



DIVISION OF LABORATORY SERVICES

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

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

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

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

Sent To: Patrick Mulligan
TDEC-SWM
CHATTANOOGA FIELD
OFFICE
540 McCALLIE AVE. SUITE
550
CHATTANOOGA, TN 37402

Lab ID: K00008198
Knoxville Regional Laboratory

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



TDEC-SWM.K00008198.I

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

Lab-Sample Number: K00008198002
Project Name:
Sample Description: Landfill Sediment Pond

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.: S-2 Pond
Date/Time Collected: 11/21/2014 10:00
Sampler's Name: P. Mulligan & T. Hill
County: LOUDON - 53
Sample Matrix: Water
EFO: Knoxville
Sampling Agency: TDEC-SWM
Billing Code: EN00004176
Send Report To: TDEC-SWM
Priority Date:
Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM
Received By: J Liu

TEST: Ammonia	METHOD: SM 4500-NH3 G					
PERFORMING LAB: Nashville						

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	99	mg/L	3.400	10.00	M Chen	12/2/2014

TEST: Total Organic Nitrogen	METHOD: EPA 351.2					
PERFORMING LAB: Nashville						

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	U	mg/L	0.17	0.50	L Satterwhite	12/8/2014

Lab-Sample Number: K00008198003
 Project Name:
 Sample Description: Leachate from seeps on landfill

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.: S-1 Leachate
 Date/Time Collected: 11/21/2014 10:26
 Sampler's Name: P. Mulligan & T. Hill
 County: LOUDON - 53
 Sample Matrix: Water
 EFO: Knoxville
 Sampling Agency: TDEC-SWM
 Billing Code: EN00004176
 Send Report To: TDEC-SWM
 Priority Date:

Agency Invoiced: TDEC-SWM

Date/Time Received: 11/21/2014 15:30 Received By: J Liu

TEST: Ammonia	METHOD: SM 4500-NH3 G
PERFORMING LAB: Nashville	

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	710	mg/L	17.000	50.00	M Chen	12/2/2014

TEST: Total Organic Nitrogen	METHOD: EPA 351.2
PERFORMING LAB: Nashville	

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	120	mg/L	34	100	L Satterwhite	12/4/2014

Lab-Sample Number: K00008198004
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-1 Johnson
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: TDEC-SWM
Billing Code: EN00004176
Send Report To: TDEC-SWM
Priority Date:
Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM
Received By: J Liu

TEST: Ammonia		METHOD: SM 4500-NH3 G				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	0.15	mg/L	0.034	0.10	M Chen	12/2/2014

TEST: Total Organic Nitrogen		METHOD: EPA 351.2				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	U	mg/L	0.17	0.50	L Satterwhite	12/4/2014

Lab-Sample Number: K00008198005
 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-2 Hines
 Date/Time Collected: 11/21/2014 12:06
 Sampler's Name: P. Mulligan & T. Hill
 County: LOUDON - 53
 Sample Matrix: Water
 EFO: Knoxville
 Sampling Agency: TDEC-SWM
 Billing Code: EN00004176
 Send Report To: TDEC-SWM
 Priority Date:
 Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM
 Received By: J Liu

TEST: Ammonia		METHOD: SM 4500-NH3 G				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	0.12	mg/L	0.034	0.10	M Chen	12/2/2014

TEST: Total Organic Nitrogen		METHOD: EPA 351.2				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	U	mg/L	0.17	0.50	L Satterwhite	12/4/2014

Lab-Sample Number: 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: 11/21/2014 13:03
Sampler's Name: P. Mulligan & T. Hill
County: LOUDON - 53
Sample Matrix: Water
EFO: Knoxville
Sampling Agency: TDEC-SWM
Billing Code: EN00004176
Send Report To: TDEC-SWM
Priority Date:
Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM
Received By: J Liu

TEST: Ammonia		METHOD: SM 4500-NH3 G				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	0.15	mg/L	0.034	0.10	M Chen	12/2/2014

TEST: Total Organic Nitrogen		METHOD: EPA 351.2				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	0.29	mg/L	0.17	0.50	L Satterwhite	12/4/2014

Lab-Sample Number: K00008198007
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-4 Humphreys
Date/Time Collected: 11/21/2014 13:35
Sampler's Name: P. Mulligan & T. Hill
County: LOUDON - 53
Sample Matrix: Water
EFO: Knoxville
Sampling Agency: TDEC-SWM
Billing Code: EN00004176
Send Report To: TDEC-SWM
Priority Date:
Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM

Received By: J Liu

TEST: Ammonia		METHOD: SM 4500-NH3 G				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	U	mg/L	0.034	0.10	M Chen	12/2/2014

TEST: Total Organic Nitrogen		METHOD: EPA 351.2				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	U	mg/L	0.17	0.50	L Satterwhite	12/4/2014

Lab-Sample Number: K00008198008
Project Name:
Sample Description: Residential Well - duplicate sample

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-4 Duplicate Humphreys
Date/Time Collected: 11/21/2014 13:40
Sampler's Name: P. Mulligan & T. Hill
County: LOUDON - 53
Sample Matrix: Water
EFO: Knoxville
Sampling Agency: TDEC-SWM
Billing Code: EN00004176
Send Report To: TDEC-SWM
Priority Date:
Date/Time Received: 11/21/2014 15:30

Agency Invoiced: TDEC-SWM
Received By: J Liu

TEST: Ammonia		METHOD: SM 4500-NH3 G				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Ammonia	U	mg/L	0.034	0.10	M Chen	12/2/2014

TEST: Total Organic Nitrogen		METHOD: EPA 351.2				
PERFORMING LAB: Nashville						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Organic Nitrogen	U	mg/L	0.17	0.50	L Satterwhite	12/4/2014



State of Tennessee - Environmental Laboratories

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Organic Analysis
Volatiles and Petroleum Hydrocarbons

