
APPENDIX F

LABORATORY RESULTS

Civil & Environmental Consultants - TN

Sample Delivery Group: L788562
Samples Received: 09/15/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L788562-01 GW

Collected by
K. MulhollandCollected date/time
09/12/15 14:00Received date/time
09/15/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG815432	1	09/16/15 08:28	09/17/15 08:14	MF
Metals (ICPMS) by Method 6020	WG816077	1	09/18/15 11:41	09/21/15 20:54	VSS
Wet Chemistry by Method 300.0	WG816098	1	09/18/15 17:44	09/18/15 17:44	NJM
Wet Chemistry by Method 351.2	WG816349	1	09/21/15 10:25	09/21/15 14:43	DR
Wet Chemistry by Method 365.4	WG816611	1	09/22/15 07:47	09/22/15 13:45	DR

1 Cp

2 Tc

3 Ss

4 Cn

INFLUENT DUPLICATE L788562-02 GW

Collected by
K. MulhollandCollected date/time
09/12/15 14:00Received date/time
09/15/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG815432	1	09/16/15 08:28	09/17/15 08:13	MF
Metals (ICPMS) by Method 6020	WG816077	1	09/18/15 11:41	09/21/15 20:56	VSS
Wet Chemistry by Method 300.0	WG816098	1	09/18/15 18:01	09/18/15 18:01	NJM
Wet Chemistry by Method 351.2	WG816349	1	09/21/15 10:25	09/21/15 14:44	DR
Wet Chemistry by Method 365.4	WG816611	1	09/22/15 07:47	09/22/15 13:47	DR

5 Sr

6 Qc

7 Gl

8 Al

EFFLUENT L788562-03 GW

Collected by
K. MulhollandCollected date/time
09/12/15 14:15Received date/time
09/15/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG815432	1	09/16/15 08:28	09/17/15 08:15	MF
Metals (ICPMS) by Method 6020	WG816077	1	09/18/15 11:41	09/21/15 20:59	VSS
Wet Chemistry by Method 300.0	WG816098	1	09/18/15 18:36	09/18/15 18:36	NJM
Wet Chemistry by Method 351.2	WG817732	1	09/26/15 08:38	09/28/15 10:55	ASK
Wet Chemistry by Method 365.4	WG816611	1	09/22/15 07:47	09/22/15 13:48	DR

9 Sc

EFFLUENT DUPLICATE L788562-04 GW

Collected by
K. MulhollandCollected date/time
09/12/15 14:15Received date/time
09/15/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG815432	1	09/16/15 08:28	09/17/15 08:16	MF
Metals (ICPMS) by Method 6020	WG816077	1	09/18/15 11:41	09/21/15 21:01	VSS
Wet Chemistry by Method 300.0	WG816098	1	09/18/15 18:54	09/18/15 18:54	NJM
Wet Chemistry by Method 351.2	WG817732	1	09/26/15 08:38	09/28/15 10:30	ASK
Wet Chemistry by Method 365.4	WG816611	1	09/22/15 07:47	09/22/15 13:49	DR

FIELD BLANK L788562-05 GW

Collected by
K. MulhollandCollected date/time
09/12/15 14:20Received date/time
09/15/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG815432	1	09/16/15 08:28	09/17/15 08:16	MF
Metals (ICPMS) by Method 6020	WG816077	1	09/18/15 11:41	09/21/15 21:03	VSS
Wet Chemistry by Method 300.0	WG816098	1	09/18/15 19:46	09/18/15 19:46	NJM
Wet Chemistry by Method 351.2	WG816614	1	09/22/15 07:50	09/22/15 16:31	ASK
Wet Chemistry by Method 365.4	WG816611	1	09/22/15 07:47	09/22/15 13:51	DR



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

Project Narrative

All samples of L788562 have been evaluated down to the MDL for Total Phosphorus. L788562-01 through -04 have estimated values between the MDL and the RDL reported. In L788562-05 Total Phosphorus was undetected at the MDL.

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L788562-01	INFLUENT	300.0
L788562-02	INFLUENT DUPLICATE	300.0
L788562-03	EFFLUENT	300.0
L788562-04	EFFLUENT DUPLICATE	300.0
L788562-05	FIELD BLANK	300.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	46.8		2.50	1	09/17/2015 08:14	WG815432

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.219		0.100	1	09/18/2015 17:44	WG816098

5 Sr

6 Qc

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	09/21/2015 14:43	WG816349

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.0870		0.0350	1	09/22/2015 13:45	WG816611

8 Al

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0150		0.00500	1	09/21/2015 20:54	WG816077
Lead	0.00324		0.00200	1	09/21/2015 20:54	WG816077
Zinc	0.123		0.0250	1	09/21/2015 20:54	WG816077



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	84.4		2.50	1	09/17/2015 08:13	WG815432

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.229		0.100	1	09/18/2015 18:01	WG816098

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	09/21/2015 14:44	WG816349

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.0590		0.0350	1	09/22/2015 13:47	WG816611

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0133		0.00500	1	09/21/2015 20:56	WG816077
Lead	0.00221		0.00200	1	09/21/2015 20:56	WG816077
Zinc	0.0979		0.0250	1	09/21/2015 20:56	WG816077



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	23.8		2.50	1	09/17/2015 08:15	WG815432

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.259		0.100	1	09/18/2015 18:36	WG816098

5 Sr

6 Qc

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.254		0.250	1	09/28/2015 10:55	WG817732

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.0620		0.0350	1	09/22/2015 13:48	WG816611

8 Al

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.00507		0.00500	1	09/21/2015 20:59	WG816077
Lead	0.00203		0.00200	1	09/21/2015 20:59	WG816077
Zinc	ND		0.0250	1	09/21/2015 20:59	WG816077



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	40.8		2.50	1	09/17/2015 08:16	WG815432

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.264		0.100	1	09/18/2015 18:54	WG816098

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND	P1	0.250	1	09/28/2015 10:30	WG817732

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.0770		0.0350	1	09/22/2015 13:49	WG816611

7 Gl

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.00529		0.00500	1	09/21/2015 21:01	WG816077
Lead	ND		0.00200	1	09/21/2015 21:01	WG816077
Zinc	0.0280		0.0250	1	09/21/2015 21:01	WG816077

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	09/17/2015 08:16	WG815432

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	09/18/2015 19:46	WG816098

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	09/22/2015 16:31	WG816614

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND	<u>U</u>	0.0350	1	09/22/2015 13:51	WG816611

7 Gl

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.00500	1	09/21/2015 21:03	WG816077
Lead	ND		0.00200	1	09/21/2015 21:03	WG816077
Zinc	ND		0.0250	1	09/21/2015 21:03	WG816077

9 Sc

Method Blank (MB)

(MB) 09/17/15 08:10

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L788609-01 Original Sample (OS) • Duplicate (DUP)

(OS) 09/17/15 08:12 • (DUP) 09/17/15 08:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	265	270	1	1.87		5

L788635-03 Original Sample (OS) • Duplicate (DUP)

(OS) 09/17/15 08:15 • (DUP) 09/17/15 08:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	113	112	1	0.445		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/17/15 08:17 • (LCSD) 09/17/15 08:17

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	820	820	106	106	85.0-115			0.000	5

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



L788547-01 Original Sample (OS) • Duplicate (DUP)

(OS) 09/18/15 17:09 • (DUP) 09/18/15 17:26

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	ND	0.000	1	0		20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L788562-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 09/18/15 18:01 • (MS) 09/18/15 18:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate	5.00	0.229	5.12	98	1	80-120	

⁷Gl

⁸Al

⁹Sc

L788211-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/18/15 20:55 • (MS) 09/18/15 21:13 • (MSD) 09/18/15 21:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	ND	4.39	4.46	88	89	1	80-120			2	20



Method Blank (MB)

(MB) 09/21/15 14:33

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L789129-04 Original Sample (OS) • Duplicate (DUP)

(OS) 09/21/15 14:52 • (DUP) 09/21/15 14:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	18.1	17.6	1	2.80		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/21/15 14:35 • (LCSD) 09/21/15 14:37

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.4	12.3	12.3	99.2	99.2	85.0-115			0.000	20

L789129-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/21/15 14:46 • (MS) 09/21/15 14:47 • (MSD) 09/21/15 14:48

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	4.64	8.90	9.15	85.2	90.2	1	90.0-110	J6		2.77	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 09/22/15 15:57

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L788659-03 Original Sample (OS) • Duplicate (DUP)

(OS) 09/22/15 17:00 • (DUP) 09/22/15 17:02

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	525	525	50	0.000		20

L788642-02 Original Sample (OS) • Duplicate (DUP)

(OS) 09/22/15 16:06 • (DUP) 09/22/15 16:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	1.68	1.43	1	16.1		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/22/15 15:59 • (LCSD) 09/22/15 16:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.4	13.0	12.9	105	104	85.0-115			0.772	20

L788642-04 Original Sample (OS) • Matrix Spike (MS)

(OS) 09/22/15 16:08 • (MS) 09/22/15 16:10

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	2.97	8.22	105	1	90.0-110	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



[L788562-05](#)

L788562-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/22/15 16:31 • (MS) 09/22/15 16:32 • (MSD) 09/22/15 16:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.0502	5.46	5.52	109	110	1	90.0-110			1.09	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 09/28/15 10:24

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L788562-03 Original Sample (OS) • Duplicate (DUP)

(OS) 09/28/15 10:55 • (DUP) 09/28/15 10:57

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.254	0.287	1	12.2		20

L788562-04 Original Sample (OS) • Duplicate (DUP)

(OS) 09/28/15 10:30 • (DUP) 09/28/15 10:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	0.300	1	200	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/28/15 10:27 • (LCSD) 09/28/15 10:28

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.4	11.4	12.5	91.9	101	85.0-115			9.21	20

L790065-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/28/15 10:35 • (MS) 09/28/15 10:36 • (MSD) 09/28/15 10:37

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	ND	5.29	5.00	106	100	1	90.0-110			5.64	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L790072-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 09/28/15 10:58 • (MS) 09/28/15 10:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5.00	0.121	4.93	98.6	1	90.0-110	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 09/22/15 13:33

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L788740-01 Original Sample (OS) • Duplicate (DUP)

(OS) 09/22/15 14:05 • (DUP) 09/22/15 14:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.404	0.376	1	7.18		20

L788826-01 Original Sample (OS) • Duplicate (DUP)

(OS) 09/22/15 14:12 • (DUP) 09/22/15 14:14

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	6.45	6.95	5	7.46		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/22/15 13:35 • (LCSD) 09/22/15 13:36

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.930	1.10	93.0	110	90.0-110			16.7	20

L788211-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/22/15 13:39 • (MS) 09/22/15 13:40 • (MSD) 09/22/15 13:42

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.0500	2.51	2.45	100	98.0	1	90.0-110			2.42	20



Method Blank (MB)

(MB) 09/21/15 18:51

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.00500
Lead	ND		0.00200
Zinc	ND		0.0250

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/21/15 18:53 • (LCSD) 09/21/15 18:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	0.0500	0.0495	0.0494	99	99	80-120			0	20
Lead	0.0500	0.0480	0.0490	96	98	80-120			2	20
Zinc	0.0500	0.0463	0.0478	93	96	80-120			3	20

L789142-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/21/15 18:58 • (MS) 09/21/15 19:03 • (MSD) 09/21/15 19:05

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	0.0500	0.000468	0.0456	0.0457	90	90	1	75-125			0	20
Lead	0.0500	0.000527	0.0494	0.0476	98	94	1	75-125			4	20
Zinc	0.0500	0.00436	0.0457	0.0462	83	84	1	75-125			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
U	Below Detectable Limits: Indicates that the analyte was not detected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

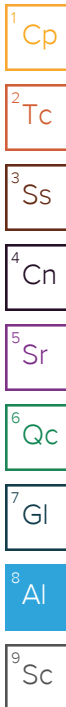
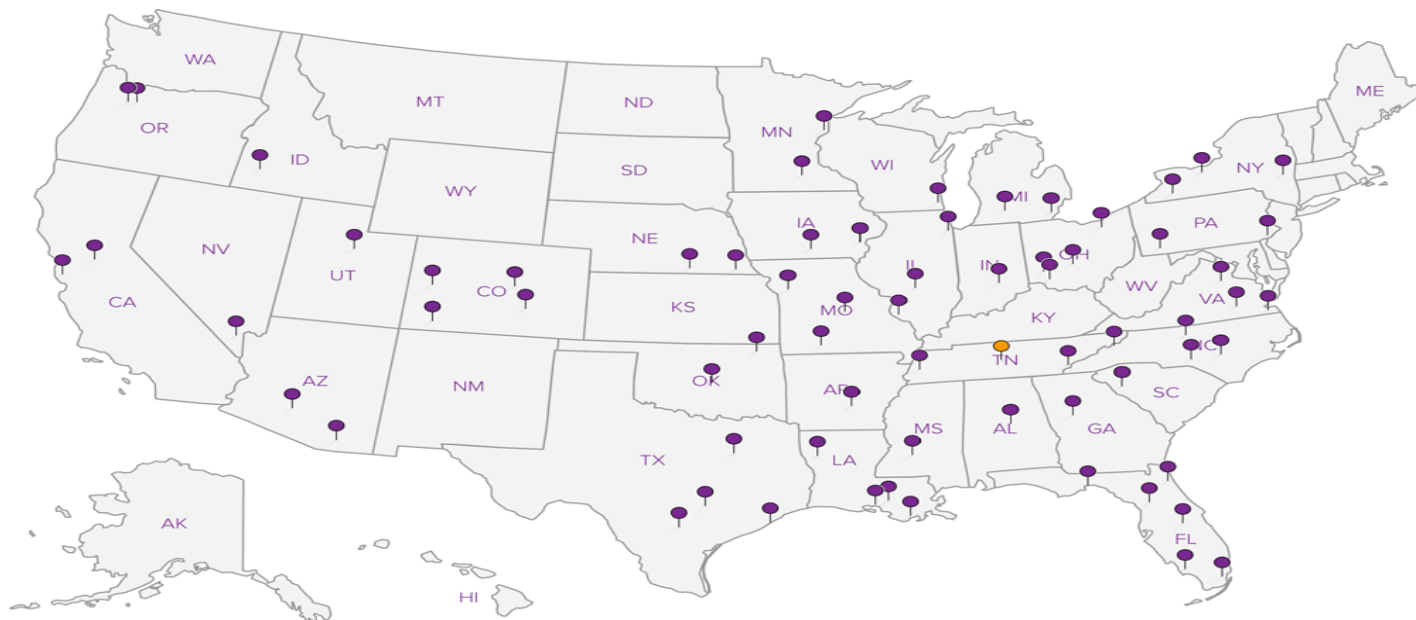
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Matt Shacklock

ESC Lab Sciences
Non-Conformance Form

Login #L788562	Client: CEC	Date: 9/15/15	Evaluated by: Ryan J
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Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding x time	Login Clarification Needed	
Improper temperature	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
Improper preservation	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courier)
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
		Carrier:
		Tracking#

Login Comments: Nitrate received OOH

Client informed by:	Call	x	Email	Voice Mail	Date: 9/15/15	Time: 1100
TSR Initials: jeh	Client Contact: Janette Wolf					

Login Instructions: Analyze and qualify as needed.

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Civil & Environmental Consultants - TN

Sample Delivery Group: L809307
Samples Received: 12/30/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1
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⁵Sr: Sample Results	5
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EFFLUENT DUPLICATE L809307-03	7
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INFLUENT L809307-01 GW

			Collected by Caitlin Skender	Collected date/time 12/28/15 22:21	Received date/time 12/30/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG839247	1	12/31/15 04:39	12/31/15 10:07	JM
Metals (ICP) by Method 6010B	WG839180	1	12/30/15 13:40	12/31/15 00:38	LTB
Wet Chemistry by Method 300.0	WG839203	1	12/30/15 12:21	12/30/15 12:21	CM
Wet Chemistry by Method 351.2	WG839268	1	01/04/16 10:58	01/05/16 09:50	ASK
Wet Chemistry by Method 365.4	WG839269	1	01/04/16 10:56	01/04/16 16:44	DR

1
Cp2
Tc3
Ss4
Cn

EFFLUENT L809307-02 GW

			Collected by Caitlin Skender	Collected date/time 12/28/15 22:30	Received date/time 12/30/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG839247	1	12/31/15 04:39	12/31/15 10:07	JM
Metals (ICP) by Method 6010B	WG839180	1	12/30/15 13:40	12/31/15 00:41	LTB
Wet Chemistry by Method 300.0	WG839203	1	12/30/15 12:49	12/30/15 12:49	CM
Wet Chemistry by Method 351.2	WG839268	1	01/04/16 10:58	01/05/16 09:51	ASK
Wet Chemistry by Method 365.4	WG839269	1	01/04/16 10:56	01/04/16 16:46	DR

5
Sr6
Qc7
Gl8
Al

EFFLUENT DUPLICATE L809307-03 GW

			Collected by Caitlin Skender	Collected date/time 12/28/15 22:30	Received date/time 12/30/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG839247	1	12/31/15 04:39	12/31/15 10:07	JM
Metals (ICP) by Method 6010B	WG839180	1	12/30/15 13:40	12/31/15 00:44	LTB
Wet Chemistry by Method 300.0	WG839203	1	12/30/15 13:31	12/30/15 13:31	CM
Wet Chemistry by Method 351.2	WG839268	1	01/04/16 10:58	01/05/16 09:52	ASK
Wet Chemistry by Method 365.4	WG839269	1	01/04/16 10:56	01/04/16 16:47	DR

9
Sc

FIELD BLANK L809307-04 GW

			Collected by Caitlin Skender	Collected date/time 12/29/15 13:00	Received date/time 12/30/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG839247	1	12/31/15 04:39	12/31/15 10:07	JM
Metals (ICP) by Method 6010B	WG839180	1	12/30/15 13:40	12/31/15 00:53	LTB
Wet Chemistry by Method 300.0	WG839203	1	12/30/15 13:45	12/30/15 13:45	CM
Wet Chemistry by Method 351.2	WG839268	1	01/04/16 10:58	01/05/16 09:53	ASK
Wet Chemistry by Method 365.4	WG839269	1	01/04/16 10:56	01/04/16 16:48	DR



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	51.8		2.50	1	12/31/2015 10:07	WG839247

