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April 15, 2013

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

Dear Kelley,

Thank you for participating in the WP0213 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 WP0213 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.

**Study Discussion**

PT-VOA-WP

During statistical review of the study data for WP0213 for PT-VOA-WP Phenova identified that participants had received two different lots of PT-VOA-WP standards. The only difference between the two lots of PT-VOA-WP, were the assigned values for trans-1,3-Dichloropropene. Seven out of ten laboratories received a lot where the assigned value for trans-1,3-Dichloropropene is 112 µg/L. This assigned value is outside of the upper TNI concentration range of 90 µg/L, causing the analyte to be non-complaint for TNI accreditation. Phenova will be contacting each affected laboratory and accrediting agency who will receive the results, as well as, our accreditor to inform them of the situation. If you have any questions, please feel free to contact us at 866-942-2978.

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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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State Regulatory Agency Request(s):

Phenova has been authorized to send a copy of your WP0213 final results to the following state agencies:  
NC and SC

Other Regulatory Agency Request(s):

No requests were made to send a copy of your WP0213 final results to an agency.

Third Party Request(s):

No requests were made to send a copy of your WP0213 final results to a third party.

## Final Report - Water Pollution Proficiency Testing

### Study: WP0213

Opening Date: February 4, 2013 - Closing Date: March 21, 2013

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 #: 8131-07
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1530	BOD	2/20/2013	KEK	20135200	SM 5210 B-2001	mg/L	201	83	64.3 - 221	Acceptable
1555	CBOD	2/20/2013	KEK	20135200	SM 5210 B-2001	mg/L	201	86	49.0 - 221	Acceptable
1565	COD	2/15/2013	KEK	60003001	HACH 8000	mg/L	206	199	160 - 233	Acceptable
2040	TOC					mg/L	81.2		67.9 - 93.3	NR
Minerals 1 (PT-MIN1-WP)										Lot #: 8131-08
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> )	2/28/2013	KEK	20045607	SM 2320 B-1997	mg/L	15.7	19	12.0 - 21.2	Acceptable
1540	Bromide					mg/L	8.16		6.94 - 9.44	NR
1575	Chloride	2/14/2013	KEK	20079203	SM 4500-Cl C-1997	mg/L	105	104	90.3 - 120	Acceptable
1730	Fluoride					mg/L	2.98		2.49 - 3.49	NR
2000	Sulfate	2/14/2013	KEK	20132803	SM 4500-SO <sub>4</sub> <sup>-</sup> E-1997	mg/L	111	120	92.0 - 126	Acceptable
Additional State Specific Analytes										
1813	Total Inorganic Carbon					mg/L	3.74		2.99 - 4.49	NR
Minerals 2 - Hardness (PT-MIN2-WP)										Lot #: 8131-102
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1035	Calcium					mg/L	19.9		17.6 - 22.9	NR
1550	Calcium Hardness (as CaCO <sub>3</sub> )					mg/L	49.8		43.9 - 57.1	NR
1755	Total Hardness (as CaCO <sub>3</sub> )	3/5/2013	KEK	20047603	SM 2340 C-1997	mg/L	83.2	82	72.2 - 95.4	Acceptable
1085	Magnesium					mg/L	8.10		6.87 - 9.27	NR
1125	Potassium					mg/L	8.84		7.02 - 10.7	NR
1155	Sodium					mg/L	67.9		57.7 - 77.9	NR
Specific Conductance (PT-COND-WP)										Lot #: 8131-72
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1610	Specific Conductance (25°C)	3/5/2013	KEK	20048606	SM 2510 B-1997	µmhos/cm	913	921	822 - 1000	Acceptable

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828-350-9364

EPA Lab ID: NC01230

### Solids (PT-SOL-WP) Lot #: 8131-09

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1955	Total Dissolved Solids at 180° (TFR)	2/15/2013	KEK	20050402	SM 2540 C-1997	mg/L	499	504	384 - 615	Acceptable
1960	Non-Filterable Residue (TSS)	2/13/2013	KEK	20051201	SM 2540 D-1997	mg/L	43.3	44	32.9 - 50.1	Acceptable
1950	Total Solids					mg/L	543		489 - 598	NR

### Nutrients 1 - Simple (PT-NUT1-WP) Lot #: 8131-10

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1515	Ammonia as N	2/22/2013	KEK	20109404	SM 4500-NH3 D-1997	mg/L	16.0	16	11.9 - 19.8	Acceptable
1810	Nitrate as N					mg/L	26.4		20.6 - 31.8	NR
1820	Nitrate and Nitrite as N					mg/L	26.4		21.5 - 30.7	NR
1870	Orthophosphate as P					mg/L	4.84		4.00 - 5.72	NR
<b>Additional State Specific Analytes</b>										
-	Total Dissolved Phosphorus					mg/L	4.84		4.00 - 5.72	NR
1647	Dissolved Nitrogen					mg/L	42.4		33.1 - 51.1	NR
1827	Total Nitrogen					mg/L	42.4		33.1 - 51.1	NR