K0000 8198-001
Laboratory Number

PROJECT/SITE NO. SNL53-1062	PROJECT NAME Poplar Springs Landfill
STATION NUMBER Blank	COUNTY Loudon
DESCRIPTION Trip Blank	
STREAM MILE	DEPTH
MATRIX Water	
COLLECTED: DATE 11/21/14	TIME 8:54
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill	
SAMPLING AGENCY TDEC-DSWM-KEFO	BILLING CODE EN00004176
IF PRIORITY, DATE NEEDED	
SEND REPORT TO: Patrick Mulligan	
3711 Middlebrook Pike, Knoxville, TN 37921	
CONTACT HAZARD	

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH	Date 11/21/14	Time 8:54
Delivered to Knox Reg Lab	Date 11-21-14	Time 1530
2. Received by	Date 11/21/14	Time 1530
Delivered to FPD EY	Date 11/21/14	Time 1530
3. Received by	Date	Time
Delivered to	Date	Time
4. Received in Lab by	Date 11/21/14	Time 1530
Logged in by	Date 11/21/14	Time 1608

[Handwritten signature]

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethene	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline Range Organics
Methylene chloride	X Dibromochloromethane	Diesel Range Organics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	

Additional Information
1. Approximate volume of sample 40 mL
2. Nearest town or city Loudon, TN
3. Others present at collection JTC, RA, RAB
4. Number of other samples collected at same time at this point 0
5. Field collection procedure, handling and/or preservation of this sample "Potable Water Supply Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)
6. Mode of transportation to lab Car
7. Sample sealed by PJP and TNH
8. Date sample sealed 11/21/14
9. Remarks



PROJECT NAME: Poplar Springs Landfill SNL 53-1062				* Metals		Laboratory Number
STATION NUMBER: S-2		WATERBODY NAME:		aluminum, Al		K00008198-002
STREAM MILE:		COUNTY: Loudon		* antimony, Sb		
DESCRIPTION: Landfill Pond				* arsenic, As		Chain of Custody and Supplemental Information
LATITUDE: 35°43'55.8984" N		LONGITUDE: 84°17'26.6424" W		* barium, Ba		Only <u>one</u> chain of custody form is required per sample or point (if all collected at the same time)
Matrix: Water		Depth:		* beryllium, Be		
COLLECTED: DATE: 11/21/14		TIME: 10:03		boron, B		1. Collected By: PJM and TNH
SAMPLER'S FULL NAME (printed): Patrick Mulligan and Timothy Hill				* cadmium, Cd		Date 11/21/14 Time 10:03
SAMPLING AGENCY: TDEC-DSWM-KEFO				* calcium, Ca		Delivered to <i>Rock Res Co</i>
IF PRIORITY, DATE NEEDED:		BILLING CODE: EN00004176		* chromium, Cr		Date 11-21-14 Time 1530
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921				* cobalt, Co		2. Received by <i>JTC</i>
* Env. Microbiology		* Gen. Inorganics (con't)		* Other General Inorganics:		
coliform, fecal*		ortho-phosphate		* copper, Cu		Date 11/21/14 Time 1530
coliform, total*		silica*		* iron, Fe		Delivered to <i>FPD EX</i>
strep, fecal*		sulfate* <i>sil</i>		lithium, Li		Date 11/21/14 Time 1530
E. Coli*		turbidity*		* lead, Pb		3. Received by
Enterococcus*		Preserved, Nutrient		* magnesium, Mg		Date Time
		COD*		* manganese, Mn		Delivered to
* General Inorganics		nitrogen, ammonia		* mercury, Hg		Date Time
Not Preserved		nitrogen, NO ₃ & NO ₂		* nickel, Ni		4. Received in Lab by
acidity as CaCO ₃ *		nitrogen, total Kjeldahl		* potassium, K		Date Time
alkalinity as CaCO ₃ *		* nitrogen, total organic		* selenium, Se		5. Received in Lab by
BOD, 5-day*		phosphate, total		* silver, Ag		Date Time
CBOD, 5-day*				sodium, Na		6. Received in Lab by <i>JTC</i>
* chloride* <i>sil</i>		SPECIAL PRESERVATION		strontium, Sr		Date 11/21/14 Time 1530
chromium, hexavalent		cyanide		* thallium, Tl		Logged in by <i>JTC</i>
color		oil and grease		* vanadium, V		Date 11/21/14 Time 1608
conductivity*		phenols, total		* zinc, Zn		
* fluoride* <i>sil</i>		sulfide, total*		Metals Digestion type:		hardness, Ca as CaCO ₃ *
MBAS*		TOC*		Normal		<input checked="" type="checkbox"/> hardness, total as CaCO ₃ *
nitrogen, nitrate*				Dissolved		Additional Information
nitrogen, nitrite*				TCLP		1. Others present at collection
pH				Other:		JTC, RAB, RAB
residue, dissolved*		Asbestos				2. Other samples collected
residue, settleable*		bulk asbestos				2
residue, suspended*		other microscopic				3. Mode of transportation to lab
residue, total*						Car

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhms)	Chlorine, residual	Other Field Parameters:	4. Cooler sealed by
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)		PJM and TNH
Temperature, (°C)	ORP, (mv)		5. Date cooler sealed
pH	Flow Rate		11/21/14
			6. Remarks



PROJECT/SITE NO. SNL 53-1062 PROJECT NAME Poplar Springs Landfill
 STATION NUMBER S-2 Pond COUNTY Loudon
 DESCRIPTION Landfill Sediment Pond
 STREAM MILE DEPTH MATRIX Water
 COLLECTED: DATE 11/21/14 TIME 10:05
 SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill
 SAMPLING AGENCY TDEC-DSWM-KEFO BILLING CODE EN00004176
 IF PRIORITY, DATE NEEDED
 SEND REPORT TO: Patrick Mulligan
 3711 Middlebrook Pike, Knoxville, TN 37921
 CONTACT HAZARD

