

August 27, 2013

Mr. Don Stewart
1160 Sixty Five Highway
Rural Hall, NC 27045Reference: Notification of Water Supply Well Sample Results
1160 Sixty Five Highway
Forsyth County Parcel ID #: 6921-40-1108 & 6921-30-9647
Rural Hall, NC

Dear Mr. Stewart:

On behalf of the R.J. Reynolds Tobacco Company, ERM NC, Inc. (ERM) would like to thank you for your cooperation in allowing us to sample your livestock water supply well on April 18, 2013.

As during previous sampling, the water sample obtained from your livestock well on April 18 was analyzed for the compounds noted in the table below. The table includes the applicable North Carolina Groundwater Standards and summarized data from the laboratory report, a copy of which is enclosed for your information. The laboratory analyses utilized methods approved by the North Carolina Department of Environment and Natural Resources (NCDENR).

Laboratory Sample ID	Owner Address Well Use	Don Stewart 1160 Sixty Five Hwy Barn - Livestock Livestock	NC Groundwater Standard
Inorganic Laboratory Analyses (µg/L)			
Iron		Not Detected	300
Manganese		Not Detected	50
Selenium		Not Detected	20
Barium		53.3	700
Cadmium		Not Detected	2.0
Chromium		Not Detected	10
Lead		Not Detected	15
Sulfates (mg/L)		33.5	250
Field Measurements			
pH (Standard Units)		7.5	6.5-8.5
Conductivity (µS/cm)		294	Not Established
Dissolved Oxygen (mg/l)		4.91	Not Established
Oxidation-Reduction Potential (millivolts)		-434	Not Established
Turbidity (NTUs)		1.3	Not Established
Temperature (degrees Celsius)		20.2	Not Established

µg/L = Micrograms per Liter (equivalent to parts per billion)

mg/L = Milligrams per Liter (equivalent to parts per million)

LIVESTOCK WELL RESULTS

Barium and sulfates naturally occur in groundwater within the Piedmont Region of North Carolina. The levels of barium and sulfates are below the North Carolina Ground Water Quality Standards (NCGWQS). None of the detected compounds exceed the applicable NCGWQS. The results from the April sampling indicate that the levels have decreased compared to the results for the samples previously collected in 2011 and 2012.

ERM will submit the recent analytical results to the NCDENR and the Forsyth County Health Department for their records. The Forsyth County Health Department can provide information concerning recommendations for water use from the livestock well. Brock Turner, at 336-703-3225, is a contact at the Forsyth County Health Department.

In accordance with our September 18, 2012 correspondence to you, semi-annual sampling has been conducted for one year to monitor water quality conditions in the livestock well. The second round of semi-annual sampling was conducted in April 2013. Based on the low levels of compounds in the current and recent results, no additional sampling of the livestock well appears to be needed.

If you have any questions, please contact me at 704-541-8345. Thank you for your assistance.

Sincerely,



Alan Martin
Project Manager

Attachment

cc: Jackie Drummond – NCDENR
Brock Turner – Forsyth County Health Department



Pace Analytical Services, Inc.
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Pace Analytical Services, Inc.
9800 Kinsey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 26, 2013

Mr. Alan Martin
ERM
8000 Corporate Center Drive
Suite 200
Charlotte, NC 28226

RE: Project: RJRT RH - Don Stewart
Pace Project No.: 92155172

Dear Mr. Martin:

Enclosed are the analytical results for sample(s) received by the laboratory on April 19, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: RJRT RH - Don Stewart
Pace Project No.: 92155172

Asheville Certification IDs

2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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SAMPLE SUMMARY

Project: RJRT RH - Don Stewart

Pace Project No.: 92155172

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92155172001	Don Stewart Livestock	Water	04/18/13 15:20	04/19/13 10:15

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SAMPLE ANALYTE COUNT

Project: RJRT RH - Don Stewart
Pace Project No.: 92155172

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92155172001	Don Stewart Livestock	EPA 200.7	SH1	7	PASI-A
		EPA 300.0	AES	1	PASI-A

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ANALYTICAL RESULTS

Project: RJRT RH - Don Stewart

Pace Project No.: 92155172

Sample: Don Stewart Livestock		Lab ID: 92155172001	Collected: 04/18/13 15:20	Received: 04/19/13 10:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	53.3 ug/L		5.0	1	04/20/13 12:15	04/22/13 23:58	7440-39-3	
Cadmium	ND ug/L		1.0	1	04/20/13 12:15	04/22/13 23:58	7440-43-9	
Chromium	ND ug/L		5.0	1	04/20/13 12:15	04/22/13 23:58	7440-47-3	
Iron	ND ug/L		50.0	1	04/20/13 12:15	04/22/13 23:58	7439-89-6	
Lead	ND ug/L		5.0	1	04/20/13 12:15	04/22/13 23:58	7439-92-1	
Manganese	ND ug/L		5.0	1	04/20/13 12:15	04/22/13 23:58	7439-96-5	
Selenium	ND ug/L		10.0	1	04/20/13 12:15	04/22/13 23:58	7782-49-2	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Sulfate	33.5 mg/L		10.0	5		04/24/13 00:43	14808-79-8	

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QUALITY CONTROL DATA

Project: RJRT RH - Don Stewart
 Pace Project No.: 92155172

QC Batch: MPRP/13119 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET
 Associated Lab Samples: 92155172001

METHOD BLANK: 960515 Matrix: Water
 Associated Lab Samples: 92155172001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	ND	5.0	04/22/13 23:08	
Cadmium	ug/L	ND	1.0	04/22/13 23:08	
Chromium	ug/L	ND	5.0	04/22/13 23:08	
Iron	ug/L	ND	50.0	04/22/13 23:08	
Lead	ug/L	ND	5.0	04/22/13 23:08	
Selenium	ug/L	ND	10.0	04/22/13 23:08	

