



Tennessee Department of Environment and Conservation  
Division of Water Pollution Control

Exhibit B

Agronomic Application Rate Calculations Based on Nitrogen (N)

WWTP Name Bayleyston TN WWTP NPDES Permit Number TN0063932  
 Site Name \_\_\_\_\_ County \_\_\_\_\_  
 E.A.C. Johnson City Site Tracking Number LA TNB0063932  
 Laboratory Name Pace Date of Analysis 04-03-19

Sludge/Biosolids Analysis	DRY WT. Units
Total Kjeldahl Nitrogen, (TKN)	53600 mg/kg
Ammonium nitrogen, (NH <sub>4</sub> -N)	<388 mg/kg
Nitrate plus Nitrite nitrogen, (NO <sub>3</sub> -N + NO <sub>2</sub> -N)	7380 mg/kg

Attach a copy of the laboratory analysis used for these calculations to this report.

Crop Type Hay 120 lb N/acre/year

To convert milligrams per kilogram to pounds per ton multiply by 0.002.

1. Available nitrogen from biosolids. 53,600 x 0.002 **Calculated** Units
  - a. Total Kjeldahl Nitrogen, (TKN). 107.2 lbs/ton  
(TKN(mg/kg) x 0.002)
  - b. Ammonium nitrogen, (NH<sub>4</sub>-N). <388 x 0.002 <0.8 lbs/ton  
(NH<sub>4</sub>-N (mg/kg) x 0.002)
  - c. Nitrate plus Nitrite nitrogen, (NO<sub>3</sub>-N + NO<sub>2</sub>-N). 7380 x 0.002 14.8 lbs/ton  
(NO<sub>3</sub>-N + NO<sub>2</sub>-N) mg/kg x 0.002
  - d. Total available inorganic nitrogen. (<0.8 x 5) + 14.8 = 15 lbs/ton  
(1b x Kv) plus 1c  
Obtain Kv from Exhibit C. 15
  - e. Organic nitrogen in biosolids. 107.2 - <0.8 = 106 lbs/ton  
(Subtract 1b from 1a.)
  - f. Available organic nitrogen for the first year of application. 32 lbs/ton  
(Multiply 1e by F<sub>M</sub> for anaerobic or aerobic process.)  
Obtain F<sub>M</sub> from Exhibit D. 106 x .3 = 32
  - g. Total nitrogen available from biosolids. 15 + 32 = 47 lbs/ton  
Add 1d and 1f.
2. Available nitrogen in the soil. 10 lbs/ton
  - a. Soil test results of background nitrogen in soil.
  - b. or, Estimate of available nitrogen from previous biosolids applications.  
(If estimate, attach explanation of how estimated.)
3. Nitrogen supplied from other sources.
  - a. Nitrogen from supplemental fertilizers. (If appropriate) 0 lbs/ton
  - b. Nitrogen from irrigation water. (If appropriate) 0 lbs/ton
  - c. Nitrogen from previous crop. (Unless #2 is based in soil testing.) 0 lbs/ton
  - d. Other (If appropriate) (specify) \_\_\_\_\_ lbs/ton
  - e. Total nitrogen from other sources; add a,b,c and d if available. 0 lbs/ton
4. Total nitrogen available from existing sources. 10 lbs/ton  
Add 2. And 3e.
5. Total nitrogen requirement of crop. 120 lbs/acre  
(Obtain information from Exhibit E or agricultural extension agents or other agronomy professionals.)
6. Supplemental nitrogen needed from biosolids. 110 lbs/ton  
(Subtract 4. from 5.)
7. Agronomic loading rate. 110 / 47 = 2.3 tons/acre  
(Divide 6. by 1g.)

Initial Site approval is for one (1) year. Approved by \_\_\_\_\_ Date \_\_\_\_\_

These calculations are required to be updated with new sample analysis and re-submitted on an annual basis on or before, February 19th to the Central office of the Tennessee Division of Water Pollution Control.

COMMENTS \_\_\_\_\_

2019 Tons  $\frac{3.95T}{20A} = 2 T/A$

**Town of Baileyton W.W.T.P.**  
**6530 Horton Highway**  
**Greeneville, TN 37745**  
**Phone #(423) 234-6911**  
**Fax # (423) 234-5442**

January 08, 2020

To; Whom it May Concern

I certify, under penalty of law that the Class B pathogen requirements in 503.32(b) and vector attraction requirements in 503.33(b)(1) or (b) (3) have been met. This determination has been under my supervision in accordance with the system design to insure that qualified personnel properly gather and evaluate the information used to determine that the pathogen and vector attraction requirements have been met. I am aware that there are significant penalties for the false certification including the possibility of fines and imprisonment.

