

#### DIVISION OF LABORATORY SERVICES

Jackson Regional Laboratory 295 Summar Drive Jackson, TN 38301 731-426-0686

Shelby County Laboratory 814 Jefferson Avenue Memphis, TN 38105 901-544-7555

Sent To:

Patrick Mulligan

TDEC-SWM

CHATTANOOGA FIELD

OFFICE

540 McCALLIE AVE. SUITE

550

CHATTANOOGA, TN 37402

Sampling Agency: TDEC: Division of Solid Waste Management

J - Estimated value between MDL and MQL MDL - Method Detection Limit MQL - Method Quantitation Limit

U - Undetected

Knoxville Regional Laboratory 2101 Medical Center Way Knoxville, TN 37920 865-549-5201

Nashville Central Laboratory 630 Hart Lane Nashville, TN 37243 615-262-6300

> Lab ID: K00008198 Knoxville Regional Laboratory



TDEC-SWM.K00008198.M

This is to certify that the following results were determined using good laboratory practices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Sample Description:

K00008198002

**Field Determinations** pH:

Landfill Sediment Pond

Chlorine, residual: Conductivity:

Temperature:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

Project Name:

SNL53-1062

Dissolved Oxygen: Other:

Station No.:

S-2 Pond

Date/Time Collected:

11/21/2014

Flow:

Sampler's Name:

P. Mulligan & T. Hill

County: Sample Matrix: LOUDON - 53

EFO:

Water Knoxville

Sampling Agency:

TDEC-SWM

Billing Code:

EN00004176

Agency Invoiced:

TDEC-SWM

**CFS** 

Send Report To:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014

15:30

10:00

Received By:

TEST: Digestion Metals	METHOD: EPA 200.2						
PERFORMING LAB: Nashville							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	11/26/2014				M Pattanayek	11/26/2014	

TEST: ICP PERFORMING LAB: Nashville	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	27	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	230	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	39	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	900	mg/L	4.200	10.0	M Pattanayek	12/1/2014

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			·
PERFORMING LAB: Nashville ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Antimony	U	μg/L	3.70	10	S Spence	12/8/2014
Arsenic	11J	μg/L	6.00	50	S Spence	12/8/2014
Barium	370	μg/L	3.50	50	S Spence	12/8/2014
Beryllium	U	μg/L	3.00	10	S Spence	12/8/2014
Cadmium	U	μg/L	2.30	10	S Spence	12/8/2014
Chromium	U	μg/L	8.00	50	S Spence	12/8/2014
Cobalt	16	μg/L	3.30	10	S Spence	12/8/2014
Copper	70	μg/L	4.00	10	S Spence	12/8/2014
Lead	U	μg/L	6.40	10	S Spence	12/8/2014
Manganese	740	μg/L	2.80	10	S Spence	12/8/2014
Nickel	29	μg/L	2.50	10	S Spence	12/8/2014
Selenium	U	μg/L	8.70	50	S Spence	12/8/2014
Silver	U	μg/L	0.840	2.50	S Spence	12/8/2014
Thallium	U	μg/L	3.10	10	S Spence	12/8/2014
Vanadium	U	μg/L	31.0	50	S Spence	12/8/2014
Zinc	U	μg/L	12.0	50	S Spence	12/8/2014

K00008198002

pH:

**Project Name:** 

Sample Description:

Landfill Sediment Pond

Chlorine, residual:

Field Determinations

Conductivity: Temperature:

Dissolved Oxygen:

**CFS** 

Sampler Project Name: Poplar Springs Landfill

SNL53-1062

Other: Flow:

Station No.:

Project Site No.:

S-2 Pond

Date/Time Collected:

Sampler's Name:

11/21/2014 10:00 P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-SWM

Billing Code: Send Report To: EN00004176 TDEC-SWM

Agency Invoiced:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014

15:30

Received By:

TEST: Mercury	METHOD: EPA 245.1						
PERFORMING LAB: Nashville							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.039	0.2	A Wilson	12/3/2014	

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	METHOD: SM 2340B					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Hardness By Calculation	230	mg/L	0.27	0.66	M Pattanayek	11/21/2014

K00008198003

Field Determinations

**Project Name:** 

Sample Description:

Leachate from seeps on landfill

:Hq

Chlorine, residual: Conductivity:

Temperature: **Dissolved Oxygen:** 

Sampler Project Name: Poplar Springs Landfill

Other: Flow:

Station No.:

Project Site No.:

SNL53-1062 S-1 Leachate

Date/Time Collected:

11/21/2014 10:26

Sampler's Name:

P. Mulligan & T. Hill

County: Sample Matrix: LOUDON - 53

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-SWM

EN00004176 TDEC-SWM

Agency Invoiced: TDEC-SWM

Send Report To:

**Priority Date:** 

11/21/2014 15:30 Received By:

J Liu

Date/Time Received:

CFS

TEST: Digestion Metals METHOD: EPA 200.2 PERFORMING LAB: Nashville ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE 11/26/2014 **Digestion Metals** M Pattanayek 11/26/2014

TEST: ICP PERFORMING LAB: Nashville	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	45	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	7100	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	72	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	2000	mg/L	0.042	0.1	M Pattanayek	12/1/2014

TEST: ICP-MS METHOD: EPA 200.8							
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE		
U	μg/L	3.70	10	S Spence	12/8/2014		
26J	μg/L	6.00	50	S Spence	12/8/2014		
470	μց/Լ	3.50	50	S Spence	12/8/2014		
บ	μg/L	3.00	10	S Spence	12/8/2014		
U	μg/L	2.30	10	S Spence	12/8/2014		
10J	μg/L	8.00	50	S Spence	12/8/2014		
14	μg/L	3.30	10	S Spence	12/8/2014		
220	μg/L	4.00	10	S Spence	12/8/2014		
U	μg/L,	6.40	10	S Spence	12/8/2014		
700	μg/L	2.80	10	S Spence	12/8/2014		
39	μg/L	2.50	10	S Spence	12/8/2014		
บ	μg/L	8.70	50	S Spence	12/8/2014		
U	μg/L	0.840	2.50	S Spence	12/8/2014		
U	μg/L	3.10	10	S Spence	12/8/2014		
IJ	µg/L	31.0	50	S Spence	12/8/2014		
19J	μg/L	12.0	50	S Spence	12/8/2014		
	RESULT  U 26J 470  U 10J 14 220  U 700 39  U U U	RESULT         UNITS           U         μg/L           26J         μg/L           470         μg/L           U         μg/L           U         μg/L           10J         μg/L           14         μg/L           220         μg/L           U         μg/L           700         μg/L           39         μg/L           U         μg/L	RESULT         UNITS         MDL           U         μg/L         3.70           26J         μg/L         6.00           470         μg/L         3.50           U         μg/L         3.00           U         μg/L         2.30           10J         μg/L         8.00           14         μg/L         3.30           220         μg/L         4.00           U         μg/L         6.40           700         μg/L         2.80           39         μg/L         2.50           U         μg/L         8.70           U         μg/L         0.840           U         μg/L         3.10           U         μg/L         3.10	RESULT         UNITS         MDL         MQL           U         μg/L         3.70         10           26J         μg/L         6.00         50           470         μg/L         3.50         50           U         μg/L         3.00         10           U         μg/L         2.30         10           10J         μg/L         8.00         50           14         μg/L         3.30         10           220         μg/L         4.00         10           U         μg/L         6.40         10           700         μg/L         2.80         10           39         μg/L         2.50         10           U         μg/L         8.70         50           U         μg/L         0.840         2.50           U         μg/L         3.10         10           U         μg/L         3.10         10           U         μg/L         3.10         50	RESULT         UNITS         MDL         MQL         ANALYZED BY:           U         μg/L         3.70         10         S Spence           26J         μg/L         6.00         50         S Spence           470         μg/L         3.50         50         S Spence           U         μg/L         3.00         10         S Spence           U         μg/L         2.30         10         S Spence           10J         μg/L         8.00         50         S Spence           14         μg/L         3.30         10         S Spence           220         μg/L         4.00         10         S Spence           U         μg/L         6.40         10         S Spence           700         μg/L         2.80         10         S Spence           U         μg/L         2.50         10         S Spence           U         μg/L         8.70         50         S Spence           U         μg/L         0.840         2.50         S Spence           U         μg/L         3.10         10         S Spence           U         μg/L         3.10         50		