Laboratory Number K00008198-002

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH
 Date 11/21/14 Time 10:00
 Delivered to Knox Reg. Lab
 Date 11-21-14 Time 1530
 2. Received by [Signature]
 Date 11/21/14 Time 1530
 Delivered to PJP/TNH
 Date 11/21/14 Time 1530
 3. Received by [Signature]
 Date 11/21/14 Time 1530
 Delivered to [Signature]
 Date 11/21/14 Time 1530
 4. Received in Lab by [Signature]
 Date 11/21/14 Time 1530
 Logged in by [Signature]
 Date 11/21/14 Time 1608

Additional Information

1. Approximate volume of sample 40 mL
 2. Nearest town or city Loudon, TN
 3. Others present at collection JTC, RAB
 4. Number of other samples collected at same time at this point 2
 5. Field collection procedure, handling and/or preservation of this sample "Surface Water Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)
 6. Mode of transportation to lab Car
 7. Sample sealed by PJP and TNH
 8. Date sample sealed 11/21/14
 9. Remarks

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethane	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline Range Organics
Methylene chloride	X Dibromochloromethane	Diesel Range Organics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	



PROJECT NAME: Poplar Springs Landfill SNL 53-1062			Metals		Laboratory Number K0000 8198-003	
STATION NUMBER: S-1		WATERBODY NAME:				
STREAM MILE:		COUNTY: Loudon		* aluminum, Al		
DESCRIPTION: Leachate from seeps on landfill			* antimony, Sb		Chain of Custody and Supplemental Information Only <u>one</u> chain of custody form is required per sample or point (if all collected at the same time)	
LATITUDE: 35°43'55.8984" N		LONGITUDE: 84°17'26.6424" W		* arsenic, As		
Matrix: Water			Depth:		* barium, Ba	
COLLECTED: DATE: 11/21/14		TIME: 10:26		* beryllium, Be		
SAMPLER'S FULL NAME (printed): Patrick Mulligan and Timothy Hill			* boron, B		1. Collected By: PJM and TNH	
SAMPLING AGENCY: TDEC-DSWM-KEFO			* cadmium, Cd		Date 11/21/14 Time 10:26	
IF PRIORITY, DATE NEEDED:		BILLING CODE: EN00004176		* calcium, Ca		
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921			* chromium, Cr		Date 11-21-14 Time 1530	
* Env. Microbiology		* Gen. Inorganics (con't)		* cobalt, Co		
coliform, fecal*		ortho-phosphate		* copper, Cu		
coliform, total*		silica*		* iron, Fe		
strep, fecal*		* sulfate* <i>sil</i>		* lithium, Li		
E. Coli*		turbidity*		* lead, Pb		
Enterococcus*		Preserved, Nutrient		* magnesium, Mg		
		COD*		* manganese, Mn		
* General Inorganics		nitrogen, ammonia		* mercury, Hg		
Not Preserved		nitrogen, NO ₃ & NO ₂		* nickel, Ni		
acidity as CaCO ₃ *		nitrogen, total Kjeldahl		* potassium, K		
alkalinity as CaCO ₃ *		* nitrogen, total organic		* selenium, Se		
BOD, 5-day*		phosphate, total		* silver, Ag		
CBOD, 5-day*				sodium, Na		
* chloride* <i>sil</i>		SPECIAL PRESERVATION		strontium, Sr		
chromium, hexavalent		cyanide		* thallium, Tl		
color		oil and grease		* vanadium, V		
conductivity*		phenols, total		* zinc, Zn		
* fluoride* <i>sil</i>		sulfide, total*		Metals Digestion type:		
MBAS*		TOC*		Normal		
nitrogen, nitrate*				Dissolved		
nitrogen, nitrite*				TCLP		
pH				Other:		
residue, dissolved*		Asbestos		hardness, Ca as CaCO ₃ *		
residue, settleable*		bulk asbestos		* hardness, total as CaCO ₃ *		
residue, suspended*		other microscopic				
residue, total*						

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhmos)	Chlorine, residual	Other Field Parameters:	Additional Information
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)		1. Others present at collection
Temperature, (°C)	ORP, (mv)		JTC, RA, RAB
pH	Flow Rate		2. Other samples collected
			3. Mode of transportation to lab
			Car
			4. Cooler sealed by
			PJM and TNH
			5. Date cooler sealed
			11/21/14
			6. Remarks



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K00008198-003

Organic Analysis
Volatiles and Petroleum Hydrocarbons

PROJECT/SITE NO. SNL 53-1062	PROJECT NAME Poplar Springs Landfill
STATION NUMBER S-1 Leachate	COUNTY Loudon
DESCRIPTION Leachate from seeps on landfill	
STREAM MILE	DEPTH
COLLECTED: DATE 11/21/14	MATRIX Water
TIME 10:28	
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill	
SAMPLING AGENCY TDEC-DSWM-KEFO	BILLING CODE EN00004176
IF PRIORITY, DATE NEEDED	
SEND REPORT TO: Patrick Mulligan	
3711 Middlebrook Pike, Knoxville, TN 37921	
CONTACT HAZARD	

Laboratory Number

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH	Date 11/21/14	Time 10:28
Delivered to Knox Co Lab	Date 11-21-14	Time 1530
2. Received by [Signature]	Date 11/21/14	Time 1530
Delivered to PJB EX	Date 11/21/14	Time 1530
3. Received by	Date	Time
Delivered to	Date	Time
4. Received in Lab by [Signature]	Date 11/21/14	Time 1530
Logged in by [Signature]	Date 11/21/14	Time 1608