¹ Cp² Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	12/30/2015 12:21	WG839203

³ Ss⁴ Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	3.42		0.250	1	01/05/2016 09:50	WG839268

⁵ Sr⁶ Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.172		0.100	1	01/04/2016 16:44	WG839269

⁷ Gl⁸ Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/31/2015 00:38	WG839180
Lead	0.00518		0.00500	1	12/31/2015 00:38	WG839180
Zinc	0.0938		0.0500	1	12/31/2015 00:38	WG839180

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	3.60		2.50	1	12/31/2015 10:07	WG839247

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.142		0.100	1	12/30/2015 12:49	WG839203

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.681		0.250	1	01/05/2016 09:51	WG839268

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	01/04/2016 16:46	WG839269

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/31/2015 00:41	WG839180
Lead	ND		0.00500	1	12/31/2015 00:41	WG839180
Zinc	ND		0.0500	1	12/31/2015 00:41	WG839180

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	4.00		2.50	1	12/31/2015 10:07	WG839247

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.140		0.100	1	12/30/2015 13:31	WG839203

5 Sr

6 Qc

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.852		0.250	1	01/05/2016 09:52	WG839268

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	01/04/2016 16:47	WG839269

8 Al

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/31/2015 00:44	WG839180
Lead	ND		0.00500	1	12/31/2015 00:44	WG839180
Zinc	ND		0.0500	1	12/31/2015 00:44	WG839180



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	5.90		2.50	1	12/31/2015 10:07	WG839247

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	12/30/2015 13:45	WG839203

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	01/05/2016 09:53	WG839268

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	01/04/2016 16:48	WG839269

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/31/2015 00:53	WG839180
Lead	ND		0.00500	1	12/31/2015 00:53	WG839180
Zinc	ND		0.0500	1	12/31/2015 00:53	WG839180

9 Sc

Method Blank (MB)

(MB) 12/31/15 10:07

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L809303-06 Original Sample (OS) • Duplicate (DUP)

(OS) 12/31/15 10:07 • (DUP) 12/31/15 10:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	40.3	42.3	1	4.85		5

L809312-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/31/15 10:07 • (DUP) 12/31/15 10:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	91.0	88.0	1	3.35		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/31/15 10:07 • (LCSD) 12/31/15 10:07

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	796	776	103	100	85.0-115			2.54	5



Method Blank (MB)

(MB) 12/30/15 07:28

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L809182-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/30/15 09:20 • (DUP) 12/30/15 09:34

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.911	0.905	1	1		20

L809307-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/30/15 12:21 • (DUP) 12/30/15 12:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/30/15 07:42 • (LCSD) 12/30/15 07:56

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.01	8.00	100	100	90-110			0	20

L809182-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/30/15 09:48 • (MS) 12/30/15 10:02

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.537	5.59	101	1	80-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L809307-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/30/15 12:49 • (MS) 12/30/15 13:03 • (MSD) 12/30/15 13:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	0.142	4.99	5.07	97	99	1	80-120			2	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 01/05/16 09:44

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L809307-04 Original Sample (OS) • Duplicate (DUP)

(OS) 01/05/16 09:53 • (DUP) 01/05/16 09:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L809462-02 Original Sample (OS) • Duplicate (DUP)

(OS) 01/05/16 10:16 • (DUP) 01/05/16 10:17

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.872	0.518	1	51.0	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 01/05/16 09:46 • (LCSD) 01/05/16 09:47

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	17.6	17.5	17.6	99.0	100	90.0-110			1.00	20

L809370-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 01/05/16 09:59 • (MS) 01/05/16 10:00

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	1.35	5.82	89.0	1	90.0-110	J6

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



L809378-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 01/05/16 10:18 • (MS) 01/05/16 10:19 • (MSD) 01/05/16 10:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.770	5.26	5.04	90.0	85.0	1	90.0-110		J6	4.00	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 01/04/16 16:29

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L808937-01 Original Sample (OS) • Duplicate (DUP)

(OS) 01/04/16 16:35 • (DUP) 01/04/16 16:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

L809388-01 Original Sample (OS) • Duplicate (DUP)

(OS) 01/04/16 17:18 • (DUP) 01/04/16 17:19

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	5.35	4.93	5	8.00		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 01/04/16 16:32 • (LCSD) 01/04/16 16:33

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.960	0.915	96.0	92.0	90.0-110			5.00	20

L809290-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 01/04/16 16:39 • (MS) 01/04/16 16:40 • (MSD) 01/04/16 16:42

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.376	2.38	2.34	80.0	79.0	1	90.0-110	J6	J6	2.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 12/31/15 00:16

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/31/15 00:19 • (LCSD) 12/31/15 00:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.01	1.01	101	101	80-120			1	20
Lead	1.00	1.06	1.05	106	105	80-120			0	20
Zinc	1.00	1.04	1.03	104	103	80-120			1	20

L809327-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/31/15 00:25 • (MS) 12/31/15 00:31 • (MSD) 12/31/15 00:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00297	1.03	1.04	103	104	1	75-125			1	20
Lead	1.00	0.00427	1.06	1.07	106	107	1	75-125			1	20
Zinc	1.00	0.000599	1.01	1.02	101	102	1	75-125			1	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

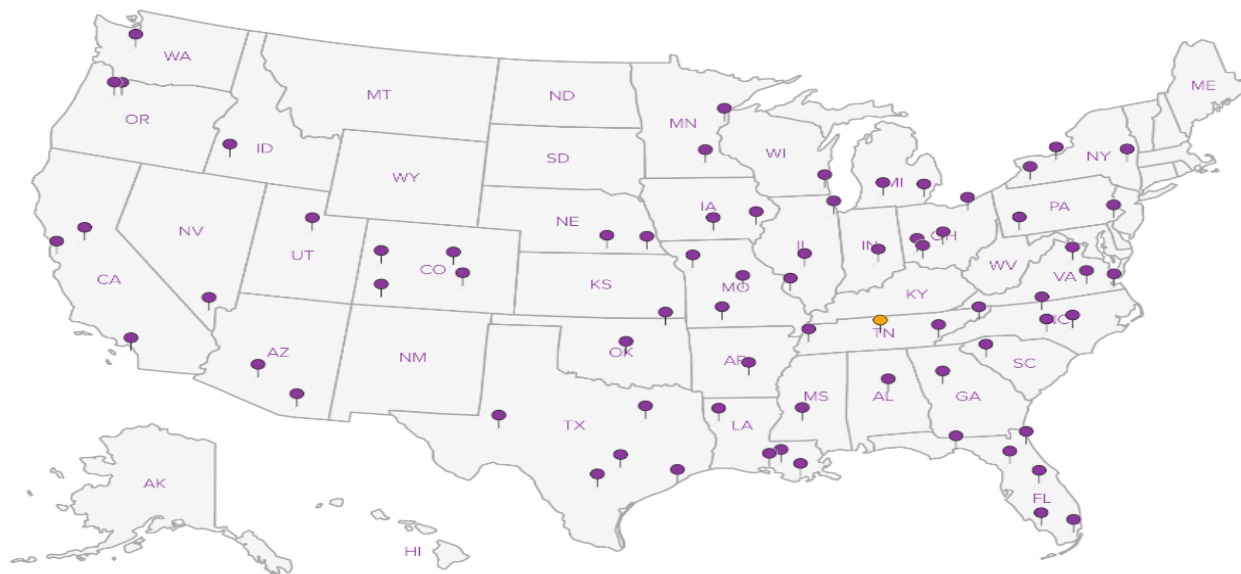
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Civil & Environmental Consultants - TN

Sample Delivery Group: L808682
Samples Received: 12/23/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1
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⁵Sr: Sample Results	5
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INFLUENT L808682-01 GW

			Collected by K Mulholland	Collected date/time 12/22/15 16:23	Received date/time 12/23/15 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG838487	1	12/28/15 14:13	12/28/15 15:41	JER
Metals (ICP) by Method 6010B	WG838737	1	12/28/15 17:24	12/28/15 22:02	ST
Wet Chemistry by Method 300.0	WG838203	1	12/23/15 14:28	12/23/15 14:28	CM
Wet Chemistry by Method 351.2	WG838172	1	12/24/15 16:25	12/28/15 16:42	DR
Wet Chemistry by Method 365.4	WG838171	1	12/24/15 16:23	12/28/15 16:45	ASK

1
Cp2
Tc3
Ss4
Cn

INFLUENT DUPLICATE L808682-02 GW

			Collected by K Mulholland	Collected date/time 12/22/15 16:23	Received date/time 12/23/15 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG838487	1	12/28/15 14:13	12/28/15 15:41	JER
Metals (ICP) by Method 6010B	WG838737	1	12/28/15 17:24	12/28/15 22:05	ST
Wet Chemistry by Method 300.0	WG838203	1	12/23/15 14:56	12/23/15 14:56	CM
Wet Chemistry by Method 351.2	WG838172	1	12/24/15 16:25	12/28/15 16:43	DR
Wet Chemistry by Method 365.4	WG838171	1	12/24/15 16:23	12/28/15 16:47	ASK

5
Sr6
Qc7
Gl8
Al

EFFLUENT L808682-03 GW

			Collected by K Mulholland	Collected date/time 12/22/15 16:54	Received date/time 12/23/15 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG838487	1	12/28/15 14:13	12/28/15 15:41	JER
Metals (ICP) by Method 6010B	WG838737	1	12/28/15 17:24	12/28/15 22:09	ST
Wet Chemistry by Method 300.0	WG838203	1	12/23/15 15:38	12/23/15 15:38	CM
Wet Chemistry by Method 351.2	WG838172	1	12/24/15 16:25	12/28/15 16:44	DR
Wet Chemistry by Method 365.4	WG838171	1	12/24/15 16:23	12/28/15 16:48	ASK

9
Sc

EFFLUENT DUPLICATE L808682-04 GW

			Collected by K Mulholland	Collected date/time 12/22/15 16:54	Received date/time 12/23/15 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG838487	1	12/28/15 14:13	12/28/15 15:41	JER
Metals (ICP) by Method 6010B	WG838737	1	12/28/15 17:24	12/28/15 22:12	ST
Wet Chemistry by Method 300.0	WG838203	1	12/23/15 15:52	12/23/15 15:52	CM
Wet Chemistry by Method 351.2	WG838172	1	12/24/15 16:25	12/28/15 16:45	DR
Wet Chemistry by Method 365.4	WG838171	1	12/24/15 16:23	12/28/15 16:52	ASK

FIELD BLANK L808682-05 GW

			Collected by K Mulholland	Collected date/time 12/22/15 16:30	Received date/time 12/23/15 10:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG838487	1	12/28/15 14:13	12/28/15 15:41	JER
Metals (ICP) by Method 6010B	WG838737	1	12/28/15 17:24	12/28/15 21:35	ST
Wet Chemistry by Method 300.0	WG838203	1	12/23/15 16:09	12/23/15 16:09	CM
Wet Chemistry by Method 351.2	WG838172	1	12/24/15 16:25	12/28/15 16:46	DR
Wet Chemistry by Method 365.4	WG838171	1	12/24/15 16:23	12/28/15 16:53	ASK



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer
Technical Service Representative

Sample Handling and Receiving

Sample quantity was not sufficient to complete analysis per recommended method guidelines for the following samples.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L808682-05	FIELD BLANK	2540 D-2011

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Suspended Solids	122		2.50	1	12/28/2015 15:41	WG838487

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Nitrate	0.508		0.100	1	12/23/2015 14:28	WG838203

Wet Chemistry by Method 351.2

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Kjeldahl Nitrogen, TKN	1.69		0.250	1	12/28/2015 16:42	WG838172

Wet Chemistry by Method 365.4

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Phosphorus, Total	0.184		0.100	1	12/28/2015 16:45	WG838171

Metals (ICP) by Method 6010B

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Copper	0.0140		0.0100	1	12/28/2015 22:02	WG838737
Lead	0.00595		0.00500	1	12/28/2015 22:02	WG838737
Zinc	0.0934		0.0500	1	12/28/2015 22:02	WG838737



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Suspended Solids	130		2.50	1	12/28/2015 15:41	WG838487

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate	0.516		0.100	1	12/23/2015 14:56	WG838203

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Kjeldahl Nitrogen, TKN	1.43		0.250	1	12/28/2015 16:43	WG838172

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphorus, Total	0.128		0.100	1	12/28/2015 16:47	WG838171

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Copper	0.0153		0.0100	1	12/28/2015 22:05	WG838737
Lead	ND		0.00500	1	12/28/2015 22:05	WG838737
Zinc	0.0818		0.0500	1	12/28/2015 22:05	WG838737

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	11.6		2.50	1	12/28/2015 15:41	WG838487

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.401		0.100	1	12/23/2015 15:38	WG838203

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/28/2015 16:44	WG838172

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/28/2015 16:48	WG838171

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/28/2015 22:09	WG838737
Lead	ND		0.00500	1	12/28/2015 22:09	WG838737
Zinc	ND		0.0500	1	12/28/2015 22:09	WG838737



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Suspended Solids	11.0		2.50	1	12/28/2015 15:41	WG838487

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Nitrate	0.398		0.100	1	12/23/2015 15:52	WG838203

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Kjeldahl Nitrogen, TKN	0.278		0.250	1	12/28/2015 16:45	WG838172

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Phosphorus, Total	ND		0.100	1	12/28/2015 16:52	WG838171

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Copper	ND		0.0100	1	12/28/2015 22:12	WG838737
Lead	ND		0.00500	1	12/28/2015 22:12	WG838737
Zinc	ND		0.0500	1	12/28/2015 22:12	WG838737

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	12/28/2015 15:41	WG838487

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	12/23/2015 16:09	WG838203

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/28/2015 16:46	WG838172

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/28/2015 16:53	WG838171

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/28/2015 21:35	WG838737
Lead	ND		0.00500	1	12/28/2015 21:35	WG838737
Zinc	ND		0.0500	1	12/28/2015 21:35	WG838737

9 Sc



Method Blank (MB)

(MB) 12/28/15 15:41

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L808688-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 15:41 • (DUP) 12/28/15 15:41

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	191	183	1	4.58		5

L808692-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 15:41 • (DUP) 12/28/15 15:41

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	170	167	1	1.78		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/28/15 15:41 • (LCSD) 12/28/15 15:41

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	828	844	107	109	85.0-115			1.91	5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 12/23/15 06:34

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L808493-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 08:39 • (DUP) 12/23/15 08:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	1.02	1.05	1	3		20

L808682-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 14:28 • (DUP) 12/23/15 14:42

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.508	0.518	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/23/15 06:47 • (LCSD) 12/23/15 07:01

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.13	8.10	102	101	90-110			0	20

L808493-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/23/15 09:06 • (MS) 12/23/15 09:20

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	1.96	6.88	98	1	80-120	



L808682-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/23/15 14:56 • (MS) 12/23/15 15:10 • (MSD) 12/23/15 15:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	0.516	5.50	5.53	100	100	1	80-120			1	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 12/28/15 16:13

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L808493-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 16:19 • (DUP) 12/28/15 16:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L808682-05 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 16:46 • (DUP) 12/28/15 16:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/28/15 16:15 • (LCSD) 12/28/15 16:17

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	17.6	16.5	16.5	94.0	94.0	90.0-110			0.000	20

L808493-03 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/28/15 16:21 • (MS) 12/28/15 16:23

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	ND	4.39	88.0	1	90.0-110	J6

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L808672-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/28/15 16:38 • (MS) 12/28/15 16:39 • (MSD) 12/28/15 16:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.104	4.62	4.43	90.0	87.0	1	90.0-110		J6	4.00	20

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



Method Blank (MB)

(MB) 12/28/15 16:26

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L808588-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 16:35 • (DUP) 12/28/15 16:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	1.00	1.14	1	13.0		20

L808698-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/28/15 16:57 • (DUP) 12/28/15 16:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.330	0.269	1	20.0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/28/15 16:29 • (LCSD) 12/28/15 16:30

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.960	0.983	96.0	98.0	90.0-110			2.00	20

L808594-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/28/15 16:40 • (MS) 12/28/15 16:42 • (MSD) 12/28/15 16:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.418	2.55	2.53	85.0	84.0	1	90.0-110	J6	J6	1.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 12/28/15 21:26

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/28/15 21:28 • (LCSD) 12/28/15 21:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.01	1.00	101	100	80-120			1	20
Lead	1.00	1.06	1.05	106	105	80-120			1	20
Zinc	1.00	1.01	1.00	101	100	80-120			1	20

L808682-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/28/15 21:35 • (MS) 12/28/15 21:41 • (MSD) 12/28/15 21:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00371	1.02	1.02	101	101	1	75-125			0	20
Lead	1.00	0.000827	1.07	1.07	107	107	1	75-125			0	20
Zinc	1.00	0.00229	1.03	1.02	103	102	1	75-125			0	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

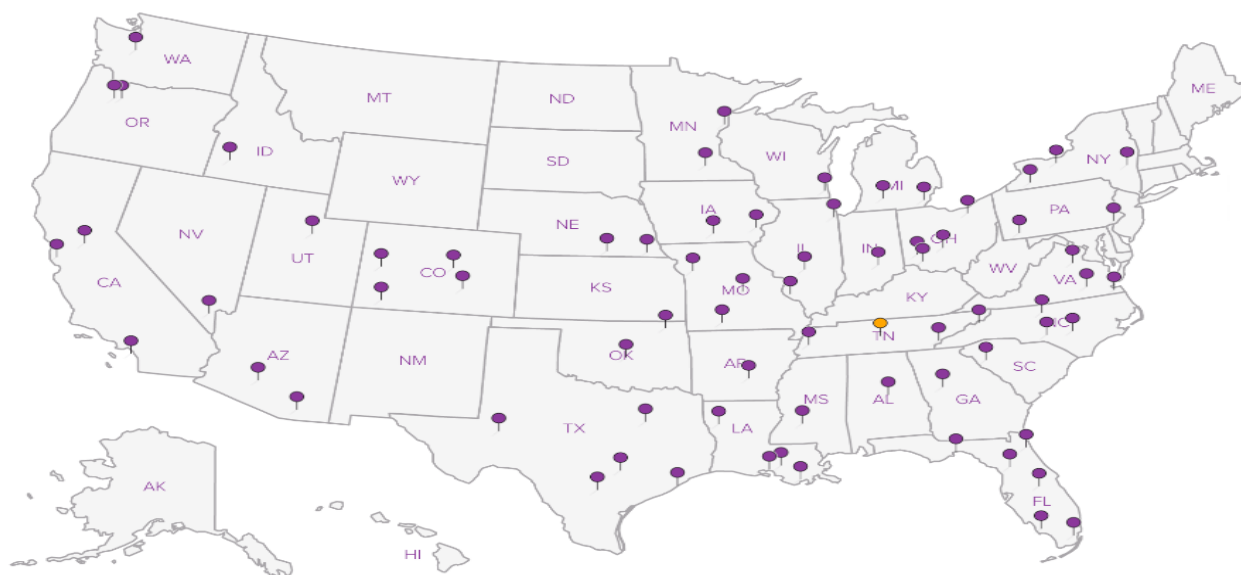
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