Sample Description:

K00008198003

**Field Determinations** 

Project Name:

Leachate from seeps on landfill

Chlorine, residual:

Conductivity: Temperature:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

SNL53-1062

Dissolved Oxygen: Other: Flow:

pH:

Station No.:

S-1 Leachate

Date/Time Collected: Sampler's Name:

11/21/2014 10:26

County:

P. Mulligan & T. Hill

Sample Matrix:

LOUDON - 53

EFO:

Water Knoxville

Sampling Agency:

TDEC-SWM

Billing Code: Send Report To: EN00004176 TDEC-SWM

Agency Invoiced:

TDEC-SWM

**CFS** 

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

J Lìu

TEST: Mercury	ME					
PERFORMING LAB: Nashville						_
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.039	0.2	A Wilson	12/3/2014

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	METHOD: SM 2340B					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Hardness By Calculation	410	mg/L	0.27	0.66	M Pattanayek	11/21/2014

Sample Description:

K00008198004

**Field Determinations** 

Residential Well

Chlorine, residual:

Dissolved Oxygen:

**CFS** 

Conductivity: Temperature:

:Hq

Other:

Flow:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

Project Name:

SNL53-1062

Station No.:

R-1 Johnson

Date/Time Collected:

11/21/2014 11:32

Sampler's Name:

P. Mulligan & T. Hill

County: Sample Matrix: LOUDON - 53

EFO:

Water Knoxville

Sampling Agency:

TDEC-SWM

Billing Code: Send Report To: EN00004176 TDEC-SWM

Agency Invoiced:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014

Received By:

J Liu

TEST: Digestion Metals METHOD: EPA 200.2

15:30

PERFORMING LAB: Nashville

RESULT UNITS MDL MQL ANALYTE ANALYZED BY: DATE 11/26/2014 M Pattanayek 11/26/2014 Digestion Metals

TEST: ICP PERFORMING LAB: Nashville	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	29	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	97	µg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	18	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	1.8	mg/L	0.042	0.1	M Pattanayek	12/1/2014

TEST: ICP-MS	ME	THOD: EPA 20				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Antimony	U	μg/L	0.37	1	S Spence	12/8/2014
Arsenic	U	μg/L	0.60	5	S Spence	12/8/2014
Barium	7.9	μg/L	0.35	5	S Spence	12/8/2014
Beryllium	U	μg/L	0.30	1	S Spence	12/8/2014
Cadmium	U	μg/L	0.23	1	S Spence	12/8/2014
Chromium	ឋ	μg/L	0.80	5	S Spence	12/8/2014
Cobalt	Ŭ	μg/L	0.33	1	S Spence	12/8/2014
Copper	6.5	μg/L	0.40	1	S Spence	12/8/2014
Lead	U	μg/L	0.64	1	S Spence	12/8/2014
Manganese	8.1	μg/L	0.28	1	S Spence	12/8/2014
Nickel	1.1	μg/L	0.25	1	S Spence	12/8/2014
Selenium	U	μg/L	0.87	5	S Spence	12/8/2014
Silver	Ų	μg/L	0.084	0.25	S Spence	12/8/2014
Thallium	U	μg/L	0.31	1	S Spence	12/8/2014
Vanadium	U	μg/L	3.1	5	S Spence	12/8/2014
Zinc	11	μg/L	1.2	5	S Spence	12/8/2014

K00008198004

Field Determinations

pH:

Project Name: Sample Description:

Residential Well

Chlorine, residual:

**CFS** 

Conductivity: Temperature:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

SNL53-1062

Dissolved Oxygen: Other:

Station No.:

R-1 Johnson

Flow:

Date/Time Collected:

11/21/2014 11:32

Sampler's Name:

P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: Billing Code:

Send Report To:

TDEC-SWM

EN00004176

TDEC-SWM

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

Agency Invoiced:

TEST: Mercury	METHOD: EPA 245.1						
PERFORMING LAB: Nashville							
ANALYTE	RESULT_	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.039	0.2	A Wilson	12/3/2014	

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	METHOD: SM 2340B				······································	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Hardness By Calculation	140	mg/L	0.27	0.66	M Pattanayek	11/21/2014

Sample Description:

K00008198005

**Project Name:** 

Residential well

**Field Determinations** 

pH:

Other:

Flow:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

**CFS** 

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

Station No.:

SNL53-1062

R-2 Hines

Date/Time Collected:

11/21/2014

Sampler's Name:

P. Mulligan & T. Hill

12:06

County:

**LOUDON - 53** 

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville TDEC-SWM

Billing Code:

EN00004176

Agency Invoiced:

TDEC-SWM

Send Report To:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30

Received By:

J Liu

TEST: Digestion Metals METHOD: EPA 200.2

PERFORMING LAB: Nashville

ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE

Digestion Metals 11/26/2014 M Pattanayek 11/26/2014

TEST: ICP	ME	METHOD: EPA 200.7				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	28	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	60	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	18	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	1.0	mg/L	0.042	0.1	M Pattanayek	12/1/2014

TEST: ICP-MS	ME.	THOD: EPA 20				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Antimony	U	μg/L	0.37	1	S Spence	12/8/2014
Arsenic	U	μg/L	0.60	5	S Spence	12/8/2014
Barium	6.4	μg/L	0.35	5	S Spence	12/8/2014
Beryllium	υ	µg/L	0.30	1	S Spence	12/8/2014
Cadmium	ប	μg/L	0.23	1	S Spence	12/8/2014
Chromium	U	μg/Ł	0.80	5	S Spence	12/8/2014
Cobalt	U	μg/L	0.33	1	S Spence	12/8/2014
Copper	0.68J	μg/L	0.40	1	S Spence	12/8/2014
Lead	U	μg/L	0.64	1	S Spence	12/8/2014
Manganese	4.2	μg/L	0.28	1	S Spence	12/8/2014
Nickel	0.98J	μg/L	0.25	1	S Spence	12/8/2014
Selenium	U	μg/L	0.87	5	S Spence	12/8/2014
Silver	U	μg/L	0.084	0.25	S Spence	12/8/2014
Thallium	U	μg/L	0.31	1	S Spence	12/8/2014
Vanadium	U	μg/L	3.1	5	S Spence	12/8/2014
Zinc	13	μg/L	1.2	5	S Spence	12/8/2014

K00008198005

pH:

Project Name:

Sample Description:

Residential well

Chlorine, residual:

**Field Determinations** 

Conductivity: Temperature:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

SNL53-1062

Dissolved Oxygen: Other:

Station No.:

R-2 Hines

Flow:

Date/Time Collected:

11/21/2014

Sampler's Name:

12:06 P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: Billing Code: Send Report To:

TDEC-SWM EN00004176

TDEC-SWM

Agency Invoiced:

TDEC-SWM

CFS

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

TEST: Mercury	METHOD: EPA 245.1						
PERFORMING LAB: Nashville							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/Ľ	0.039	0.2	A Wilson	12/3/2014	

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	METHOD: SM 2340B						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Hardness By Calculation	140	mg/L	0.27	0.66	M Pattanayek	11/21/2014	

K00008198006

Project Name: Sample Description:

Residential Well

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

TDEC-SWM

**CFS** 

Dissolved Oxygen: Other: Flow:

Sampler Project Name: Poplar Springs Landfill SNL53-1062

Project Site No.: Station No.:

R-3 Hembree

Date/Time Collected:

11/21/2014 13:03

Sampler's Name:

P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water Knoxville

EFO: Sampling Agency:

TDEC-SWM

Billing Code: Send Report To: EN00004176

TDEC-SWM

Priority Date:

Date/Time Received:

11/21/2014

Received By:

Agency Invoiced:

J Liu

TEST: Digestion Metals METHOD: EPA 200.2

15:30

PERFORMING LAB: Nashville

ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE 11/26/2014 M Pattanayek 11/26/2014 **Digestion Metals** 

TEST: ICP	ME	THOD: EPA 20				
PERFORMING LAB: Nashville ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	18	mg/L	0.046	0.1	M Pattanayek	12/1/2014
iron	180	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	4.5	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	3.7	mg/L	0.042	0.1	M Pattanayek	12/1/2014

TEST: ICP-MS	ME	THOD: EPA 20	8.0			
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Antimony	U	μg/L	0.37	1	S Spence	12/8/2014
Arsenic	U	μg/L	0.60	5	S Spence	12/8/2014
Barium	61	μg/L	0.35	5	S Spence	12/8/2014
Beryllium	U	μg/L	0.30	1	S Spence	12/8/2014
Cadmium	U	μg/L	0.23	1	S Spence	12/8/2014
Chromium	U	μ <del>g</del> /L	0.80	5	S Spence	12/8/2014
Cobalt	U	μg/L	0.33	1	S Spence	12/8/2014
Copper	2.4	μg/L	0.40	1	S Spence	12/8/2014
Lead	U	μg/L	0.64	1	S Spence	12/8/2014
Manganese	6.7	μg/L	0.28	1	S Spence	12/8/2014
Nickel	1.0	μg/L	0.25	1	S Spence	12/8/2014
Setenium	U	μg/L	0.87	5	S Spence	12/8/2014
Silver	U	μg/L	0.084	0.25	S Spence	12/8/2014
Thallium	U	μg/L	0.31	1	S Spence	12/8/2014
Vanadium	U	μg/L	3.1	5	S Spence	12/8/2014
Zinc	160	μg/L	1.2	5	S Spence	12/8/2014

K00008198006

Project Name:

Sample Description: Residential Well Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

SNL53-1062

Station No.:

R-3 Hembree

Date/Time Collected: Sampler's Name:

11/21/2014 13:03 P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFQ: Sampling Agency: Knoxville TDEC-SWM

Billing Code: Send Report To: EN00004176 TDEC-SWM

Agency Invoiced:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

TEST: Mercury	METHOD: EPA 245.1						
PERFORMING LAB: Nashville							
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	υ	μg/L	0.039	0.2	A Wilson	12/3/2014	

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	MET	THOD: SM 2340	B			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Hardness By Calculation	64	mg/L	0.27	0.66	M Pattanayek	11/21/2014

K00008198007

Field Determinations

pH:

Project Name: Sample Description:

Residential Well

Chlorine, residual:

Conductivity: Temperature:

Sampler Project Name: Poplar Springs Landfill

Dissolved Oxygen:

Project Site No.: Station No.:

SNL53-1062

Other: Flow:

R-4 Humphreys

Date/Time Collected: Sampler's Name:

11/21/2014 13:35 P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville TDEC-SWM

Billing Code:

EN00004176

Agency Invoiced:

TDEC-SWM

**CFS** 

Send Report To:

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

J Liu

TEST: Digestion Metals METHOD: EPA 200.2

PERFORMING LAB: Nashville

ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE Digestion Metals 11/26/2014 M Pattanayek 11/26/2014

TEST: ICP	ME	ΓHOD: EPA 20				
PERFORMING LAB: Nashville ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	31	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	33	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	19	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	1.9	mg/L	0.042	0.1	M Pattanayek	12/3/2014

PERFORMING LAB: Nashville ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
	U		0.37	1		12/8/2014
Antimony	_	μg/L		-	S Spence	
Arsenic	U	μg/L	0.60	5	S Spence	12/8/2014
Barium	5.1	μg/L	0.35	5	S Spence	12/8/2014
Beryllium	Ŭ	μg/L	0.30	1	S Spence	12/8/2014
Cadmium	IJ	μg/L	0.23	1	S Spence	12/8/2014
Chromium	U	μg/L	0.80	5	S Spence	12/8/2014
Cobalt	U	μg/L	0.33	1	S Spence	12/8/2014
Copper	4.1	μg/L	0.40	1	S Spence	12/8/2014
Lead	U	μg/L	0.64	1	S Spence	12/8/2014
Manganese	υ	μg/L	0.28	1	S Spence	12/8/2014
Nickel	0.96J	μg/L	0.25	1	S Spence	12/8/2014
Selenium	U	μg/L	0.87	5	S Spence	12/8/2014
Silver	U	μg/L	0.084	0.25	S Spence	12/8/2014
Thallium	U	μg/L	0.31	1	S Spence	12/8/2014
Vanadium	U	μg/L	3.1	5	S Spence	12/8/2014
Zinc	110	μg/L	1.2	5	S Spence	12/8/2014

Sample Description:

K00008198007

Project Name:

Residential Well

Field Determinations

:Hq

Other:

Flow:

Chlorine, residual: Conductivity:

Dissolved Oxygen:

TDEC-SWM

**CFS** 

Temperature:

Sampler Project Name: Poplar Springs Landfill

Project Site No.:

SNL53-1062

Station No.:

R-4 Humphreys

Date/Time Collected: Sampler's Name:

11/21/2014 13:35 P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water Knoxville

EFO: Sampling Agency:

TDEC-SWM

Billing Code: Send Report To: EN00004176

TDEC-SWM

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

Agency Invoiced:

J Liu

TEST: Mercury METHOD: EPA 245.1

PERFORMING LAB: Nashville

MDL ANALYTE RESULT UNITS MQL ANALYZED BY: DATE U 0.039 0.2 μg/L A Wilson 12/3/2014 Mercury

METHOD: SM 2340B TEST: Total Hardness By Calculation PERFORMING LAB: Nashville ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE 160 mg/L 0.27 11/21/2014 Total Hardness By Calculation 0.66 M Pattanayek

K00008198008

pH:

Sample Description:

Project Name:

Residential Well - duplicate sample

Chlorine, residual: Conductivity:

Field Determinations

Temperature: Dissolved Oxygen:

**CFS** 

Sampler Project Name: Poplar Springs Landfill

Other:

Project Site No.:

SNL53-1062

Station No.:

R-4 Duplicate Humphreys

Flow:

Date/Time Collected:

11/21/2014 13:40

Sampler's Name:

P. Mulligan & T. Hill

County:

LOUDON - 53

Sample Matrix:

Water

EFO: Sampling Agency: Knoxville

Billing Code:

TDEC-SWM EN00004176

Agency Invoiced:

TDEC-SWM

Send Report To:

TDEC-SWM

Priority Date:

Date/Time Received:

11/21/2014 15:30 Received By:

TEST: Digestion Metals	MET					
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	11/26/2014				M Pattanayek	11/26/2014

TEST: ICP PERFORMING LAB: Nashville	ME.	HOD: EPA 20				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium	31	mg/L	0.046	0.1	M Pattanayek	12/1/2014
Iron	43	μg/L	6.0	10	M Pattanayek	12/1/2014
Magnesium	19	mg/L	0.037	0.1	M Pattanayek	12/1/2014
Potassium	1.9	mg/L	0.042	0.1	M Pattanayek	12/3/2014