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethane	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline Range Organics
Methylene chloride	X Dibromochloromethane	Diesel Range Organics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	

Additional Information

1. Approximate volume of sample	40 mL
2. Nearest town or city	Loudon, TN
3. Others present at collection	JTC, RA, RAB
4. Number of other samples collected at same time at this point	2
5. Field collection procedure, handling and/or preservation of this sample	"Surface Water Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)
6. Mode of transportation to lab	Car
7. Sample sealed by	PJM and TNH
8. Date sample sealed	11/21/14
9. Remarks	



PROJECT NAME: Poplar Springs Landfill SNL 53-1062			Metals		Laboratory Number		
STATION NUMBER: R-1 Johnson		WATERBODY NAME:			aluminum, Al		
STREAM MILE:		COUNTY: Loudon		antimony, Sb	K00008198-004		
DESCRIPTION: Residential Well							
LATITUDE:		LONGITUDE:			arsenic, As	Chain of Custody and Supplemental Information Only <u>one</u> chain of custody form is required per sample or point (if all collected at the same time)	
Matrix: Water		Depth:			barium, Ba		
COLLECTED:		DATE: 11/21/14		TIME: 11:32	beryllium, Be	1. Collected By: PJM and TNH	
SAMPLER'S FULL NAME (printed): Patrick Mulligan and Timothy Hill					boron, B		
SAMPLING AGENCY: TDEC-DSWM-KEFO					cadmium, Cd	Date 11/21/14 Time 11:32	
IF PRIORITY, DATE NEEDED:			BILLING CODE: EN00004176		calcium, Ca	Delivered to [Signature]	
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921					chromium, Cr	Date 11-21-14 Time 1530	
* Env. Microbiology		* Gen. Inorganics (con't)		Other General Inorganics:		cobalt, Co	2. Received by [Signature]
coliform, fecal*		ortho-phosphate				copper, Cu	Date 11/21/14 Time 1530
coliform, total*		silica*				iron, Fe	Delivered to [Signature]
strep, fecal*		sulfate* [Signature]				lithium, Li	Date 11/24/14 Time 1530
E. Coli*		turbidity*				lead, Pb	3. Received by [Signature]
Enterococcus*		Preserved, Nutrient				magnesium, Mg	Date Time
		COD*				manganese, Mn	Delivered to
* General Inorganics		nitrogen, ammonia				mercury, Hg	Date Time
Not Preserved		nitrogen, NO ₃ & NO ₂				nickel, Ni	4. Received in Lab by
acidity as CaCO ₃ *		nitrogen, total Kjeldahl				potassium, K	Date Time
alkalinity as CaCO ₃ *		nitrogen, total organic				selenium, Se	5. Received in Lab by
BOD, 5-day*		phosphate, total				silver, Ag	Date Time
CBOD, 5-day*		SPECIAL PRESERVATION				sodium, Na	6. Received in Lab by [Signature]
chloride* [Signature]		cyanide				strontium, Sr	Date 11/21/14 Time 1530
chromium, hexavalent		oil and grease				thallium, Tl	Logged in by [Signature]
color		phenols, total				vanadium, V	Date 11/21/14 Time 1608
conductivity*		sulfide, total*		Metals Digestion type:		zinc, Zn	
fluoride* [Signature]		TOC*		Normal		hardness, Ca as CaCO ₃ *	
MBAS*				Dissolved		hardness, total as CaCO ₃ *	
nitrogen, nitrate*				TCLP			Additional Information
nitrogen, nitrite*				Other:		Other Metals:	1. Others present at collection
pH		Asbestos					JTC, RA, RAB
residue, dissolved*		bulk asbestos					2. Other samples collected
residue, settleable*		other microscopic					2
residue, suspended*							3. Mode of transportation to lab
residue, total*							Car

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhms)	Chlorine, residual	Other Field Parameters:	5. Date cooler sealed
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)		11/21/14
Temperature, (°C)	ORP, (mv)		6. Remarks
pH	Flow Rate		



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Organic Analysis

Volatiles and Petroleum Hydrocarbons

Laboratory Number 10000819A-004

PROJECT/SITE NO. SNL 53-1062	PROJECT NAME Poplar Springs Landfill
STATION NUMBER R-1 <u>Jofferson</u>	COUNTY Loudon
DESCRIPTION Residential Well	
STREAM MILE	DEPTH
COLLECTED: DATE 11/21/14	MATRIX Water
TIME 11:32	
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill	
SAMPLING AGENCY TDEC-DSWM-KEFO	BILLING CODE EN00004176
IF PRIORITY, DATE NEEDED	
SEND REPORT TO: Patrick Mulligan	
3711 Middlebrook Pike, Knoxville, TN 37921	
CONTACT HAZARD	

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH	Date 11/21/14	Time 11:32
Delivered to <u>Knox Reg. Lab</u>	Date <u>11-21-14</u>	Time <u>1530</u>
2. Received by <u>JTC</u>	Date <u>11-21-14</u>	Time <u>1530</u>
Delivered to <u>PJP</u>	Date <u>11-24-14</u>	Time <u>1530</u>
3. Received by	Date	Time
Delivered to	Date	Time
4. Received in Lab by <u>JTC</u>	Date <u>11/21/14</u>	Time <u>1530</u>
Logged in by <u>JTC</u>	Date <u>11/21/14</u>	Time <u>1608</u>

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethene	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline RangeOrganics
Methylene chloride	X Dibromochloromethane	Diesel RangeOrganics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	

Additional Information	
1. Approximate volume of sample	
2. Nearest town or city Loudon, TN	
3. Others present at collection JTC, RA, RAB	
4. Number of other samples collected at same time at this point 2	
5. Field collection procedure, handling and/or preservation of this sample "Potable Water Supply Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)	
6. Mode of transportation to lab Car	
7. Sample sealed by PJP and TNH	
8. Date sample sealed 11/21/14	
9. Remarks	



