

Pre-Drilling Water Sampling Submittal Review Checklist

Permit No.: 34-059-24341-0000 Well Name: Red Hill Farms MDS GR 5
Owner: American Energy Utica LLC Pad Name: Red Hill Farms MDS GR
Township/County: Madison / Guernsey
Latitude/Longitude: 40.1275145 / -81.345886
Sampling Company: CESO, Inc. Bridgeville, PA
Laboratory: Pace Analytical Services, Inc.
 Yes No Ohio EPA or NELAP/NELAC Certified Lab
Submittal date(s): 3/28/2014
Via: eMail Flash Drive Paper CD Other: _____

Required/Actual Sampling Radius (feet) 1500/2000
 Yes No Any Building Clusters or Potential Residences Identified within Required Sampling Radius
 Yes No NA All Building Clusters or Potential Residences within Required Sampling Radius Accounted for
Sample Date(s): February 2014
 Yes No Sample Location, Sampling Radius and Oil & Gas Well/Pad Shown on Scaled Aerial Photo/Map
 Yes No Latitude/Longitude or Address of Sample Locations Provided
 Yes No Lab Reports Submitted
 Yes No Chain of Custody Forms Submitted
 Yes No Results Submitted for All Parameters Required in September 20, 2012 BMP

Additional Information Requested: no

Additional Information Received: no

Other Items of Note: _____

DOGRM Reviewer: Rjt **Date:** 4/8/2014



800 Bursca Drive, Suite 804
 Bridgeville, Pennsylvania
 15017-1451 (412) 221-2236
www.cesoinc.com

Sent via Certified Mail:
 7013 1090 0002 4389 9365

March 14, 2014

Pre-drill Survey Results
 Ohio Department of Natural Resources
 Division of Oil & Gas, Permitting Section
 2045 Morse Road, Building F-2
 Columbus, OH 43229-6693

**RE: Submittal of Pre-Drilling Survey Results
 Red Hill Farm, AEU, LLC
 Londonderry & Madison Townships, Guernsey County, OH
 CESO Job #750217**

To Whom It May Concern:

CESO, Inc., is submitting predrilling survey results on behalf of America Energy – Utica (AEU) for the properties listed below. This information is submitted to satisfy the requirements of Ohio Senate Bill 315.

Pad Name	Parcel ID	County	Municipality	Owner	Supply Type
Red Hill Farm	220000047000	Guernsey	Madison Twp.	Cooper, David & Mary	1 Well
Red Hill Farm	200000470000	Guernsey	Londonderry Twp.	Kelm, Paul	1 Spring
Red Hill Farm	220000791000	Guernsey	Madison Twp.	Miller, William & Edna	1 Well
Red Hill Farm	220000792000	Guernsey	Madison Twp.	Nisley, Phillip & Ellen	1 Spring
Red Hill Farm	220000226000	Guernsey	Madison Twp.	Raber, Randy	1 Well
Red Hill Farm	200000617000	Guernsey	Londonderry Twp.	Taylor, Gary & Karen	1 Spring

A minimum of three attempts (phone call, home visit, and/or certified letter) were made to contact each parcel owner within the 2,000 foot radius of the Red Hill Farm wellhead. Mailing addresses were obtained from the Guernsey County Auditor’s office. A table presenting information regarding parcel owners and their status has been included in this submittal as Attachment A. Additionally, a corresponding map depicting properties sampled, refused, or on public water is included as Attachment B.

Should you have any questions or comments please don’t hesitate to contact me at longenecker@cesoinc.com.

Sincerely,
 CESO, Inc.

Andrew Longenecker
 Environmental Program Manager



800 Bursca Drive, Suite 804
Bridgeville, Pennsylvania 15017-1451
(412) 221-2236
www.cesoinc.com

Sent via Certified Mail
7013 1090 0002 4389 8641

March 5, 2014

David & Mary Cooper
20411 Cadiz Road
Freeport, OH 43973

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mr. & Mrs. Cooper:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply well located at 20411 Cadiz Road, Freeport, Ohio. The well is identified herein as "RHF-RW-Co" and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 14, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

All chemical analytes sampled in RHF-RW-Co were below MCLs and SMCLs established by the EPA, OEPA, and ODNR.

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.

CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program

**Water Supply Pre-Drill Survey
SITE VISIT FORM**

GENERAL INFORMATION

Operator Name: AEU, LLC
 Location of Gas Well:
 Municipality: Madison
 County: Guernsey
 Physical Address: Cadiz Rd
 City, State, Zip Code: Freeport, OH 43973

Date Invented: 02/14/14
 Invented by: NH/PH

Property of Interest Information:

Municipality: Madison Township County: Guernsey Tax Parcel ID: 220000047000

Person Interviewed: Mary Cooper Owner Resident Other
 If other, list relationship _____

Length of time living at residence: 40 years
 Send analytical results to: Owner Other If other, list _____

Name: Mary & David Cooper
 Mailing Address: 20411 Cadiz Road
 City, State, Zip Code: Freeport, OH 43973
 Phone: 740-489-5631

WATER SOURCE INFORMATION

Private Water Supply No Water Supply Public Water Supply

How many water sources on this property? 1
 Number of wells: 1 Number of springs: 0

Number of other (list): _____
 Was there ever a well in the basement? NO
 If yes, explain. _____

Water Supply ID: BHF-BW-Co-01

Is water source located on the property of interest? Yes If no, please explain: _____

Does this source supply any other property? no If yes, please list owner(s): _____

Is this water system ever winterized? If yes, what method is used? No

Number of persons using this water source? 2

Distance from residence (ft): 10' Direction from residence: N

Distance from (proposed) gas well (ft): 1600' Direction from (proposed) gas well: SW

Uses:

- Domestic
- Husbandry
- Irrigation
- Industrial/Commercial
- Public, non-community
- Abandoned
- None

Surrounding Area Information:

- Ground sloping toward water source
- Water source downgradient of septic
- Signs of failing septic, soggy, odor
- Close to crops, garden, greenhouse
- Close to junkyard, dump, landfill
- Close to fuel tanks, storage, garage
- Close to livestock, barn, barnyard, etc
- Close to salt storage, salted roadway