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
PERFORMING LAB: Nashville						i
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Antimony	U	μg/L	0.37	1	S Spence	12/8/2014
Arsenic	U	μg/L	0.60	5	S Spence	12/8/2014
Barium	4.6J	μg/L	0.35	5	S Spence	12/8/2014
Beryllîum	U	μg/L	0.30	1	S Spence	12/8/2014
Cadmium	U	μg/L	0.23	1	S Spence	12/8/2014
Chromium	U	μg/L	0.80	5	S Spence	12/8/2014
Cobalt	U	μg/L	0.33	1	S Spence	12/8/2014
Copper	4.9	μg/L	0.40	1	S Spence	12/8/2014
Lead	1.8	μg/L	0.64	1	S Spence	12/8/2014
Manganese	0.30J	μg/L	0.28	1	S Spence	12/8/2014
Nickel	0.93J	μg/L	0.25	1	S Spence	12/8/2014
Selenium	U	μg/L	0.87	5	S Spence	12/8/2014
Silver	Ŭ	μg/L	0.084	0.25	S Spence	12/8/2014
Thallium	U	μg/L	0.31	1	S Spence	12/8/2014
Vanadium	U	μg/L	3.1	5	S Spence	12/8/2014
Zinc	210	μg/L	1.2	5	S Spence	12/8/2014

K00008198008

**Field Determinations** 

Project Name:

Sample Description:

Residential Well - duplicate sample

pH: Chlorine, residual:

Conductivity:

Temperature:

Sampler Project Name: Poplar Springs Landfill

Dissolved Oxygen: Other: Flow:

Project Site No.:

SNL53-1062

Station No.:

R-4 Duplicate Humphreys

Date/Time Collected:

11/21/2014 13:40

Sampler's Name:

P. Mulligan & T. Hill

County: Sample Matrix: LOUDON - 53

EFO:

Water Knoxville

Sampling Agency:

TDEC-SWM

Billing Code: Send Report To: EN00004176 TDEC-SWM

Agency Invoiced:

TDEC-SWM

CFS

**Priority Date:** 

Date/Time Received:

11/21/2014 15:30 Received By:

TEST: Mercury	METHOD: EPA 245.1											
PERFORMING LAB: Nashville												
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE						
Mercury	U	µg/L	0.039	0.2	A Wilson	12/3/2014						

TEST: Total Hardness By Calculation PERFORMING LAB: Nashville	ME	THOD: SM 234	0B			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Hardness By Calculation	160	mg/L	0.27	0.66	M Pattanayek	11/21/2014

## State of sennessee – Environmental Laboratories PLEASE PRINT LEGIBLY



PROJECT NAME: Poplar S										Metalica 25 - 27 - 25 - 25 - 25 - 25 - 25 - 25 -	Laboratory Numbe	r
STATION NUMBER: S-2			WATE	RBOD	Ϋ́N	AME:	· · · · ·	•		aluminum, Al	ر ما	20 00
STREAM MILE:		<u>.                                    </u>	COUNTY:	Loud	on				*	antimony, Sb	K000081	
DESCRIPTION: Landfill Pon	ď								*	arsenic, As	Chain of Custody and Information	Supplemental
LATITUDE: 35°43'55.89	84" N		LONGITUDE:	84°1	7'26	.6424" W	, <u> </u>		*	barium, Ba		ndy form is required per samp
Matrix: Water		T		Depti	1:		}		*	beryllium, Be		
COLLECTED: DATE: 1	1/21/	14		IME			10:03		ļ	boron, B	1. Collected By: PJM a	nd TNH
SAMPLER'S FULL NAME (printed) Patrick Mulligan and Timothy Hill								*	cadmium, Cd	Date 11/21/14	Time /	
SAMPLING AGENCY: TDEC-DSWM-KEFO									*	calcium, Ca	Delivered to	
IF PRIORITY, DATE NEEDED	:	7	B	ILLING	G CC	DE	EN00004	176	*	chromium, Cr	Date 11-11-14	
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921							•	cobalt, Co	2. Received by	- July		
र्यः वार्वाचित्रभाराज्याहर ।	100	s Con Unorg	anics/(con-t)	X SAN	332	Others	General In	organics:	*	copper, Cu	Date 11 / 1-1114	Time (630
coliform, fecal*		ortho-phosp		15-1100-0-11					*	iron, Fe		2 EX
coliform, total*	├~	silica*	. 0			ţ			├──	lithium, Li	Date   1   1   1   1   1	4Time 1520
strep, fecal*	*	sulfate*	<del>~~~~</del>			<del></del>	<del></del> -		*	lead, Pb	3. Received by . L	maderal
E. Coli*		turbidity*			_				•	magnesium, Mg		4 Time 0850
Enterococcus*			erved, Nutrient		-					manganese, Mn	Delivered to	<del></del>
<del></del>	<u> </u>	COD*					<del>, , , , , , , , , , , , , , , , , , , </del>	<del>- ,. ,.</del>	*	mercury, Hg	Date	Time
General Inorganics	*	nitrogen, am	nmonia			<del> </del> -			*	nickel, Ni	4. Received in Lab by	
Not Preserved	<u> </u>	nitrogen, No				<del> </del>			*	potassium, K	Date	Time
acidity as CaCO <sub>3</sub> *	<del> </del> -	nitrogen, tot			-	<del> </del>			<del></del>	selenium, Se	5. Received in Lab by	
alkalinity as CaCO <sub>3</sub> *	+	nitrogen, tot				<del> </del>			*	silver, Ag	Date	Time
BOD, 5-day*	<u> </u>	phosphate, t			_	<del>                                     </del>				sodium, Na	6. Received in Lab by	
	<del>                                     </del>	prosprate, t			_	<del></del>				strontium, Sr	Date [ ] [ ] [ ]	
CBOD, 5-day*	_	SPECIAL	PRESERVATIO	)N		<del> </del>			*	thallium, Tl	Logged in by	
chromium, hexavalent	<del>                                     </del>	cyanide	10000111111		_	<del></del>			*	vanadium, V	Date U 7	Time / O
color		oil and great	se			<del> </del> -		<del></del>	*	zinc, Zn	<del>────────────────────────────────────</del>	1-160
	-	phenols, tota				NASIST STATE	Dioestani	THE REPORT		hardness, Ca as CaCO3*		
* fluoride*	-	sulfide, total				Normal		AN PERSONAL AMERICAN PROPERTY OF	100	hardness, total as CaCO <sub>3</sub> *	<del></del>	
MBAS*		TOC*	<del></del>		Section 2	Dissolv			-	112011203 10111 112 010 23	Additional Informatio	
nitrogen, nitrate*						TCLP			<del>                                     </del>			
nitrogen, nitrite*			<del></del>			Other:				Other Meinter Section	1. Others present at cold	ection
pH		<del></del>	<del></del>			- μισι.			<del>}</del> 1		JTC, PA, RAB	
residue, dissolved*		Adherica				<del> </del> -			<del> </del> -{		2. Other samples collect	ted
residue, settleable*		bulk asbesto		er e e e e e e e e e e e e e e e e e e		L <del></del>	<del></del>		<del>                                     </del>			2
residue, suspended* other microscopic							<del>   </del>		3. Mode of transportation	on to lab		
residue, total*									<del>├</del> ──┤	<del></del>		Car
* denotes analyses performed only on water											4. Cooler sealed by	<del></del>
workers wanders berletties outh	ore m	ec <del>T</del>	FIELD DE	CTERN	AIN.	ATIONS	S				<u></u>	and TNH
Conductivity, (uhmos)			Chlorine, resid		T			Other Field	d Paraz	neters:	5. Date cooler sealed	
Dissolved Oxygen, (mg/L)			Turbidity, (N		1			1			11/	/21/14
Temperature, (°C)			ORP, (mv)		╅			ļ			6. Řemarks	
pH Flow Rate								<del></del>				
\		<del></del>			ᆚ_			L		<u></u>	L—————	

