



Tier I Data Reports

Ohio EPA's Division of Waste Management and Materials (DMWM) does not require a laboratory to be certified by Ohio EPA when analyzing samples for its waste programs. DMWM uses the quality control information provided by the analytical laboratory to validate the data submitted with each application. As part of the permit review process, DMWM staff validate the laboratory analysis. The laboratories are familiar with Ohio EPA's requirements for a Tier I data report and will produce this information for you if you ask for it.

Tier I Data Report Requirements

- 1) Site name and project manager or applicant sample control number
- 2) Name of project manager or applicant
- 3) Field sample numbers cross-referenced to associated laboratory sample numbers (contractor and subcontractor(s))
- 4) Project narrative (case narrative) describing tests used by the contractor or subcontractor(s)
- 5) Sample results with units, method detection limits (MDL), reporting limits (RL) and dates (receipt, preparation, and analysis), as well as surrogates and quality control (QC) limits for all organic tests
- 6) Bench sheets (Note: for characteristic testing only, such as TCLP)
- 7) Quality control (QC) narrative discussing QC outliers and corrective actions taken by the contractor or subcontractor(s)
- 8) QC samples, including preparation and analysis dates, results, units, and QC limits (where applicable), (Note: contractor or subcontractor(s) must include blanks, laboratory control spikes, duplicates, spikes and surrogates for QC samples)
- 9) Copy of a completed chain-of-custody form
- 10) Copy of cooler receipt form
- 11) Signed statement by either the laboratory manager, quality assurance manager, or project manager attesting to the validity of the analytical results

A sample Tier 1 Data Report follows:

LABORATORY COMPANY

1234 ANY STREET, ANY CITY, ANY STATE

Client: Ohio Environmental Protection Agency
Project/Site: Soil Samples at Small Site

Lab Company Job ID: 123-45678-1

Table of Contents

Cover Page	1
Table of Contents	2
Record of Sample Receipt and Inspection	3
Definitions/Glossary	4
Case Narrative	5
Method Summary	6
Sample Summary	7
Client Sample Results	8
QC Sample and Sample Surrogate Summary	11
Chain of Custody	14

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

The following discrepancies were noted:

Discrepancy	Resolution
Due to the limited volumes received and the fact that most samples were too thick to filter, only one of the samples was logged for SPLP testing. This was discussed at length with the client.	
Received 2 sets of Trip Blanks not listed on COC. BRG (1 set in each cooler)	Please log.

Coolers

Cooler #	Temperature Gun	Temperature	COC#	Airbill#	Temp Required?
Red-1	1		3		Yes
Blue-2	1		2.8		Yes

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	No
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	All samples were checked for pH and met the standard. Exceptions are noted under discrepancy. (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	N/A
12	Were VOA samples free of headspace (less than 6mm)	Yes

Definitions/Glossary

Qualifiers

Qualifier Description

F1 MS and/or MSD Recovery is outside acceptance limits.

Qualifier

U Indicates the analyte was analyzed for but not detected.

* LCS or LCSD is outside acceptance limits.

J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

These commonly used abbreviations may or may not be present in this report.

⌘ Listed under the "D" column to designate that the result is reported on a dry weight basis

Abbreviation

%R Percent Recovery

CFL Contains Free Liquid

CNF Contains no Free Liquid

COC Chain of Custody

DER Duplicate error ratio (normalized absolute difference)

DF Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision level concentration

DUP - Sample Duplicate

MDA Minimum detectable activity

EDL Estimated Detection Limit

LCS(D) - Laboratory Control Sample (Duplicate)

MDC Minimum detectable concentration

MDL Method Detection Limit

ML Minimum Level (Dioxin)

MS(D) - Matrix Spike (Duplicate)

NC Not Calculated

ND Not detected at the reporting limit (or MDL or EDL if shown)

PQL Practical Quantitation Limit

QC Quality Control

RER Relative error ratio

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

SG - Silica Gel - Clean-Up

TEF Toxicity Equivalent Factor (Dioxin)

TEQ Toxicity Equivalent Quotient (Dioxin)

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: 428034

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 429009

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1d Potassium permanganate reagent did not persist in the sample >15 minutes as required by method. JGJ 02-23-18

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H3 Sample was received or analysis requested beyond the recognized method holding time.

