Pace Analytical Services, Inc.
8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

January 31, 2013

Mr. Curtis McKenzie
Utilities Commission
P.O. Box 100
New Smyrna Beach, FL 32170

RE: Project: WTP Lime Sludge
Pace Project No.: 3579918

Dear Mr. McKenzie:

Enclosed are the analytical results for sample(s) received by the laboratory on January 14, 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.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

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

Sincerely,

Sakina Mckenzie for
Jeff Baylor
jeff.baylor@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: WTP Lime Sludge
Pace Project No.: 3579918

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pace Analytical Services - Ormond certification number E83509
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: WTP Lime Sludge
Pace Project No.: 3579918

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3579918001	**Water Treatment Plant (WTP)**	Solid	01/14/13 10:15	01/14/13 14:20

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SAMPLE ANALYTE COUNT

Project: WTP Lime Sludge
Pace Project No.: 3579918

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3579918001	**Water Treatment Plant (WTP)**	EPA 6010	JTJ	3	PASI-O
		ASTM D2974-87	WMW	1	PASI-O
		SM 2540G	GMD	1	PASI-O
		EPA 9045	GMD	1	PASI-O
		EPA 9056	LAJ	1	PASI-O

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ANALYTICAL RESULTS

Project: WTP Lime Sludge
Pace Project No.: 3579918

Sample: Water Treatment Plant (WTP) **Lab ID: 3579918001** Collected: 01/14/13 10:15 Received: 01/14/13 14:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Calcium	**395000**	mg/kg	1710	857	50	01/21/13 15:56	01/22/13 16:20	7440-70-2	D4
Iron	**832**	mg/kg	2.7	1.4	1	01/21/13 15:56	01/22/13 12:07	7439-89-6	
Magnesium	**3820**	mg/kg	34.3	17.1	1	01/21/13 15:56	01/22/13 12:07	7439-95-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**28.9**	%	0.10	0.10	1		01/24/13 00:42		
2540G Total Percent Solids	Analytical Method: SM 2540G								
Total Solids	**71.3**	%	0.10	0.10	1		01/17/13 12:20		
9045 pH Soil	Analytical Method: EPA 9045								
pH at 25 Degrees C	**10.1**	Std. Units	0.10	0.10	1		01/29/13 12:40		Q
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**174U**	mg/kg	348	174	5		01/16/13 02:45	16887-00-6	

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QUALITY CONTROL DATA

Project: WTP Lime Sludge
Pace Project No.: 3579918

QC Batch: MPRP/11895
QC Batch Method: EPA 3050
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 3579918001

METHOD BLANK: 547105 Matrix: Solid
Associated Lab Samples: 3579918001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/kg	12.0U	24.0	01/22/13 10:25	
Iron	mg/kg	0.96U	1.9	01/22/13 10:25	
Magnesium	mg/kg	12.0U	24.0	01/22/13 10:25	

LABORATORY CONTROL SAMPLE: 547106

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/kg	617	668	108	80-120	
Iron	mg/kg	123	130	106	80-120	
Magnesium	mg/kg	617	653	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 547107 547108

Parameter	Units	3579942002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/kg	40400	4160	4140	44900	45800	109	130	75-125	2	20	J(M1)
Iron	mg/kg	69100	830	830	69700	70600	65	178	75-125	1	20	J(M1)
Magnesium	mg/kg	4120	4160	4140	8270	8380	100	103	75-125	1	20	

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QUALITY CONTROL DATA

Project: WTP Lime Sludge
Pace Project No.: 3579918

QC Batch: PMST/1570
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 3579918001

SAMPLE DUPLICATE: 548929

Parameter	Units	3579746001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	97.6	97.4	.2	10	

SAMPLE DUPLICATE: 548930

Parameter	Units	3580163177 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.2	15.1	1	10	

SAMPLE DUPLICATE: 548931

Parameter	Units	3580118001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	74.0	74.0	.01	10	

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QUALITY CONTROL DATA

Project: WTP Lime Sludge
Pace Project No.: 3579918

QC Batch: WET/17172
QC Batch Method: SM 2540G
Analysis Method: SM 2540G
Analysis Description: 2540G Total Percent Solids
Associated Lab Samples: 3579918001

SAMPLE DUPLICATE: 545239

Parameter	Units	3579940001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	3.2	3.3	.6	10	

SAMPLE DUPLICATE: 545240

Parameter	Units	3579947001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	3.1	3.1	.06	10	

SAMPLE DUPLICATE: 545241

Parameter	Units	3580118001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	25.9	25.8	.5	10	

SAMPLE DUPLICATE: 545242

Parameter	Units	3580244003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	15.6	15.6	.01	10	