## State of Tennessee ~ Environmental Laboratories PLEASE PRINT LEGIBLY

	ngs Landfill SN	L 53-1062	<u> </u>		1. 100	Metals - 400	Laboratory Number		
STATION NUMBER: S-1		WATE	RBODY	NAME:		· <del>·</del>		aluminum, Al	· ·
STREAM MILE:		COUNTY:	Loudon				*	antimony, Sb	K0000 8198-003
DESCRIPTION: Leachate from :	seeps on landfill		· · ·		<u> </u>		*	arsenic, As	Chain of Custody and Supplemental Information
LATITUDE: 35°43'55.8984"	'N	LONGITUDE:	84°17'2	26.6424" W	· ·		*	barium, Ba	Only one chain of custody form is required per samp or point (if all collected at the same time)
Matrix: Water			Depth:		<u> </u>		*	beryllium, Be	7,11
COLLECTED: DATE: 11/2	1/14	Ti	ME		10:26	···	i —	boron, B	1. Collected By: PJM and TNH
SAMPLER'S FULL NAME (printe		Iulligan and Timo	thy Hill				*	cadmium, Cd	Date 11/21/14 Time 10: 26
	C-DSWM-KEF						*	calcium, Ca	Delivered to Knon Ks Can
IF PRIORITY, DATE NEEDED: BILLING CODE EN00004176							* 7	chromium, Cr	Date //- Z/-// Time /52 >
SEND REPORT TO: Patrick Mulli							*	cobalt, Co	2. Received by
ienvelytierobiology	Gen Inorg	anics (con't)	A SAME	Other	General In	organies:	*	copper, Cu	Date 1/24 14 Time 1(20
coliform, fecal*	ortho-phosp						*	iron, Fe	Delivered to
coliform, total*	silica*						[]	lithium, Li	Date 1/124/14 Time 1520
strep, fecal*	ے معاملات	12					*	lead, Pb	3. Received by
E, Colî*	turbidity*						*	magnesium, Mg	Date 1/25/14 Time 08.50
Enterococcus*	Pres	erved, Nutrient					*	manganese, Mn	Delivered to
	COD*						*	mercury, Hg	Date Time
General Inorganicaer 1833	ina ogcii, air			_ [			*	nickel, Ni	4. Received in Lab by
Not Preserved	nitrogen, NO	O3 & NO2		$\top$			*	potassium, K	Date Time
acidity as CaCO <sub>3</sub> *	nitrogen, tot	tal Kjeldahl					*	selenium, Se	5. Received in Lab by
alkalinity as CaCO <sub>3</sub> * *	nitrogen, tot	tal organic					*	silver, Ag	Date Time
BOD, 5-day*	phosphate, t	total		(				sodium, Na	6. Received in Lab by
CBOD, 5-day*  * Moride* A				T				strontium, Sr	Date 11 211 4 Time 1530
* phoride* A.X	SPECIAL I	PRESERVATIO	N	T"			*	thallium, Tl	Logged in by
chromium, hexavalent	cyanide			T			*	vanadium, V	Date 111 July Time 1 60%
color	oil and greas	se					*	zinc, Zn	10.11
conductivity*	phenols, tota	al		Metals	Digestions	Violent Control		hardness, Ca as CaCO <sub>3</sub> *	
* fluoride* 522	sulfide, total	I*	100	Normal			是都这	hardness, total as CaCO3*	
MBAS*	TOC*			Dissolv	ed				Additional Information
nitrogen, nitrate*				TCLP					
nitrogen, nitrite*				Other:				COther Mountain Andrews	
pH			]						JTC, MA, RAB
residue, dissolved*									2. Other samples collected
residue, settleable*	bulk asbesto								2
residue, suspended*	other micros	scopic							3. Mode of transportation to lab
residue, total*									Car
* denotes analyses performed only on water									4. Cooler sealed by
		FIELD DE	<u>TERM</u> II	NATIONS	<u> </u>				PJM and TNH
Conductivity, (uhmos)		Chlorine, resid	ual			Other Field	l Paran	neters:	5. Date cooler sealed
Dissolved Oxygen, (mg/L)		Turbidity, (NT	U)						11/21/14
Temperature, (°C)		ORP, (mv)				Ì			6. Remarks
pН		Flow Rate							



		Landfill SNI	L 53-1062			1	Metals	Laboratory Numbe	r			
STATION NUMBER: R-1 Jo	44	300	WAT	ERBO	DY N	AME:			1	aluminum, Al	1	00 - 1/
STREAM MILE:		<u></u>	COUNTY:	Lou	don				*	antimony, Sb	K0000 81	18-00 T
DESCRIPTION: Residential W	el]			•					*	arsenic, As	Chain of Custody and Information	
LATITUDE:			LONGITUDI	E:					*	barium, Ba	Only one chain of custo or point (if all collected	dy form is required per samp
Matrix: Water		T		Dep	th:			<u> </u>	*	beryllium, Be		
COLLECTED: DATE: 11/	2]/1	4	(	TIME			11:32			boron, B	1. Collected By: PJM as	ad TNH
SAMPLER'S FULL NAME (printed) Patrick Mulligan and Timothy Hill							*	cadmium, Cd	Date 11/21/14	Time 11: 32		
SAMPLING AGENCY: TDEC-DSWM-KEFO							*	calcium, Ca	Delivered to	7 707 +		
IF PRIORITY, DATE NEEDED: BILLING CODE EN00004176							*	chromium, Cr	Date //- 51. /4/			
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921							*	cobalt, Co	2. Received by	- 104		
126V-Miorobiology							Generalan	organics	*	copper, Cu	Date 11/2/1/10	1 Fine 1530
coliform, fecal*		ortho-phosp		And Market Print, mark	100			<u> </u>	*	iron, Fe		VEX
coliform, total*	$\neg$	silica*			<del> </del>	<del>-</del>	·			lithium, Li	Date (1124/11	+ Time (530
	*		34		+-	<del> </del>		<del> </del>	*	lead, Pb		Maderal
E, Coli*	_	turbidity*	<u> </u>		<del>                                     </del>	<del> </del> -			*	magnesium, Mg	Date 1/95/10	
Enterococcus*	一		rved, Nutrien	t	╅─╴	<del> </del> -		<del></del>	*	manganese, Mn	Delivered to	<u> </u>
	~~+	COD*			+-	<del>                                     </del>			*	mercury, Hg	Date	Time
General-Inorganics	*	nitrogen, am	monia		十一	<del> </del>			*	nickel, Ni	4. Received in Lab by	
Not Preserved	一	nitrogen, NO			+-	<del> </del> -			*	potassium, K	Date	Time
acidity as CaCO <sub>3</sub> *	1	nitrogen, tota			+-	<del>  -</del>		<del></del>	*	selenium, Se	5. Received in Lab by	
	* \	nitrogen, tot			┪—	<del>                                     </del>				silver, Ag	Date	Time
BOD, 5-day*	~~ {	phosphate, to			-	<u> </u>				sodium, Na	6. Received in Lab by	Jan June
CBOD, 5-day*	$\dashv$	phospinato, t		•	+-	<del> </del>			<del></del>	strontium, Sr	Date 1/ >1/14	
* chioride*	-+	SPECIAL P	RESERVATI	ON					*	thallium, Ti	Logged in by	
chromium, hexavalent	_	cyanide	TILL CONTINUE	~~	+-	<del> </del>		<del></del>	*	vanadium, V	Date   121 14	Wime Li. + C
color	-+	oil and greas			-	<del>                                     </del>			•	zinc, Zn		1008
conductivity*	_	phenols, tota			+-	<b>EMATRIC</b>	Digestions	Mple)		hardness, Ca as CaCO <sub>3</sub> *		
* flaoride* 522		sulfide, total		-	<b>G</b> 682				33.5%			<del></del>
MBAS*		TOC*			1/4	Dissolv					Additional Information	
nitrogen, nitrate*	-	100			+-	TCLP		<del></del>	1			
nitrogen, nitrite*	─- -	<del></del> -			┼╌	Other:				(Olbardytetals Service)	1. Others present at colle	ection
pH	$\dashv$				$t^-$	1			ť		JTC, RA, RAB	
residue, dissolved*		A Shestan Box			<u>-</u>	<del>                                     </del>	<del></del> -	<del></del> -	<del>-                                    </del>		2. Other samples collect	ed
residue, settleable*	<b>−</b> f³	bulk asbesto		Constant Selection of a		<del>                                     </del>	· · · · · ·		<del></del>			2
residue, suspended*	─-}-	other micros			┪┈──	<del>                                     </del>					3. Mode of transportatio	n to lah
residue, total*							<del></del>				Car	
* denotes analyses performed only on water								<u> </u>		4. Cooler sealed by	<u> </u>	
	- /		FIELD D	ETER	MIN.	ATIONS	S					and TNH
Conductivity, (uhmos)			Chlorine, res		T			Other Field	i Paran	neters:	5. Date cooler sealed	
Dissolved Oxygen, (mg/L)			Turbidity, (N		7			1		Ì	11/	21/14
Temperature, (°C)			ORP, (mv)		1			1			6. Remarks	<del></del>
pH	_		Flow Rate					1				
L			L		<u> </u>	——		<u> </u>			<del></del>	