L5 LCS recovery exceeded QC limits. Batch accepted based on matrix spike recovery within LCS limits.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

N2 The lab does not hold NELAC/TNI accreditation for this parameter.

P4 Sample field preservation does not meet EPA or method recommendations for this analysis.

Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

CASE NARRATIVE

Client: Ohio Environmental Protection Agency

Project: Soil Samples at Small Site

Report Number: 123-45678-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Laboratory Company attests to the validity of the laboratory data generated by Laboratory facilities reported herein. All analyses performed by Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. The Laboratory's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of the Laboratory and its client.

RECEIPT

The samples were received on 7/22/2017 at 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of red cooler at receipt was 3.0° C. The temperature of blue cooler at receipt was 2.8° C.

Method Summary

Method	Method Description	Protocol	Laboratory
6010	Total Metals	SW846	Lab Location
1312	SPLP Leachate	SW846	Lab Location
Moisture	Percent Moisture	EPA	Lab Location
pH	pH at 25 Degrees C	EPA 9045	Lab Location

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
12345	Soil Sample A	Solid	07/21/17 10:23	07/22/2017 9:30
12346	Soil Sample B	Solid	07/21/17 10:30	07/22/2017 9:30
12347	Soil Sample C	Solid	07/21/17 10:38	07/22/2017 9:30
12348	Soil Sample D	Solid	07/21/17 10:45	07/22/2017 9:30

ANALYTICAL RESULTS

Client Sample ID: Soil Sample A Lab Sample ID: 12345 Collected: 07/21/17 10:45 Received: 07/22/17 09:30 Matrix: Water

6010 MET ICP, SPLP

Analytical Method: EPA 6010 Preparation Method: EPA 3010

Leachate Method/Date: EPA 1312; 07/23/17 17:26 Initial pH: 10.3; Final pH: 8.88

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	2.9	mg/L	1.0	1	7/23/17 17:26		
Antimony	ND	mg/L	0.10	1	7/23/17 17:26		
Barium	ND	mg/L	0.50	1	7/23/17 17:26		
Cadmium	ND	mg/L	0.0050	1	7/23/17 17:26		
Chromium	0.17	mg/L	0.010	1	7/23/17 17:26		
Copper	ND	mg/L	0.010	1	7/23/17 17:26		
Iron	ND	mg/L	0.10	1	7/23/17 17:26		
Lead	ND	mg/L	0.010	1	7/23/17 17:26		
Selenium	ND	mg/L	0.010	1	7/23/17 17:26		
Zinc	ND	mg/L	0.020	1	7/23/17 17:26		

General Chemistry

Analyte	Result	Unit	Report Limit	Prepared	Analyzed	Qualifier
Percent Moisture	15.3	%	0.1	7/23/17 17:26	7/24/17 17:45	
Percent Solids	84.7	%	0.1	7/23/17 17:26	7/24/17 17:45	
pH at 25 degrees C	8.8	Std. Unit		7/23/17 17:26	7/24/17 17:45	

QC Batch: 427737 Analysis Method: EPA 6010

QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663

Matrix: Solid

Parameters	Result	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	8060	mg/kg	48.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Barium	155	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/kg	0.48	1	7/23/17 17:26	7/24/17 17:45	
Chromium	1310	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Copper	141	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Iron	2580	mg/kg	480	10	7/23/17 17:26	7/24/17 17:45	
Lead	15.0	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Selenium	1.5	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Zinc	43.7	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	

Client Sample ID: Soil Sample B Lab ID: 12346 Collected: 07/21/17 10:45 Received: 07/22/17 09:30 Matrix: Water

6010 MET ICP, SPLP

Analytical Method: EPA 6010 Preparation Method: EPA 3010

Leachate Method/Date: EPA 1312; 07/23/17 17:26 Initial pH: 10.3; Final pH: 8.88

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	Qualifiers
Aluminum	0.61	mg/L	1.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Barium	0.22	mg/L	0.50	1	7/23/17 17:26	7/24/17 17:45	

Cadmium	ND	mg/L	0.0050	1	7/23/17 17:26	7/24/17 17:45	
Chromium	0.35	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Copper	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Iron	ND	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Lead	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Selenium	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Zinc	ND	mg/L	0.020	1	7/23/17 17:26	7/24/17 17:45	

