzene                        | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| p-Dichlorobenzene; 1,4-Dichlorobenzene                        | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| trans-1,4-Dichloro-2-butene                                   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,1-Dichloroethane; Ethylidene chloride; Ethyldene dichloride | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,2-Dichloroethane; Ethylene dichloride                       | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene              | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene          | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,2-Dichloropropane; Propylene dichloride                     | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| cis-1,3-Dichloropropene                                       | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| trans-1,3-Dichloropropene                                     | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Ethylbenzene  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 2-Hexanone; Methyl butyl ketone                               | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | 26     | 10      | ND      | ND      | ND     | ND |
| Methyl bromide; Bromomethane                                  | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Methyl chloride; Chloromethane                                | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Methylene bromide; Dibromomethane                             | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Methylene chloride; Dichloromethane                           | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Methyl ethyl ketone; MEK; 2-Butanone                          | ND      | ND      | ND      | ND      | ND      | ND      | ND     | 200    | 1900   | 420     | 3200    | 3500    | 3800   | ND |
| Methyl iodide; Iodomethane                                    | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 4-Methyl-2-Pentanone; Methyl isobutyl ketone                  | ND      | 180     | 110     | ND      | 37      | 11      | ND     | 20     | ND     | ND      | ND      | ND      | ND     | 22 |
| Styrene   | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,1,1,2-Tetrachloroethane                                     | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| 1,1,2,2-Tetrachloroethane                                     | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Tetrachloroethylene; Tetrachloroethene; Perchloroethylene     | ND      | ND      | ND      | ND      | ND      | ND      | ND     | ND     | ND     | ND      | ND      | ND      | ND     | ND |
| Toluene   | ND      | ND      | ND      | ND      | ND</    |         |        |        |        |         |         |         |        |    |