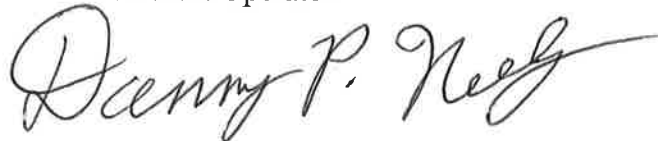
W.W.T.P. Operator

A handwritten signature in black ink that reads "Danny P. Neely". The signature is written in a cursive style with a long, sweeping tail on the letter "y".

Danny P. Neely

I certify under penalty of law that the management practices in CFR 40 Section 503.14 have been met for the site on which the bulk sewage sludge is applied. This determination has been under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for the false certification including the possibility of fines and imprisonment.

W.W.T.P. Operator

A handwritten signature in black ink that reads "Danny P. Neely". The signature is written in a cursive style with a long, sweeping tail on the letter "y".

Danny P. Neely

**Town of Baileyton  
W.W.T.P.  
Annual Sludge Report**

**Year 2019**

	Tons of Sludge Hauled	S.O.U.R. Test mg/l
<b>January</b>		
<b>February</b>		
<b>March</b>		
<b>April</b>		0.16
<b>May</b>	2.63	
<b>June</b>		
<b>July</b>		0.19
<b>August</b>	1.32	
<b>September</b>		
<b>October</b>		
<b>November</b>		
<b>December</b>		
<b>Total</b>	3.95	0.35
<b>Avg</b>	1.98	0.18

April 13, 2019

## Town of Baileyton WWTP

Sample Delivery Group: L1085481  
Samples Received: 04/04/2019  
Project Number:  
Description:

Report To: Mr. Danny Neely  
6530 Horton Highway  
Greenville, TN 37745

Entire Report Reviewed By:



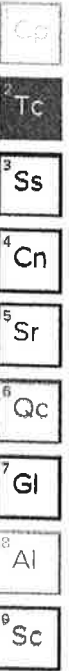
Stacy Kennedy  
Project Manager

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 Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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# SAMPLE SUMMARY

ONE LAB. NATIONWIDE. 

## SLUDGE L1085481-01 Solid

Collected by: Danny P. Neely  
 Collected date/time: 04/03/19 11:00  
 Received date/time: 04/04/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1261384	1	04/07/19 16:54	04/07/19 17:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG1261860	1	04/08/19 15:30	04/09/19 14:19	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500NOrg C-2011	WG1263542	1	04/10/19 09:00	04/11/19 14:02	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1261881	10	04/09/19 16:30	04/09/19 19:38	ST	Mt. Juliet, TN
Mercury by Method 7471A	WG1261259	1	04/04/19 19:41	04/05/19 08:47	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1263315	.1	04/10/19 15:14	04/11/19 23:24	TRB	Mt. Juliet, TN

## SLUDGE L1085481-02 Solid

Collected by: Danny P. Neely  
 Collected date/time: 04/03/19 11:00  
 Received date/time: 04/04/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1261136	1000	04/04/19 11:00	04/04/19 11:00	BGE	Mt. Juliet, TN

Cf

2 Tc

Ss

4 Cn

5 Sr

6 Qc

7 Gl

6 Al

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, unless qualified or notated within the report. Where applicable, 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.

Stacy Kennedy  
Project Manager

- 1 Cu
- 2 Tc
- 3 Ss
- 4 Cr
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
Total Solids	1.29		1	04/07/2019 17:12	WG1261384

Wet Chemistry by Method 350.1

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
Ammonia Nitrogen	ND	5.00	ND	388		1	04/09/2019 14:19	WG1261860

Wet Chemistry by Method 4500NOrg C-2011

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
Kjeldahl Nitrogen, TKN	692	20.0	53600	1550		1	04/11/2019 14:02	WG1263542

Wet Chemistry by Method 9056A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
Nitrate as (N)	95.1	10.0	7380	775		10	04/09/2019 19:38	WG1261881

Mercury by Method 7471A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
Mercury	ND	0.0200	ND	1.55		1	04/05/2019 08:47	WG1261259