General Chemistry

Analyte	Result	Unit	Report Limit	Prepared	Analyzed	Qualifier
Percent Moisture	18.9	%	0.1	7/23/17 17:26	7/24/17 17:45	
Percent Solids	81.1	%	0.1	7/23/17 17:26	7/24/17 17:45	
pH at 25 degrees C	8.8	Std. Unit		7/23/17 17:26	7/24/17 17:45	

QC Batch: 427737 Analysis Method: EPA 6010
 QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663 Matrix: Solid

Parameters	Result	Units	Report Limit	DF	Prepared	Analyzed	CAS No.
Aluminum	4970	mg/kg	48.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Barium	74.0	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/kg	0.48	1	7/23/17 17:26	7/24/17 17:45	
Chromium	813	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Copper	72.6	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Iron	8680	mg/kg	480	10	7/23/17 17:26	7/24/17 17:45	
Lead	7.2	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Selenium	1.3	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Zinc	39.5	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	

Client Sample ID: Soil Sample C Lab ID: 12347 Collected: 07/21/17 10:45 Received: 07/22/17 09:30 Matrix: Water

6010 MET ICP, SPLP Analytical Method: EPA 6010 Preparation Method: EPA 3010
 Leachate Method/Date: EPA 1312; 07/23/17 17:26 Initial pH: 10.59; Final pH: 7.83

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	ND	mg/L	1.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Barium	ND	mg/L	0.50	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/L	0.0050	1	7/23/17 17:26	7/24/17 17:45	
Chromium	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Copper	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Iron	ND	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Lead	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Selenium	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Zinc	ND	mg/L	0.020	1	7/23/17 17:26	7/24/17 17:45	

General Chemistry

Analyte	Result	Unit	Report Limit	Prepared	Analyzed	Qualifier
Percent Moisture	27.6	%	0.1	7/23/17 17:26	7/24/17 17:45	
Percent Solids	72.4	%	0.1	7/23/17 17:26	7/24/17 17:45	
pH at 25 degrees C	8.8	Std. Unit		7/23/17 17:26	7/24/17 17:45	

QC Batch: 427737 Analysis Method: EPA 6010
 QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663 Matrix: Solid

Parameters	Result	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	2157	mg/kg	48.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Barium	1.93	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/kg	0.48	1	7/23/17 17:26	7/24/17 17:45	
Chromium	37.5	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Copper	28.6	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Iron	21300	mg/kg	480	10	7/23/17 17:26	7/24/17 17:45	
Lead	9.98	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Selenium	ND	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Zinc	5.92	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	

Client Sample ID: Soil Sample D Lab ID: 12348 Collected: 07/21/17 10:45 Received: 07/22/17 09:30 Matrix: Water

6010 MET ICP, SPLP Analytical Method: EPA 6010 Preparation Method: EPA 3010
 Leachate Method/Date: EPA 1312; 07/23/17 17:26 Initial pH: 10.3; Final pH: 8.88

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	0.15	mg/L	1.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Barium	ND	mg/L	0.50	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/L	0.0050	1	7/23/17 17:26	7/24/17 17:45	
Chromium	0.06	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Copper	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Iron	0.38	mg/L	0.10	1	7/23/17 17:26	7/24/17 17:45	
Lead	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Selenium	ND	mg/L	0.010	1	7/23/17 17:26	7/24/17 17:45	
Zinc	ND	mg/L	0.020	1	7/23/17 17:26	7/24/17 17:45	

General Chemistry

Analyte	Result	Unit	Report Limit	Prepared	Analyzed	Qualifier
Percent Moisture	21.6	%	0.1	7/23/17 17:26	7/24/17 17:45	
Percent Solids	78.4	%	0.1	7/23/17 17:26	7/24/17 17:45	
pH at 25 degrees C	8.1	Std. Unit		7/23/17 17:26	7/24/17 17:45	

QC Batch: 427737 Analysis Method: EPA 6010
 QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663 Matrix: Solid

Parameters	Result	Units	Report Limit	DF	Prepared	Analyzed	Qualifier
Aluminum	3560	mg/kg	48.0	1	7/23/17 17:26	7/24/17 17:45	
Antimony	ND	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	
Barium	346	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Cadmium	ND	mg/kg	0.48	1	7/23/17 17:26	7/24/17 17:45	
Chromium	1450	mg/kg	9.6	10	7/23/17 17:26	7/24/17 17:45	