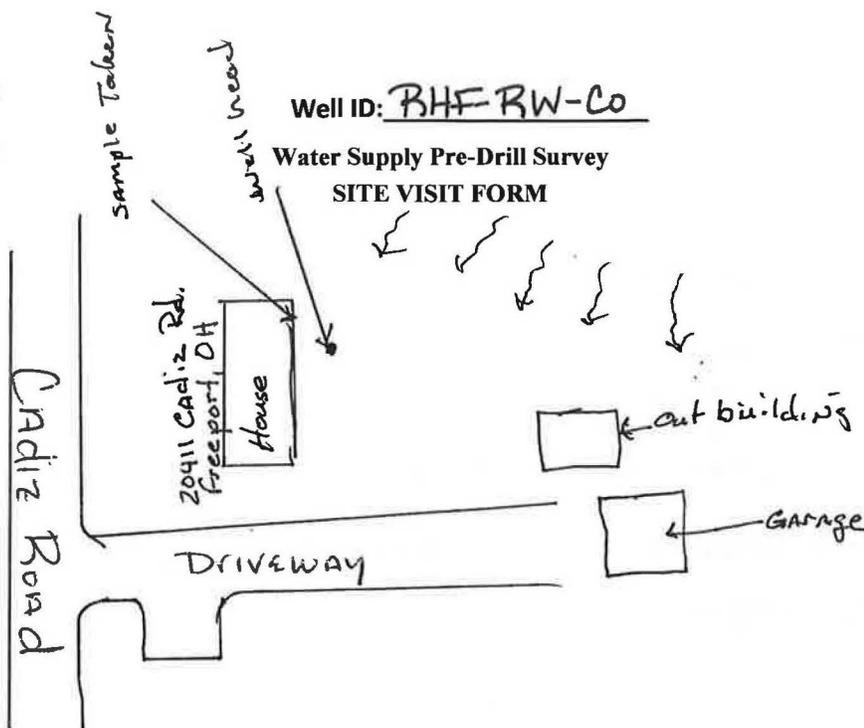
- Approximate distance (ft) _____

Well ID: BHF-RW-Co

Water Supply Pre-Drill Survey

SITE VISIT FORM

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

Per phone conversation, Ms. Cooper indicates that the well head is buried.

Photo #1 - vented cap on buried well head in the back yard

Photo #2 - sample being collected directly from spigot off of pressure tank

Photo #3 - location of spigot relative to the holding / pressure tank

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed: Mary K. Cooper

Printed: MARY COOPER

Date: 2-14-14



Photograph 1: Up close view of the spigot used for sampling and the pressure tank located directly beside it in the basement of Mary and David Cooper's residence on parcel # 220000047000, at 20411 Cadiz Road, Freeport, Ohio 43973.



Photograph 2: Southwest view of the vent pipe indicating the location of the buried well head at Mary and David Cooper's property, parcel # 220000047000, at 20411 Cadiz Road, Freeport, Ohio 43973.



Photograph 3: Up close view of CESCO, Inc. collecting a sample directly from the spigot in the basement of Mary and David Cooper's residence on parcel # 220000047000, at 20411 Cadiz Road, Freeport, Ohio 43973.

March 03, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 17, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio,
Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio,
Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093430001	RHF-RW-CO-01	Water	02/14/14 10:55	02/17/14 10:52

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SAMPLE ANALYTE COUNT

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093430001	RHF-RW-CO-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	LLB	9	PASI-I
		EPA 200.7	LLB	2	PASI-I
		EPA 8260	ALA	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	TPD	1	PASI-I
		EPA 9038	TPD	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	WDB	1	PASI-I

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

Sample: RHF-RW-CO-01	Lab ID: 5093430001	Collected: 02/14/14 10:55	Received: 02/17/14 10:52	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace		Analytical Method: RSK 175 Modified						
Methane	ND mg/L		0.010	1		02/26/14 16:36	74-82-8	N2
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	0.030 mg/L		0.010	1	02/18/14 19:05	02/19/14 10:03	7440-39-3	
Calcium	88.3 mg/L		1.0	1	02/18/14 19:05	02/19/14 10:03	7440-70-2	
Iron	ND mg/L		0.10	1	02/18/14 19:05	02/19/14 10:03	7439-89-6	
Magnesium	34.1 mg/L		1.0	1	02/18/14 19:05	02/19/14 10:03	7439-95-4	
Manganese	ND mg/L		0.010	1	02/18/14 19:05	02/19/14 10:03	7439-96-5	
Potassium	5.0 mg/L		1.0	1	02/18/14 19:05	02/19/14 10:03	7440-09-7	
Sodium	10.1 mg/L		1.0	1	02/18/14 19:05	02/19/14 10:03	7440-23-5	
Strontium	0.57 mg/L		0.010	1	02/18/14 19:05	02/19/14 10:03	7440-24-6	N2
Total Hardness by 2340B	361 mg/L		2.0	1	02/18/14 19:05	02/19/14 10:03		
200.7 Metals, Dissolved (LF)		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	29.8 ug/L		10.0	1	02/20/14 14:05	02/21/14 10:08	7440-39-3	
Iron, Dissolved	ND ug/L		100	1	02/20/14 14:05	02/21/14 10:08	7439-89-6	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND mg/L		0.0050	1		02/20/14 22:36	71-43-2	
Toluene	ND mg/L		0.0050	1		02/20/14 22:36	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/20/14 22:36	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/20/14 22:36	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	111 %.		79-116	1		02/20/14 22:36	1868-53-7	
Toluene-d8 (S)	93 %.		81-110	1		02/20/14 22:36	2037-26-5	
4-Bromofluorobenzene (S)	106 %.		80-114	1		02/20/14 22:36	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	353 mg/L		2.0	1		02/19/14 10:02		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	701 umhos/cm		1.0	1		02/21/14 10:19		N2
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	376 mg/L		10.0	1		02/18/14 14:00		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	ND mg/L		5.0	1		02/18/14 09:30		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.1 Std. Units		0.10	1		02/17/14 11:46		H3,H6
9038 Sulfate Water		Analytical Method: EPA 9038						
Sulfate	27.5 mg/L		12.5	2.5		02/18/14 09:54	14808-79-8	N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Sample: RHF-RW-CO-01		Lab ID: 5093430001	Collected: 02/14/14 10:55	Received: 02/17/14 10:52	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		02/28/14 20:25	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	3.2	mg/L	1.0	1		02/20/14 10:35	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

QC Batch:	GCV/17724	Analysis Method:	RSK 175 Modified
QC Batch Method:	RSK 175 Modified	Analysis Description:	RSK 175 HEADSPACE
Associated Lab Samples:	5093430001		

METHOD BLANK: 1053216 Matrix: Water
Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/26/14 16:16	N2

LABORATORY CONTROL SAMPLE: 1053217

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.2	110	70-130	N2

SAMPLE DUPLICATE: 1053218

Parameter	Units	5093699012 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	7690 ug/L	6.7	14	20	N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: MPRP/12875 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 5093430001

METHOD BLANK: 1049786 Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/19/14 09:47	
Calcium	mg/L	ND	1.0	02/19/14 09:47	
Iron	mg/L	ND	0.10	02/19/14 09:47	
Magnesium	mg/L	ND	1.0	02/19/14 09:47	
Manganese	mg/L	ND	0.010	02/19/14 09:47	
Potassium	mg/L	ND	1.0	02/19/14 09:47	
Sodium	mg/L	ND	1.0	02/19/14 09:47	
Strontium	mg/L	ND	0.010	02/19/14 09:47	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/19/14 09:47	