Metals (CP) by Method 6010B

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
Arsenic	ND	0.200	ND	15.5		.1	04/11/2019 23:24	WG1263315
Cadmium	ND	0.0500	ND	3.88		.1	04/11/2019 23:24	WG1263315
Copper	2.59	0.200	201	15.5		.1	04/11/2019 23:24	WG1263315
Lead	0.128	0.0500	9.94	3.88		.1	04/11/2019 23:24	WG1263315
Molybdenum	0.101	0.0500	7.81	3.88		.1	04/11/2019 23:24	WG1263315
Nickel	0.251	0.200	19.5	15.5		.1	04/11/2019 23:24	WG1263315
Selenium	ND	0.200	ND	15.5		.1	04/11/2019 23:24	WG1263315
Zinc	11.5	0.500	892	38.8		.1	04/11/2019 23:24	WG1263315

*good table H3*

- 1
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



# SLUDGE

Collected date/time: 04/03/19 11:00

# SAMPLE RESULTS - 02

L1085481

ONE LAB. NATIONWIDE.



## Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Fecal Coliform -Geom.Mean	<13803.0		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -1	<13659.1		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -2	<13664.3		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -3	<13603.2		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -4	<15140.2		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -5	<13635.6		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -6	<13548.3		1000	04/04/2019 11:00	WG1261136
Fecal Coliform -7	<13442.1		1000	04/04/2019 11:00	WG1261136



# WG1261384

Total Solids by Method 2540 G-2011

## QUALITY CONTROL SUMMARY

L1085481-01

ONE LAB. NATIONWIDE.

### Method Blank (MB)

(MB) R3399652-1 04/07/19 17:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

### L1085481-01 Original Sample (OS) - Duplicate (DUP)

(OS) L1085481-01 04/07/19 17:12 • (DUP) R3399652-3 04/07/19 17:12

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Total Solids	1.29	1.28	1	0.778		10

### Laboratory Control Sample (LCS)

(LCS) R3399652-2 04/07/19 17:12

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

2 Tc	3 Ss	4 Cn	5 Sr	6 Qc	7 Gl	8 Al	9 Sc
------	------	------	------	------	------	------	------

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WG1261860

Wet Chemistry by Method 350.1

QUALITY CONTROL SUMMARY

L1085481-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3399968-1 04/09/19 14:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ammonia Nitrogen	U		1.57	5.00

L1085481-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085481-01 04/09/19 14:19 • (DUP) R3399968-3 04/09/19 14:20

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	0.000	1	0.000		20

L1085763-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1085763-18 04/09/19 14:49 • (DUP) R3399968-7 04/09/19 14:50

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	78.5	84.3	1	7.05		20

Laboratory Control Sample (LCS)

(LCS) R3399968-2 04/09/19 14:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	500	487	97.3	90.0-110	

L1085763-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1085763-10 04/09/19 14:35 • (MS) R3399968-4 04/09/19 14:36 • (MSD) R3399968-5 04/09/19 14:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	602	16.8	545	500	87.7	80.3	1	80.0-120		8.57		20

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WG1261860

Wet Chemistry by Method 350.1

# QUALITY CONTROL SUMMARY

L1085481-01

ONE LAB. NATIONWIDE

L1085763-16 Original Sample (OS) • Matrix Spike (MS)

(OS) L1085763-16 04/09/19 14:46 • (MS) R3399968-6 04/09/19 14:47

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ammonia Nitrogen	592	ND	536	90.1	1	80.0-120	

2 **Tc**   
 3 **Ss**   
 4 **Cn**   
 5 **Sr**   
 6 **Qc**   
 7 **Gl**   
 8 **Al**   
 9 **Sc**

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WG1263542

Wet Chemistry by Method 4500N<sub>org</sub> C-2011

QUALITY CONTROL SUMMARY

ONE LAB, NATIONWIDE

(MB) R3400751-1 04/11/19 13:59

Method Blank (MB)

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Kjeldahl Nitrogen, TKN	U		4.48	20.0

L1085481-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085481-01 04/11/19 14:02 • (DUP) R3400751-3 04/11/19 14:03

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	53600	53600	1	0.000		20

L1086288-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1086288-01 04/11/19 14:33 • (DUP) R3400751-7 04/11/19 14:34

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	6080	6160	100	1.31		20

Laboratory Control Sample (LCS)

(LCS) R3400751-2 04/11/19 14:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	400	366	91.4	90.0-110	

L1087185-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1087185-01 04/11/19 14:18 • (MS) R3400751-4 04/11/19 14:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	400	456	668	53.0	1	90.0-110	J6