Copper	165	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Iron	10100	mg/kg	480	10	7/23/17 17:26	7/24/17 17:45	
Lead	5.9	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Selenium	ND	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	
Zinc	35.5	mg/kg	0.96	1	7/23/17 17:26	7/24/17 17:45	

QUALITY CONTROL DATA

QC Batch ID: 427737 Analysis Method: EPA 6010
 QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663 Matrix: Solid

Parameters	Blank Result	Units	Report Limit	Analyzed	Qualifiers
Aluminum	ND	mg/kg	50.0	7/24/17 17:45	
Antimony	ND	mg/kg	1.0	7/24/17 17:45	
Barium	ND	mg/kg	1.0	7/24/17 17:45	
Cadmium	ND	mg/kg	0.50	7/24/17 17:45	
Chromium	ND	mg/kg	1.0	7/24/17 17:45	
Copper	ND	mg/kg	1.0	7/24/17 17:45	
Iron	ND	mg/kg	50.0	7/24/17 17:45	
Lead	ND	mg/kg	1.0	7/24/17 17:45	
Selenium	ND	mg/kg	1.0	7/24/17 17:45	
Zinc	ND	mg/kg	1.0	7/24/17 17:45	

LABORATORY CONTROL SAMPLE: 1971664

Parameters	Units	Spike Conc.	LCS Results	LCS % Recovery	% Recovery Limits	Qualifiers
Aluminum	mg/kg	500	494	99	80-120	
Antimony	mg/kg	50	48.9	98	80-120	
Barium	mg/kg	50	50.6	101	80-120	
Cadmium	mg/kg	50	47.5	95	80-120	
Chromium	mg/kg	50	49.1	98	80-120	
Copper	mg/kg	50	49.3	99	80-120	
Iron	mg/kg	500	495	99	80-120	
Lead	mg/kg	50	46.6	93	80-120	
Selenium	mg/kg	50	48.4	97	80-120	
Zinc	mg/kg	50	48.3	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971665 1971666

Parameter	Units	Results	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec.	MSD % Rec.	% Rec Limits	RPD	Max RPD	Qual
Aluminum	mg/kg	15700	673	664	21000	21700	782		75-125	4	20	E,P6
Antimony	mg/kg	ND	67.3	66.4	22.8	21.6	34		75-125	5	20	M3
Barium	mg/kg	144	67.3	66.4	299	253	231		75-125	17	20	M3
Cadmium	mg/kg	ND	67.3	66.4	59.6	58.7	88	88	75-125	1	20	
Chromium	mg/kg	19.4	67.3	66.4	79.8	79.4	90	90	75-125	1	20	
Copper	mg/kg	25.1	67.3	66.4	85.9	84.4	91	89	75-125	2	20	
Iron	mg/kg	24000	673	664	25400	25200	220	183	75-125	1	20	P6
Lead	mg/kg	13.3	67.3	66.4	63.5	63.0	75	75	75-125	1	20	
Selenium	mg/kg	1.6	67.3	66.4	60.3	58.7	87	86	75-125	3	20	
Zinc	mg/kg	70.2	67.3	66.4	126	126	83	84	75-125	0	20	

QC Batch: 427737

Analysis Method:

EPA 6010

QC Batch Method: EPA 3050 Analysis Description: 6010 MET

Method Blank: 1971663

Matrix: Water

Parameters	Units	Blank Result	Report Limit	Analyzed	Qualifiers
Aluminum	mg/L	ND	50.0	7/23/17 17:45	
Antimony	mg/L	ND	1.0	7/23/17 17:45	
Barium	mg/L	ND	1.0	7/23/17 17:45	
Cadmium	mg/L	ND	0.50	7/23/17 17:45	
Chromium	mg/L	ND	1.0	7/23/17 17:45	
Copper	mg/L	ND	1.0	7/23/17 17:45	
Iron	mg/L	ND	50.0	7/23/17 17:45	
Lead	mg/L	ND	1.0	7/23/17 17:45	
Selenium	mg/L	ND	1.0	7/23/17 17:45	
Zinc	mg/L	ND	1.0	7/23/17 17:45	