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QUALITY CONTROL DATA

Project: WTP Lime Sludge
Pace Project No.: 3579918

QC Batch: WET/17358
QC Batch Method: EPA 9045
Analysis Method: EPA 9045
Analysis Description: 9045 pH
Associated Lab Samples: 3579918001

SAMPLE DUPLICATE: 552269

Parameter	Units	3579918001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	10.1	10.1	0	20	Q

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QUALITY CONTROL DATA

Project: WTP Lime Sludge
Pace Project No.: 3579918

QC Batch: WETA/23110 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 3579918001

METHOD BLANK: 543686 Matrix: Solid
Associated Lab Samples: 3579918001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/kg	25.0U	50.0	01/16/13 01:08	

LABORATORY CONTROL SAMPLE: 543687

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/kg	500	507	101	80-120	

MATRIX SPIKE SAMPLE: 543689

Parameter	Units	92144568001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/kg	4350	7910	12800	107	80-120	

SAMPLE DUPLICATE: 543688

Parameter	Units	92144568001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/kg	4350	4350	.003	20	

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QUALIFIERS

Project: WTP Lime Sludge
Pace Project No.: 3579918

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.

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

D4	Sample was diluted due to the presence of high levels of target analytes.
J(M1)	Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
Q	Sample held beyond the accepted holding time.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WTP Lime Sludge
Pace Project No.: 3579918

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3579918001	**Water Treatment Plant (WTP)**	EPA 3050	MPRP/11895	EPA 6010	ICP/7665
3579918001	**Water Treatment Plant (WTP)**	ASTM D2974-87	PMST/1570		
3579918001	**Water Treatment Plant (WTP)**	SM 2540G	WET/17172		
3579918001	**Water Treatment Plant (WTP)**	EPA 9045	WET/17358		
3579918001	**Water Treatment Plant (WTP)**	EPA 9056	WETA/23110		

THORNTON LABORATORIES
TESTING & INSPECTION SERVICES, INC.

1145 E. Cass St, Tampa, FL 33602
Phone: 813-223-9702 Fax: 813-223-9332
WWW.THORNTONLAB.COM

Report for: Pace Analytical Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174
Attn: Jeff Baylor

Sample Identification:

WTP Lime Sludge PO #FLS-4287
Water Treatment Plant (WTP) Workorder: 3579918
Lab Id: 3579918001
Collected on 1/14/13 @ 10:15

Date Received: 16-Jan-2013

Laboratory Number: 355395

CERTIFICATE OF ANALYSIS

Method	Parameter	Result	Units
ASTM C25	Moisture	30.67	%
	Analysis on Dry Basis		
AOAC 955.01	Calcium Carbonate Equivalent	93.27	%

THORNTON LABORATORIES
Steve Fickett, III

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analyt

The Chain-of-Custody is a LEGAL DOCUMENT. All rel

WO# : 3579918

3579918

1566082

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Utilities Commission New Smyrna	Report To: Curt McKenzie	Attention:
Address: P.O. Box 100	Copy To:	Company Name:
New Smyrna Bch, FL 32170		Address:
Email To: cmckenzie@ucnsb.org	Purchase Order No.:	Pace Quote Reference:
Phone: 386-424-3184 Fax:	Project Name: WTP Lime Sludge	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER

Site Location STATE: FL

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: pH, % Solids	Ca, Mg	Fe, Fe	Chloride	Carbonate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Water Treatment Plant (WTP) Lime Sludge	SL	G			1-14-13	1015		1	✓								✓	✓	✓	✓	✓		
2																								
3																								
4																								
5	Basics to examine possibility for use in sod farming																							
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Sub out Carbonate test

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		1-14-13	1420	DS	1/14/13	14:20	24.3 N
							TH3

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

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

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: September 23, 2011
	Document No.: F-FL-C-007 rev. 04	Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number: _____

Client Name: Util Com Project # 35-79918

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking # _____

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

Date and Initials of person examining contents: 1/13/13 cb

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

Thermometer Used T113 **Type of Ice:** Wet Blue (None)

Cooler Temperature °C 24.3 (Visual) 0 (Correction Factor) 24.3 (Actual)

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐Yes ☐No

Receipt of samples satisfactory: ☐Yes ☐No **Rush TAT requested on COC:**

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: _____ **Date:** 1/14/13

Finished Product Information Only

F.P. Sample ID: _____

Production Code: _____

Date/Time Opened: _____

Number of Unopened Bottles Remaining: _____

Extra Sample in Shed: Yes No

Size & Qty of Bottles Received

_____ x 5 Gal
_____ x 2.5 Gal
_____ x 1 Gal
_____ x 1 Liter
_____ x 500 mL
_____ x 250 mL
_____ x Other: _____