#### Inorganic Analysis

State of Tennessee – Environmental Laboratories PLEASE PRINT LEGIBLY

	ROJECT NAME: Poplar S	pring	s Landfill SN	IL 53-1062			71/2	Metals are a second	Laboratory Number				
S	FATION NUMBER: R-2			WAT	ERBOI	DY N	AME:				aluminum, Al		· /-
Si	TREAM MILE:			COUNTY:	Lou	don			· <u> </u>	*	antimony, Sb	K0000819	8-005
	ESCRIPTION: Residential	Well						<u>-</u> :		*	arsenic, As	Chain of Custody and Su Information	
	ATITUDE:			LONGITUDE	): 					*	barium, Ba	Only <u>one</u> chain of custody or point (if all collected at	form is required per samp, the same time)
M	atrix: Water				Dept	th:				*	beryllium, Be		
C	OLLECTED: DATE: I	1/21/	/14		ГІМЕ	17	06	<u> </u>			boren, B	1. Collected By: PJM and	TNH
SA	MPLER'S FULL NAME (prin	nted)	Patrick N	Julligan and Tin	10thy H	ijl				*	cadmium, Cd		Time /206/
S	AMPLING AGENCY: T	DEC	-DSWM-KE	FO						*	calcium, Ca	Delivered to	75 65
	PRIORITY, DATE NEEDED:			[ ]	BILLIN	G CC	DDE _	EN00004	176	*	chromium, Cr	Date //-2/-//	Time 1530
SI	END REPORT TO: Patrick M	ullig	an, 3711 Mid	dlebrook Pike, K	noxvill	e, TN	37921			*	cobalt, Co	2. Received by	Jul.
	ांगर <u>श्रीम</u> लेगीराज्य	Ke.	Gen. Inor	anics (contt)		1	Other	General In	organics	*	copper, Cu	Date 4 121 -14	Time 1520
	coliform, fecal*	L.	ortho-phos	phate						*	iron, Fe		E.X
	coliform, total*		silica*			٦	Ţ <u></u>				lithium, Li	Date 11/24114	Time CD
	strep, fecal*	*	sulfate* a	Jex -			<u> </u>			*	lead, Pb	3. Received by L. W	Averal
	E. Coli*		turbidity*							*	magnesium, Mg	Date 1/25/4	Time 0850
	Enterococcus*	L		erved, Nutrient		Τ	]			*	manganese, Mn	Delivered to	
			COD*			]				*	mercury, Hg		Гіте
	ZGeneral linorganics is a second	*	nitrogen, ar			Τ				*	nickel, Ni	4. Received in Lab by	
	Not Preserved		nitrogen, N	O <sub>3</sub> & NO <sub>2</sub>		Ţ				*	potassium, K	Date	Time
	acidity as CaCO <sub>3</sub> *		nitrogen, to	tal Kjeldahl		$T^{-}$	<u> </u>			*	selenium, Se	5. Received in Lab by	
	alkalinity as CaCO <sub>3</sub> *	*	nitrogen, to	tal organic		<b>†</b>	<u> </u>				silver, Ag	Date	Time
	BOD, 5-day*	L	phosphate,	total						"	sodium, Na	6. Received in Lab by	J-742
	CBOD, 5-day*					T					strontium, Sr	Date (1   71   14	Time / (- ZD
*	chleride* 34	L	SPECIAL	PRESERVATI	ON	Τ				*	thallium, TI	Logged in by	Luc I
	chromium, hexavalent		cyanide			Ϊ				*	vanadium, V	Date N 2-1 1V	Time 160%
	calor		oil and grea		·	Τ				*	zinc, Zn	1911	
_	conductivity*		phenois, tot						Witch		hardness, Ca as CaCO3*		
*	fluofide* 82	<u>[</u>	sulfide, tota	1*		製鍵	Norma	<u> </u>			hardness, total as CaCO <sub>3</sub> *	<u></u>	
	MBAS*	Ь.	TOC*			<u> </u>	Dissol	ved				Additional Information	
	nitrogen, nitrate*					<u> </u>	TCLP						·
	nitrogen, nitrite*	Ц.,,		<del></del>			Other:				(Otheraylethings)	1. Others present at collect	ion
	pH	igsquare		×			<u> </u>	<del></del>	<del></del>	<b> </b>		JTC, RA, RAB	
	residue, dissolved*					<b>!</b>			<u> </u>			2. Other samples collected	
_	residue, settleable*		bulk asbesto			<u> </u>	Ĺ			ļ. <u> </u>		2	<del></del>
	residue, suspended*		other micro	scopic		<u> </u>						3. Mode of transportation t	
لِہ	residue, total*	]	<u>-</u>			ــــــــــــــــــــــــــــــــــــــ	]	···				Car	<u></u>
* denotes analyses performed only on water  FIELD DETERMINATIONS											4. Cooler sealed by		
						MIN.	ATION	S				PJM and	TNH
Į	Conductivity, (uhmos)			Chlorine, res					Other Fiel	d Parai	neters:	5. Date cooler sealed	
ļ	Dissolved Oxygen, (mg/L)			Turbidity, (N	TU)	<u> </u>			ļ			11/21/	14
ļ	Temperature, (°C)			ORP, (mv)					_			6. Remarks	
	pH			Flow Rate									
	<del></del>										·	<del></del>	