PROJECT NAME: Poplar Springs Landfill SNL 53-1062				* Metals		Laboratory Number	
STATION NUMBER: R-2		WATERBODY NAME:		aluminum, Al		K00008198-005	
STREAM MILE:		COUNTY: Loudon		* antimony, Sb			
DESCRIPTION: Residential Well				* arsenic, As		Chain of Custody and Supplemental Information	
LATITUDE:		LONGITUDE:		* barium, Ba		Only one chain of custody form is required per sample or point (if all collected at the same time)	
Matrix: Water		Depth:		* beryllium, Be			
COLLECTED: DATE: 11/21/14		TIME 1206		boron, B		1. Collected By: PJM and TNH	
SAMPLER'S FULL NAME (printed) Patrick Mulligan and Timothy Hill				* cadmium, Cd		Date 11/21/14 Time 1206	
SAMPLING AGENCY: TDEC-DSWM-KEFO				* calcium, Ca		Delivered to	
IF PRIORITY, DATE NEEDED:		BILLING CODE EN00004176		* chromium, Cr		Date 11-21-14 Time 1530	
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921				* cobalt, Co		2. Received by	
* Env. Microbiology		* Gen. Inorganics (con't)		* copper, Cu		Date 11/21/14 Time 1530	
coliform, fecal*		ortho-phosphate		* iron, Fe		Delivered to	
coliform, total*		silica*		* lithium, Li		Date 11/24/14 Time 1530	
strep, fecal*		* sulfate* JCL		* lead, Pb		3. Received by	
E. Coli*		turbidity*		* magnesium, Mg		Date Time	
Enterococcus*		Preserved, Nutrient		* manganese, Mn		Delivered to	
		COD*		* mercury, Hg		Date Time	
* General Inorganics		* nitrogen, ammonia		* nickel, Ni		4. Received in Lab by	
Not Preserved		nitrogen, NO ₃ & NO ₂		* potassium, K		Date Time	
acidity as CaCO ₃ *		nitrogen, total Kjeldahl		* selenium, Se		5. Received in Lab by	
alkalinity as CaCO ₃ *		* nitrogen, total organic		* silver, Ag		Date Time	
BOD, 5-day*		phosphate, total		sodium, Na		6. Received in Lab by	
CBOD, 5-day*				strontium, Sr		Date 11/21/14 Time 1530	
* chloride* JCL		SPECIAL PRESERVATION		* thallium, Tl		Logged in by	
chromium, hexavalent		cyanide		* vanadium, V		Date 11/21/14 Time 1608	
color		oil and grease		* zinc, Zn			
conductivity*		phenols, total		Metals Digestion type:			
* fluoride* JCL		sulfide, total*		Normal		X hardness, Ca as CaCO ₃ *	
MBAS*		TOC*		Dissolved		Additional Information	
nitrogen, nitrate*				TCLP			
nitrogen, nitrite*				Other:		Other Metals:	
pH						1. Others present at collection	
residue, dissolved*		Asbestos				JTC, RA, RAB	
residue, settleable*		bulk asbestos				2. Other samples collected	
residue, suspended*		other microscopic				2	
residue, total*						3. Mode of transportation to lab	
						Car	

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhmos)		Chlorine, residual		Other Field Parameters:	
Dissolved Oxygen, (mg/L)		Turbidity, (NTU)			
Temperature, (°C)		ORP, (mv)			
pH		Flow Rate			
				5. Date cooler sealed	
				11/21/14	
				6. Remarks	



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K00008198-005 Organic Analysis
Volatiles and Petroleum Hydrocarbons

Laboratory Number

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH

Date 11/21/14 Time 17:06

Delivered to Knox Reg. Co. 8

Date 11-21-14 Time 1530

2. Received by J. J. Hill

Date 11/21/14 Time 1530

Delivered to EPO EX

Date 11/24/14 Time 1530

3. Received by

Date Time

Delivered to

Date Time

4. Received in Lab by J. J. Hill

Date 11/21/14 Time 1530

Logged in by J. J. Hill

Date 11/21/14 Time 1606

Additional Information

1. Approximate volume of sample

40 mL

2. Nearest town or city Loudon, TN

3. Others present at collection JTC, RA, RAB

4. Number of other samples collected at same time at this point 2

5. Field collection procedure, handling and/or preservation of this sample "Potable Water Supply Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)

6. Mode of transportation to lab Car

7. Sample sealed by PJP and TNH

8. Date sample sealed 11/21/14

9. Remarks

PROJECT/SITE NO. SNL 53-1062	PROJECT NAME Poplar Springs Landfill	
STATION NUMBER R-2 HINES	COUNTY Loudon	
DESCRIPTION Residential Well		
STREAM MILE	DEPTH	MATRIX Water
COLLECTED: DATE 11/21/14	TIME 17:06	
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill		
SAMPLING AGENCY TDEC-DSWM-KEFO	BILLING CODE EN00004176	
IF PRIORITY, DATE NEEDED		
SEND REPORT TO: Patrick Mulligan		
3711 Middlebrook Pike, Knoxville, TN 37921		
CONTACT HAZARD		

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethane	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline Range Organics
Methylene chloride	X Dibromochloromethane	Diesel Range Organics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	