LABORATORY CONTROL SAMPLE: 1049787

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	9.5	95	85-115	
Iron	mg/L	10	9.7	97	85-115	
Magnesium	mg/L	10	9.4	94	85-115	
Manganese	mg/L	1	0.95	95	85-115	
Potassium	mg/L	10	9.8	98	85-115	
Sodium	mg/L	10	9.8	98	85-115	
Strontium	mg/L	1	0.97	97	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	62.6	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1049788 1049789

Parameter	Units	5093430001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Barium	mg/L	0.030	1	1	0.98	0.99	95	96	70-130	0	20		
Calcium	mg/L	88.3	10	10	91.6	92.6	33	43	70-130	1	20	P6	
Iron	mg/L	ND	10	10	9.3	9.3	93	93	70-130	0	20		
Magnesium	mg/L	34.1	10	10	41.4	41.6	73	75	70-130	0	20		
Manganese	mg/L	ND	1	1	0.93	0.93	93	93	70-130	0	20		
Potassium	mg/L	5.0	10	10	13.1	13.1	81	80	70-130	0	20		
Sodium	mg/L	10.1	10	10	18.7	18.8	86	87	70-130	1	20		
Strontium	mg/L	0.57	1	1	1.5	1.5	92	92	70-130	0	20	N2	
Total Hardness by 2340B	mg/L	361	66.2	66.2	399	402	58	63	70-130	1	20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

QC Batch: MPRP/12883 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 5093430001

METHOD BLANK: 1050597 Matrix: Water
Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/21/14 09:21	
Iron, Dissolved	ug/L	ND	100	02/21/14 09:21	

LABORATORY CONTROL SAMPLE: 1050598

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	953	95	85-115	
Iron, Dissolved	ug/L	10000	9760	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050599 1050600

Parameter	Units	5093315001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium, Dissolved	ug/L	27.2	1000	1000	979	985	95	96	70-130	1	20		
Iron, Dissolved	ug/L	ND	10000	10000	9720	9820	97	98	70-130	1	20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch:	MSV/61898	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	5093430001		

METHOD BLANK: 1050335 Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/20/14 12:38	
Ethylbenzene	mg/L	ND	0.0050	02/20/14 12:38	
Toluene	mg/L	ND	0.0050	02/20/14 12:38	
Xylene (Total)	mg/L	ND	0.010	02/20/14 12:38	
4-Bromofluorobenzene (S)	%	104	80-114	02/20/14 12:38	
Dibromofluoromethane (S)	%	106	79-116	02/20/14 12:38	
Toluene-d8 (S)	%	93	81-110	02/20/14 12:38	

LABORATORY CONTROL SAMPLE: 1050336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.051	102	74-122	
Ethylbenzene	mg/L	.05	0.048	96	66-133	
Toluene	mg/L	.05	0.052	104	72-122	
Xylene (Total)	mg/L	.15	0.14	95	70-124	
4-Bromofluorobenzene (S)	%			96	80-114	
Dibromofluoromethane (S)	%			100	79-116	
Toluene-d8 (S)	%			104	81-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050337 1050338

Parameter	Units	5093464003		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Benzene	mg/L	6.6 ug/L	.05	.05	0.063	0.061	112	109	62-129	3	20	
Ethylbenzene	mg/L	ND	.05	.05	0.052	0.050	104	100	28-153	5	20	
Toluene	mg/L	ND	.05	.05	0.055	0.052	110	105	50-132	5	20	
Xylene (Total)	mg/L	ND	.15	.15	0.15	0.15	103	98	29-145	5	20	
4-Bromofluorobenzene (S)	%						99	98	80-114			
Dibromofluoromethane (S)	%						99	100	79-116			
Toluene-d8 (S)	%						101	98	81-110			

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: WET/14687

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093430001

METHOD BLANK: 1050023

Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/19/14 10:02	

LABORATORY CONTROL SAMPLE: 1050024

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	49.8	100	90-110	

SAMPLE DUPLICATE: 1050025

Parameter	Units	5093437001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	325	334	3	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: WET/14705

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 5093430001

METHOD BLANK: 1050511

Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/21/14 10:19	N2

LABORATORY CONTROL SAMPLE: 1050512

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1410	100	90-110	N2

SAMPLE DUPLICATE: 1050513

Parameter	Units	5093430001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	701	678	3	20	N2

SAMPLE DUPLICATE: 1050514

Parameter	Units	5093551009 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	504	495	2	20	N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: WET/14677

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093430001

METHOD BLANK: 1049486

Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/18/14 14:00	

LABORATORY CONTROL SAMPLE: 1049487

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	278	93	80-120	

SAMPLE DUPLICATE: 1049488

Parameter	Units	5093430001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	376	390	4	10	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch:	WET/14676	Analysis Method:	SM 2540D
QC Batch Method:	SM 2540D	Analysis Description:	2540D Total Suspended Solids
Associated Lab Samples:	5093430001		

METHOD BLANK: 1049482 Matrix: Water

Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/18/14 09:29	

LABORATORY CONTROL SAMPLE: 1049483

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	85	85	80-120	

SAMPLE DUPLICATE: 1049484

Parameter	Units	5093233002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	240	224	7	10	

SAMPLE DUPLICATE: 1049485

Parameter	Units	5093430001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: WET/14671 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 5093430001

SAMPLE DUPLICATE: 1049303

Parameter	Units	5093430001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.1	7.2	2	20	H3,H6

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

QC Batch: WET/14684 Analysis Method: EPA 9038
QC Batch Method: EPA 9038 Analysis Description: 9038 Sulfate Water
Associated Lab Samples: 5093430001

METHOD BLANK: 1049570 Matrix: Water
Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/18/14 09:53	N2

LABORATORY CONTROL SAMPLE: 1049571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	18.3	92	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1049572 1049573

Parameter	Units	5093430001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Sulfate	mg/L	27.5	50	50	77.2	80.8	99	107	90-110	5	20	N2	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

QC Batch: WETA/28393 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 5093430001

METHOD BLANK: 1336979 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	02/28/14 18:44	

LABORATORY CONTROL SAMPLE: 1336980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.3	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1337380 1337381

Parameter	Units	60163163005 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Bromide	mg/L	ND	2500	2500	2500	2490	100	100	80-120	0	15

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093430

QC Batch: WETA/11757 Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
Associated Lab Samples: 5093430001

METHOD BLANK: 1050543 Matrix: Water
Associated Lab Samples: 5093430001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/20/14 10:25	

LABORATORY CONTROL SAMPLE: 1050544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.5	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050545 1050546

