

April 7, 2014

Ms. Kelley Keenan  
Environmental Testing Solutions, Inc.  
351 Depot Street  
Asheville, NC 28801  
USA

Dear Kelley,

Thank you for participating in the WP0214 Water Pollution Proficiency Testing Study. Enclosed is your final report, which has been carefully reviewed by the PT specialists at Phenova. This report presents some additional sections and features which will give you more information on the study data for the standards that were reported by your laboratory and more information regarding the overall performance of your laboratory in relation to other study participants.

The enclosed report is in two sections, the "Evaluation Report" and the "Statistical Report". The "Evaluation Report" contains the evaluation of your reported data as well the reported method, analysis date and analyst. The "Evaluation Report" is an updated and enhanced version of the reports you previously received at the conclusion of our PT studies. The "Statistical Report" contains your passing percentage as well as statistics from the study for the analytes reported by your laboratory.

For any analyte falling outside the established acceptance limits, our PT management staff would like to assist you in determining the most appropriate course of corrective action for your facility. Please contact us at any time if we may be of service to you.

Thank you again for participating in the WP0214 Water Pollution Proficiency Testing Study. We appreciate working with you and look forward to our next study. If you have any questions, please call us at 866-942-2978.

### **Report Definitions:**

#### ***Assigned Value***

The Assigned Value is determined from the study mean, gravimetric and volumetric true concentration of an analyte to be analyzed, calculation and/or an appropriate reference value as stipulated in the EPA National Standards for Water Proficiency Testing Studies Criteria Document (current version), the National Environmental Laboratory Accreditation Conference (NELAC) criteria (ref: NELAC FOT tables, NELAC PT Committee) and other documents distributed by accrediting agencies as applicable.

#### ***Evaluation Limits***

Acceptance Limits are derived from fixed limits, coefficients, constants and calculations stipulated in the EPA National Standards for Water Proficiency Testing Studies Criteria Documents (current version), the National Environmental Laboratory Accreditation Conference (NELAC) criteria (ref: NELAC PT FOT tables, NELAC PT Committee) and other documents distributed by accrediting agencies as applicable.

#### ***Evaluation***

##### *Acceptable*

The reported value falls within the Acceptance Limits.

##### *Not Acceptable*

The reported value falls outside the Acceptance Limits.

##### *No Evaluation*

The reported value is non-numeric and can not be evaluated.

##### *NR*

As required by the NELAC standards and requested by state authorities, any analyte purchased but not reported by your facility is listed as NR (Not Reported).

#### ***Study Mean and Standard Deviation***

The mean and standard deviation are calculated from the study data using robust statistical calculations when possible. Other statistical calculations may be used if robust statistical calculations are not possible. The displayed values are independent of any statistical calculations required for the calculation of the analyte evaluation limits.

This report must not be reproduced except in full, without the written approval of Phenova.

This report must not be used to claim product certification, approval, or endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the federal government.



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Phone 303-940-0033  
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www.phenova.com

State Regulatory Agency Request(s):

Phenova has been authorized to send a copy of your WP0214 final results to the following state agencies:  
KY, NC and SC

Other Regulatory Agency Request(s):

No requests were made to send a copy of your WP0214 final results to an agency.

Third Party Request(s):

No requests were made to send a copy of your WP0214 final results to a third party.

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## Final Report - Water Pollution Proficiency Testing

### Study: WP0214

Opening Date: February 3, 2014 - Closing Date: March 20, 2014

Laboratory: Environmental Testing Solutions, Inc.  
351 Depot Street  
Asheville, NC 28801  
USA

Contact: Ms. Kelley Keenan  
828-350-9364

EPA Lab ID: NC01230

### Demand (PT-DEM-WP) Lot #: 8142-07

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1530	BOD	2/25/2014	KEK	20135200	SM 5210 B-2001, Rev. 2011	mg/L	213	100	72.4 - 235	Acceptable
1555	CBOD	2/25/2014	KEK	20135200	SM 5210 B-2001, Rev. 2011	mg/L	213	98	56.9 - 235	Acceptable
1565	COD	2/26/2014	KEK	60003001	Hach 8000	mg/L	218	214	177 - 252	Acceptable
2040	TOC					mg/L	86.2		72.4 - 99.0	NR