PROJECT NAME: Poplar Springs Landfill SNL 53-1062			* Metals		Laboratory Number K00008198-006
STATION NUMBER: R-3 HEMBREE		WATERBODY NAME:		aluminum, Al	
STREAM MILE:		COUNTY: Loudon	* antimony, Sb		Chain of Custody and Supplemental Information <i>Only one chain of custody form is required per sample or point (if all collected at the same time)</i>
DESCRIPTION: Residential Well			* arsenic, As		
LATITUDE:		LONGITUDE:		* barium, Ba	1. Collected By: PJM and TNH Date 11/21/14 Time 13:03 Delivered to Knox Co Lab Date 11-21-14 Time 1530
Matrix: Water		Depth:		* beryllium, Be	
COLLECTED: DATE: 11/21/14		TIME: 13:03		boron, B	2. Received by PJM Date 11-21-14 Time 1530 Delivered to EPD Date 11/24/14 Time 1530
SAMPLER'S FULL NAME (printed) Patrick Mulligan and Timothy Hill			* cadmium, Cd		
SAMPLING AGENCY: TDEC-DSWM-KEFO			* calcium, Ca		3. Received by Date Time
IF PRIORITY, DATE NEEDED:		BILLING CODE EN00004176		* chromium, Cr	
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921			* cobalt, Co		4. Received in Lab by Date Time
* Env. Microbiology	* Gen. Inorganics (con't)	Other General Inorganics:		* copper, Cu	
coliform, fecal*	ortho-phosphate			* iron, Fe	5. Received in Lab by Date Time
coliform, total*	silica*			* lithium, Li	
strep, fecal*	sulfate* JR			* lead, Pb	6. Received in Lab by PJM Date 11/21/14 Time 1530 Logged in by PJM Date 11/21/14 Time 1608
E. Coli*	turbidity*			* magnesium, Mg	
Enterococcus*	Preserved, Nutrient			* manganese, Mn	7. Others present at collection JTC, RA, RAB
	COD*			* mercury, Hg	
* General Inorganics	* nitrogen, ammonia			* nickel, Ni	8. Other samples collected 2
Not Preserved	nitrogen, NO ₃ & NO ₂			* potassium, K	
acidity as CaCO ₃ *	nitrogen, total Kjeldahl			* selenium, Se	3. Mode of transportation to lab Car
alkalinity as CaCO ₃ *	* nitrogen, total organic			* silver, Ag	
BOD, 5-day*	phosphate, total			sodium, Na	4. Cooler sealed by PJM and TNH
CBOD, 5-day*				strontium, Sr	
* chloride* JR	SPECIAL PRESERVATION			* thallium, Tl	5. Date cooler sealed 11/21/14
chromium, hexavalent	cyanide			* vanadium, V	
color	oil and grease			* zinc, Zn	6. Remarks
conductivity*	phenols, total			hardness, Ca as CaCO ₃ *	
* fluoride* JR	sulfide, total*	Metals Digestion type:		hardness, total as CaCO ₃ *	
MBAS*	TOC*	Normal			
nitrogen, nitrate*		Dissolved		Additional Information	
nitrogen, nitrite*		TCLP		1. Others present at collection	
pH		Other:		JTC, RA, RAB	
residue, dissolved*	Asbestos			2. Other samples collected	
residue, settleable*	bulk asbestos			2	
residue, suspended*	other microscopic			3. Mode of transportation to lab	
residue, total*				Car	

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhms)	Chlorine, residual	Other Field Parameters:	5. Date cooler sealed
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)		11/21/14
Temperature, (°C)	ORP, (mv)		6. Remarks
pH	Flow Rate		



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K0000 8198 -00 7

Organic Analysis
Volatiles and Petroleum Hydrocarbons

PROJECT/SITE NO. SNL 53-1062 PROJECT NAME Poplar Springs Landfill
STATION NUMBER R-4 HUMPHREYS COUNTY Loudon
DESCRIPTION Residential Well
STREAM MILE DEPTH MATRIX Water
COLLECTED: DATE 11/21/14 TIME 13:35
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill
SAMPLING AGENCY TDEC-DSWM-KEFO BILLING CODE EN00004176
IF PRIORITY, DATE NEEDED
SEND REPORT TO: Patrick Mulligan
3711 Middlebrook Pike, Knoxville, TN 37921

Laboratory Number

Chain of Custody and Supplemental Information

Only one chain of custody form is required per sample set or point (if all collected at the same time)

1. Collected by PJP/TNH
Date 11/21/14 Time 13:35
Delivered to [Signature] Time 1530
Date 11-21-14
2. Received by [Signature] Time 1530
Date 11/21/14
Delivered to [Signature] Time 1530
Date 11/21/14
3. Received by [Signature] Time 1530
Date [Signature]
Delivered to [Signature] Time 1530
Date 11/21/14
4. Received in Lab by [Signature] Time 1530
Logged in by [Signature] Time 1608
Date 11/21/14

* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles
Bromoform	X Chloromethane	Benzene
Bromodichloromethane	X Bromomethane	Carbon tetrachloride
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene
Chlorobenzene	X Chloroethane	Chloroform
Chloroethane	X Methylene chloride	1,2-Dichloroethane
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane
Chloroform	X Carbon disulfide	Methyl ethylketone
Chloromethane	X 1,1-Dichloroethane	Tetrachloroethene
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene
Dichlorodifluoromethane	X Chloroform	Toluene
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline RangeOrganics
Methylene chloride	X Dibromochloromethane	Diesel RangeOrganics
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil RangeOrganics
Tetrachloroethene	X Benzene	* Other
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene
Benzene	X Toluene	X Methylene bromide
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane
m-Xylene	X Styrene	
p-Xylene	X o-Xylene	
	X m-Xylene	
	X p-Xylene	

Additional Information

1. Approximate volume of sample
2. Nearest town or city Loudon, TN
3. Others present at collection JTC, RA, RAB
4. Number of other samples collected at same time at this point 2
5. Field collection procedure, handling and/or preservation of this sample "Potable Water Supply Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)
6. Mode of transportation to lab Car
7. Sample sealed by PJP and TNH
8. Date sample sealed 11/21/14
9. Remarks