65291905057

Civil & Environmental Consultants - TN

Sample Delivery Group: L808080
Samples Received: 12/19/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L808080-01 GW

			Collected by K. Mulholland	Collected date/time 12/17/15 10:55	Received date/time 12/19/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG837795	1	12/23/15 08:33	12/23/15 10:31	JER
Metals (ICP) by Method 6010B	WG837598	1	12/22/15 17:37	12/24/15 15:12	WBD
Wet Chemistry by Method 300.0	WG837320	1	12/19/15 17:35	12/19/15 17:35	CM
Wet Chemistry by Method 351.2	WG837485	1	12/22/15 16:10	12/23/15 14:25	ASK
Wet Chemistry by Method 365.4	WG837544	1	12/21/15 21:16	12/23/15 09:30	DR

¹ Cp² Tc³ Ss⁴ Cn

INFLUENT DUPLICATE L808080-02 GW

			Collected by K. Mulholland	Collected date/time 12/17/15 10:55	Received date/time 12/19/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG837795	1	12/23/15 08:33	12/23/15 10:31	JER
Metals (ICP) by Method 6010B	WG837598	1	12/22/15 17:37	12/24/15 15:16	WBD
Wet Chemistry by Method 300.0	WG837320	1	12/19/15 18:02	12/19/15 18:02	CM
Wet Chemistry by Method 351.2	WG837485	1	12/22/15 16:10	12/23/15 14:28	ASK
Wet Chemistry by Method 365.4	WG837544	1	12/21/15 21:16	12/23/15 09:31	DR

⁵ Sr⁶ Qc⁷ Gl⁸ Al

EFFLUENT L808080-03 GW

			Collected by K. Mulholland	Collected date/time 12/17/15 15:04	Received date/time 12/19/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG837795	1	12/23/15 08:33	12/23/15 10:31	JER
Metals (ICP) by Method 6010B	WG837598	1	12/22/15 17:37	12/24/15 15:19	WBD
Wet Chemistry by Method 300.0	WG837320	1	12/19/15 13:24	12/19/15 13:24	CM
Wet Chemistry by Method 351.2	WG837485	1	12/22/15 16:10	12/23/15 14:29	ASK
Wet Chemistry by Method 365.4	WG837544	1	12/21/15 21:16	12/23/15 09:32	DR

⁹ Sc

EFFLUENT DUPLICATE L808080-04 GW

			Collected by K. Mulholland	Collected date/time 12/17/15 15:04	Received date/time 12/19/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG837795	1	12/23/15 08:33	12/23/15 10:31	JER
Metals (ICP) by Method 6010B	WG837598	1	12/22/15 17:37	12/24/15 15:22	WBD
Wet Chemistry by Method 300.0	WG837320	1	12/19/15 13:38	12/19/15 13:38	CM
Wet Chemistry by Method 351.2	WG837485	1	12/22/15 16:10	12/23/15 14:30	ASK
Wet Chemistry by Method 365.4	WG837545	1	12/22/15 16:10	12/24/15 11:25	DR

FIELD BLANK L808080-05 GW

			Collected by K. Mulholland	Collected date/time 12/18/15 09:00	Received date/time 12/19/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG837798	1	12/23/15 09:49	12/23/15 10:53	MF
Metals (ICP) by Method 6010B	WG837598	1	12/22/15 17:37	12/24/15 15:25	WBD
Wet Chemistry by Method 300.0	WG837320	1	12/19/15 14:20	12/19/15 14:20	CM
Wet Chemistry by Method 351.2	WG837485	1	12/22/15 16:10	12/23/15 14:31	ASK
Wet Chemistry by Method 365.4	WG837545	1	12/22/15 16:10	12/24/15 11:26	DR



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L808080-01	INFLUENT	300.0
L808080-02	INFLUENT DUPLICATE	300.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	142		2.50	1	12/23/2015 10:31	WG837795

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.233		0.100	1	12/19/2015 17:35	WG837320

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.715		0.250	1	12/23/2015 14:25	WG837485

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.181		0.100	1	12/23/2015 09:30	WG837544

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/24/2015 15:12	WG837598
Lead	0.00801		0.00500	1	12/24/2015 15:12	WG837598
Zinc	0.0774		0.0500	1	12/24/2015 15:12	WG837598

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	145		2.50	1	12/23/2015 10:31	WG837795

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.231		0.100	1	12/19/2015 18:02	WG837320

5 Sr

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.674		0.250	1	12/23/2015 14:28	WG837485

6 Qc

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.177		0.100	1	12/23/2015 09:31	WG837544

8 Al

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0111		0.0100	1	12/24/2015 15:16	WG837598
Lead	0.00607		0.00500	1	12/24/2015 15:16	WG837598
Zinc	0.0758		0.0500	1	12/24/2015 15:16	WG837598



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Suspended Solids	4.80		2.50	1	12/23/2015 10:31	WG837795

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Nitrate	0.320		0.100	1	12/19/2015 13:24	WG837320

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/23/2015 14:29	WG837485

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Phosphorus, Total	ND		0.100	1	12/23/2015 09:32	WG837544

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Copper	ND		0.0100	1	12/24/2015 15:19	WG837598
Lead	ND		0.00500	1	12/24/2015 15:19	WG837598
Zinc	ND		0.0500	1	12/24/2015 15:19	WG837598

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	5.20		2.50	1	12/23/2015 10:31	WG837795

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.313		0.100	1	12/19/2015 13:38	WG837320

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/23/2015 14:30	WG837485

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/24/2015 11:25	WG837545

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/24/2015 15:22	WG837598
Lead	ND		0.00500	1	12/24/2015 15:22	WG837598
Zinc	ND		0.0500	1	12/24/2015 15:22	WG837598

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	3.35		2.50	1	12/23/2015 10:53	WG837798

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	12/19/2015 14:20	WG837320

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND	J6	0.250	1	12/23/2015 14:31	WG837485

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/24/2015 11:26	WG837545

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/24/2015 15:25	WG837598
Lead	ND		0.00500	1	12/24/2015 15:25	WG837598
Zinc	ND		0.0500	1	12/24/2015 15:25	WG837598

9 Sc

Method Blank (MB)

(MB) 12/23/15 10:31

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L807853-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 10:31 • (DUP) 12/23/15 10:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	7670	7800	1	1.72		5

L808080-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 10:31 • (DUP) 12/23/15 10:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	142	142	1	0.000		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/23/15 10:31 • (LCSD) 12/23/15 10:31

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	852	876	110	113	85.0-115			2.78	5

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) 12/23/15 10:53

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L808077-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 10:53 • (DUP) 12/23/15 10:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	17.3	17.0	1	1.46		5

L808093-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 10:53 • (DUP) 12/23/15 10:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	550	550	1	0.000		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/23/15 10:53 • (LCSD) 12/23/15 10:53

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	812	820	105	106	85.0-115			0.980	5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 12/19/15 07:38

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L808080-03 Original Sample (OS) • Duplicate (DUP)

(OS) 12/19/15 13:24 • (DUP) 12/19/15 13:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.320	0.317	1	1		20

L808080-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/19/15 17:35 • (DUP) 12/19/15 17:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.233	0.236	1	1		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/19/15 07:52 • (LCSD) 12/19/15 08:06

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.07	8.09	101	101	90-110			0	20

L808080-04 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/19/15 13:38 • (MS) 12/19/15 14:06

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.313	5.30	100	1	80-120	



L808080-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/19/15 18:02 • (MS) 12/19/15 18:16 • (MSD) 12/19/15 18:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	0.231	5.27	5.20	101	99	1	80-120			1	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 12/23/15 14:00

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L808035-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 14:10 • (DUP) 12/23/15 14:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.615	0.262	1	81.0	P1	20

L808080-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 14:25 • (DUP) 12/23/15 14:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.715	0.638	1	11.0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/23/15 14:03 • (LCSD) 12/23/15 14:04

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	17.6	18.5	17.6	105	100	90.0-110			5.00	20

L808068-03 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/23/15 14:18 • (MS) 12/23/15 14:19

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	0.663	5.23	91.0	1	90.0-110	



L808080-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/23/15 14:31 • (MS) 12/23/15 14:33 • (MSD) 12/23/15 14:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.00423	4.39	4.32	88.0	86.0	1	90.0-110	J6	J6	2.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) 12/23/15 08:55

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Phosphorus,Total	ND		0.100

L807633-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 09:03 • (DUP) 12/23/15 09:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	2.09	2.22	1	6.00		20

L808080-03 Original Sample (OS) • Duplicate (DUP)

(OS) 12/23/15 09:32 • (DUP) 12/23/15 09:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/23/15 08:58 • (LCSD) 12/23/15 08:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	1.00	0.940	0.968	94.0	97.0	90.0-110			3.00	20

L808035-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/23/15 09:09 • (MS) 12/23/15 09:10 • (MSD) 12/23/15 09:12

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	2.50	0.232	2.42	2.28	88.0	82.0	1	90.0-110	J6	J6	6.00	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) 12/24/15 11:14

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L807525-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/24/15 11:23 • (DUP) 12/24/15 11:24

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	2.25	2.21	1	2.00		20

L808129-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/24/15 12:19 • (DUP) 12/24/15 12:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	1.70	1.78	1	5.00		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/24/15 11:16 • (LCSD) 12/24/15 11:17

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	1.05	0.993	105	99.0	90.0-110			6.00	20

L808082-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/24/15 11:29 • (MS) 12/24/15 11:30 • (MSD) 12/24/15 11:31

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	1.97	3.89	3.84	77.0	75.0	1	90.0-110	J6	J6	1.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 12/24/15 14:24

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/24/15 14:26 • (LCSD) 12/24/15 14:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.03	1.03	103	103	80-120			0	20
Lead	1.00	1.09	1.08	109	108	80-120			1	20
Zinc	1.00	1.05	1.04	105	104	80-120			1	20

L808026-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/24/15 14:33 • (MS) 12/24/15 14:39 • (MSD) 12/24/15 14:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.000183	1.03	1.05	103	105	1	75-125			2	20
Lead	1.00	0.0110	1.09	1.11	108	110	1	75-125			2	20
Zinc	1.00	0.0892	1.12	1.14	103	105	1	75-125			2	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

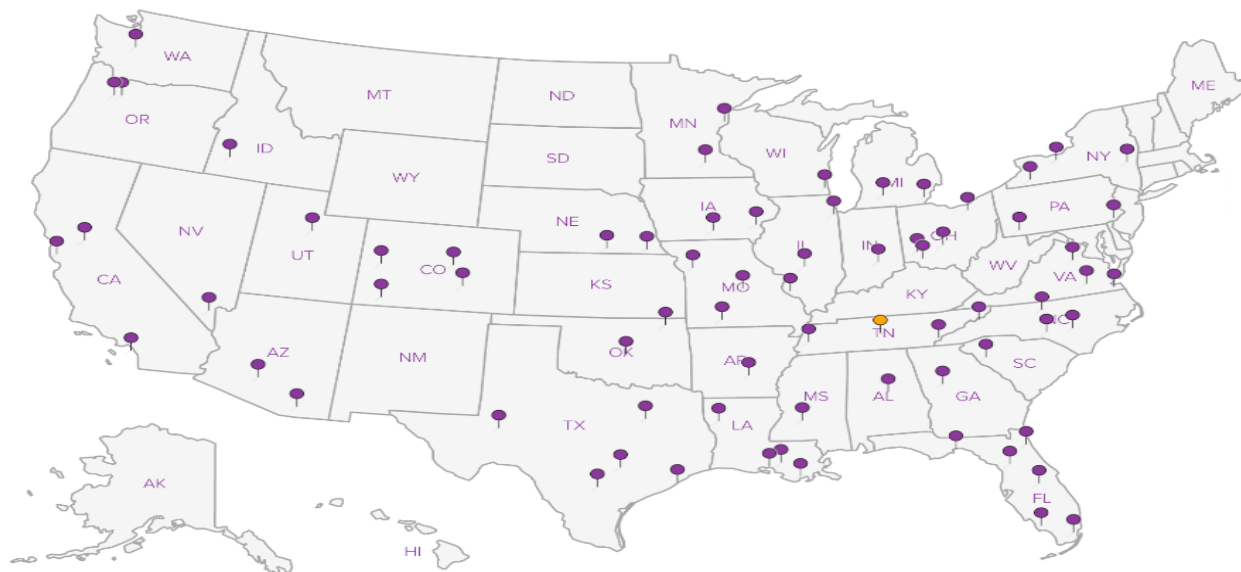
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Troy Dunlap

ESC Lab Sciences
Non-Conformance Form

Login #: L808080	Client: CEC	Date: 12/19/15	Evaluated by: Troy Dunlap
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Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	If Broken Container:
X Parameter(s) past holding time	Login Clarification Needed	
Improper temperature	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
Improper preservation	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courier)
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
		Carrier:
		Tracking#

Login Comments: NITRATE received out of hold for INFLUENT and INFLUENT DUPLICATE. Not enough time to process samples.

Client informed by:	Call	Email	x	Voice Mail	Date: 12/22/15	Time: 0925
TSR Initials: jeh	Client Contact: Janette Wolf					

Login Instructions: Analyze and qualify as needed.

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Jimmy Hunt

From: Wolf, Janette <jwolf@cecinc.com>
Sent: Tuesday, December 22, 2015 9:23 AM
To: Jimmy Hunt
Cc: Wolfe, Kevin; Blasingame, Ben
Subject: RE: Campbells Run

Jimmy, yes please go ahead and run. Thanks, _____

From: Jimmy Hunt [JHunt@esclabsciences.com]
Sent: Tuesday, December 22, 2015 8:38 AM
To: Wolf, Janette
Subject: FW: Campbells Run

Janette,
Do you want us to proceed with the nitrate analyses that are out of hold?

Thanks,
Jimmy Hunt
Technical Service Representative
Phone: 615-773-9668
Toll Free: 1-800-767-5859 ext:9668
Email: jhunt@esclabsciences.com <<mailto:jhunt@esclabsciences.com>>

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From: Jimmy Hunt
Sent: Monday, December 21, 2015 9:05 AM
To: Blasingame, Ben (bblasingame@cecinc.com)
Subject: Campbells Run

Ben,
The Nitrates on the Influent and Influent Duplicate were received too close to hold time to analyze within hold. Do you want us to analyze, qualify and report nitrate on these two samples?

Thanks,
Jimmy Hunt
Technical Service Representative
Phone: 615-773-9668
Toll Free: 1-800-767-5859 ext:9668
Email: jhunt@esclabsciences.com <<mailto:jhunt@esclabsciences.com>>

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L808080

Civil & Environmental Consultants - TN

Sample Delivery Group: L807043
Samples Received: 12/16/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L807043-01 GW

			Collected by KM	Collected date/time 12/14/15 17:41	Received date/time 12/16/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG836091	1	12/16/15 14:02	12/17/15 04:30	JM
Metals (ICP) by Method 6010B	WG836268	1	12/17/15 15:03	12/18/15 03:26	CCE
Wet Chemistry by Method 300.0	WG836304	1	12/16/15 15:08	12/16/15 15:08	DJD
Wet Chemistry by Method 351.2	WG836136	1	12/16/15 20:50	12/21/15 10:22	DR
Wet Chemistry by Method 365.4	WG836340	1	12/17/15 14:04	12/17/15 17:10	DR

¹ Cp

² Tc

³ Ss

⁴ Cn

EFFLUENT L807043-02 GW

			Collected by KM	Collected date/time 12/14/15 17:03	Received date/time 12/16/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG836091	1	12/16/15 14:02	12/17/15 04:30	JM
Metals (ICP) by Method 6010B	WG836268	1	12/17/15 15:03	12/18/15 03:29	CCE
Wet Chemistry by Method 300.0	WG836304	1	12/16/15 15:54	12/16/15 15:54	DJD
Wet Chemistry by Method 351.2	WG836136	1	12/16/15 20:50	12/21/15 10:23	DR
Wet Chemistry by Method 365.4	WG836340	1	12/17/15 14:04	12/17/15 17:11	DR

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

EFFLUENT DUPLICATE L807043-03 GW

			Collected by KM	Collected date/time 12/14/15 17:03	Received date/time 12/16/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG836091	1	12/16/15 14:02	12/17/15 04:30	JM
Metals (ICP) by Method 6010B	WG836268	1	12/17/15 15:03	12/18/15 03:32	CCE
Wet Chemistry by Method 300.0	WG836304	1	12/16/15 16:22	12/16/15 16:22	DJD
Wet Chemistry by Method 351.2	WG836136	1	12/16/15 20:50	12/21/15 10:24	DR
Wet Chemistry by Method 365.4	WG836340	1	12/17/15 14:04	12/17/15 17:13	DR

⁹ Sc

FIELD BLANK L807043-04 GW

			Collected by KM	Collected date/time 12/15/15 07:45	Received date/time 12/16/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG836091	1	12/16/15 14:02	12/17/15 04:30	JM
Metals (ICP) by Method 6010B	WG836268	1	12/17/15 15:03	12/18/15 02:12	CCE
Wet Chemistry by Method 300.0	WG835745	1	12/16/15 21:05	12/16/15 21:05	CM
Wet Chemistry by Method 351.2	WG836136	1	12/16/15 20:50	12/21/15 10:26	DR
Wet Chemistry by Method 365.4	WG836340	1	12/17/15 14:04	12/17/15 17:14	DR



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	238		2.50	1	12/17/2015 04:30	WG836091

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.401		0.100	1	12/16/2015 15:08	WG836304

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/21/2015 10:22	WG836136

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.424	B	0.100	1	12/17/2015 17:10	WG836340