#### Inorganic Analysis

PROJECT NAME: Poplar Springs Landfill SNL 53-1062										1 × 10	eMetals 2 control	Laboratory Numi	ber	
S	FATION NUMBER: R-3	HEM	BREE	WAT	ERBOL	Y N	AME:				aluminum, Al	سا	o 1 /	
K	FREAM MILE:			COUNTY:	Loud	lon				*	antimony, Sb	F00008	198-006	
<u>L</u> _	ESCRIPTION: Residentia	l Well								*	arsenic, As	Chain of Custody ar Information		
L	ATITUDE:			LONGITUDE	E:			,		*	barium, Ba	Only <u>one</u> chain of cus or point (if all collect	stody form is required per so ted at the same time)	zmp
М	atrix: Water	•			Dept	h:				*	beryllium, Be	1	<del></del>	_
Ĉ	OLLECTED: DATE:	11/21	/14		TIME	_		13:03		1	boron, B	1. Collected By: PJM	and TNH	_
SA	MPLER'S FULL NAME (pi	rinted	) Patrick M	Iulligan and Tin	nothy Hi	11			<del></del> _	*	cadmium, Cd	Date 11/21/14	Time 13: 63	7
			DSWM-KER			_				*	calcium, Ca	Delivered to	0x K= (0 8/)	7
	PRIORITY, DATE NEEDE				BILLIN	G CC	ODE	EN00004	176	*	chromium, Cr	Date //-2/-	14/Timey 15 30	70
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921								*	cobalt, Co	2. Received by	->~	_		
	denvattle obiology.				47. #	200	Other	General In	organica:		copper, Cu	Date \  \\	14 Time 1530	
	coliform, fecal*		ortho-phosp	hate			Ţ			*	iron, Fe	Delivered to	ENTEN.	
	coliform, total*	_ _	silica*			<u> </u>	<u> </u>				lithium, Li	Date (1/244)		_
	strep, fecal*			318						*	lead, Pb	3. Received by	nerderal	_
	E. Coli*		furbidity*			_	<u> </u>			*	magnesium, Mg	Date     257	U Time 0850	_
	Enterococcus*	<del></del>		erved, Nutrient	<u>t</u>	<u> </u>	ļ	<u></u>			manganese, Mn	Delivered to	<u> </u>	_
and the second		<u> </u>	COD*		_	<u> </u>	ļ			*	mercury, Hg	Date	Time	
V.F	General Inorganics	*	nitrogen, an			<u> </u>	ļ	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		*	nickel, Ni	4. Received in Lab by	<u> </u>	_
<u>.                                    </u>	Not Preserved		nitrogen, No							*	potassium, K	Date	Time	_
	acidity as CaCO <sub>3</sub> *		nitrogen, tot			<u> </u>				*	selenium, Se	5. Received in Lab by	<del></del>	_
	alkalinity as CaCO3*	*	nitrogen, tot			<del> </del>				*	silver, Ag	Date	Time	_
	BOD, 5-day*		phosphate, t	otal		<u> </u>	<u> </u>	<u></u>	<u> </u>		sodium, Na	6. Received in Lab by		_
	CBOD, 5-day*	<del> </del>	<del> </del> _		<del></del>	├─-	ļ			<u> </u>	strontium, Sr		4 Time (+ 7,3	┙
	chiloride* /1%		<del></del>	PRESERVATI	ON	├—	<u> </u>			*	thallium, Tl	Logged in By	-	_
_	chromium, hexavalent		cyanide			⊢	<del> </del>	<del></del>		*	vanadium, V	Date   21	147 1me 1008	_
_	color conductivity*	-∤	oil and greas			├		ACCOUNT DESC		<u> </u>	zinc, Zn hardness, Ca as CaCO <sub>3</sub> *	<u> </u>	<del></del>	_
*	fluoride* 22	+	phenols, tota				Normal		Wille S	NE JOSEPH A	hardness, ca as CaCO <sub>3</sub> * hardness, total as CaCO <sub>3</sub> *	<u> </u>	<del></del>	_
<u> </u>	MBAS*	┥	sulfide, total	<u> -</u>		ESEC.	Dissolv			<b>W</b>	nuroness, total as CaCO3*	Additional Informat	Ho-	
	nitrogen, nitrate*	+	100			Ì	TCLP	<u>cu</u>		<del>} `</del>		THOUSE THOUSE	uvu	—
_	nitrogen, nitrite*	<del>-</del>	<del></del>				Other:		<del></del>	-	romers violate is a second	1. Others present at co	ollection	_
_	pH	+	<del>                                     </del>			<del> </del>	OBIEL:	···	<del></del> -	<del>                                     </del>		JTC, RA, RAB	OLIVORIO II	—
	residue, dissolved*	+-	BASE STATE									2. Other samples colle	ected	—
_	residue, settleable*	┪-	bulk asbesto			<u> </u>	<del> </del>			<del>} </del>			2	_
	residue, suspended*	+	other micros				<del></del>			<del>                                     </del>		3. Mode of transporta	stion to lah	_
—	residue, total*	+	Olifor Inferes				-						Car	—
* denotes analyses performed only on water									4. Cooler sealed by		$\neg \vdash$			
	moves analyses perjormen one	,		FIELD D	ETER	MIN	ATIONS	2					M and TNH	
1	Conductivity, (uhmos)	-		Chlorine, res		1 1	** = TOTA	<del></del>	Other Fiel	d Para	meters:	5. Date cooler scaled		_
	Dissolved Oxygen, (mg/L)  Turbidity, (NTU)			Other Field			) Other Fiel	41 A1	)  T		11/21/14	_		
Temperature, (°C) ORP, (my)							1			6. Remarks				
pH Flow Rate				ţ				<del>_</del>						
i						. 1							_	

# State of Tennessee – Environmental Laboratories PLEASE PRINT LEGIBLY

PROJECT NAME: Poplar Springs Landfil	I SNL 53-1062			Metals & South Association	Laboratory Number		
STATION NUMBER: R-4 HUMPHREYS	WATERB	ODY N	AME:			aluminum, Al	· · · · · · · · · · · · · · · · · · ·
STREAM MILE:	COUNTY: L	oudon			*	antimony, Sb	K00008198-007
DESCRIPTION: Residential Well			,		*	arsenic, As	Chain of Custody and Supplemental Information
LATITUDE:	LONGITUDE:				*	barium, Ba	Only one chain of custody form is required per sampl or point (if all collected at the same time)
Matrix: Water	D	epth:			*	beryllium, Be	
COLLECTED: DATE: 11/21/14	TIM	E	13: 35	·		boron, B	1. Collected By: PJM and TNH
SAMPLER'S FULL NAME (printed) Patri	ck Mulligan and Timothy	Hill Hill			*	cadmium, Cd	Date 11/21/14 / Time 13:35
SAMPLING AGENCY: TDEC-DSWM		•			*	calcium, Ca	Delivered to Local Cay
IF PRIORITY, DATE NEEDED:		ING CO		76	*	chromium, Cr	Date // - 2/14 Time /5-58
SEND REPORT TO: Patrick Mulligan, 3711	Middlebrook Pike, Knoxy	ville, TN	37921		*	cobalt, Co	2. Received by
Carl Environmentalistics	norganics (con/t)	遊機	Other General Inc	rganics:	*	copper, Cu	Date 11 21714 Time 1530
	hosphate				*	iron, Fe	Delivered to CEV EX
coliform, total* silica*	- 0		ļ			lithium, Li	Date 11 July Time (50
strep, fecal* * sulfate	308				*	lead, Pb	STATE OF THE PARTY
E. Coli*   turbidi	ty*				*	magnesium, Mg	Date // C Time 06 SD
	Preserved, Nutrient				*	manganese, Mn	
COD*					*	тегсигу, Нд	Date Time
<u> </u>	n, ammonia				*	nickel, Ni	4. Received in Lab by
	п, NO <sub>3</sub> & NO <sub>2</sub>	\	<u> </u>		*	potassium, K	Date Time
	n, total Kjeldahl		-		*	selenium, Se	5. Received in Lab by
	n, total organic				*	silver, Ag	Date Time
	ate, total					sodium, Na	6. Received in Lab by
CBOD, 5-day*						strontium, Sr	Date 11 21 114 Time 1+30
	AL PRESERVATION				*	thallium, Tl	Logged in by
chromium, hexavalent cyanide					*	vanadium, V	Date 1 / 114 Time 1 600
color oil and					•	zinc, Zn	
conductivity* phenol			MetalaDigestion			hardness, Ca as CaCO <sub>3</sub> *	
* fluoride* St sulfide,	total*	200	Normal		婴	hardness, total as CaCO <sub>3</sub> *	1 d 3742 - 1 Y #
MBAS* TOC*		<u> </u>	Dissolved				Additional Information
nitrogen, nitrate*			TCLP				1 Change at a Mark
nitrogen, nitrite*			Other:	<b></b>		(enhoristration	1. Others present at collection  JTC, RA, RAB
pH		93820					2. Other samples collected
							2. Other samples collected
residue, settleable* bulk as		-					3. Mode of transportation to lab
	icroscopic		<del></del>	— <del>—</del>			Car
residue, total*	<u></u>	<u></u>	l	_ <del></del>	4. Cooler sealed by		
* denotes analyses performed only on water	EIEI D DEME	. PAREENI	ATRICANC				PJM and TNH
Control to Colored	FIELD DETE		A LIUNS	Other Physics			5. Date cooler sealed
Conductivity, (uhmos)	Chlorine, residual	<u> </u>		Other Field Pa	'aran	neters:	11/21/14
Dissolved Oxygen, (mg/L) Temperature, (°C)  Turbidity, (NTU) ORP, (mv)						6. Remarks	
pH Flow Rate						U. AVGILIMAS	
pri .	riow Rate						