Parameter	Units	5092224003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.6	20	20	23.2	23.5	98	99	90-110	1	20	

MATRIX SPIKE SAMPLE: 1050547

Parameter	Units	5093551009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	13.8	20	35.0	106	90-110	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

H3 Sample was received or analysis requested beyond the recognized method holding time.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093430

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093430001	RHF-RW-CO-01	RSK 175 Modified	GCV/17724		
5093430001	RHF-RW-CO-01	EPA 200.7	MPRP/12875	EPA 200.7	ICP/14614
5093430001	RHF-RW-CO-01	EPA 200.7	MPRP/12883	EPA 200.7	ICP/14635
5093430001	RHF-RW-CO-01	EPA 8260	MSV/61898		
5093430001	RHF-RW-CO-01	SM 2320B	WET/14687		
5093430001	RHF-RW-CO-01	SM 2510B	WET/14705		
5093430001	RHF-RW-CO-01	SM 2540C	WET/14677		
5093430001	RHF-RW-CO-01	SM 2540D	WET/14676		
5093430001	RHF-RW-CO-01	SM 4500-H+B	WET/14671		
5093430001	RHF-RW-CO-01	EPA 9038	WET/14684		
5093430001	RHF-RW-CO-01	EPA 300.0	WETA/28393		
5093430001	RHF-RW-CO-01	SM 4500-CI-E	WETA/11757		

REPORT OF LABORATORY ANALYSIS

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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:	Section B Required Project Information:	Section C Invoice Information:	Page: <u>1</u> of <u>1</u> 1741035
Company: CESO, Inc.	Report To: Andrew Longenecker	Attention: TINA GUNTER	REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____
Address: 600 BURSCA DR, Suite 604 BRIDGEVILLE, PA 15017	Copy To: hooton@cesoinc.com rummell@cesoinc.com	Company Name: CESO, Inc	
Email To: longenecker@cesoinc.com	Purchase Order No.:	Address: 6534 YANKEE ST. #2B DAYTON, OH	Site Location:
Phone: 412-221-2236	Project Name: Red Hill Farm Pre-drill Sampling	Pace Quote Reference: 12062013R3H-1.0	STATE: OH
Requested Due Date/TAT: STANDARD	Project Number: 750217	Pace Project Manager: Regina Bidel	

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)										Pace Project No./ Lab I.D.								
					COMPOSITE START		COMPOSITE END/GRAB				Preservatives																		
					DATE	TIME	DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	Analysis Test ↓	BTX		Methane	Total Metal	Hardness	Sulfate	TDS	TSS	pH conductivity	Alkalinity
1	RHF-BW-Co-01	DW	GW	G			02/14	1055	9		XX																		5093430
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
lab filter for dissolved Ba, Fe	Natalie Hooton - CESO	02/14/14	1155	NW Shanbaugh - Ace	2-14-14	11:55	02	✓	✓	✓

SAMPLER NAME AND SIGNATURE	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Natalie Hooton				
SIGNATURE of SAMPLER: <i>Natalie Hooton</i>				
DATE Signed (MM/DD/YY): 02/14/2014				

WTFed x d d l
WTFed x d d l
WTFed x d d l
2/17/14 9/1057

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.

Sample Condition Upon Receipt



Client Name: CESD Project # 5093430

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 802463902762

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

Date/Time 5035A kits placed in freezer

Packing Material: Bubble Wrap Bubble Bags None Other ICE

Thermometer Used 1 2 3 4 6 A B C D E Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.2c Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C

Comments: _____ Date and Initials of person examining contents: [Signature]

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>PH rec. out of hold, took to watchmen</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) <u>HNO3</u> H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

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

Project Manager Review: [Signature] Date: 2/17/14

Sample Container Count



CLIENT: CESD

COC PAGE 1 of 1
 COC ID# 1741035

Project # _____

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1U	BP1U	VG9U	pH < 2	pH > 12	Comments
1	3									1					2	3	✓		
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WAFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag

Page 24 of 24



800 Bursca Drive, Suite 804
Bridgeville, Pennsylvania 15017-1451
(412) 221-2236
www.cesoinc.com

Sent via Certified Mail
7013 1090 0002 4389 9327

March 5, 2014

Paul Kelm
21020 Crossline Lane
Freeport, OH 43973

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mr. Kelm:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply spring located at 21020 Crossline Lane, Freeport, Ohio. The spring is identified herein as "RHF-DS-Ke" and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 6, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

All chemical analytes sampled in RHF-DS-Ta were below MCLs and SMCLs established by the EPA, OEPA, and ODNR.

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.

CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program

**Water Supply Pre-Drill Survey
SITE VISIT FORM**

GENERAL INFORMATION

Operator Name: AELI, LLC

Location of Gas Well:

Municipality: Madison Township

County: Guernsey

Physical Address: Cadiz Rd

City, State, Zip Code: Freeport, OH 43973

Date Invented: 02/06/14

Invented by: NH/PH

Property of Interest Information:

Municipality: Madison Township County: Guernsey Tax Parcel ID: 200000470000

Person Interviewed: Paul Kelm Owner Resident Other
If other, list relationship: _____

Length of time living at residence: 34 years

Send analytical results to: Owner Other If other, list _____

Name: Paul Kelm

Mailing Address: 21020 Crossline Lane

City, State, Zip Code: Freeport, OH 43973

Phone: 740-489-5227

WATER SOURCE INFORMATION

Private Water Supply No Water Supply Public Water Supply

How many water sources on this property? 1

Number of wells: 0 Number of springs: 1

Number of other (list): N/A

Was there ever a well in the basement? NO

If yes, explain.

Water Supply ID: RHF-DS-Ke-01

Is water source located on the property of interest? Yes If no, please explain: _____

Does this source supply any other property? NO If yes, please list owner(s): _____

Is this water system ever winterized? If yes, what method is used? NO

Number of persons using this water source? 2

Distance from residence (ft): 1,000 FT. / 100 FT From Tank Direction from residence: E

Distance from (proposed) gas well (ft): ~2000ft Direction from (proposed) gas well: NE

Uses:

- Domestic
- Husbandry
- Irrigation
- Industrial/Commercial
- Public, non-community
- Abandoned
- None