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0121		0.0100	1	12/18/2015 03:26	WG836268
Lead	0.0106		0.00500	1	12/18/2015 03:26	WG836268
Zinc	0.0921		0.0500	1	12/18/2015 03:26	WG836268



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	8.00		2.50	1	12/17/2015 04:30	WG836091

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.775		0.100	1	12/16/2015 15:54	WG836304

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/21/2015 10:23	WG836136

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/17/2015 17:11	WG836340

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/18/2015 03:29	WG836268
Lead	ND		0.00500	1	12/18/2015 03:29	WG836268
Zinc	ND		0.0500	1	12/18/2015 03:29	WG836268



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	7.70		2.50	1	12/17/2015 04:30	WG836091

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.741		0.100	1	12/16/2015 16:22	WG836304

5 Sr

6 Qc

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/21/2015 10:24	WG836136

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/17/2015 17:13	WG836340

8 Al

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/18/2015 03:32	WG836268
Lead	ND		0.00500	1	12/18/2015 03:32	WG836268
Zinc	ND		0.0500	1	12/18/2015 03:32	WG836268



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	12/17/2015 04:30	WG836091

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	12/16/2015 21:05	WG835745

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	12/21/2015 10:26	WG836136

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	12/17/2015 17:14	WG836340

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	12/18/2015 02:12	WG836268
Lead	ND		0.00500	1	12/18/2015 02:12	WG836268
Zinc	ND		0.0500	1	12/18/2015 02:12	WG836268

9 Sc



Method Blank (MB)

(MB) 12/17/15 04:30

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L806845-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/17/15 04:30 • (DUP) 12/17/15 04:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	177	174	1	1.71		5

L807043-01 Original Sample (OS) • Duplicate (DUP)

(OS) 12/17/15 04:30 • (DUP) 12/17/15 04:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	238	231	1	2.73		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/17/15 04:30 • (LCSD) 12/17/15 04:30

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	788	816	102	106	85.0-115			3.49	5

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 12/16/15 13:56

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L807042-03 Original Sample (OS) • Duplicate (DUP)

(OS) 12/16/15 17:14 • (DUP) 12/16/15 17:30

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.0119	0.000	1	0		20

L807042-09 Original Sample (OS) • Duplicate (DUP)

(OS) 12/16/15 19:48 • (DUP) 12/16/15 20:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	2.17	2.53	1	15		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/16/15 14:11 • (LCSD) 12/16/15 14:25

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.27	8.28	103	104	90-110			0	20

L807042-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/16/15 20:19 • (MS) 12/16/15 20:35 • (MSD) 12/16/15 20:50

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate	5.00	1.16	6.23	6.53	101	107	1	80-120			5	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 12/16/15 09:39

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L807043-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/16/15 15:54 • (DUP) 12/16/15 16:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.775	0.776	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/16/15 09:53 • (LCSD) 12/16/15 10:07

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.09	8.12	101	101	90-110			0	20

L807043-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/16/15 15:08 • (MS) 12/16/15 15:23 • (MSD) 12/16/15 15:37

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate	5.00	0.401	5.68	5.64	106	105	1	80-120			1	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 12/18/15 16:37

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L806248-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/21/15 10:11 • (DUP) 12/18/15 16:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.357	ND	1	199	P1	20

L806444-04 Original Sample (OS) • Duplicate (DUP)

(OS) 12/18/15 16:45 • (DUP) 12/18/15 16:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L806248-02 Original Sample (OS) • Duplicate (DUP)

(OS) 12/21/15 10:11 • (DUP) 12/21/15 10:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.357	ND	1	4000	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/18/15 16:39 • (LCSD) 12/18/15 16:40

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	17.6	16.7	16.6	95.0	94.0	90.0-110			1.00	20



L806754-13 Original Sample (OS) • Matrix Spike (MS)

(OS) 12/18/15 16:50 • (MS) 12/18/15 16:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5.00	ND	3.58	72.0	1	90.0-110	J6

¹ Cp

² Tc

³ Ss

L806870-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/21/15 10:16 • (MS) 12/21/15 10:17 • (MSD) 12/21/15 10:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	ND	3.99	4.23	80.0	85.0	1	90.0-110	J6	J6	6.00	20

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 12/17/15 16:47

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Phosphorus,Total	ND		0.100

L806754-05 Original Sample (OS) • Duplicate (DUP)

(OS) 12/17/15 16:59 • (DUP) 12/17/15 17:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.673	0.730	1	8.00		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/17/15 16:55 • (LCSD) 12/17/15 16:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	1.00	0.911	0.911	91.0	91.0	90.0-110			0.000	20

L806754-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/17/15 17:01 • (MS) 12/17/15 17:02 • (MSD) 12/17/15 17:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	2.50	0.353	2.50	2.30	86.0	78.0	1	90.0-110	J6	J6	8.00	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 12/18/15 02:03

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 12/18/15 02:06 • (LCSD) 12/18/15 02:09

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.03	1.05	103	105	80-120			2	20
Lead	1.00	1.04	1.06	104	106	80-120			1	20
Zinc	1.00	1.02	1.03	102	103	80-120			1	20

L807043-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 12/18/15 02:12 • (MS) 12/18/15 02:18 • (MSD) 12/18/15 02:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	ND	0.999	0.993	100	99	1	75-125			1	20
Lead	1.00	ND	1.02	1.00	102	100	1	75-125			2	20
Zinc	1.00	0.00110	0.991	0.972	99	97	1	75-125			2	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
B	The same analyte is found in the associated blank.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

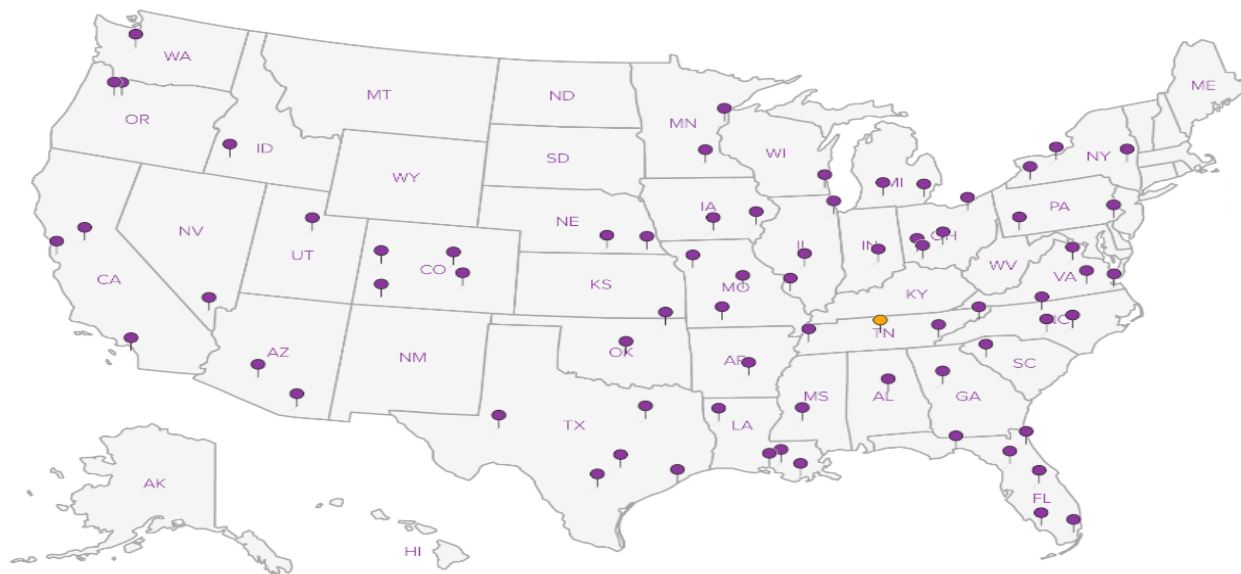
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Civil & Environmental Consultants - TN

Sample Delivery Group: L800051
Samples Received: 11/11/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1
²Tc: Table of Contents	2
³Ss: Sample Summary	3
⁴Cn: Case Narrative	4
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INFLUENT L800051-01 GW

Collected by
K. MulhollandCollected date/time
11/10/15 14:49Received date/time
11/11/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828462	1	11/12/15 14:38	11/13/15 09:01	MF
Metals (ICP) by Method 6010B	WG828467	1	11/13/15 09:11	11/13/15 14:16	CCE
Wet Chemistry by Method 300.0	WG828250	1	11/11/15 13:53	11/11/15 13:53	CM
Wet Chemistry by Method 351.2	WG828347	1	11/12/15 11:25	11/16/15 14:06	ASK
Wet Chemistry by Method 365.4	WG828342	1	11/12/15 11:36	11/16/15 16:18	DR

¹ Cp² Tc³ Ss⁴ Cn

INFLUENT DUPLICATE L800051-02 GW

Collected by
K. MulhollandCollected date/time
11/10/15 14:49Received date/time
11/11/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828462	1	11/12/15 14:38	11/13/15 09:01	MF
Metals (ICP) by Method 6010B	WG828467	1	11/13/15 09:11	11/13/15 14:19	CCE
Wet Chemistry by Method 300.0	WG828250	1	11/11/15 14:22	11/11/15 14:22	CM
Wet Chemistry by Method 351.2	WG828347	1	11/12/15 11:25	11/16/15 15:24	ASK
Wet Chemistry by Method 365.4	WG828342	1	11/12/15 11:36	11/16/15 16:19	DR

⁵ Sr⁶ Qc⁷ Gl⁸ Al

EFFLUENT L800051-03 GW

Collected by
K. MulhollandCollected date/time
11/10/15 12:39Received date/time
11/11/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828462	1	11/12/15 14:38	11/13/15 08:59	MF
Metals (ICP) by Method 6010B	WG828467	1	11/13/15 09:11	11/13/15 14:23	CCE
Wet Chemistry by Method 300.0	WG828250	1	11/11/15 14:51	11/11/15 14:51	CM
Wet Chemistry by Method 351.2	WG828347	1	11/12/15 11:25	11/16/15 15:26	ASK
Wet Chemistry by Method 365.4	WG828342	1	11/12/15 11:36	11/16/15 16:20	DR

⁹ Sc

FIELD BLANK L800051-04 GW

Collected by
K. MulhollandCollected date/time
11/10/15 16:30Received date/time
11/11/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828462	1	11/12/15 14:38	11/13/15 08:56	MF
Metals (ICP) by Method 6010B	WG828467	1	11/13/15 09:11	11/13/15 14:32	CCE
Wet Chemistry by Method 300.0	WG828252	1	11/11/15 22:53	11/11/15 22:53	DJD
Wet Chemistry by Method 351.2	WG828347	1	11/12/15 11:25	11/16/15 15:27	ASK
Wet Chemistry by Method 365.4	WG828342	1	11/12/15 11:36	11/16/15 16:21	DR



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	31.2		2.50	1	11/13/2015 09:01	WG828462

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/11/2015 13:53	WG828250

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/16/2015 14:06	WG828347

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/16/2015 16:18	WG828342

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/13/2015 14:16	WG828467
Lead	ND		0.00500	1	11/13/2015 14:16	WG828467
Zinc	0.0609		0.0500	1	11/13/2015 14:16	WG828467



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	31.7		2.50	1	11/13/2015 09:01	WG828462

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/11/2015 14:22	WG828250

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.282		0.250	1	11/16/2015 15:24	WG828347

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/16/2015 16:19	WG828342

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0114		0.0100	1	11/13/2015 14:19	WG828467
Lead	ND		0.00500	1	11/13/2015 14:19	WG828467
Zinc	0.0682		0.0500	1	11/13/2015 14:19	WG828467

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	8.91		2.50	1	11/13/2015 08:59	WG828462

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/11/2015 14:51	WG828250

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/16/2015 15:26	WG828347

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/16/2015 16:20	WG828342

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/13/2015 14:23	WG828467
Lead	ND		0.00500	1	11/13/2015 14:23	WG828467
Zinc	ND		0.0500	1	11/13/2015 14:23	WG828467



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	11/13/2015 08:56	WG828462

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/11/2015 22:53	WG828252

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/16/2015 15:27	WG828347

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/16/2015 16:21	WG828342

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/13/2015 14:32	WG828467
Lead	ND		0.00500	1	11/13/2015 14:32	WG828467
Zinc	ND		0.0500	1	11/13/2015 14:32	WG828467



Method Blank (MB)

(MB) 11/13/15 09:00

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L800175-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/13/15 08:59 • (DUP) 11/13/15 08:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	19.8	19.1	1	3.64		5

L800207-02 Original Sample (OS) • Duplicate (DUP)

(OS) 11/13/15 09:00 • (DUP) 11/13/15 08:57

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	74.8	78.8	1	5.21	J3	5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 08:56 • (LCSD) 11/13/15 08:56

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	796	764	103	98.8	85.0-115			4.10	5



Method Blank (MB)

(MB) 11/11/15 08:48

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L800051-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/11/15 13:53 • (DUP) 11/11/15 14:08

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.0453	0.0467	1	0		20

L800063-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/11/15 16:20 • (DUP) 11/11/15 16:34

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	18.9	18.9	10	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/11/15 11:58 • (LCSD) 11/11/15 12:13

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.17	8.18	102	102	90-110			0	20

L800051-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/11/15 14:22 • (MS) 11/11/15 14:37

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.0380	5.15	102	1	80-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



[L800051-01,02,03](#)

L800063-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/11/15 16:49 • (MS) 11/11/15 17:03 • (MSD) 11/11/15 17:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Nitrate	0.500	40.0	96.1	96.3	112	113	10	80-120			0	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 11/11/15 20:34

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L800033-05 Original Sample (OS) • Duplicate (DUP)

(OS) 11/11/15 21:51 • (DUP) 11/11/15 22:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	43.5	47.5	10	9		20

L800119-07 Original Sample (OS) • Duplicate (DUP)

(OS) 11/12/15 03:31 • (DUP) 11/12/15 03:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.0254	0.0247	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/11/15 20:50 • (LCSD) 11/11/15 21:05

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.14	8.16	102	102	90-110			0	20

L800051-04 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/11/15 22:53 • (MS) 11/11/15 23:08

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	ND	4.85	97	1	80-120	



L800119-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/12/15 04:01 • (MS) 11/12/15 04:17 • (MSD) 11/12/15 04:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	3.61	8.58	8.45	100	97	1	80-120			2	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 11/16/15 14:00

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L799164-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 14:10 • (DUP) 11/16/15 14:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.662	0.611	1	8.00		20

L800051-04 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 15:27 • (DUP) 11/16/15 15:28

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/16/15 14:02 • (LCSD) 11/16/15 14:04

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	11.9	12.1	94.0	96.0	85.0-115			2.00	20

L800051-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/16/15 14:06 • (MS) 11/16/15 14:07

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	0.233	4.87	93.0	1	90.0-110	



L799831-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/16/15 15:18 • (MS) 11/16/15 15:20 • (MSD) 11/16/15 15:21

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.652	5.08	5.26	89.0	92.0	1	90.0-110	J6		3.00	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 11/16/15 15:43

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L799575-02 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 16:09 • (DUP) 11/16/15 16:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/16/15 15:46 • (LCSD) 11/16/15 15:47

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	1.00	1.00	100	100	90.0-110			0.000	20

L799575-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/16/15 15:56 • (MS) 11/16/15 15:57 • (MSD) 11/16/15 15:58

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.112	2.67	2.74	102	105	1	90.0-110			2.59	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 11/13/15 13:19

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 13:22 • (LCSD) 11/13/15 13:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.04	1.03	104	103	80-120			0	20
Lead	1.00	1.09	1.08	109	108	80-120			1	20
Zinc	1.00	0.958	0.947	96	95	80-120			1	20

L799873-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/13/15 13:28 • (MS) 11/13/15 13:34 • (MSD) 11/13/15 13:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00393	1.04	1.05	104	105	1	75-125			1	20
Lead	1.00	0.00408	1.10	1.09	110	109	1	75-125			1	20
Zinc	1.00	0.00427	0.958	0.945	95	94	1	75-125			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

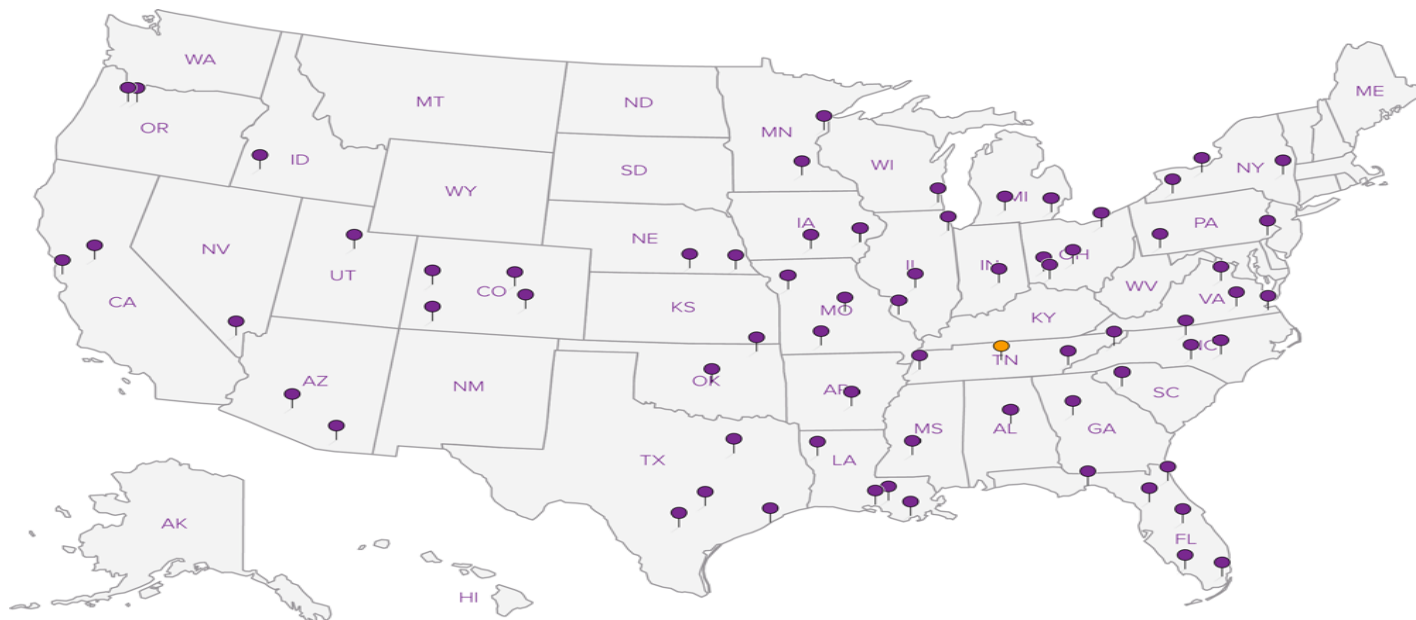
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Jimmy Hunt

L800051

From: Blasingame, Ben <bblasingame@cecinc.com>
Sent: Wednesday, November 11, 2015 3:04 PM
To: Jimmy Hunt
Subject: RE: Campbell's Run

Jimmy,

Please do a 3-day turnaround on the samples you received today.