### Minerals 1 (PT-MIN1-WP) Lot #: 8142-08

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1505	Total Alkalinity(as CaCO <sub>3</sub> )	3/8/2014	KEK	20045607	SM 2320 B-1997, Rev. 2011	mg/L	339	316	288 - 389	Acceptable
1540	Bromide					mg/L	8.71		7.43 - 10.1	NR
1575	Chloride	3/6/2014	KEK	20079203	SM 4500-Cl C-1997, Rev. 2011	mg/L	77.0	78	67.3 - 86.9	Acceptable
1730	Fluoride					mg/L	2.52		2.02 - 2.92	NR
2000	Sulfate	3/10/2014	KEK	20132803	SM 4500-SO <sub>4</sub> <sup>-</sup> E-1997, Rev. 2011	mg/L	11.7	10.1	8.69 - 14.0	Acceptable

#### Additional State Specific Analytes

1813	Total Inorganic Carbon					mg/L	80.9		64.7 - 97.0	NR
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### Minerals 2 - Hardness (PT-MIN2-WP) Lot #: 8142-102

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1035	Calcium					mg/L	83.6		71.1 - 96.1	NR
1550	Calcium Hardness (as CaCO <sub>3</sub> )	2/26/2014	KEK	20047603	SM 2340 C-1997, Rev. 2011	mg/L	209	233	178 - 240	Acceptable
1755	Total Hardness (as CaCO <sub>3</sub> )					mg/L	247		210 - 284	NR
1085	Magnesium					mg/L	9.26		7.87 - 10.6	NR
1125	Potassium					mg/L	16.9		13.5 - 20.3	NR
1155	Sodium					mg/L	14.0		11.2 - 16.8	NR

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828-350-9364

EPA Lab ID: NC01230

Specific Conductance (PT-COND-WP)										Lot #: 8142-72
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1610	Specific Conductance (25°C)	2/26/2014	KEK	20048606	SM 2510 B-1997, Rev. 2011	µmhos/cm	804	820	723 - 884	Acceptable
Solids (PT-SOL-WP)										Lot #: 8142-09
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1955	Total Dissolved Solids at 180° (TFR)	2/25/2014	KEK	20050402	SM 2540 C-1997, Rev. 2011	mg/L	223	218	178 - 268	Acceptable
1960	Non-Filterable Residue (TSS)	2/26/2014	KEK	20051201	SM 2540 D-1997, Rev. 2011	mg/L	99.3	90	82.3 - 110	Acceptable
1950	Total Solids					mg/L	323		278 - 368	NR
Nutrients 1 - Simple (PT-NUT1-WP)										Lot #: 8142-10
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1515	Ammonia as N	3/7/2014	KEK	20109404	SM 4500-NH3 D-1997, Rev. 2011	mg/L	10.2	9.56	8.09 - 12.2	Acceptable
1810	Nitrate as N					mg/L	12.5		10.4 - 14.5	NR
1820	Nitrate and Nitrite as N					mg/L	12.5		10.4 - 14.4	NR
1870	Orthophosphate as P					mg/L	2.71		2.30 - 3.12	NR
Additional State Specific Analytes										
-	Total Dissolved Phosphorus					mg/L	2.71		2.30 - 3.12	NR
1647	Dissolved Nitrogen					mg/L	22.6		18.9 - 26.2	NR
1827	Total Nitrogen					mg/L	22.6		18.9 - 26.2	NR
pH (PT-PH-WP)										Lot #: 8142-15
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1900	pH	2/25/2014	KEK	20105208	SM 4500-H+ B-2000, Rev. 2011	S.U.	7.98	7.99	7.78 - 8.18	Acceptable

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Residual Chlorine Low Level (PT-CLLL-WP)										Lot #: 8142-94
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1940	Total Residual Chlorine	2/25/2014	JRS	60006522	ORION 77-CL	µg/L	172	161	112 - 232	Acceptable
Settleable Solids (PT-SSOL-WP)										Lot #: 8142-17
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1965	Settleable Solids	2/24/2014	KEK	20052204	SM 2540 F-1997, Rev. 2011	mL/L	22.3	23	17.9 - 28.6	Acceptable
Turbidity (PT-TURB-WP)										Lot #: 8142-20
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
2055	Turbidity	3/7/2014	KEK	20042802	SM 2130 B-2001, Rev. 2011	NTU	6.39	5.6	5.00 - 7.76	Acceptable