PROJECT NAME: Poplar Springs Landfill SNL 53-1062				* Metals		Laboratory Number
STATION NUMBER: R-5 Duplicate <i>of Humphrey</i>		WATERBODY NAME:		aluminum, Al		<i>K00008198-008</i>
STREAM MILE:		COUNTY: Loudon		antimony, Sb		
DESCRIPTION: Residential Well-duplicate sample				arsenic, As		
LATITUDE:		LONGITUDE:		barium, Ba		Chain of Custody and Supplemental Information
Matrix: Water				Depth:		<i>Only one chain of custody form is required per sample or point (if all collected at the same time)</i>
COLLECTED:		DATE: 11/21/14		TIME: 13:40		1. Collected By: PJM and TNH
SAMPLER'S FULL NAME (printed): Patrick Mulligan and Timothy Hill				boron, B		Date 11/21/14 Time
SAMPLING AGENCY: TDEC-DSWM-KEFO				cadmium, Cd		Delivered to <i>Good Research Lab</i>
IF PRIORITY, DATE NEEDED:		BILLING CODE: EN00004176		calcium, Ca		Date <i>11/21/14</i> Time <i>3:30</i>
SEND REPORT TO: Patrick Mulligan, 3711 Middlebrook Pike, Knoxville, TN 37921				chromium, Cr		2. Received by <i>[Signature]</i>
* Env. Microbiology		* Gen. Inorganics (con't)		* Other General Inorganics:		Date <i>11/21/14</i> Time <i>1530</i>
coliform, fecal*		ortho-phosphate		copper, Cu		Delivered to <i>[Signature]</i>
coliform, total*		silica*		iron, Fe		Date <i>11/24/14</i> Time <i>1530</i>
strep, fecal*		sulfate* <i>JLR</i>		lithium, Li		3. Received by
E. Coli*		turbidity*		lead, Pb		Date Time
Enterococcus*		Preserved, Nutrient		magnesium, Mg		Delivered to
		COD*		manganese, Mn		Date Time
* General Inorganics		nitrogen, ammonia		mercury, Hg		4. Received in Lab by
Not Preserved		nitrogen, NO ₃ & NO ₂		nickel, Ni		Date Time
acidity as CaCO ₃ *		nitrogen, total Kjeldahl		potassium, K		5. Received in Lab by
alkalinity as CaCO ₃ *		nitrogen, total organic		selenium, Se		Date Time
BOD, 5-day*		phosphate, total		silver, Ag		6. Received in Lab by <i>[Signature]</i>
CBOD, 5-day*		SPECIAL PRESERVATION		sodium, Na		Date <i>11/21/14</i> Time <i>1530</i>
chloride* <i>See</i>		cyanide		strontium, Sr		Logged in by <i>[Signature]</i>
chromium, hexavalent		oil and grease		thallium, Tl		Date <i>11/21/14</i> Time <i>1608</i>
color		phenols, total		vanadium, V		
conductivity*		sulfide, total*		zinc, Zn		
fluoride* <i>See</i>		TOC*		Metals Digestion type:		hardness, Ca as CaCO ₃ *
MBAS*				Normal		Additional Information
nitrogen, nitrate*				Dissolved		
nitrogen, nitrite*				TCLP		1. Others present at collection
pH				Other:		JTC, RA, RAB
residue, dissolved*		Asbestos				2. Other samples collected
residue, settleable*		bulk asbestos				2
residue, suspended*		other microscopic				3. Mode of transportation to lab
residue, total*						Car

* denotes analyses performed only on water

FIELD DETERMINATIONS

Conductivity, (uhms)	Chlorine, residual	Other Field Parameters:	5. Date cooler sealed
Dissolved Oxygen, (mg/L)	Turbidity, (NTU)		11/21/14
Temperature, (°C)	ORP, (mv)		6. Remarks
pH	Flow Rate		



State of Tennessee - Environmental Laboratories

PLEASE PRINT LEGIBLY

K00008198-008

Organic Analysis
Volatiles and Petroleum Hydrocarbons

PROJECT/SITE NO. SNL 53-1062		PROJECT NAME Poplar Springs Landfill	
STATION NUMBER R-5 Duplicate #1		COUNTY Loudon	
DESCRIPTION Residential Well - duplicate sample			
STREAM MILE	DEPTH	MATRIX Water	
COLLECTED: DATE 11/21/14	TIME 13:46		
SAMPLER'S NAME (printed) Patrick Mulligan and Timothy Hill			
SAMPLING AGENCY TDEC-DSWM-KEFO		BILLING CODE EN00004176	
IF PRIORITY, DATE NEEDED			
SEND REPORT TO: Patrick Mulligan			
3711 Middlebrook Pike, Knoxville, TN 37921			
CONTACT HAZARD			
* NPDES Volatiles - 624	* TCL Volatiles - 6260A	* TCLP Volatiles	
Bromoform	X Chloromethane	Benzene	
Bromodichloromethane	X Bromomethane	Carbon tetrachloride	
Carbon Tetrachloride	X Vinyl chloride	Chlorobenzene	
Chlorobenzene	X Chloroethane	Chloroform	
Chloroethane	X Methylene chloride	1,2-Dichloroethane	
2-Chloroethylvinyl ether	X Acetone	1,1-Dichloroethane	
Chloroform	X Carbon disulfide	Methyl ethylketone	
Chloromethane	X 1,1-Dichloroethane	Tetrachloroethene	
Dibromochloromethane	X 1,1-Dichloroethane	Trichloroethene	
X 1,2-Dichlorobenzene	X Cis-1,2-dichloroethene	Vinyl chloride	
1,3-Dichlorobenzene	X Trans-1,2-dichloroethene	* BTEX - 8260A - UST	
X 1,4-Dichlorobenzene	X 1,2-Dichloroethane	Benzene	
Dichlorodifluoromethane	X Chloroform	Toluene	
1,1-Dichloroethane	X 2-Butanone	Ethyl benzene	
X 1,2-Dichloroethane	X 1,1,1-Trichloroethane	o-Xylene	
1,1-Dichloroethene	X Carbon tetrachloride	m-Xylene	
Cis-1,2-dichloroethene	X Vinyl acetate	p-Xylene	
Trans-1,2-dichloroethene	X Bromodichloromethane	Methyl t-butyl ether	
1,2-Dichloropropane	X 1,2-Dichloropropane	Diisopropyl ether	
Cis-1,3-dichloropropene	X Cis-1,3-dichloropropene	* TPH by GC	
Trans-1,2-dichloroethene	X Trichloroethene	Gasoline RangeOrganics	
Methylene chloride	X Dibromochloromethane	Diesel RangeOrganics	
1,1,2,2-Tetrachloroethane	X 1,1,2-Trichloroethane	Oil Range Organics	
Tetrachloroethene	X Benzene	* Other	
1,1,1-Trichloroethane	X Trans-1,3-dichloropropene	X Acrylonitrile	
1,1,2-Trichloroethane	X Bromoform	X Bromochloromethane	
Trichloroethene	X 4-Methyl-2-pentanone	X 1,2-Dibromo-3-chloropropane	
X Trichlorofluoromethane	X 2-Hexanone	X 1,2-Dibromoethane	
Vinyl chloride	X Tetrachloroethene	X trans-1,4-Dichloro-2-butene	
Benzene	X Toluene	X Methylene bromide	
Ethylbenzene	X 1,1,2,2-Tetrachloroethane	X Methyl iodide	
Toluene	X Chlorobenzene	X 1,1,1,2-Tetrachloroethane	
o-Xylene	X Ethyl benzene	X 1,2,3-Trichloropropane	
m-Xylene	X Styrene		
p-Xylene	X o-Xylene		
	X m-Xylene		
	X p-Xylene		