As we discussed yesterday, I assume this to be a 25% increase in cost.

Please let me know when we should expect to see the results for this particular sample and the other two outstanding samples.

Thanks,

Ben

Benjamin Blasingame, E.I.T. / Project Manager
Civil & Environmental Consultants, Inc.
333 Baldwin Road · Pittsburgh, PA 15205-1751
Toll-Free: (800) 365-2324 · Direct: (412) 249-2285 · Fax: (412) 429-2114
Mobile: (412) 420-9449 · <http://www.cecinc.com>
Senior Leadership · Integrated Services · Personal Business Relationships

From: Jimmy Hunt [<mailto:JHunt@esclabsciences.com>]
Sent: Wednesday, November 11, 2015 11:46 AM
To: Blasingame, Ben
Subject: Campbell's Run

Ben,

Do you need these samples completed on a 2-day rush or is standard turn OK?

Thanks,

Jimmy Hunt
Technical Service Representative
Phone: 615-773-9668
Toll Free: 1-800-767-5859 ext:9668
Email: jhunt@esclabsciences.com

This E-mail and any attached files are confidential, and may be copyright protected. If you are not the addressee, any dissemination of this communication is strictly prohibited. If you have received this message in error, please contact the sender immediately and delete/destroy all information received.

Civil & Environmental Consultants - TN

Sample Delivery Group: L799517
Samples Received: 11/07/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L799517-01 GW

Collected by
K. MulhollandCollected date/time
11/06/15 10:42Received date/time
11/07/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828215	1	11/12/15 04:12	11/13/15 05:48	JM
Metals (ICP) by Method 6010B	WG827856	1	11/10/15 15:50	11/10/15 20:42	CCE
Wet Chemistry by Method 300.0	WG827347	1	11/07/15 15:12	11/07/15 15:12	CM
Wet Chemistry by Method 351.2	WG828045	5	11/11/15 00:33	11/11/15 14:37	ASK
Wet Chemistry by Method 365.4	WG828043	1	11/11/15 00:30	11/16/15 19:38	ASK

¹ Cp² Tc³ Ss⁴ Cn

EFFLUENT L799517-02 GW

Collected by
K. MulhollandCollected date/time
11/06/15 10:21Received date/time
11/07/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828215	1	11/12/15 04:12	11/13/15 05:50	JM
Metals (ICP) by Method 6010B	WG827856	1	11/10/15 15:50	11/10/15 20:46	CCE
Wet Chemistry by Method 300.0	WG827347	1	11/07/15 15:26	11/07/15 15:26	CM
Wet Chemistry by Method 351.2	WG828178	1	11/11/15 12:18	11/11/15 16:28	ASK
Wet Chemistry by Method 365.4	WG828043	1	11/11/15 00:30	11/16/15 19:39	ASK

⁵ Sr⁶ Qc⁷ Gl⁸ Al

FIELD BLANK L799517-03 GW

Collected by
K. MulhollandCollected date/time
11/06/15 14:30Received date/time
11/07/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 D-2011	WG828215	1	11/12/15 04:12	11/13/15 05:52	JM
Metals (ICP) by Method 6010B	WG827856	1	11/10/15 15:50	11/10/15 20:49	CCE
Wet Chemistry by Method 300.0	WG827347	1	11/07/15 16:08	11/07/15 16:08	CM
Wet Chemistry by Method 351.2	WG828045	1	11/11/15 00:33	11/11/15 14:18	ASK
Wet Chemistry by Method 365.4	WG828043	1	11/11/15 00:30	11/16/15 19:40	DR

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	84.4		2.50	1	11/13/2015 05:48	WG828215

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.104		0.100	1	11/07/2015 15:12	WG827347

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	45.8		1.25	5	11/11/2015 14:37	WG828045

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.160		0.100	1	11/16/2015 19:38	WG828043

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/10/2015 20:42	WG827856
Lead	ND		0.00500	1	11/10/2015 20:42	WG827856
Zinc	0.127		0.0500	1	11/10/2015 20:42	WG827856



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	19.6		2.50	1	11/13/2015 05:50	WG828215

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.167		0.100	1	11/07/2015 15:26	WG827347

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.371		0.250	1	11/11/2015 16:28	WG828178

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.125		0.100	1	11/16/2015 19:39	WG828043

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/10/2015 20:46	WG827856
Lead	ND		0.00500	1	11/10/2015 20:46	WG827856
Zinc	ND		0.0500	1	11/10/2015 20:46	WG827856



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	11/13/2015 05:52	WG828215

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/07/2015 16:08	WG827347

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/11/2015 14:18	WG828045

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.100		0.100	1	11/16/2015 19:40	WG828043

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/10/2015 20:49	WG827856
Lead	ND		0.00500	1	11/10/2015 20:49	WG827856
Zinc	ND		0.0500	1	11/10/2015 20:49	WG827856

Method Blank (MB)

(MB) 11/13/15 05:45

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L799523-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/13/15 05:49 • (DUP) 11/13/15 05:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	158	146	1	7.89	J3	5

L799606-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/13/15 05:51 • (DUP) 11/13/15 05:51

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	153	153	1	0.000		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 05:47 • (LCSD) 11/13/15 05:48

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	852	864	110	112	85.0-115			1.40	5



Method Blank (MB)

(MB) 11/07/15 06:27

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L799243-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/07/15 10:41 • (DUP) 11/07/15 10:55

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	0.000	1	0		20

L799517-03 Original Sample (OS) • Duplicate (DUP)

(OS) 11/07/15 16:08 • (DUP) 11/07/15 16:22

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/07/15 06:41 • (LCSD) 11/07/15 06:55

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.23	8.26	103	103	90-110			0	20

L799243-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/07/15 11:09 • (MS) 11/07/15 11:23

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	ND	5.25	105	1	80-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



[L799517-01,02,03](#)

L799517-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/07/15 15:26 • (MS) 11/07/15 15:40 • (MSD) 11/07/15 15:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Nitrate	5.00	0.167	5.38	5.39	104	104	1	80-120			0	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 11/11/15 13:50

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L799517-03 Original Sample (OS) • Duplicate (DUP)

(OS) 11/11/15 14:18 • (DUP) 11/11/15 14:20

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L798133-02 Original Sample (OS) • Duplicate (DUP)

(OS) 11/11/15 13:57 • (DUP) 11/11/15 13:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	1.21	1.27	1	4.84		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/11/15 13:52 • (LCSD) 11/11/15 13:53

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	12.2	12.1	96.4	95.7	85.0-115			0.823	20

L798822-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/11/15 14:02 • (MS) 11/11/15 14:03

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	0.770	5.26	89.8	1	90.0-110	J6



L799508-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/11/15 14:12 • (MS) 11/11/15 14:14 • (MSD) 11/11/15 14:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5.00	0.0327	4.54	4.45	90.8	89.0	1	90.0-110		J6	2.00	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 11/11/15 16:19

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/11/15 16:22 • (LCSD) 11/11/15 16:23

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	12.9	12.8	102	101	85.0-115			0.778	20

L799633-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/11/15 16:30 • (MS) 11/11/15 16:31 • (MSD) 11/11/15 16:32

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	3.19	9.06	8.20	117	100	1	90.0-110	J5		9.97	20

L799633-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/11/15 16:34 • (MS) 11/11/15 16:35

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	3.64	7.86	84.4	1	90.0-110	J6

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc



Method Blank (MB)

(MB) 11/16/15 19:07

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L799424-07 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 19:15 • (DUP) 11/16/15 19:16

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

L799517-03 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 19:40 • (DUP) 11/16/15 19:41

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.100	0.108	1	8.00		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/16/15 19:09 • (LCSD) 11/16/15 19:11

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	1.03	1.09	103	109	90.0-110			6.00	20

L799424-11 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/16/15 19:21 • (MS) 11/16/15 19:22

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Phosphorus,Total	2.50	0.125	2.55	97.0	1	90.0-110	



Method Blank (MB)

(MB) 11/11/15 00:57

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/11/15 01:00 • (LCSD) 11/11/15 01:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.973	1.01	97	101	80-120			4	20
Lead	1.00	1.03	1.06	103	106	80-120			3	20
Zinc	1.00	1.03	1.05	103	105	80-120			3	20

L799410-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/11/15 01:06 • (MS) 11/11/15 01:12 • (MSD) 11/11/15 01:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00142	1.01	1.01	101	101	1	75-125			0	20
Lead	1.00	0.00121	1.07	1.06	107	106	1	75-125			0	20
Zinc	1.00	0.0210	1.04	1.04	102	102	1	75-125			0	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

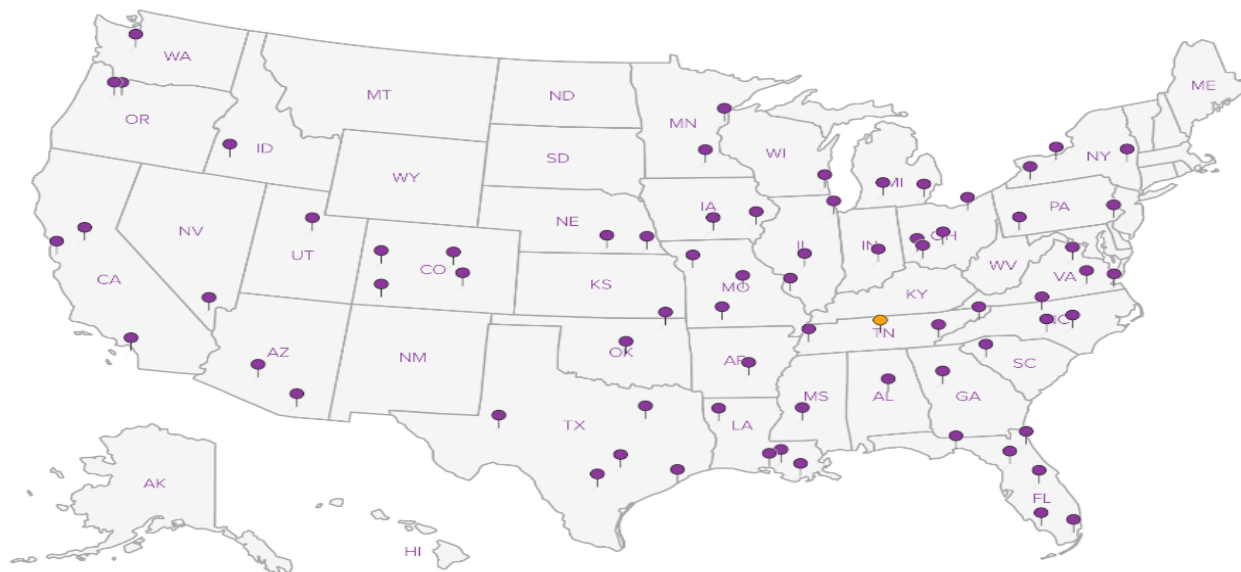
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



650371525970

Civil & Environmental Consultants - TN

Sample Delivery Group: L797669
Samples Received: 10/30/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L797669-01 GW

Collected by
K. MulhollandCollected date/time
10/28/15 19:32Received date/time
10/30/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG826192	1	11/04/15 02:38	11/05/15 00:01	JM
Metals (ICP) by Method 6010B	WG825995	1	11/02/15 21:36	11/03/15 09:39	LTB
Wet Chemistry by Method 300.0	WG825507	1	10/30/15 15:36	10/30/15 15:36	NJM
Wet Chemistry by Method 351.2	WG826283	1	11/03/15 09:52	11/03/15 15:32	ASK
Wet Chemistry by Method 365.4	WG826490	1	11/03/15 19:19	11/04/15 15:31	DR

¹ Cp² Tc³ Ss⁴ Cn

INFLUENT DUPLICATE L797669-02 GW

Collected by
K. MulhollandCollected date/time
10/28/15 19:32Received date/time
10/30/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG826192	1	11/04/15 02:38	11/05/15 00:02	JM
Metals (ICP) by Method 6010B	WG825995	1	11/02/15 21:36	11/03/15 08:54	LTB
Wet Chemistry by Method 300.0	WG825507	1	10/30/15 15:49	10/30/15 15:49	NJM
Wet Chemistry by Method 351.2	WG826283	1	11/03/15 09:52	11/03/15 15:33	ASK
Wet Chemistry by Method 365.4	WG826490	1	11/03/15 19:19	11/04/15 15:33	DR

⁵ Sr⁶ Qc⁷ Gl⁸ Al

EFFLUENT L797669-03 GW

Collected by
K. MulhollandCollected date/time
10/28/15 19:09Received date/time
10/30/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG826192	1	11/04/15 02:38	11/05/15 00:00	JM
Metals (ICP) by Method 6010B	WG825995	1	11/02/15 21:36	11/03/15 09:43	LTB
Wet Chemistry by Method 300.0	WG825507	1	10/30/15 16:03	10/30/15 16:03	NJM
Wet Chemistry by Method 351.2	WG826283	1	11/03/15 09:52	11/03/15 15:34	ASK
Wet Chemistry by Method 365.4	WG826490	1	11/03/15 19:19	11/04/15 15:34	DR

⁹ Sc

EFFLUENT DUPLICATE L797669-04 GW

Collected by
K. MulhollandCollected date/time
10/28/15 19:09Received date/time
10/30/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG826192	1	11/04/15 02:38	11/05/15 00:01	JM
Metals (ICP) by Method 6010B	WG825995	1	11/02/15 21:36	11/03/15 09:46	LTB
Wet Chemistry by Method 300.0	WG825507	1	10/30/15 16:31	10/30/15 16:31	NJM
Wet Chemistry by Method 351.2	WG826283	1	11/03/15 09:52	11/03/15 15:36	ASK
Wet Chemistry by Method 365.4	WG826490	1	11/03/15 19:19	11/04/15 15:35	DR

FIELD BLANK L797669-05 GW

Collected by
K. MulhollandCollected date/time
10/28/15 08:30Received date/time
10/30/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG826192	1	11/04/15 02:38	11/05/15 00:00	JM
Metals (ICP) by Method 6010B	WG825995	1	11/02/15 21:36	11/03/15 09:49	LTB
Wet Chemistry by Method 300.0	WG827715	1	11/10/15 01:55	11/10/15 01:55	DJD
Wet Chemistry by Method 351.2	WG826283	1	11/03/15 09:52	11/03/15 15:37	ASK
Wet Chemistry by Method 365.4	WG826490	1	11/03/15 19:19	11/04/15 15:36	DR



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	4.90		2.50	1	11/05/2015 00:01	WG826192

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/30/2015 15:36	WG825507

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/03/2015 15:32	WG826283

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/04/2015 15:31	WG826490

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/03/2015 09:39	WG825995
Lead	ND		0.00500	1	11/03/2015 09:39	WG825995
Zinc	ND		0.0500	1	11/03/2015 09:39	WG825995

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	6.20		2.50	1	11/05/2015 00:02	WG826192

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/30/2015 15:49	WG825507

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/03/2015 15:33	WG826283

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/04/2015 15:33	WG826490

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/03/2015 08:54	WG825995
Lead	ND		0.00500	1	11/03/2015 08:54	WG825995
Zinc	ND		0.0500	1	11/03/2015 08:54	WG825995

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	2.50		2.50	1	11/05/2015 00:00	WG826192

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/30/2015 16:03	WG825507

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.571		0.250	1	11/03/2015 15:34	WG826283

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/04/2015 15:34	WG826490

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/03/2015 09:43	WG825995
Lead	ND		0.00500	1	11/03/2015 09:43	WG825995
Zinc	ND		0.0500	1	11/03/2015 09:43	WG825995



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	2.70		2.50	1	11/05/2015 00:01	WG826192

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/30/2015 16:31	WG825507

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/03/2015 15:36	WG826283

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/04/2015 15:35	WG826490

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/03/2015 09:46	WG825995
Lead	ND		0.00500	1	11/03/2015 09:46	WG825995
Zinc	ND		0.0500	1	11/03/2015 09:46	WG825995



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	11/05/2015 00:00	WG826192

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	11/10/2015 01:55	WG827715

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/03/2015 15:37	WG826283

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	11/04/2015 15:36	WG826490

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	11/03/2015 09:49	WG825995
Lead	ND		0.00500	1	11/03/2015 09:49	WG825995
Zinc	ND		0.0500	1	11/03/2015 09:49	WG825995

Method Blank (MB)

(MB) 11/04/15 23:58

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L797185-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/05/15 00:02 • (DUP) 11/05/15 00:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	27.5	26.3	1	4.65		5

L797898-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/05/15 00:04 • (DUP) 11/05/15 00:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	25.5	24.0	1	6.06	J3	5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/04/15 23:58 • (LCSD) 11/04/15 23:58

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	844	820	109	106	85.0-115			2.88	5

Method Blank (MB)

(MB) 10/30/15 06:28

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L797669-04 Original Sample (OS) • Duplicate (DUP)

(OS) 10/30/15 16:31 • (DUP) 10/30/15 16:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.0434	0.0429	1	0		20

L797641-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/30/15 19:18 • (DUP) 10/30/15 19:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.402	0.401	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/30/15 06:42 • (LCSD) 10/30/15 06:56

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.39	8.42	105	105	90-110			0	20

L797669-03 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/30/15 16:03 • (MS) 10/30/15 16:17

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.0367	5.10	101	1	80-120	



L797641-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/30/15 19:46 • (MS) 10/30/15 20:00 • (MSD) 10/30/15 20:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	3.91	8.95	8.89	101	100	1	80-120			1	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 11/09/15 11:31

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L798019-13 Original Sample (OS) • Duplicate (DUP)