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## PT Study Score Report

EPA ID: NC01230  
 Laboratory: Environmental Testing Solutions, Inc.  
 351 Depot Street  
 Asheville, NC 28801  
 USA

Study Number	Number of Reported Results	Number of Passing Results	Percent Passing
WP0214	15	15	100%

### Report Definitions:

- Number of Reported Results**      The number of results reported which could be evaluated. Results receiving an evaluation of "NR" or "No Evaluation" are not included.
- Number of Passing Results**      The number of results reported receiving an evaluation of "Acceptable" or "Check for Error".
- Percent Passing**                    The percentage of results reported receiving an evaluation of "Acceptable" or "Check for Error".

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## Statistical Summary Report - Water Pollution Proficiency Testing

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EPA Lab ID: NC01230

Demand (PT-DEM-WP) Lot #: 8142-07						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1530	BOD	mg/L	138	19.6	34.0	110
1555	CBOD	mg/L	130	27.9	26.7	110
1565	COD	mg/L	214	21.7	81.2	116
2040	TOC	mg/L	86.3	2.90	84.0	115
Minerals 1 (PT-MIN1-WP) Lot #: 8142-08						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1505	Total Alkalinity(as CaCO <sub>3</sub> )	mg/L	328	12.8	85.0	115
1540	Bromide	mg/L	8.96	0.467	85.3	116
1575	Chloride	mg/L	80.8	4.70	87.4	113
1730	Fluoride	mg/L	2.48	0.185	80.2	116
2000	Sulfate	mg/L	11.7	0.675	74.3	120
Additional State Specific Analytes						
1813	Total Inorganic Carbon	mg/L	77.4	0.00	80.0	120
Minerals 2 - Hardness (PT-MIN2-WP) Lot #: 8142-102						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1035	Calcium	mg/L	82.9	4.34	85.0	115
1550	Calcium Hardness (as CaCO <sub>3</sub> )	mg/L	205	12.8	85.2	115
1755	Total Hardness (as CaCO <sub>3</sub> )	mg/L	242	12.9	85.0	115
1085	Magnesium	mg/L	8.81	0.581	85.0	114
1125	Potassium	mg/L	17.1	1.19	79.9	120
1155	Sodium	mg/L	14.3	0.781	80.0	120
Specific Conductance (PT-COND-WP) Lot #: 8142-72						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1610	Specific Conductance (25°C)	µmhos/cm	809	23.2	89.9	110
Solids (PT-SOL-WP) Lot #: 8142-09						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1955	Total Dissolved Solids at 180° (TFR)	mg/L	216	15.2	79.8	120
1960	Non-Filterable Residue (TSS)	mg/L	95.4	3.68	82.9	111
1950	Total Solids	mg/L	321	10.2	86.1	114

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Nutrients 1 - Simple (PT-NUT1-WP) <span style="float: right;">Lot #: 8142-10</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1515	Ammonia as N	mg/L	10.1	0.653	79.3	120
1810	Nitrate as N	mg/L	12.3	0.680	83.2	116
1820	Nitrate and Nitrite as N	mg/L	12.3	0.624	83.2	115
1870	Orthophosphate as P	mg/L	2.80	0.187	84.9	115
Additional State Specific Analytes						
-	Total Dissolved Phosphorus	mg/L	2.77	0.101	84.9	115
1647	Dissolved Nitrogen	mg/L	22.2	0.375	83.6	116
1827	Total Nitrogen	mg/L	22.3	0.636	83.6	116
pH (PT-PH-WP) <span style="float: right;">Lot #: 8142-15</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1900	pH	S.U.	7.98	0.0605	97.5	103
Residual Chlorine Low Level (PT-CLLL-WP) <span style="float: right;">Lot #: 8142-94</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1940	Total Residual Chlorine	µg/L	164	25.0	65.1	135
Settleable Solids (PT-SSOL-WP) <span style="float: right;">Lot #: 8142-17</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1965	Settleable Solids	mL/L	21.7	1.52	80.3	128
Turbidity (PT-TURB-WP) <span style="float: right;">Lot #: 8142-20</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
2055	Turbidity	NTU	6.06	0.645	78.2	121