	gs Landfill SNL 53-1062			12.50	Metals Services	Laboratory Number
STATION NUMBER: R-5 Duplic	ate 4 HUMPHACY WATERI	BODY NAME:			aluminum, Al	
STREAM MILE:	COUNTY: I	-oudon		*	antimony, Sb	K0000 S198-008
DESCRIPTION: Residential Well	-duplicate sample	"		*	arsenic, As	Chain of Custody and Supplemental Information
LATITUDE:	LONGITUDE:			*	barium, Ba	Only one chain of custody form is required per samp or point (if all collected at the same time)
Matrix: Water	1	Depth:		*	beryllium, Be	1
COLLECTED: DATE: 11/21	/14 TIM	E	13:40		boron, B	1. Collected By: PJM and TNH
SAMPLER'S FULL NAME (printed	) Patrick Mulligan and Timoth	y Hill		*	cadmium, Cd	Date 11/21/14 Time
	C-DSWM-KEFO			*	calcium, Ca	Delivered to Lage Regues / Lah
IF PRIORITY, DATE NEEDED:	BILI	LING CODE	EN00004176	*	chromium, Cr	Date 1/7//4 Titrle 3:30
SEND REPORT TO: Patrick Mullig	an, 3711 Middlebrook Pike, Knox	ville, TN 37921			cobalt, Co	2. Received by
C lana Maching			General Inorvanics	*	copper, Cu	Date II 2 1 14 Time 1 20
coliform, fecal*	ortho-phosphate			*	iron, Fe	Delivered to CENTRA
coliform, total*	silica*			<u> </u>	lithium, Li	Date 11/24414 Time 1620
strep, fecal* *	sulfate	<del>-                                     </del>		*	lead, Pb	3. Received by
E. Coli*	furbidity*	<del>-   -  </del>		*	magnesium, Mg	Date 1125/14 Time OKCD
Enterococcus*	Preserved, Nutrient	<del></del>		*	manganese, Mn	Delivered to
	COD*	<del></del>		*	mercury, Hg	Date Time
Es General Inorganics . The *	nitrogen, ammonia	<del>                                     </del>			nickel, Ni	4. Received in Lab by
Not Preserved	nitrogen, NO <sub>3</sub> & NO <sub>2</sub>	<del></del>		*	potassium, K	Date Time
acidity as CaCO <sub>3</sub> *	nitrogen, total Kjeldahl	<del></del>	<del></del>	*	selenium, Se	5. Received in Lab by
alkalinity as CaCO3*	nitrogen, total organic	<del></del>		+	silver, Ag	Date Time
BOD, 5-day*	phosphate, total	· <del></del>			sodium, Na	6. Received in Lab by
CBOD 5-day*	phospitate, total	<del></del>	<del></del>		strontium, Sr	Date 11 21/14 Time 4-20
* chloride* 34	SPECIAL PRESERVATION	<del> </del>		*	thallium, Tl	Logged in by
chromium, hexavalent	cyanide	<del></del>	,	*	vanadium, V	Date 1/21/4 Time 1600
color	oil and grease	<del></del>	····	*	zinc, Zn	1608
conductivity*	phenols, total	EMPAGE	Digestion type at the		hardness, Ca as CaCO <sub>3</sub> *	<del></del>
* fluoride*	sulfide, total*	Normal		S44.24	hardness, total as CaCO <sub>3</sub> *	<del></del>
MBAS*	TOC*	Dissolve			indicated to the colors	Additional Information
nitrogen, nitrate*	100	TCLP		-		
nitrogen, nitrite*	<del>_</del>	Other:	· · · · · · · · · · · · · · · · · · ·		Other Vietalias / 4 2 2 2	I. Others present at collection
pH	<del> </del>	Oliver			AVAILE ROVERING TO SERVICE TO	JTC, RA, RAB
residue, dissolved*	Achientine (18 18 18 18 18 18 18 18 18 18 18 18 18 1	9500				2. Other samples collected
residue, settleable*	bulk asbestos		<del></del>			2
residue, suspended*	other microscopic	<del>-  </del>				3. Mode of transportation to lab
residue, total*	Outer interescopie			Car		
* denotes analyses performed only on w	uator			4. Cooler sealed by		
- исполез иншуго регуотней оту он н	FIELD DETI			PJM and TNH		
Conductivity, (uhmos)	Chlorine, residua		Other Field	l Parar	meters:	5. Date cooler sealed
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)					11/21/14
Temperature, (°C)	ORP, (mv)	<del></del>				6. Remarks
pH	Flow Rate	<u> </u>	<del></del> -			
<u> </u>					, <u></u>	<u></u>

Laboratory Sample C ol Log and Manifest Condition of How Sample Sample/Cooler (Sealed, Person Delivering Sample Person Receiving Sample Date Sample Time Sample Transported to Unsealed, Broken, Received in Lab Lab Sample ID Number to Lab Date Sample Collected In Lab Received in Lab Agency Submitting Sample etc.) k00008198-001-008 Patrick Mulligan 1530 State Vehicle 11/21/2014 TDEC-SWM 11/21/2014 Jin Liu Unsealed/Unsealed

<u> </u>				1	!		Condition of	Condition of
	t			[	Name of Person	Date/Time	Sample (Sealed,	Cooler (Sealed,
Sample Description	Name of Lab Personnel	Name of Lab Sample	Name of Courier	Date/Time Samples	Receiving Sample in	Samples	Unsealed, Broken,	Unsealed, Broken,
and Quantity	Transferring Sample	Transferred To	Transferring Sample	Relinquished to Courier	Lab	Received in Lab	etc.)	etc.)
500 mL Nutrient√	J.Liu	Nashville Central Lab	FED EX	11/24/14,1530				
Metals x7	J.Liu		L					
VOA x8	J.Liu							

### Within Laboratory Sample Manifest

Name of Person Requesting Sample for Analysis	Date/Time Sample Relinquished for Analysis	Comments	Name of Person Returning Sample from Analysis	Date/Time Sample Returned from Analysis	How Sample Destroyed	Date/Time Sample Destroyed	Who Destroyed Sample
9 auracia	11/25/11	Vol organics					
I Salvortus	11 12818 pMCV	LMst	& Saturba	12/4/400140	<i>υ</i>	<u></u>	
	11/26/14@7:30	Mot deg	MP	11/24/14/11:80		ļ	
						ļ	
	· · · · · · · · · · · · · · · · · · ·						
							!