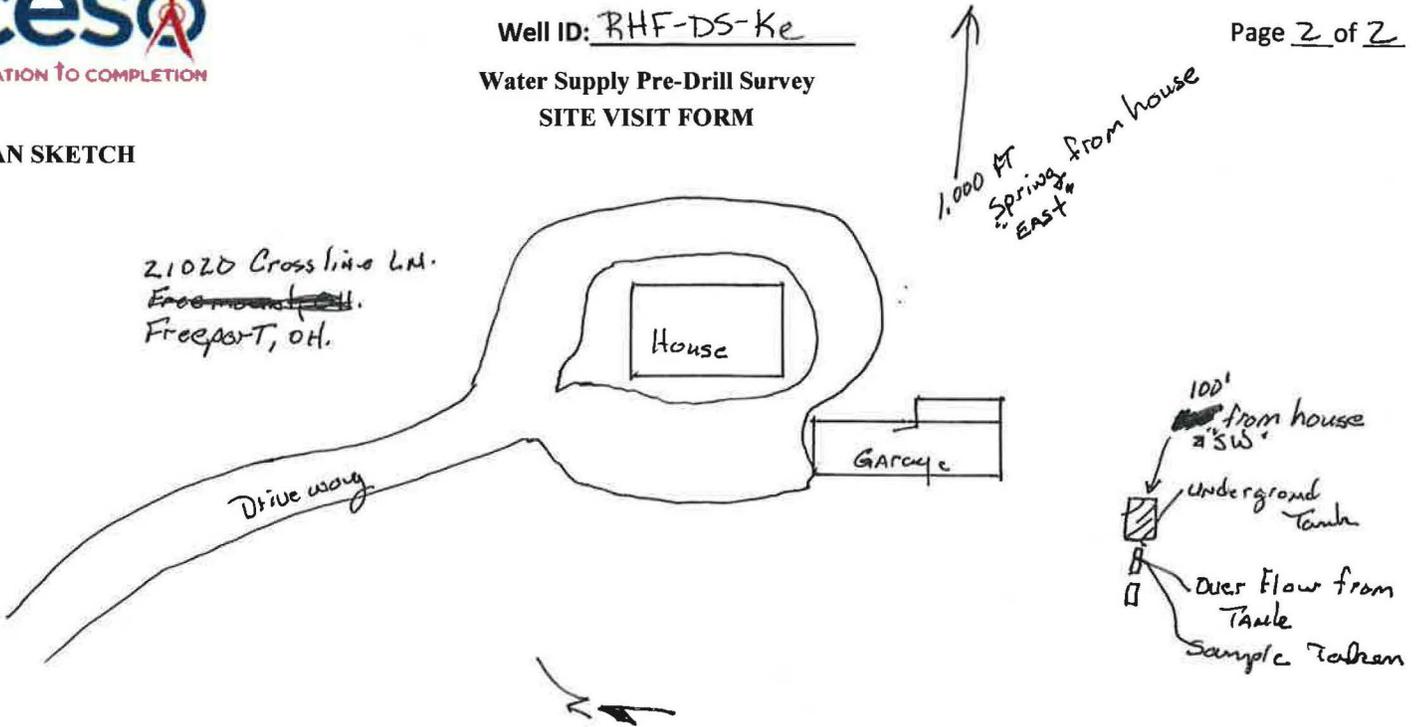
Surrounding Area Information:

- Ground sloping toward water source
- Water source downgradient of septic
- Signs of failing septic, soggy, odor
- Close to crops, garden, greenhouse
- Close to junkyard, dump, landfill
- Close to fuel tanks, storage, garage
- Close to livestock, barn, barnyard, etc
- Close to salt storage, salted roadway

- Approximate distance (ft) Gravity fed spring
- Approximate distance (ft) _____

Water Supply Pre-Drill Survey
SITE VISIT FORM

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

Property owner uses a holding Tank - 1,000 Gals and uses a plastic drum to catch sediment before the holding Tank.

Photo #1 - location of the spring

Photo #2 - overflow location, down gradient of holding tank

Photo #3 sampling point, overflow pipe

Mr. Kelm's indicates that his property lies in Londonderry Township, not Madison Township as indicated on the front of this form

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed: Paul Kelm

Printed: PAUL KELM

Date: 2-6-14



Photograph 1: Southeast view of the underground spring that was developed for drinking water on Paul Kelm's property, parcel # 200000470000, at 21020 Crossline Lane, Freeport, Ohio 43973.



Photograph 2: Downward view of the overflow area for the developed spring used as a drinking water source on Paul Kelm's property, parcel # 200000470000, at 21020 Crossline Lane, Freeport, Ohio 43973.



Photograph 3: Up close view of the overflow pipe used as the sampling location for the developed spring on Paul Kelm's property, parcel # 200000470000, at 21020 Crossline Lane, Freeport, Ohio 43973.

February 18, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093132

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 07, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio,
Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio,
Inc.



REPORT OF LABORATORY ANALYSIS

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Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093132

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093132001	RHF-DS-Ke-01	Water	02/06/14 11:00	02/07/14 10:03

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SAMPLE ANALYTE COUNT

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093132001	RHF-DS-Ke-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	FRW	9	PASI-I
		EPA 200.7	LLB	2	PASI-I
		EPA 8260	GRM	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	TPD	1	PASI-I
		EPA 9038	ZM	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	ILP	1	PASI-I

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ANALYTICAL RESULTS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Sample: RHF-DS-Ke-01	Lab ID: 5093132001	Collected: 02/06/14 11:00	Received: 02/07/14 10:03	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace		Analytical Method: RSK 175 Modified						
Methane	ND mg/L		0.010	1		02/14/14 16:26	74-82-8	N2
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	0.029 mg/L		0.010	1	02/08/14 09:16	02/10/14 09:44	7440-39-3	
Calcium	85.8 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:44	7440-70-2	
Iron	ND mg/L		0.10	1	02/08/14 09:16	02/10/14 09:44	7439-89-6	
Magnesium	17.9 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:44	7439-95-4	
Manganese	ND mg/L		0.010	1	02/08/14 09:16	02/10/14 09:44	7439-96-5	
Potassium	1.2 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:44	7440-09-7	
Sodium	7.1 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:44	7440-23-5	
Strontium	0.31 mg/L		0.010	1	02/08/14 09:16	02/10/14 09:44	7440-24-6	N2
Total Hardness by 2340B	288 mg/L		2.0	1	02/08/14 09:16	02/10/14 09:44		
200.7 Metals, Dissolved (LF)		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	28.6 ug/L		10.0	1	02/10/14 02:00	02/10/14 14:08	7440-39-3	
Iron, Dissolved	ND ug/L		100	1	02/10/14 02:00	02/10/14 14:08	7439-89-6	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND mg/L		0.0050	1		02/11/14 04:42	71-43-2	
Toluene	ND mg/L		0.0050	1		02/11/14 04:42	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/11/14 04:42	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/11/14 04:42	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	103 %.		79-116	1		02/11/14 04:42	1868-53-7	
Toluene-d8 (S)	101 %.		81-110	1		02/11/14 04:42	2037-26-5	
4-Bromofluorobenzene (S)	99 %.		80-114	1		02/11/14 04:42	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	260 mg/L		2.0	1		02/10/14 11:28		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	559 umhos/cm		1.0	1		02/17/14 07:19		N2
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	355 mg/L		10.0	1		02/11/14 09:16		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	ND mg/L		5.0	1		02/11/14 08:56		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.9 Std. Units		0.10	1		02/07/14 10:42		H6
9038 Sulfate Water		Analytical Method: EPA 9038						
Sulfate	44.9 mg/L		12.5	2.5		02/10/14 08:46	14808-79-8	N2