LABORATORY CONTROL SAMPLE: 1971664

Parameters	Units	Spike Conc.	LCS Results	LCS % Recovery	% Recovery Limits	Qualifiers
Aluminum	mg/L	10	9.4	94	80-120	
Antimony	mg/L	1	0.94	94	80-120	
Barium	mg/L	1	0.96	96	80-120	
Cadmium	mg/L	1	0.92	92	80-120	
Chromium	mg/L	1	0.95	95	80-120	
Copper	mg/L	1	0.92	92	80-120	
Iron	mg/L	10	9.8	98	80-120	
Lead	mg/L	1	0.9	90	80-120	
Selenium	mg/L	1	0.95	95	80-120	
Zinc	mg/L	1	0.95	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971665 1971666

Parameter	Units	Results	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec.	MSD % Rec.	% Rec Limits	RPD	Max RPD	Qual
Aluminum	mg/L	2.9	10	10	12.4	12.3	95	93	75-125	1	20	E,P6
Antimony	mg/L	ND	1	1	0.95	0.94	95	39	75-125	1	20	M3
Barium	mg/L	ND	1	1	0.99	0.98	95	94	75-125	2	20	M3
Cadmium	mg/L	ND	1	1	0.93	0.91	93	91	75-125	1	20	
Chromium	mg/L	0.17	1	1	1.1	1.1	93	92	75-125	2	20	
Copper	mg/L	ND	1	1	0.93	0.92	92	91	75-125	1	20	
Iron	mg/L	ND	10	10	9.6	9.5	96	95	75-125	1	20	P6
Lead	mg/L	ND	1	1	0.88	0.87	88	87	75-125	2	20	
Selenium	mg/L	ND	1	1	0.95	0.94	95	94	75-125	1	20	
Zinc	mg/L	ND	1	1	0.93	0.92	93	92	75-125	1	20	

QC Batch: 427738

Analysis Method:

SM 2540G

QC Batch Method: SM 2540G

Analysis Description: Dry Weight/Percent Moisture

LABORATORY CONTROL SAMPLE: 1971663

<u>Parameter</u>	<u>Units</u>	<u>Result</u>	<u>Dup Result</u>	<u>RPD</u>	<u>Max RPD</u>	<u>Qualifiers</u>
Percent Moisture	%	6.2	6.0	3	5	

LABORATORY CONTROL SAMPLE: 1971664

<u>Parameter</u>	<u>Units</u>	<u>Result</u>	<u>Dup Result</u>	<u>RPD</u>	<u>Max RPD</u>	<u>Qualifiers</u>
Percent Moisture	%	5.8	6.0	3	5	

LABORATORY CONTROL SAMPLE: 1971665

<u>Parameter</u>	<u>Units</u>	<u>Result</u>	<u>Dup Result</u>	<u>RPD</u>	<u>Max RPD</u>	<u>Qualifiers</u>
Percent Moisture	%	15.8	16.4	4	5	

LABORATORY CONTROL SAMPLE: 1971666

<u>Parameter</u>	<u>Units</u>	<u>Result</u>	<u>Dup Result</u>	<u>RPD</u>	<u>Max RPD</u>	<u>Qualifiers</u>
Percent Moisture	%	16.7	16.1	4	5	

QC Batch: 427738

Analysis Method: EPA 9045

QC Batch Method: SM 2540G

Analysis Description: 9045 pH

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.0	7.1	1	2	H3
pH at 25 Degrees C	Std. Units	6.5	6.6	1	2	H3
pH at 25 Degrees C	Std. Units	10.7	11.0	2	2	H3

Ohio EPA Sample Chain of Custody Form

Project Contact: Field Employee		Contact Phone#: 614-644-3020							
Project: Soil Sampling at Small Site									
Sampler: Field Employee		Signature:							
Sample ID No.	Date	Start Time	End Time	Analysis	Matrix	Collection	Qty	Container Type	Preservative
Soil Sample A	7/21/17	10:23		metals	soil	Grab	1	Glass Jar	NA
Soil Sample B	7/21/17	10:30		metals	soil	Grab	1	Glass Jar	NA
Soil Sample C	7/21/17	10:38		metals	soil	Grab	1	Glass Jar	NA
Soil Sample D	7/21/17	10:45		metals	soil	Grab	1	Glass Jar	NA
<u>Relinquished by: (signature)</u>		<u>Date</u>	<u>Time</u>	<u>Received by: (signature)</u>		<u>Date</u>	<u>Time</u>	<u>Remarks:</u>	
<u>Relinquished by: (signature)</u>		<u>Date</u>	<u>Time</u>	<u>Received by: (signature)</u>		<u>Date</u>	<u>Time</u>		