LABORATORY CONTROL SAMPLE: 960516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	485	97	85-115	
Cadmium	ug/L	500	481	96	85-115	
Chromium	ug/L	500	502	100	85-115	
Iron	ug/L	5000	4980	100	85-115	
Lead	ug/L	500	484	97	85-115	
Selenium	ug/L	500	487	97	85-115	

MATRIX SPIKE SAMPLE: 960517

Parameter	Units	92154955002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	0.018 mg/L	500	530	102	70-130	
Cadmium	ug/L	ND	500	456	91	70-130	
Chromium	ug/L	0.0053 mg/L	500	520	103	70-130	
Iron	ug/L	0.56 mg/L	5000	5630	101	70-130	
Lead	ug/L	ND	500	423	85	70-130	
Selenium	ug/L	ND	500	541	108	70-130	

MATRIX SPIKE SAMPLE: 960519

Parameter	Units	92155173005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	137	500	609	94	70-130	
Cadmium	ug/L	ND	500	473	95	70-130	
Chromium	ug/L	ND	500	500	99	70-130	
Iron	ug/L	1460	5000	6300	97	70-130	
Lead	ug/L	ND	500	460	92	70-130	
Selenium	ug/L	ND	500	488	98	70-130	

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QUALITY CONTROL DATA

Project: RJRT RH - Don Stewart
 Pace Project No.: 92155172

SAMPLE DUPLICATE: 960518

Parameter	Units	92155035001 Result	Dup Result	RPD	Max RPD	Qualifiers
Barium	ug/L	233	235	1	20	
Cadmium	ug/L	ND	ND		20	
Chromium	ug/L	ND	5.7J		20	
Iron	ug/L	ND	ND		20	
Lead	ug/L	ND	ND		20	
Selenium	ug/L	ND	ND		20	

SAMPLE DUPLICATE: 960520

Parameter	Units	92155173006 Result	Dup Result	RPD	Max RPD	Qualifiers
Barium	ug/L	445	413	7	20	
Cadmium	ug/L	ND	ND		20	
Chromium	ug/L	93.0	87.1	7	20	
Iron	ug/L	8780	7530	15	20	
Lead	ug/L	ND	ND		20	
Selenium	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: RJRT RH - Don Stewart
 Pace Project No.: 92155172

QC Batch: WETA/15124 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 92155172001

METHOD BLANK: 961321 Matrix: Water
 Associated Lab Samples: 92155172001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	2.0	04/24/13 09:13	

LABORATORY CONTROL SAMPLE: 961322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	19.2	96	90-110	

MATRIX SPIKE SAMPLE: 961323

Parameter	Units	92154297002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	43.3	20	74.3	155	90-110	M1

MATRIX SPIKE SAMPLE: 961325

Parameter	Units	92154940001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	61.0	20	78.2	86	90-110	M1

SAMPLE DUPLICATE: 961324

Parameter	Units	92154297002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	43.3	65.0	40	20	D6

SAMPLE DUPLICATE: 961326

Parameter	Units	92154940001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	61.0	59.0	3	20	

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QUALIFIERS

Project: RJRT RH - Don Stewart

Pace Project No.: 92155172

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

ANALYTE QUALIFIERS

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RJRT RH - Don Stewart
Pace Project No.: 92155172

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92155172001	Don Stewart Livestock	EPA 200.7	MPRP/13119	EPA 200.7	ICP/11952
92155172001	Don Stewart Livestock	EPA 300.0	WETA/15124		

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Client Name: ERM

Where Received: Huntersville Asheville Eden Raleigh

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used: IR Gun T1101 **T1102** Type of Ice: **Wet** Blue None Samples on ice, cooling process has begun

Temp Correction Factor **T1101: No Correction T1102: No Correction**

Corrected Cooler Temp.: 21 C **Biological Tissue is Frozen:** Yes No N/A

Date and Initials of person examining contents: 4/19/13

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

SCURF Review: [Signature] Date: 4/19/13
 SRF Review: [Signature] Date: 4/22/13

WO#: 92155172



Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Company: <u>ERM NC Inc</u> Address: <u>900 Corporate Center Blvd Charlotte NC 28226</u> Email To: <u>Alan.Martin@erm.com</u> Phone: <u>704541-8245</u> Fax: _____ Requested Due Date/TAT: <u>5/18/13</u>	Section B Required Project Information:	Report To: <u>Alan Martin</u> Copy To: _____ Purchase Order No.: _____ Project Name: <u>RSDT RA</u> Project Number: _____	Section C Invoice Information:	Attention: <u>Alan Martin</u> Company Name: <u>ERM</u> Address: <u>SFME</u> Page Quote Reference: _____ Pace Project Manager: _____ Pace Profile #: <u>1940-3</u>
REGULATORY AGENCY			<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____		
Site Location STATE: <u>NC</u>			Requested Analysis Filtered (Y/N)		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃				
1	Don Stewart <u>laststack</u>	WT E	DATE	TIME	DATE	TIME	1	1								92155172
2																021
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<u>Metals + sulfate</u>	<u>Don Stewart / ERM</u>			<u>Fred Ex</u>	<u>4-19</u>	<u>1015</u>	<u>21</u>
				<u>Shonda Pagan</u>			<u>g</u>
							<u>NY</u>

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: <u>Chris head</u>	DATE Signed (MM/DD/YY): <u>4-18-13</u>
SIGNATURE of SAMPLER: <u>[Signature]</u>	

Temp in °C _____
Received on Ice (Y/N) _____
Custody Sealed Cooler (Y/N) _____
Samples Intact (Y/N) _____