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ANALYTICAL RESULTS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Sample: RHF-DS-Ke-01		Lab ID: 5093132001	Collected: 02/06/14 11:00	Received: 02/07/14 10:03	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		02/16/14 16:13	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	2.3	mg/L	1.0	1		02/12/14 08:47	16887-00-6	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: GCV/17675

Analysis Method: RSK 175 Modified

QC Batch Method: RSK 175 Modified

Analysis Description: RSK 175 HEADSPACE

Associated Lab Samples: 5093132001

METHOD BLANK: 1047331

Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/14/14 15:47	N2

LABORATORY CONTROL SAMPLE: 1047332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.0	103	70-130	N2

SAMPLE DUPLICATE: 1047333

Parameter	Units	5093037005 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	ND	ND		20	N2

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: MPRP/12836 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 5093132001

METHOD BLANK: 1046831 Matrix: Water
 Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/10/14 09:36	
Calcium	mg/L	ND	1.0	02/10/14 09:36	
Iron	mg/L	ND	0.10	02/10/14 09:36	
Magnesium	mg/L	ND	1.0	02/10/14 09:36	
Manganese	mg/L	ND	0.010	02/10/14 09:36	
Potassium	mg/L	ND	1.0	02/10/14 09:36	
Sodium	mg/L	ND	1.0	02/10/14 09:36	
Strontium	mg/L	ND	0.010	02/10/14 09:36	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/10/14 09:36	

LABORATORY CONTROL SAMPLE: 1046832

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	10.1	101	85-115	
Iron	mg/L	10	9.7	97	85-115	
Magnesium	mg/L	10	10.1	101	85-115	
Manganese	mg/L	1	0.97	97	85-115	
Potassium	mg/L	10	9.7	97	85-115	
Sodium	mg/L	10	9.9	99	85-115	
Strontium	mg/L	1	0.99	99	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	66.6	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046833 1046834

Parameter	Units	5093132001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
Barium	mg/L	0.029	1	1	1.0	1.0	98	97	70-130	1	20		
Calcium	mg/L	85.8	10	10	96.5	92.0	108	63	70-130	5	20	P6	
Iron	mg/L	ND	10	10	9.5	9.4	95	94	70-130	1	20		
Magnesium	mg/L	17.9	10	10	27.8	26.8	99	89	70-130	4	20		
Manganese	mg/L	ND	1	1	0.96	0.96	96	96	70-130	1	20		
Potassium	mg/L	1.2	10	10	11.1	11.0	99	97	70-130	1	20		
Sodium	mg/L	7.1	10	10	17.1	16.7	101	96	70-130	3	20		
Strontium	mg/L	0.31	1	1	1.3	1.3	100	98	70-130	2	20	N2	
Total Hardness by 2340B	mg/L	288	66.2	66.2	356	340	103	79	70-130	4	20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093132

QC Batch: MPRP/12839 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 5093132001

METHOD BLANK: 1046839 Matrix: Water
Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/10/14 13:13	
Iron, Dissolved	ug/L	ND	100	02/10/14 13:13	

LABORATORY CONTROL SAMPLE: 1046840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	927	93	85-115	
Iron, Dissolved	ug/L	10000	9670	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046841 1046842

Parameter	Units	5093139001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Barium, Dissolved	ug/L	0.024 mg/L	1000	1000	966	991	94	97	70-130	3	20		
Iron, Dissolved	ug/L	<0.10 mg/L	10000	10000	9890	10000	99	100	70-130	2	20		

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093132

QC Batch: MSV/61657 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 5093132001

METHOD BLANK: 1047222 Matrix: Water
Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/11/14 01:49	
Ethylbenzene	mg/L	ND	0.0050	02/11/14 01:49	
Toluene	mg/L	ND	0.0050	02/11/14 01:49	
Xylene (Total)	mg/L	ND	0.010	02/11/14 01:49	
4-Bromofluorobenzene (S)	%	101	80-114	02/11/14 01:49	
Dibromofluoromethane (S)	%	102	79-116	02/11/14 01:49	
Toluene-d8 (S)	%	102	81-110	02/11/14 01:49	

LABORATORY CONTROL SAMPLE: 1047223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.051	103	74-122	
Ethylbenzene	mg/L	.05	0.048	96	66-133	
Toluene	mg/L	.05	0.050	100	72-122	
Xylene (Total)	mg/L	.15	0.14	96	70-124	
4-Bromofluorobenzene (S)	%			97	80-114	
Dibromofluoromethane (S)	%			102	79-116	
Toluene-d8 (S)	%			99	81-110	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WET/14595

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093132001

METHOD BLANK: 1046938

Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/10/14 11:28	

LABORATORY CONTROL SAMPLE: 1046939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	48.5	97	90-110	

SAMPLE DUPLICATE: 1046941

Parameter	Units	5093139004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	257	256	0	20	

SAMPLE DUPLICATE: 1046959

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	260	262	1	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WET/14664

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 5093132001

METHOD BLANK: 1049185

Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/17/14 07:19	N2

LABORATORY CONTROL SAMPLE: 1049186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1420	101	90-110	N2

SAMPLE DUPLICATE: 1049187

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	559	557	0	20	N2

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WET/14614

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093132001

METHOD BLANK: 1047229

Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/11/14 09:15	

LABORATORY CONTROL SAMPLE: 1047230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	318	106	80-120	

SAMPLE DUPLICATE: 1047231

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	355	369	4	10	

SAMPLE DUPLICATE: 1047778

Parameter	Units	5093139006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	371	342	8	10	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WET/14613

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 5093132001

METHOD BLANK: 1047226

Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/11/14 08:56	

LABORATORY CONTROL SAMPLE: 1047227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	100	100	80-120	

SAMPLE DUPLICATE: 1047228

Parameter	Units	5093134001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WET/14589 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 5093132001

SAMPLE DUPLICATE: 1046557

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.9	7.8	1	20	H6

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093132

QC Batch: WET/14597 Analysis Method: EPA 9038
QC Batch Method: EPA 9038 Analysis Description: 9038 Sulfate Water
Associated Lab Samples: 5093132001

METHOD BLANK: 1046980 Matrix: Water
Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/10/14 08:30	N2

LABORATORY CONTROL SAMPLE: 1046981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	19.9	100	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046982 1046983