Laboratory Number	
Chain of Custody and Supplemental Information	
Only one chain of custody form is required per sample set or point (if all collected at the same time)	
1. Collected by PJP/TNH	
Date 11/21/14	Time 13:40
Delivered to Knoxville Regional Lab JIN LUL	
Date 11/21/14	Time 15:30
2. Received by JIN LUL	
Date 11/21/14	Time 15:30
Delivered to JIN LUL	
Date 11/24/14	Time 15:30
3. Received by	
Date	Time
Delivered to	
Date	Time
4. Received in Lab by JIN LUL	
Date 11/21/14	Time 15:30
Logged in by JIN LUL	
Date 11/21/14	Time 16:08
Additional Information	
1. Approximate volume of sample	
2. Nearest town or city Loudon, TN	
3. Others present at collection JTC, RA, RAB	
4. Number of other samples collected at same time at this point 2	
5. Field collection procedure, handling and/or preservation of this sample "Potable Water Supply Sampling Procedure" (EPA Region 4 Science and Ecosystem Support Division, Athens, GA, 5/28/2013)	
6. Mode of transportation to lab Car	
7. Sample sealed by PJM and TNH	
8. Date sample sealed 11/21/14	
9. Remarks	

**Knoxville Environmental Laboratories: TN Dept. of Health
Sample Non-Conformance Form**

Sample #: K00008198
Date: 11/21/2014
Evaluated by: T. Jiu
Customer: TDEC Solid Waste Management

Non-Conformance type:

- Improper container type/broken bottle/cap not intact
- Temperature control out of range/preservation problem
- Sample field form missing
- Chain of custody section not filled in properly or incomplete
- Test parameters past holding time
- Sample login clarification needed
- Other (please specify)

Comments & Clarifications:

- (1) No Billing code of "4176" in starLims.
- (2) NO Routine samples collected for Chloride, Fluoride
& Sulfate
- (3) NO Total Hardness test requested.

Login Instructions: Contact Sampler Evaluator's Signature: T. Jiu

Client informed by Phone/Letter/Fax Date 11/21/14 Time 1630

Client contact: Patrick Mulligan

Comments:

RE: Samples collected on 11/21/14

Patrick Mulligan

Sent: Monday, November 24, 2014 9:38 AM

To: Jin Liu

Hi Jin. This transmission confirms our understanding as stated in your email. Have a good day. Patrick

From: Jin Liu

Sent: Monday, November 24, 2014 9:13 AM

To: Patrick Mulligan

Subject: FW: Samples collected on 11/21/14

From: Jin Liu

Sent: Monday, November 24, 2014 9:12 AM

To: 'patrick.Mulligan@tn.gov'

Cc: Ken Hitchman

Subject: Samples collected on 11/21/14

Hi, Patrick,

I am waiting for your e-mail to confirm the followings:

- 1, Billing code on you Request Form is" EN00004176", but no such code in StarLims, "EN00004173" is the closest one I selected;
- 2, I deleted Chloride, Fluoride and Sulfate on your Request Forms since no Routine samples collected;
- 3, I marked Total Hardness as CaCo3 as you marked metals.

Please let me know before I shipping samples to NCL.

Thanks

Jin

Jin,

I have gone in StarLIMS and added EN00004176 under TDEC-SWM billing codes. Please edit the folder on your end and let Cathie Ayers know.

Thanks!!

From: Jin Liu
Sent: Monday, November 24, 2014 1:06 PM
To: Bob Read
Cc: Patrick Mulligan; Ken Hitchman
Subject: FW: Speedchart Number for Lab on samples k8198

Dr. Read,

KRL shipped samples from TDEC solid Waste Management collected on 11/21/14. The billing code on their request Form is EN00004176, but no this code in StarLims. I had EN00004173 selected as closest number in StarLims, and asked Patrick Mulligan of SWM to confirm.

The following is e-mail from SWM, please let me know what I need to do on this billing code issue.

Thanks