L1087223-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1087223-01 04/11/19 14:22 • (MS) R3400751-5 04/11/19 14:23 • (MSD) R3400751-6 04/11/19 14:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	400	1070	1400	1280	1	90.0-110	E J6	E J6	8.93	20

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WG1261881

Wet Chemistry by Method 9056A

QUALITY CONTROL SUMMARY

L1085481-01

ONE LAB. NATIONWIDE

Method Blank (MB)

(MB) R3400037-1 04/09/19 17:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Nitrate	U	0.0116	0.0116	1.00

L1085732-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1085732-01 04/09/19 20:19 • (DUP) R3400037-3 04/09/19 21:01

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	U	0.000	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3400037-2 04/09/19 18:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate	20.0	20.5	103	80.0-120	

L1085853-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1085853-01 04/09/19 21:57 • (MS) R3400037-4 04/09/19 22:11 • (MSD) R3400037-5 04/09/19 22:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	ND	56.3	49.2	10	80.0-120	113	98.4	13.5	15

WG1261259

Mercury by Method 7471A

QUALITY CONTROL SUMMARY

L1085481-01

ONE LAB. NATIONWIDE.

Method Blank (MB)

(MB) R3398798-1 04/05/19 08:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U	0.00280	0.00280	0.0200

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

(LCS) R3398798-2 04/05/19 08:35 • (LCSD) R3398798-3 04/05/19 08:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.271	0.266	90.3	88.6	80.0-120	1.94		1.94	20

L1085594-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1085594-07 04/05/19 08:40 • (MS) R3398798-4 04/05/19 08:42 • (MSD) R3398798-5 04/05/19 08:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.309	0.352	0.624	0.639	88.0	92.6	1	75.0-125	2.24		2.24	20

**WG1263315**

Metals (ICP) by Method 6010B

**QUALITY CONTROL SUMMARY**

L1085481-01

ONE LAB. NATIONWIDE

**Method Blank (MB)**

(MB) R3400949-1 04/11/19 23:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Cadmium	U		0.0700	0.500
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Selenium	U		0.620	2.00
Zinc	U		0.590	5.00

**Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)**

(LCS) R3400949-2 04/11/19 23:05 • (LCS-D) R3400949-3 04/11/19 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	LCS Rec.	Rec. Limits %	LCS Qualifier	LCS-D Qualifier	RPD	RPD Limits %
Arsenic	100	96.0	96.0	99.2	80.0-120			3.33	20
Cadmium	100	97.8	97.8	102	80.0-120			3.95	20
Copper	100	99.2	99.2	103	80.0-120			3.77	20
Lead	100	98.4	98.4	102	80.0-120			3.59	20
Molybdenum	100	102	102	106	80.0-120			3.73	20
Nickel	100	101	101	105	80.0-120			3.17	20
Selenium	100	96.1	96.1	101	80.0-120			4.50	20
Zinc	100	99.0	99.0	102	80.0-120			3.06	20

**L1086615-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)**

(OS) L1086615-07 04/11/19 23:10 • (MS) R3400949-6 04/11/19 23:18 • (MSD) R3400949-7 04/11/19 23:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MS Rec.	Dilution	Rec. Limits %	MS Qualifier	RPD	RPD Limits %
Arsenic	100	7.66	112	101	104	93.6	1	75.0-125		9.66	20
Cadmium	100	0.678	104	96.5	103	95.9	1	75.0-125		7.54	20
Copper	100	19.1	127	117	108	98.2	1	75.0-125		7.63	20
Lead	100	11.8	116	108	104	96.2	1	75.0-125		6.86	20
Molybdenum	100	8.25	103	94.4	95.1	86.1	1	75.0-125		9.08	20
Nickel	100	42.4	154	142	112	99.5	1	75.0-125		8.12	20
Selenium	100	U	99.1	92.5	99.1	92.5	1	75.0-125		6.93	20
Zinc	100	53.5	151	140	97.1	86.8	1	75.0-125		7.10	20

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Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

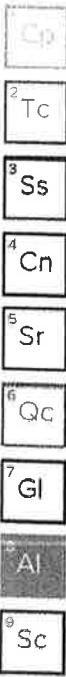
Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	<b>The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.</b>
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	<b>The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels).</b> The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

1 Cn  
2 Tc  
3 Ss  
4 Cn  
5 Sr  
6 Qc  
7 GI  
8 AI  
9 Sc

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



Pace National 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.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

A2LA - ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 <sup>6</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National 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. Pace National performs all testing at our central laboratory.



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