(OS) 11/09/15 21:44 • (DUP) 11/09/15 21:58

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	ND	0.000	50	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/09/15 11:45 • (LCSD) 11/09/15 11:59

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.14	8.16	102	102	90-110			0	20

L797760-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/09/15 20:49 • (MS) 11/09/15 21:02

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	2.50	ND	9.41	94	2	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 11/03/15 15:09

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L797713-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/03/15 15:39 • (DUP) 11/03/15 15:40

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	3.24	3.41	1	5.11		20

L796788-02 Original Sample (OS) • Duplicate (DUP)

(OS) 11/03/15 15:18 • (DUP) 11/03/15 15:19

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	10	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/03/15 15:12 • (LCSD) 11/03/15 15:13

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	13.2	13.8	104	109	85.0-115			4.44	20

L797713-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/03/15 15:41 • (MS) 11/03/15 15:43 • (MSD) 11/03/15 15:44

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	4.27	9.33	8.30	101	80.6	1	90.0-110		J6	11.7	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L796321-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/03/15 15:15 • (MS) 11/03/15 15:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5.00	2.32	6.58	85.2	1	90.0-110	J6

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 11/04/15 15:20

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L797723-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/04/15 15:52 • (DUP) 11/04/15 15:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.334	0.394	1	16.5		20

L797664-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/04/15 15:28 • (DUP) 11/04/15 15:29

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.995	0.946	1	5.05		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/04/15 15:22 • (LCSD) 11/04/15 15:24

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.963	0.947	96.3	94.7	90.0-110			1.68	20

L797678-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/04/15 15:44 • (MS) 11/04/15 15:45 • (MSD) 11/04/15 15:47

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.377	2.74	2.71	94.5	93.3	1	90.0-110			1.10	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 11/03/15 08:45

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/03/15 08:48 • (LCSD) 11/03/15 08:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.03	1.02	103	102	80-120			1	20
Lead	1.00	1.04	1.03	104	103	80-120			1	20
Zinc	1.00	1.01	0.988	101	99	80-120			2	20

L797669-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/03/15 08:54 • (MS) 11/03/15 09:00 • (MSD) 11/03/15 09:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.000685	1.04	1.05	104	105	1	75-125			1	20
Lead	1.00	0.00192	1.05	1.04	105	104	1	75-125			1	20
Zinc	1.00	0.0184	1.03	1.02	101	100	1	75-125			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

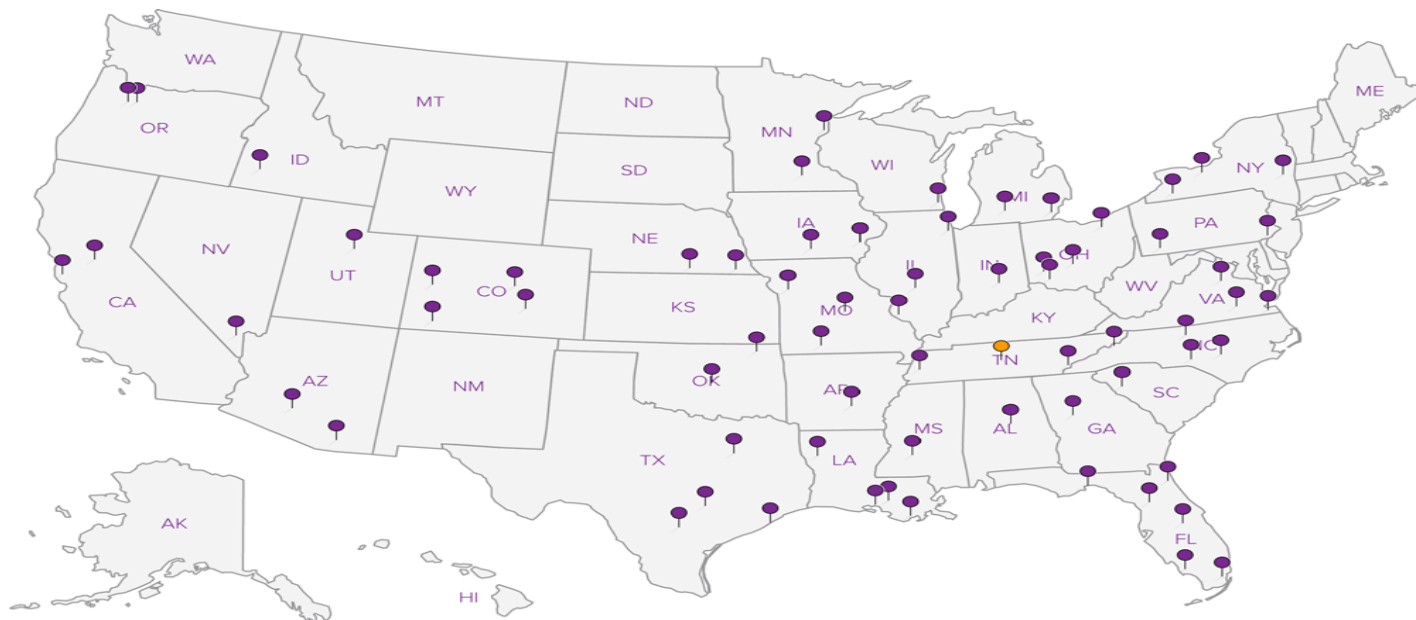
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



[illegible]

Civil & Environmental Consultants - TN

Sample Delivery Group: L796788
Samples Received: 10/27/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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⁴Cn: Case Narrative	4
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⁶Qc: Quality Control Summary	8
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INFLUENT L796788-01 GW

			Collected by LDC	Collected date/time 10/25/15 14:30	Received date/time 10/27/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG825210	1	10/29/15 04:15	10/30/15 08:07	JM
Metals (ICP) by Method 6010B	WG825262	1	10/30/15 08:41	10/30/15 16:24	WBD
Wet Chemistry by Method 300.0	WG824803	1	10/27/15 12:03	10/27/15 12:03	CM
Wet Chemistry by Method 351.2	WG824914	1	10/27/15 20:42	11/02/15 15:47	ASK
Wet Chemistry by Method 365.4	WG824910	1	10/27/15 20:37	10/28/15 08:13	DR

¹ Cp² Tc³ Ss⁴ Cn

EFFLUENT L796788-02 GW

			Collected by LDC	Collected date/time 10/25/15 14:41	Received date/time 10/27/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG825210	1	10/29/15 04:15	10/30/15 08:09	JM
Metals (ICP) by Method 6010B	WG825262	1	10/30/15 08:41	10/30/15 16:27	WBD
Wet Chemistry by Method 300.0	WG824803	1	10/27/15 12:34	10/27/15 12:34	CM
Wet Chemistry by Method 351.2	WG826283	10	11/03/15 09:52	11/03/15 15:18	ASK
Wet Chemistry by Method 365.4	WG824910	1	10/27/15 20:37	10/28/15 08:14	DR

⁵ Sr⁶ Qc⁷ Gl⁸ Al

FIELD BLANK L796788-03 GW

			Collected by LDC	Collected date/time 10/26/15 12:25	Received date/time 10/27/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG825210	1	10/29/15 04:15	10/30/15 08:06	JM
Metals (ICP) by Method 6010B	WG825262	1	10/30/15 08:41	10/30/15 16:30	WBD
Wet Chemistry by Method 300.0	WG824803	1	10/27/15 11:48	10/27/15 11:48	CM
Wet Chemistry by Method 351.2	WG824914	1	10/27/15 20:42	11/02/15 15:52	ASK
Wet Chemistry by Method 365.4	WG824910	1	10/27/15 20:37	10/28/15 08:16	DR

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	19.8		2.50	1	10/30/2015 08:07	WG825210

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.456		0.100	1	10/27/2015 12:03	WG824803

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	11/02/2015 15:47	WG824914

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/28/2015 08:13	WG824910

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/30/2015 16:24	WG825262
Lead	ND		0.00500	1	10/30/2015 16:24	WG825262
Zinc	ND		0.0500	1	10/30/2015 16:24	WG825262

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	9.88		2.50	1	10/30/2015 08:09	WG825210

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.299		0.100	1	10/27/2015 12:34	WG824803

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		2.50	10	11/03/2015 15:18	WG826283

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/28/2015 08:14	WG824910

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/30/2015 16:27	WG825262
Lead	ND		0.00500	1	10/30/2015 16:27	WG825262
Zinc	ND		0.0500	1	10/30/2015 16:27	WG825262



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	10/30/2015 08:06	WG825210

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/27/2015 11:48	WG824803

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND	J6	0.250	1	11/02/2015 15:52	WG824914

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/28/2015 08:16	WG824910

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/30/2015 16:30	WG825262
Lead	ND		0.00500	1	10/30/2015 16:30	WG825262
Zinc	ND		0.0500	1	10/30/2015 16:30	WG825262

9 Sc



Method Blank (MB)

(MB) 10/30/15 08:08

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L796792-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/30/15 08:03 • (DUP) 10/30/15 08:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	106	113	1	6.57	J3	5

L796810-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/30/15 08:06 • (DUP) 10/30/15 08:04

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	1060	1030	1	2.69		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/30/15 08:06 • (LCSD) 10/30/15 08:07

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	864	860	112	111	85.0-115			0.464	5



Method Blank (MB)

(MB) 10/27/15 09:00

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L796788-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/27/15 12:03 • (DUP) 10/27/15 12:18

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.456	0.440	1	4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/27/15 09:15 • (LCSD) 10/27/15 09:31

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.31	8.31	104	104	90-110			0	20

L796788-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/27/15 12:34 • (MS) 10/27/15 12:49

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.299	5.68	108	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) 11/02/15 15:28

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L796790-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/02/15 15:55 • (DUP) 11/02/15 15:56

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L796252-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/02/15 15:36 • (DUP) 11/02/15 15:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/02/15 15:30 • (LCSD) 11/02/15 15:31

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	12.6	12.5	99.6	98.8	85.0-115			0.797	20

L796788-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/02/15 15:52 • (MS) 11/02/15 15:53 • (MSD) 11/02/15 15:54

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	ND	4.49	4.48	89.8	89.6	1	90.0-110	J6	J6	0.223	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 11/03/15 15:09

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L797713-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/03/15 15:39 • (DUP) 11/03/15 15:40

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	3.24	3.41	1	5.11		20

L796788-02 Original Sample (OS) • Duplicate (DUP)

(OS) 11/03/15 15:18 • (DUP) 11/03/15 15:19

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	10	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/03/15 15:12 • (LCSD) 11/03/15 15:13

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	13.2	13.8	104	109	85.0-115			4.44	20

L797713-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/03/15 15:41 • (MS) 11/03/15 15:43 • (MSD) 11/03/15 15:44

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	4.27	9.33	8.30	101	80.6	1	90.0-110		J6	11.7	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L796321-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 11/03/15 15:15 • (MS) 11/03/15 15:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Kjeldahl Nitrogen, TKN	5.00	2.32	6.58	85.2	1	90.0-110	<u>J6</u>

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/28/15 07:37

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L796766-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/28/15 08:09 • (DUP) 10/28/15 08:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	2.36	2.08	1	12.6		20

L796013-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/28/15 07:43 • (DUP) 10/28/15 07:45

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	1.83	1.66	1	9.74		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/28/15 07:40 • (LCSD) 10/28/15 07:41

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.970	0.959	97.0	95.9	90.0-110			1.14	20

L796368-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/28/15 07:52 • (MS) 10/28/15 07:54 • (MSD) 10/28/15 07:55

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	2.81	5.38	5.14	103	93.2	1	90.0-110			4.56	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/30/15 15:21

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/30/15 15:23 • (LCSD) 10/30/15 15:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.05	1.06	105	106	80-120			1	20
Lead	1.00	1.02	1.02	102	102	80-120			0	20
Zinc	1.00	0.961	0.959	96	96	80-120			0	20

L796940-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/30/15 15:29 • (MS) 10/30/15 15:43 • (MSD) 10/30/15 15:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.0368	1.07	1.09	104	105	1	75-125			2	20
Lead	1.00	0.0102	1.03	1.05	102	104	1	75-125			2	20
Zinc	1.00	0.261	1.20	1.22	94	96	1	75-125			1	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

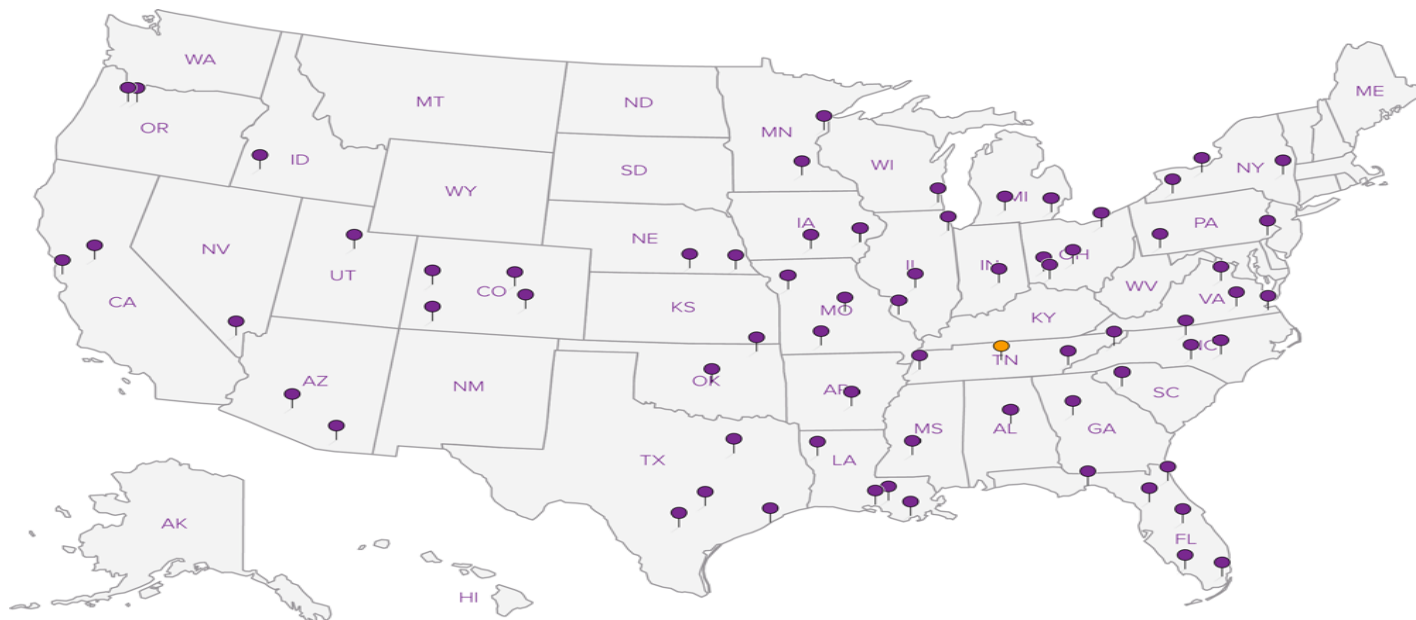
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**


¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

Sample Delivery Group: L793818
Samples Received: 10/10/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1
²Tc: Table of Contents	2
³Ss: Sample Summary	3
⁴Cn: Case Narrative	4
⁵Sr: Sample Results	5
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EFFLUENT L793818-03	7
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⁶Qc: Quality Control Summary	10
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⁷Gl: Glossary of Terms	18
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⁹Sc: Chain of Custody	20





INFLUENT L793818-01 GW

			Collected by	Collected date/time	Received date/time
				10/09/15 12:50	10/10/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG821952	1	10/15/15 03:24	10/16/15 06:58	JM
Metals (ICP) by Method 6010B	WG821547	1	10/15/15 10:12	10/15/15 18:08	WBD
Wet Chemistry by Method 300.0	WG821337	1	10/13/15 19:58	10/13/15 19:58	NJM
Wet Chemistry by Method 351.2	WG821741	1	10/14/15 14:34	10/14/15 20:04	ASK
Wet Chemistry by Method 365.4	WG821740	1	10/14/15 14:35	10/16/15 06:54	DR

1
Cp2
Tc3
Ss4
Cn

INFLUENT DUPLICATE L793818-02 GW

			Collected by	Collected date/time	Received date/time
				10/09/15 12:50	10/10/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG821952	1	10/15/15 03:24	10/16/15 06:58	JM
Metals (ICP) by Method 6010B	WG821547	1	10/15/15 10:12	10/15/15 18:11	WBD
Wet Chemistry by Method 300.0	WG821337	1	10/13/15 20:13	10/13/15 20:13	NJM
Wet Chemistry by Method 351.2	WG821741	1	10/14/15 14:34	10/14/15 20:05	ASK
Wet Chemistry by Method 365.4	WG821740	1	10/14/15 14:35	10/16/15 06:55	DR

5
Sr6
Qc7
Gl8
Al

EFFLUENT L793818-03 GW

			Collected by	Collected date/time	Received date/time
				10/09/15 13:00	10/10/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG821952	1	10/15/15 03:24	10/16/15 06:59	JM
Metals (ICP) by Method 6010B	WG821547	1	10/15/15 10:12	10/15/15 18:14	WBD
Wet Chemistry by Method 300.0	WG821337	1	10/13/15 20:28	10/13/15 20:28	NJM
Wet Chemistry by Method 351.2	WG821741	1	10/14/15 14:34	10/14/15 20:07	ASK
Wet Chemistry by Method 365.4	WG821740	1	10/14/15 14:35	10/16/15 06:57	DR

9
Sc

EFFLUENT DUPLICATE L793818-04 GW

			Collected by	Collected date/time	Received date/time
				10/09/15 13:00	10/10/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG821952	1	10/15/15 03:24	10/16/15 06:59	JM
Metals (ICP) by Method 6010B	WG821547	1	10/15/15 10:12	10/15/15 18:23	WBD
Wet Chemistry by Method 300.0	WG821337	1	10/13/15 20:44	10/13/15 20:44	NJM
Wet Chemistry by Method 351.2	WG821991	1	10/14/15 19:44	10/15/15 15:53	DR
Wet Chemistry by Method 365.4	WG821740	1	10/14/15 14:35	10/16/15 06:58	DR