### pH (PT-PH-WP) Lot #: 8131-15

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1900	pH	2/14/2013	KEK	20105208	SM 4500-H+ B-2000	S.U.	5.72	5.7	5.52 - 5.92	Acceptable
1900	pH	2/14/2013	KEK		SW846 9040C	S.U.	5.72	5.7	5.52 - 5.92	Acceptable
1900	pH	2/14/2013	KEK		SW846 9045D	S.U.	5.72	5.7	5.52 - 5.92	Acceptable

### Residual Chlorine Low Level (PT-CLLL-WP) Lot #: 8131-94

NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1940	Total Residual Chlorine	2/19/2013	KEK		ORION 77-CL	µg/L	177	172	117 - 237	Acceptable

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Contact: Ms. Kelley Keenan  
828-350-9364

EPA Lab ID: NC01230

Settleable Solids (PT-SSOL-WP)										Lot #: 8131-17
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
1965	Settleable Solids	2/14/2013	KEK	20052204	SM 2540 F-1997	mL/L	31.8	33	26.1 - 40.2	Acceptable
Turbidity (PT-TURB-WP)										Lot #: 8131-20
NELAC Code	Analyte	Analysis Date	Analyst	Method Code	Method Description	Units	Assigned Value	Result	Acceptance Limits	Evaluation
2055	Turbidity	2/13/2013	KEK	20042802	SM 2130 B-2001	NTU	8.77	7.9	7.04 - 10.5	Acceptable



## PT Study Score Report

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

Study Number	Number of Reported Results	Number of Passing Results	Percent Passing
WP0213	17	17	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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Demand (PT-DEM-WP) <span style="float: right;">Lot #: 8131-07</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1530	BOD	mg/L	120	19.0	32.0	110
1555	CBOD	mg/L	113	20.5	24.4	110
1565	COD	mg/L	199	11.4	77.7	113
2040	TOC	mg/L	80.4	5.50	83.6	115
Minerals 1 (PT-MIN1-WP) <span style="float: right;">Lot #: 8131-08</span>						
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	16.5	2.41	76.4	135
1540	Bromide	mg/L	8.21	1.16	85.0	116
1575	Chloride	mg/L	107	4.57	86.0	114
1730	Fluoride	mg/L	2.90	0.238	83.6	117
2000	Sulfate	mg/L	110	5.07	82.9	114
Additional State Specific Analytes						
1813	Total Inorganic Carbon	mg/L	4.10	0.00	79.9	120
Minerals 2 - Hardness (PT-MIN2-WP) <span style="float: right;">Lot #: 8131-102</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1035	Calcium	mg/L	20.2	0.776	88.4	115
1550	Calcium Hardness (as CaCO <sub>3</sub> )	mg/L	49.9	2.48	88.2	115
1755	Total Hardness (as CaCO <sub>3</sub> )	mg/L	83.2	4.35	86.8	115
1085	Magnesium	mg/L	7.90	0.404	84.8	114
1125	Potassium	mg/L	8.42	0.451	79.4	121
1155	Sodium	mg/L	66.2	3.66	85.0	115
Specific Conductance (PT-COND-WP) <span style="float: right;">Lot #: 8131-72</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1610	Specific Conductance (25°C)	µmhos/cm	913	20.5	90.0	110
Solids (PT-SOL-WP) <span style="float: right;">Lot #: 8131-09</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1955	Total Dissolved Solids at 180° (TFR)	mg/L	499	23.7	77.0	123
1960	Non-Filterable Residue (TSS)	mg/L	41.8	2.18	76.0	116
1950	Total Solids	mg/L	542	15.3	90.1	110



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Nutrients 1 - Simple (PT-NUT1-WP) <span style="float: right;">Lot #: 8131-10</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1515	Ammonia as N	mg/L	15.1	1.58	74.4	124
1810	Nitrate as N	mg/L	26.6	1.44	78.0	120
1820	Nitrate and Nitrite as N	mg/L	26.6	1.24	81.4	116
1870	Orthophosphate as P	mg/L	4.90	0.246	82.6	118
Additional State Specific Analytes						
-	Total Dissolved Phosphorus	mg/L	4.77	0.00	82.6	118
1647	Dissolved Nitrogen	mg/L	41.6	0.00	78.1	121
1827	Total Nitrogen	mg/L	42.3	0.950	78.1	121
pH (PT-PH-WP) <span style="float: right;">Lot #: 8131-15</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1900	pH	S.U.	5.71	0.0407	96.5	103
Residual Chlorine Low Level (PT-CLLL-WP) <span style="float: right;">Lot #: 8131-94</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1940	Total Residual Chlorine	µg/L	186	30.2	66.1	134
Settleable Solids (PT-SSOL-WP) <span style="float: right;">Lot #: 8131-17</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
1965	Settleable Solids	mL/L	30.5	1.89	82.1	126
Turbidity (PT-TURB-WP) <span style="float: right;">Lot #: 8131-20</span>						
NELAC Code	Analyte	Units	Study Mean	Study Standard Deviation	Low Acceptance Limit %	High Acceptance Limit %
2055	Turbidity	NTU	8.45	0.744	80.3	120