FIELD BLANK L793818-05 GW

			Collected by	Collected date/time	Received date/time
				10/09/15 15:30	10/10/15 09:00
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG821952	1	10/15/15 03:24	10/16/15 06:59	JM
Metals (ICP) by Method 6010B	WG821547	1	10/15/15 10:12	10/15/15 20:19	WBD
Wet Chemistry by Method 300.0	WG821337	1	10/13/15 20:59	10/13/15 20:59	NJM
Wet Chemistry by Method 351.2	WG821991	1	10/14/15 19:44	10/15/15 15:54	DR
Wet Chemistry by Method 365.4	WG821740	1	10/14/15 14:35	10/16/15 06:59	DR



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L793818-05	FIELD BLANK	300.0

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	197		2.50	1	10/16/2015 06:58	WG821952

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.265		0.100	1	10/13/2015 19:58	WG821337

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	1.22		0.250	1	10/14/2015 20:04	WG821741

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.253		0.100	1	10/16/2015 06:54	WG821740

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0140		0.0100	1	10/15/2015 18:08	WG821547
Lead	0.0117		0.00500	1	10/15/2015 18:08	WG821547
Zinc	0.202		0.0500	1	10/15/2015 18:08	WG821547



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	205		2.50	1	10/16/2015 06:58	WG821952

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.261		0.100	1	10/13/2015 20:13	WG821337

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	1.33		0.250	1	10/14/2015 20:05	WG821741

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.251		0.100	1	10/16/2015 06:55	WG821740

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0168		0.0100	1	10/15/2015 18:11	WG821547
Lead	0.0129		0.00500	1	10/15/2015 18:11	WG821547
Zinc	0.216		0.0500	1	10/15/2015 18:11	WG821547

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	24.4		2.50	1	10/16/2015 06:59	WG821952

1 Cp

2 Tc

3 Ss

4 Cn

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.265		0.100	1	10/13/2015 20:28	WG821337

5 Sr

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.531		0.250	1	10/14/2015 20:07	WG821741

6 Qc

7 Gl

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.110		0.100	1	10/16/2015 06:57	WG821740

8 Al

9 Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/15/2015 18:14	WG821547
Lead	ND		0.00500	1	10/15/2015 18:14	WG821547
Zinc	ND		0.0500	1	10/15/2015 18:14	WG821547



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	27.8		2.50	1	10/16/2015 06:59	WG821952

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.273		0.100	1	10/13/2015 20:44	WG821337

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.272		0.250	1	10/15/2015 15:53	WG821991

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.101		0.100	1	10/16/2015 06:58	WG821740

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/15/2015 18:23	WG821547
Lead	ND		0.00500	1	10/15/2015 18:23	WG821547
Zinc	ND		0.0500	1	10/15/2015 18:23	WG821547

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	10/16/2015 06:59	WG821952

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/13/2015 20:59	WG821337

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/15/2015 15:54	WG821991

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/16/2015 06:59	WG821740

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/15/2015 20:19	WG821547
Lead	ND		0.00500	1	10/15/2015 20:19	WG821547
Zinc	ND		0.0500	1	10/15/2015 20:19	WG821547

Method Blank (MB)

(MB) 10/16/15 06:57

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

L793818-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/16/15 06:58 • (DUP) 10/16/15 06:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	205	214	1	4.30		5

L793974-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/16/15 07:00 • (DUP) 10/16/15 07:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	225	211	1	6.12	J3	5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/16/15 06:58 • (LCSD) 10/16/15 06:58

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	828	852	107	110	85.0-115			2.86	5

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/13/15 08:45

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L793084-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/13/15 17:39 • (DUP) 10/13/15 17:54

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.00920	0.00760	1	0		20

L793208-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/13/15 19:11 • (DUP) 10/13/15 19:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.353	0.344	1	3		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/13/15 09:00 • (LCSD) 10/13/15 09:16

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.21	8.22	103	103	90-110			0	20

L793703-05 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/13/15 16:06 • (MS) 10/13/15 16:22

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	ND	4.90	98	1	80-120	



[L793818-01,02,03,04,05](#)

L793818-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/13/15 20:59 • (MS) 10/13/15 21:15 • (MSD) 10/13/15 21:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Nitrate	5.00	ND	4.91	5.13	98	103	1	80-120			4	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/14/15 19:36

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L793818-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/14/15 20:05 • (DUP) 10/14/15 20:06

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	1.33	1.47	1	10.0		20

L792136-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/14/15 20:35 • (DUP) 10/14/15 20:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	112	108	10	3.64		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/14/15 19:39 • (LCSD) 10/14/15 19:40

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	14.0	13.9	111	110	85.0-115			0.717	20

L793818-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/14/15 20:07 • (MS) 10/14/15 20:09 • (MSD) 10/14/15 20:10

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	0.531	5.70	5.56	103	101	1	90.0-110			2.49	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L793599-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/14/15 19:45 • (MS) 10/14/15 19:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Kjeldahl Nitrogen, TKN	5.00	2.55	6.76	84.2	1	90.0-110	<u>J6</u>

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/15/15 15:42

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L794069-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/15/15 16:13 • (DUP) 10/15/15 16:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L793297-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/15/15 15:51 • (DUP) 10/15/15 15:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	1.11	0.903	1	20.6		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/15/15 15:45 • (LCSD) 10/15/15 15:46

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.65	13.2	13.4	104	106	85.0-115			1.50	20

L793967-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/15/15 16:00 • (MS) 10/15/15 16:02

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Kjeldahl Nitrogen, TKN	5.00	ND	3.41	68.2	1	90.0-110	J6

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/16/15 06:23

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L793610-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/16/15 06:36 • (DUP) 10/16/15 06:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	3.83	4.12	1	7.30		20

L793818-05 Original Sample (OS) • Duplicate (DUP)

(OS) 10/16/15 06:59 • (DUP) 10/16/15 07:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/16/15 06:26 • (LCSD) 10/16/15 06:27

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.931	0.943	93.1	94.3	90.0-110			1.28	20

L793282-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/16/15 06:32 • (MS) 10/16/15 06:34 • (MSD) 10/16/15 06:35

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	2.11	4.00	4.06	75.6	78.0	1	90.0-110	J6	J6	1.49	20



Method Blank (MB)

(MB) 10/15/15 20:11

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/15/15 20:13 • (LCSD) 10/15/15 20:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.980	0.976	98	98	80-120			0	20
Lead	1.00	1.07	1.06	107	106	80-120			0	20
Zinc	1.00	1.03	1.03	103	103	80-120			0	20

L793818-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/15/15 20:19 • (MS) 10/15/15 20:25 • (MSD) 10/15/15 20:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00407	0.984	0.989	98	98	1	75-125			0	20
Lead	1.00	0.000801	1.07	1.08	106	108	1	75-125			1	20
Zinc	1.00	0.000993	1.04	1.05	103	105	1	75-125			1	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

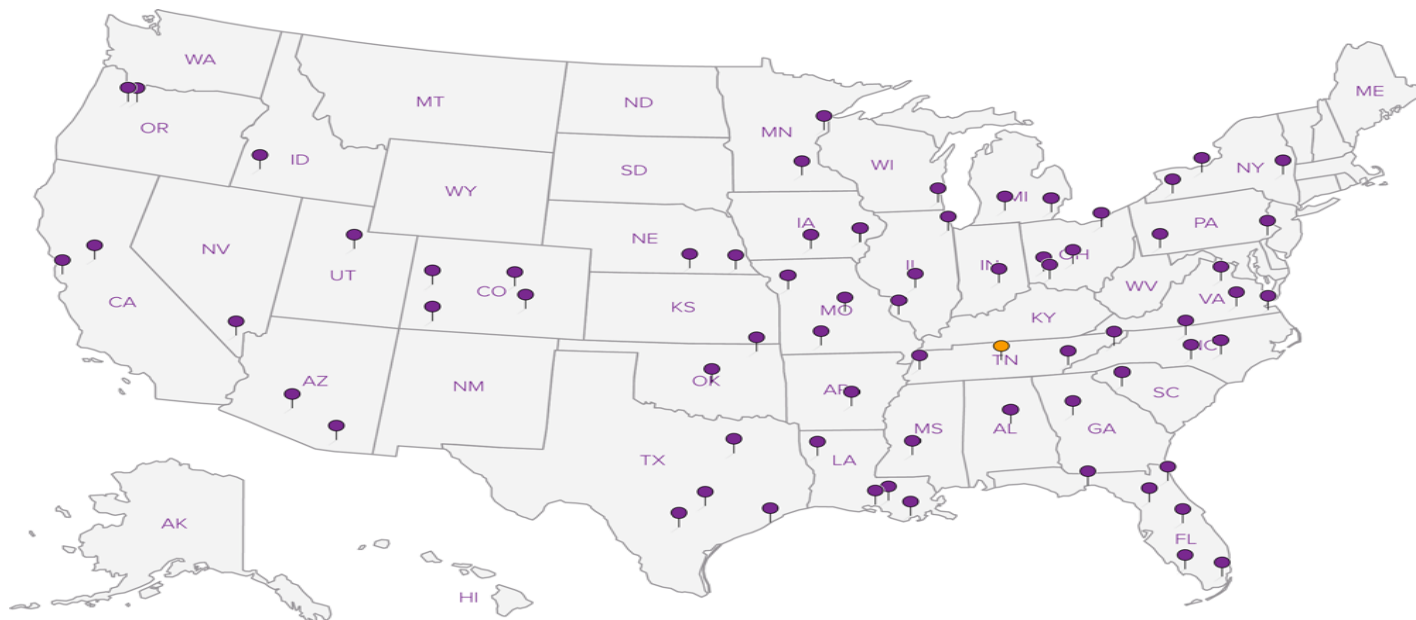
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Civil & Environmental Consultants - TN

325 Seaboard Lane, Suite 170
Franklin, TN 37067

Billing Information:

Dr. Kevin Wolfe
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Report to:

Janette Wolf/Ben Blasingame

Email To:

jwolf@cecinc.com,
bblasingame@cecinc.com

Project

Description: Campbells Run

City/State Collected:

Phone: 615-333-7797

Fax: 615-333-7751

Client Project #

Lab Project # CEC-CAMPBELLS RUN

Collected by (print):

Site/Facility ID # PITTSBURGH, PA

P.O. # 142-879

Collected by (signature):

Rush? (Lab MUST Be Notified)

Same Day200%

Next Day100%

Two Day50%

Three Day25%

Date Results Needed

Email? ___ No ___ Yes

FAX? ___ No ___ Yes

Immediately

Packed on Ice N ___ Y ___

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cu, Pb, Zn 500mlHDPE-HNO3	NITRATE by 300.0 125mlHDPE-NoPres	PT, TKN 250mlHDPE-H2SO4	TSS 1L-HDPE NoPres								
INFLUENT		WW		10/9/15	1250	4	X	X	X	X								
INFLUENT DUPLICATE		WW		10/9/15	1250	4	X	X	X	X								
EFFLUENT		GW		10/9/15	1300	4	X	X	X	X								
EFFLUENT DUPLICATE		WW		10/9/15	1300	4	X	X	X	X								
FIELD BLANK		WW		10/9/15	1530	4	X	X	X	X								

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:

65037952 5948

Relinquished by: (Signature)

Date: 10/9/15

Time: 1600

Received by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐

Temp: 3.2 °C Bottles Received: 20

Date: 10-10-15 Time: 0908

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:

Date: Time:

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

Hold #

Condition: (lab use only)

COC Seal Intact: ___ Y ___ N ___ NA

pH Checked: NCF:

Chain of Custody

Page ___ of ___

ESC

L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 793818

1236

Acctnum: CEC

Template: T104014

Prelogin: P525998

TSR: 350 - Jimmy Hunt

PB: MB 9-29-15

Shipped Via: FedEx Ground

Civil & Environmental Consultants - TN

Sample Delivery Group: L791794
Samples Received: 10/01/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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²Tc: Table of Contents	2
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⁴Cn: Case Narrative	4
⁵Sr: Sample Results	5
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⁶Qc: Quality Control Summary	10
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⁷Gl: Glossary of Terms	17
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INFLUENT L791794-01 GW

Collected by
K. MulhollandCollected date/time
09/30/15 07:10Received date/time
10/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG819575	1	10/05/15 11:10	10/06/15 09:04	MF
Metals (ICP) by Method 6010B	WG819483	1	10/06/15 10:03	10/06/15 15:25	WBD
Wet Chemistry by Method 300.0	WG820871	1	10/09/15 10:53	10/09/15 10:53	DJD
Wet Chemistry by Method 351.2	WG819615	1	10/05/15 08:41	10/05/15 13:40	ASK
Wet Chemistry by Method 365.4	WG819612	1	10/05/15 08:44	10/05/15 14:29	DR

1
Cp2
Tc3
Ss4
Cn

INFLUENT DUPLICATE L791794-02 GW

Collected by
K. MulhollandCollected date/time
09/30/15 07:15Received date/time
10/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG819575	1	10/05/15 11:10	10/06/15 09:09	MF
Metals (ICP) by Method 6010B	WG819483	1	10/06/15 10:03	10/06/15 15:28	WBD
Wet Chemistry by Method 300.0	WG820871	1	10/09/15 11:21	10/09/15 11:21	DJD
Wet Chemistry by Method 351.2	WG819615	1	10/05/15 08:41	10/05/15 13:41	ASK
Wet Chemistry by Method 365.4	WG819612	1	10/05/15 08:44	10/05/15 14:31	DR

5
Sr6
Qc7
Gl8
Al

EFFLUENT L791794-03 GW

Collected by
K. MulhollandCollected date/time
09/30/15 07:00Received date/time
10/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG819575	1	10/05/15 11:10	10/06/15 09:07	MF
Metals (ICP) by Method 6010B	WG819483	1	10/06/15 10:03	10/06/15 15:31	WBD
Wet Chemistry by Method 300.0	WG820871	1	10/09/15 11:49	10/09/15 11:49	DJD
Wet Chemistry by Method 351.2	WG819615	1	10/05/15 08:41	10/05/15 13:44	ASK
Wet Chemistry by Method 365.4	WG819612	1	10/05/15 08:44	10/05/15 14:32	DR

9
Sc

EFFLUENT DUPLICATE L791794-04 GW

Collected by
K. MulhollandCollected date/time
09/30/15 07:05Received date/time
10/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG819575	1	10/05/15 11:10	10/06/15 09:03	MF
Metals (ICP) by Method 6010B	WG819483	1	10/06/15 10:03	10/06/15 15:34	WBD
Wet Chemistry by Method 300.0	WG820871	1	10/09/15 12:03	10/09/15 12:03	DJD
Wet Chemistry by Method 351.2	WG819615	1	10/05/15 08:41	10/05/15 13:45	ASK
Wet Chemistry by Method 365.4	WG819612	1	10/05/15 08:44	10/05/15 14:33	DR

FIELD BLANK L791794-05 GW

Collected by
K. MulhollandCollected date/time
09/30/15 07:45Received date/time
10/01/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG819575	1	10/05/15 11:10	10/06/15 09:03	MF
Metals (ICP) by Method 6010B	WG819483	1	10/06/15 10:03	10/06/15 13:51	JD
Wet Chemistry by Method 300.0	WG820871	1	10/09/15 12:17	10/09/15 12:17	DJD
Wet Chemistry by Method 351.2	WG819615	1	10/05/15 08:41	10/05/15 13:46	ASK
Wet Chemistry by Method 365.4	WG821458	1	10/13/15 10:08	10/13/15 14:58	DR



All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

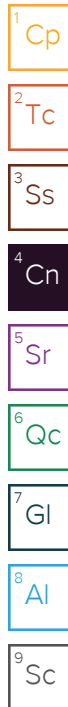
Sample Handling and Receiving

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

ESC Sample ID	Project Sample ID	Method
L791794-01	INFLUENT	300.0
L791794-02	INFLUENT DUPLICATE	300.0
L791794-03	EFFLUENT	300.0
L791794-04	EFFLUENT DUPLICATE	300.0
L791794-05	FIELD BLANK	300.0

Sample quantity was not sufficient to complete analysis per recommended method guidelines for the following samples.

ESC Sample ID	Project Sample ID	Method
L791794-05	FIELD BLANK	2540 D-2011





Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	26.6		2.50	1	10/06/2015 09:04	WG819575

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/09/2015 10:53	WG820871

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 13:40	WG819615

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/05/2015 14:29	WG819612

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/06/2015 15:25	WG819483
Lead	ND		0.00500	1	10/06/2015 15:25	WG819483
Zinc	ND		0.0500	1	10/06/2015 15:25	WG819483

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	29.3		2.50	1	10/06/2015 09:09	WG819575

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/09/2015 11:21	WG820871

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 13:41	WG819615

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/05/2015 14:31	WG819612

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/06/2015 15:28	WG819483
Lead	ND		0.00500	1	10/06/2015 15:28	WG819483
Zinc	ND		0.0500	1	10/06/2015 15:28	WG819483



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	2.54		2.50	1	10/06/2015 09:07	WG819575

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/09/2015 11:49	WG820871

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 13:44	WG819615

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/05/2015 14:32	WG819612

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/06/2015 15:31	WG819483
Lead	ND		0.00500	1	10/06/2015 15:31	WG819483
Zinc	ND		0.0500	1	10/06/2015 15:31	WG819483



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	2.87		2.50	1	10/06/2015 09:03	WG819575

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/09/2015 12:03	WG820871

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 13:45	WG819615

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/05/2015 14:33	WG819612

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/06/2015 15:34	WG819483
Lead	ND		0.00500	1	10/06/2015 15:34	WG819483
Zinc	ND		0.0500	1	10/06/2015 15:34	WG819483

9 Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	10/06/2015 09:03	WG819575

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	10/09/2015 12:17	WG820871

3 Ss

4 Cn

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 13:46	WG819615

5 Sr

6 Qc

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/13/2015 14:58	WG821458

7 Gl

8 Al

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/06/2015 13:51	WG819483
Lead	ND		0.00500	1	10/06/2015 13:51	WG819483
Zinc	ND		0.0500	1	10/06/2015 13:51	WG819483

9 Sc



Method Blank (MB)

(MB) 10/06/15 09:08

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Suspended Solids	ND		2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L791779-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/06/15 09:02 • (DUP) 10/06/15 09:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Suspended Solids	218	205	1	5.92	J3	5

L791811-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/06/15 09:08 • (DUP) 10/06/15 09:07

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Suspended Solids	140	150	1	6.90	J3	5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/06/15 09:04 • (LCSD) 10/06/15 09:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Suspended Solids	773	800	796	103	103	85.0-115			0.501	5



Method Blank (MB)

(MB) 10/09/15 08:32

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L791794-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/09/15 10:53 • (DUP) 10/09/15 11:07

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.0487	0.0828	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/09/15 08:46 • (LCSD) 10/09/15 09:00

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.23	8.25	103	103	90-110			0	20

L791794-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/09/15 11:21 • (MS) 10/09/15 11:35

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.0684	5.38	106	1	80-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/05/15 13:28

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L791794-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 13:41 • (DUP) 10/05/15 13:43

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	ND	ND	1	0.000		20

L791816-02 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 13:58 • (DUP) 10/05/15 13:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.483	0.545	1	12.1		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/05/15 13:31 • (LCSD) 10/05/15 13:32

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.4	12.7	12.7	102	102	85.0-115			0.000	20

L790426-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/05/15 14:03 • (MS) 10/05/15 14:04 • (MSD) 10/05/15 14:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	ND	-0.103	0.424	-2.06	8.48	1	90.0-110	J6	J6	328	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L791018-02 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/05/15 13:34 • (MS) 10/05/15 13:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Kjeldahl Nitrogen, TKN	5.00	ND	0.993	19.9	1	90.0-110	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/05/15 14:00

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L791601-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 14:07 • (DUP) 10/05/15 14:09

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	0.809	0.770	1	4.94		20

L791809-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 15:30 • (DUP) 10/05/15 15:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	6.35	6.95	5	9.02		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/05/15 14:02 • (LCSD) 10/05/15 14:04

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	1.10	1.10	110	110	90.0-110			0.000	20

L791744-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/05/15 14:24 • (MS) 10/05/15 14:25 • (MSD) 10/05/15 14:27

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.0780	2.31	2.32	92.4	92.8	1	90.0-110	J6	J6	0.432	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/13/15 14:51

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L793310-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/13/15 15:27 • (DUP) 10/13/15 15:29

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	2.74	2.68	1	2.21		20

L791794-05 Original Sample (OS) • Duplicate (DUP)

(OS) 10/13/15 14:58 • (DUP) 10/13/15 14:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/13/15 14:54 • (LCSD) 10/13/15 14:55

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	0.953	0.982	95.3	98.2	90.0-110			3.00	20

L793175-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/13/15 15:17 • (MS) 10/13/15 15:18 • (MSD) 10/13/15 15:20

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	0.268	2.49	2.59	88.9	92.9	1	90.0-110	J6		3.94	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) 10/06/15 13:42

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/06/15 13:45 • (LCSD) 10/06/15 13:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.03	1.04	103	104	80-120			1	20
Lead	1.00	0.996	0.997	100	100	80-120			0	20
Zinc	1.00	0.922	0.925	92	92	80-120			0	20

L791794-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/06/15 13:51 • (MS) 10/06/15 13:57 • (MSD) 10/06/15 14:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00198	1.04	1.04	103	104	1	75-125			1	20
Lead	1.00	ND	1.00	1.00	100	100	1	75-125			0	20
Zinc	1.00	0.00221	0.937	0.933	93	93	1	75-125			0	20



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

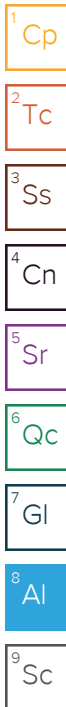
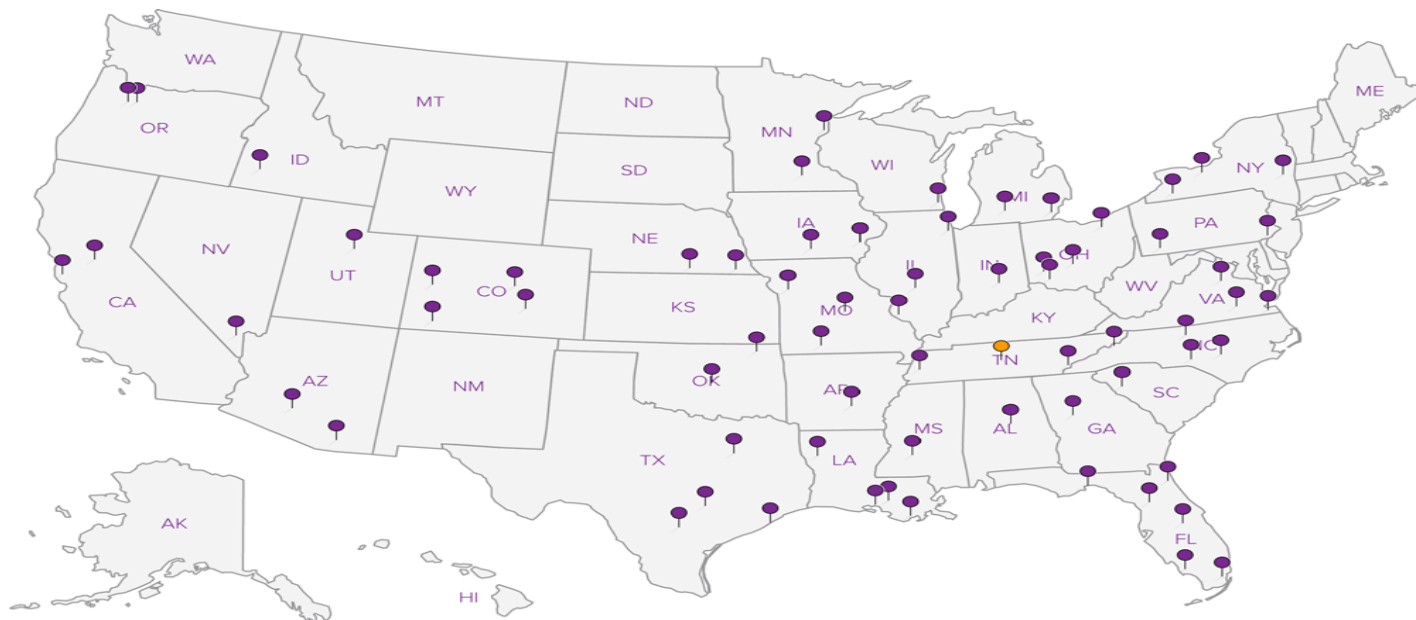
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Civil & Environmental Consultants - TN

Sample Delivery Group: L791221
Samples Received: 09/29/2015
Project Number: 142-879
Description: Campbells Run
Site: PITTSBURGH, PA
Report To: Janette Wolf/Ben Blasingame
325 Seaboard Lane, Suite 170
Franklin, TN 37067

Entire Report Reviewed By:



Jimmy Hunt

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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INFLUENT L791221-01 GW

Collected by
K. MulhollandCollected date/time
09/28/15 10:00Received date/time
09/29/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG818819	1	10/02/15 04:41	10/04/15 10:35	JM
Metals (ICP) by Method 6010B	WG819160	1	10/01/15 17:58	10/02/15 12:24	LTB
Wet Chemistry by Method 300.0	WG817660	1	09/29/15 14:05	09/29/15 14:05	ESC
Wet Chemistry by Method 351.2	WG819098	1	10/02/15 07:58	10/05/15 10:18	ASK
Wet Chemistry by Method 365.4	WG819095	1	10/02/15 08:02	10/03/15 10:09	DR

¹ Cp² Tc³ Ss⁴ Cn

EFFLUENT L791221-02 GW

Collected by
K. MulhollandCollected date/time
09/28/15 10:10Received date/time
09/29/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG818819	1	10/02/15 04:41	10/04/15 10:39	JM
Metals (ICP) by Method 6010B	WG819160	1	10/01/15 17:58	10/02/15 12:33	LTB
Wet Chemistry by Method 300.0	WG817660	1	09/29/15 14:19	09/29/15 14:19	ESC
Wet Chemistry by Method 351.2	WG819098	1	10/02/15 07:58	10/05/15 10:20	ASK
Wet Chemistry by Method 365.4	WG819095	1	10/02/15 08:02	10/03/15 10:16	DR

⁵ Sr⁶ Qc⁷ Gl⁸ Al

EFFLUENT DUPLICATE L791221-03 GW

Collected by
K. MulhollandCollected date/time
09/28/15 10:10Received date/time
09/29/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG818819	1	10/02/15 04:41	10/04/15 10:39	JM
Metals (ICP) by Method 6010B	WG819160	1	10/01/15 17:58	10/02/15 12:36	LTB
Wet Chemistry by Method 300.0	WG817660	1	09/29/15 14:47	09/29/15 14:47	ESC
Wet Chemistry by Method 351.2	WG819098	1	10/02/15 07:58	10/05/15 10:23	ASK
Wet Chemistry by Method 365.4	WG819095	1	10/02/15 08:02	10/03/15 10:17	DR

⁹ Sc

FIELD BLANK L791221-04 GW

Collected by
K. MulhollandCollected date/time
09/28/15 14:30Received date/time
09/29/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analysis Analyst
Gravimetric Analysis by Method 2540 D-2011	WG818819	1	10/02/15 04:41	10/04/15 10:33	JM
Metals (ICP) by Method 6010B	WG819160	1	10/01/15 17:58	10/02/15 12:39	LTB
Wet Chemistry by Method 300.0	WG817660	1	09/29/15 15:01	09/29/15 15:01	ESC
Wet Chemistry by Method 351.2	WG819098	1	10/02/15 07:58	10/05/15 10:24	ASK
Wet Chemistry by Method 365.4	WG819095	1	10/02/15 08:02	10/03/15 10:11	DR



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jimmy Hunt
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	48.0		2.50	1	10/04/2015 10:35	WG818819

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.126		0.100	1	09/29/2015 14:05	WG817660

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	0.500		0.250	1	10/05/2015 10:18	WG819098

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	0.121		0.100	1	10/03/2015 10:09	WG819095

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	0.0111		0.0100	1	10/02/2015 12:24	WG819160
Lead	ND		0.00500	1	10/02/2015 12:24	WG819160
Zinc	0.370		0.0500	1	10/02/2015 12:24	WG819160



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	16.6		2.50	1	10/04/2015 10:39	WG818819

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.130		0.100	1	09/29/2015 14:19	WG817660

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 10:20	WG819098

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/03/2015 10:16	WG819095

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/02/2015 12:33	WG819160
Lead	ND		0.00500	1	10/02/2015 12:33	WG819160
Zinc	0.0828		0.0500	1	10/02/2015 12:33	WG819160



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	16.3		2.50	1	10/04/2015 10:39	WG818819

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	0.126		0.100	1	09/29/2015 14:47	WG817660

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 10:23	WG819098

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/03/2015 10:17	WG819095

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/02/2015 12:36	WG819160
Lead	ND		0.00500	1	10/02/2015 12:36	WG819160
Zinc	0.0850		0.0500	1	10/02/2015 12:36	WG819160



Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	ND		2.50	1	10/04/2015 10:33	WG818819

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate	ND		0.100	1	09/29/2015 15:01	WG817660

Wet Chemistry by Method 351.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Kjeldahl Nitrogen, TKN	ND		0.250	1	10/05/2015 10:24	WG819098

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus, Total	ND		0.100	1	10/03/2015 10:11	WG819095

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Copper	ND		0.0100	1	10/02/2015 12:39	WG819160
Lead	ND		0.00500	1	10/02/2015 12:39	WG819160
Zinc	ND		0.0500	1	10/02/2015 12:39	WG819160



Method Blank (MB)

(MB) 10/04/15 10:36

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Suspended Solids	ND		2.50

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L791225-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/04/15 10:36 • (DUP) 10/04/15 10:36

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	11700	12100	1	3.19		5

L791283-03 Original Sample (OS) • Duplicate (DUP)

(OS) 10/04/15 10:38 • (DUP) 10/04/15 10:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Suspended Solids	459	504	1	9.27	J3	5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/04/15 10:35 • (LCSD) 10/04/15 10:35

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	796	808	103	105	85.0-115			1.50	5



Method Blank (MB)

(MB) 09/29/15 05:28

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Nitrate	ND		0.100

L791221-02 Original Sample (OS) • Duplicate (DUP)

(OS) 09/29/15 14:19 • (DUP) 09/29/15 14:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Nitrate	0.130	0.127	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/29/15 05:42 • (LCSD) 09/29/15 05:56

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Nitrate	8.00	8.20	8.18	103	102	90-110			0	20

L789675-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 09/29/15 11:32 • (MS) 09/29/15 11:46

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Nitrate	5.00	0.0206	4.76	95	1	80-120	

L791231-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 09/29/15 15:42 • (MS) 09/29/15 15:56 • (MSD) 09/29/15 16:16

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Nitrate	5.00	0.0228	4.79	4.96	95	99	1	80-120			3	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/05/15 10:01

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Kjeldahl Nitrogen, TKN	ND		0.250

L791397-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 10:27 • (DUP) 10/05/15 10:28

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	19.5	20.2	1	3.53		20

L791447-03 Original Sample (OS) • Duplicate (DUP)

(OS) 10/05/15 10:10 • (DUP) 10/05/15 10:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Kjeldahl Nitrogen, TKN	0.647	0.538	1	18.4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/05/15 10:03 • (LCSD) 10/05/15 10:04

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Kjeldahl Nitrogen, TKN	12.4	11.2	12.9	90.3	104	90.0-110			14.1	20

L790762-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/05/15 10:33 • (MS) 10/05/15 10:34 • (MSD) 10/05/15 10:35

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Kjeldahl Nitrogen, TKN	5.00	1.97	6.84	6.72	97.4	95.0	1	90.0-110			1.77	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L791447-01 Original Sample (OS) • Matrix Spike (MS)

(OS) 10/05/15 10:07 • (MS) 10/05/15 10:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5.00	0.198	5.06	101	1	90.0-110	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) 10/03/15 09:50

	MB Result	MB Qualifier	MB RDL
Analyte	mg/l		mg/l
Phosphorus,Total	ND		0.100

L791221-04 Original Sample (OS) • Duplicate (DUP)

(OS) 10/03/15 10:11 • (DUP) 10/03/15 10:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	ND	ND	1	0.000		20

L791397-01 Original Sample (OS) • Duplicate (DUP)

(OS) 10/03/15 12:09 • (DUP) 10/03/15 12:10

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Phosphorus,Total	52.8	50.2	20	5.05		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/03/15 09:53 • (LCSD) 10/03/15 09:54

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Phosphorus,Total	1.00	1.05	0.999	105	99.9	90.0-110			4.98	20

L790492-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/03/15 09:57 • (MS) 10/03/15 09:58 • (MSD) 10/03/15 09:59

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Phosphorus,Total	2.50	4.97	6.72	6.02	70.0	42.0	1	90.0-110	J6	J6	11.0	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) 10/02/15 11:16

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Copper	ND		0.0100
Lead	ND		0.00500
Zinc	ND		0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 10/02/15 11:19 • (LCSD) 10/02/15 11:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Copper	1.00	1.05	1.04	105	104	80-120			1	20
Lead	1.00	1.05	1.05	105	105	80-120			1	20
Zinc	1.00	1.01	1.00	101	100	80-120			1	20

L791430-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 10/02/15 11:25 • (MS) 10/02/15 11:31 • (MSD) 10/02/15 11:34

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Copper	1.00	0.00179	1.05	1.05	105	105	1	75-125			0	20
Lead	1.00	ND	1.06	1.06	106	106	1	75-125			0	20
Zinc	1.00	0.0111	1.00	1.01	99	99	1	75-125			0	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

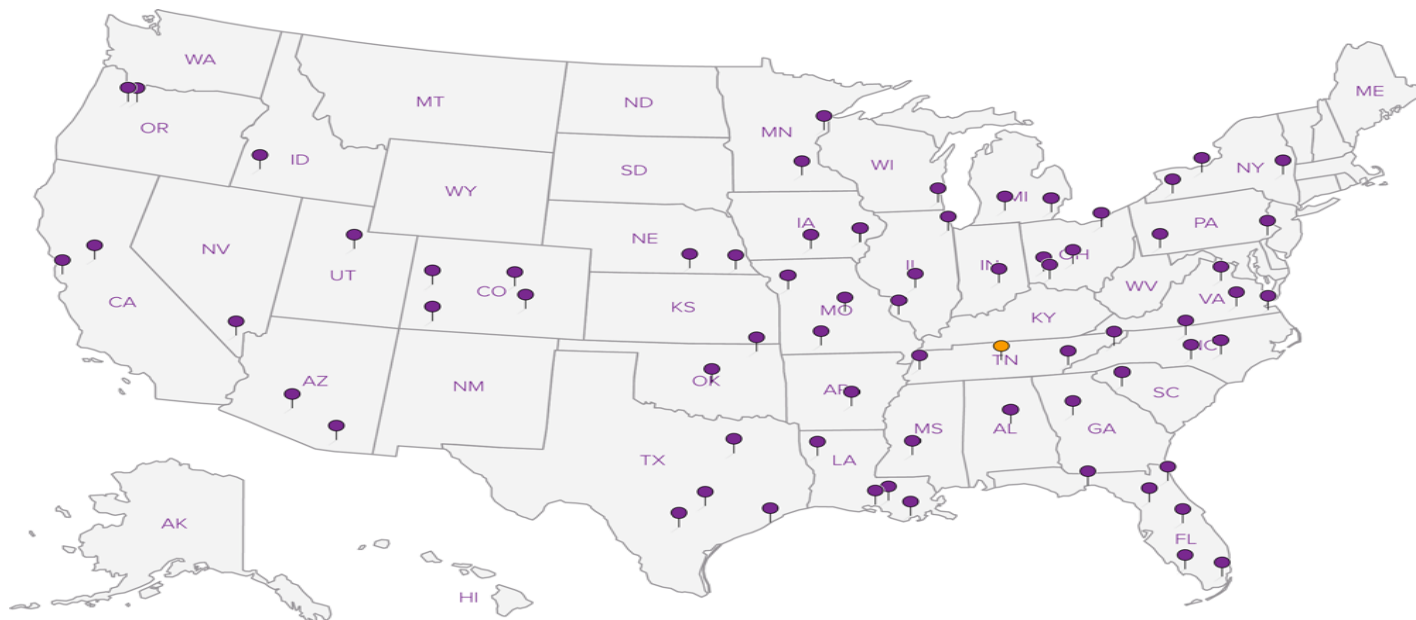
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
Canada	1461.01	DOD	1461.01
EPA–Crypto	TN00003	USDA	S-67674

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



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