Parameter	Units	5093139006		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Sulfate	mg/L	13.9	20	20	41.1	40.0	136	131	90-110	3	20	E,M3, N2	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WETA/28200 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 5093132001

METHOD BLANK: 1330769 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	02/16/14 09:48	

LABORATORY CONTROL SAMPLE: 1330770

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.8	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1330771 1330772

Parameter	Units	60162422001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Bromide	mg/L	ND	50	50	48.1	48.7	96	97	80-120	1	15				

MATRIX SPIKE SAMPLE: 1330773

Parameter	Units	60162472001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	ND	2500	2450	98	80-120	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

QC Batch: WETA/11718 Analysis Method: SM 4500-Cl-E
 QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
 Associated Lab Samples: 5093132001

METHOD BLANK: 1047500 Matrix: Water

Associated Lab Samples: 5093132001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/12/14 08:37	

LABORATORY CONTROL SAMPLE: 1047501

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1047502 1047503

Parameter	Units	5093037005		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	18.1	20	20	20	37.3	37.1	96	95	90-110	1	20			

MATRIX SPIKE SAMPLE: 1047504

Parameter	Units	5093139007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	16.0	20	35.5	97	90-110	

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QUALIFIERS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093132

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093132001	RHF-DS-Ke-01	RSK 175 Modified	GCV/17675		
5093132001	RHF-DS-Ke-01	EPA 200.7	MPRP/12836	EPA 200.7	ICP/14516
5093132001	RHF-DS-Ke-01	EPA 200.7	MPRP/12839	EPA 200.7	ICP/14528
5093132001	RHF-DS-Ke-01	EPA 8260	MSV/61657		
5093132001	RHF-DS-Ke-01	SM 2320B	WET/14595		
5093132001	RHF-DS-Ke-01	SM 2510B	WET/14664		
5093132001	RHF-DS-Ke-01	SM 2540C	WET/14614		
5093132001	RHF-DS-Ke-01	SM 2540D	WET/14613		
5093132001	RHF-DS-Ke-01	SM 4500-H+B	WET/14589		
5093132001	RHF-DS-Ke-01	EPA 9038	WET/14597		
5093132001	RHF-DS-Ke-01	EPA 300.0	WETA/28200		
5093132001	RHF-DS-Ke-01	SM 4500-CI-E	WETA/11718		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt



Client Name: CEISO INC

Project # 5093132

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: ~~8024~~ 8024 6390 2729

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

Date/Time 5035A kits placed in freezer _____

Packing Material: Bubble Wrap Bubble Bags None Other z-plocks

Thermometer Used 12346ABCDE Type of ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.3°C Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C Comments: _____ Date and Initials of person examining contents: 2/7/14 SJ

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>pH</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Ryan H Bell

Date: 2/7/14

Sample Container Count

CLIENT: Caso Inc



COC PAGE 1 of 1
 COC ID# 1741027

Project # 5093132

Sample Line	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	VG9H	pH <2	pH >12	Comments
1	3	2								1				3				
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFY	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag



800 Bursca Drive, Suite 804
 Bridgeville, Pennsylvania 15017-1451
 (412) 221-2236
www.cesoinc.com

Sent via Certified Mail
 7013 1090 0002 4389 9334

March 5, 2014

William & Edna Miller
 20501 McCoy Road
 Freeport, OH 43973

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mr. & Mrs. Miller:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply well located at 20410 Cadiz Road, Freeport, Ohio. The well is identified herein as “RHF-RW-Mi” and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 6, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

The following constituents, listed in the table below, were above the EPA MCLs or SMCLs for public supplies.

Well ID	Sample ID	Parameter	Analytical Results	MCL/SMCLs
Red Hill Farm	RHF-RW-Mi-01	Methane	0.09 mg/L	**3

- 1- mg/L= milligrams per liter; SU=Standard Units
- 2- Secondary Maximum Contaminant Levels (SMCLs)
- 3- Methane does not have an MCL or SMCL standard established by the EPA

The presence of methane and groundwater quality in general (total dissolved solids, sulfate, metals, etc.), may vary from year to year or season to season due to many factors (rainfall, temperature changes, barometric pressure, snow cover, etc.). The ODNR recommends that methane concentrations that are above 7 mg/L in groundwater be regularly monitored to confirm that concentrations are not increasing.

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.

CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program



Well ID: RHF-RW-Mi

Water Supply Pre-Drill Survey
SITE VISIT FORM

GENERAL INFORMATION

Operator Name: AELI, LLC

Location of Gas Well:

Municipality: Madison Township

County: Guernsey

Physical Address: Cadiz Rd

City, State, Zip Code: Freeport, OH 43973

Date Invented: 02/06/14

Invented by: NH/PH

Property of Interest Information:

Municipality: Madison Township County: Guernsey

Tax Parcel ID: 220000791000

Person Interviewed: Avita Miller

Owner

Resident

Other

If other, list relationship _____

Length of time living at residence: 8 years

Send analytical results to: Owner

Other

If other, list _____

Name: William & Edna Miller

Mailing Address: 20501 McCoy Rd

City, State, Zip Code: Freeport, OH 43973

Phone: 740-489-5697

WATER SOURCE INFORMATION

Private Water Supply

No Water Supply

Public Water Supply

How many water sources on this property? 1

Number of wells: 2

Number of springs: 0

Number of other (list): one well is abandoned

Was there ever a well in the basement? NO

If yes, explain.

Water Supply ID: RHF-RW-Mi-01

Is water source located on the property of interest? yes If no, please explain: _____

Does this source supply any other property? NO If yes, please list owner(s): _____

Is this water system ever winterized? If yes, what method is used? NO

Number of persons using this water source? 5

Distance from residence (ft): residents were unsure Direction from residence: SW

Distance from (proposed) gas well (ft): 1250 Direction from (proposed) gas well: SW

Uses:

Domestic

Husbandry

Irrigation

Industrial/Commercial

Public, non-community

Abandoned

None

Surrounding Area Information:

Ground sloping toward water source

Water source downgradient of septic

Signs of failing septic, soggy, odor

Close to crops, garden, greenhouse

Close to junkyard, dump, landfill

Close to fuel tanks, storage, garage

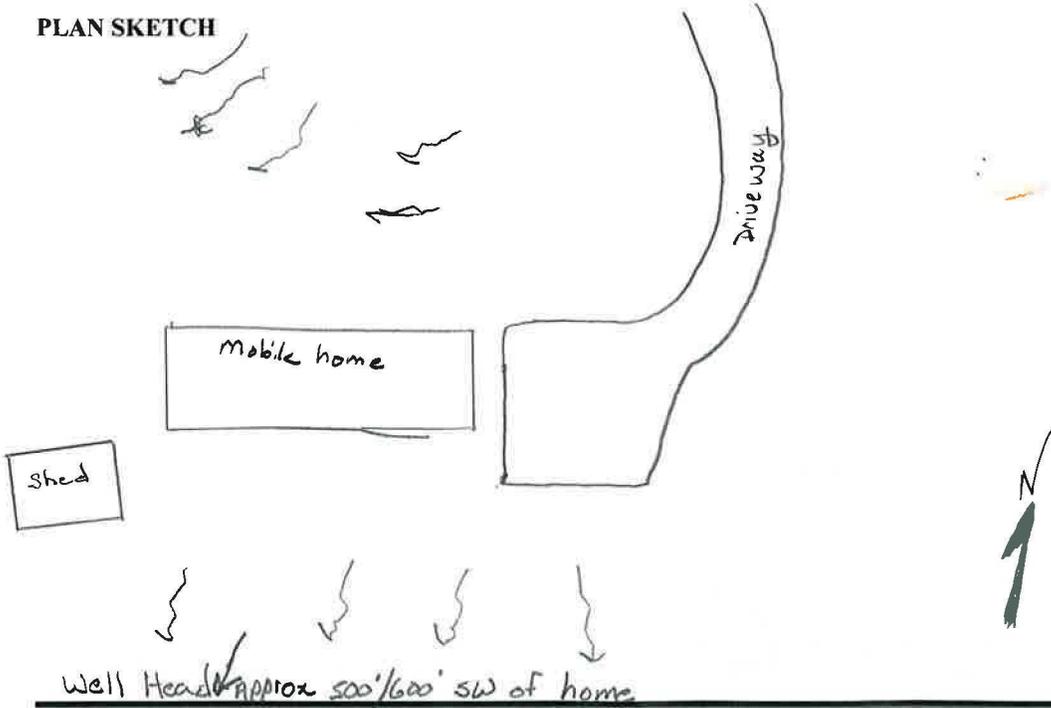
Close to livestock, barn, barnyard, etc

Close to salt storage, salted roadway

Approximate distance (ft) _____

Water Supply Pre-Drill Survey
SITE VISIT FORM

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

The residence not such a location of well head on property.
Property owner can be contacted if additional well information is needed, but he could not be reached at the time of visit
Sampled from bathroom faucet which is believed to be the closest to the well head
Photo #1 - YSI set-up at sink
Photo #2 - aerator removed from spigot for sampling

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed: Anita Miller

Printed: Anita Miller

Date: 02/06/24



Photograph 1: Up close view of the kitchen faucet with the aerator removed that was used for sampling the spring water for William and Edna Miller's property, parcel # 220000791000, at 20410 Cadiz Road, Freeport, Ohio 43973.



Photograph 2: Up close view of the YSI water quality meter set-up at the sampling location for the spring water at William and Edna Miller's property, parcel # 220000791000, at 20410 Cadiz Road, Freeport, Ohio 43973.

February 20, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093134

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 07, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio,
Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio,
Inc.



REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
Not NELAP Accredited
1233 Dublin Road
Columbus, OH 43215
(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093134

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093134001	RHF-RW-Mi-01	Water	02/06/14 13:35	02/07/14 10:04

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 1233 Dublin Road
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Pace Analytical Services, Inc.
 7726 Moller Road
 Indianapolis, IN 46268
 (317)228-3100

SAMPLE ANALYTE COUNT

Project: Red Hill FarmsPre-Drill 750217
 Pace Project No.: 5093134

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093134001	RHF-RW-Mi-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	FRW	9	PASI-I
		EPA 200.7	LLB	2	PASI-I
		EPA 8260	GRM	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	TPD	1	PASI-I
		EPA 9038	ZM	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	ILP	1	PASI-I

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ANALYTICAL RESULTS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

Sample: RHF-RW-Mi-01	Lab ID: 5093134001	Collected: 02/06/14 13:35	Received: 02/07/14 10:04	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace	Analytical Method: RSK 175 Modified							
Methane	0.090 mg/L		0.010	1		02/14/14 16:06	74-82-8	N2
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium	0.088 mg/L		0.010	1	02/08/14 09:16	02/10/14 09:54	7440-39-3	
Calcium	19.8 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:54	7440-70-2	
Iron	ND mg/L		0.10	1	02/08/14 09:16	02/10/14 09:54	7439-89-6	
Magnesium	5.4 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:54	7439-95-4	
Manganese	0.026 mg/L		0.010	1	02/08/14 09:16	02/10/14 09:54	7439-96-5	
Potassium	2.1 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:54	7440-09-7	
Sodium	100 mg/L		1.0	1	02/08/14 09:16	02/10/14 09:54	7440-23-5	
Strontium	0.62 mg/L		0.010	1	02/08/14 09:16	02/10/14 09:54	7440-24-6	N2
Total Hardness by 2340B	72.0 mg/L		2.0	1	02/08/14 09:16	02/10/14 09:54		
200.7 Metals, Dissolved (LF)	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Barium, Dissolved	84.6 ug/L		10.0	1	02/10/14 02:00	02/10/14 14:11	7440-39-3	
Iron, Dissolved	ND ug/L		100	1	02/10/14 02:00	02/10/14 14:11	7439-89-6	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND mg/L		0.0050	1		02/11/14 05:17	71-43-2	
Toluene	ND mg/L		0.0050	1		02/11/14 05:17	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/11/14 05:17	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/11/14 05:17	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	107 %.		79-116	1		02/11/14 05:17	1868-53-7	
Toluene-d8 (S)	100 %.		81-110	1		02/11/14 05:17	2037-26-5	
4-Bromofluorobenzene (S)	100 %.		80-114	1		02/11/14 05:17	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	241 mg/L		2.0	1		02/10/14 11:28		
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	576 umhos/cm		1.0	1		02/17/14 07:19		N2
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	353 mg/L		10.0	1		02/11/14 09:17		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND mg/L		5.0	1		02/11/14 08:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	7.9 Std. Units		0.10	1		02/07/14 10:46		H6
9038 Sulfate Water	Analytical Method: EPA 9038							
Sulfate	31.0 mg/L		12.5	2.5		02/10/14 08:46	14808-79-8	N2

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ANALYTICAL RESULTS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

Sample: RHF-RW-Mi-01		Lab ID: 5093134001	Collected: 02/06/14 13:35	Received: 02/07/14 10:04	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		02/17/14 19:00	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	18.6	mg/L	1.0	1		02/12/14 08:48	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch:	GCV/17675	Analysis Method:	RSK 175 Modified
QC Batch Method:	RSK 175 Modified	Analysis Description:	RSK 175 HEADSPACE
Associated Lab Samples:	5093134001		

METHOD BLANK: 1047331 Matrix: Water

Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/14/14 15:47	N2

LABORATORY CONTROL SAMPLE: 1047332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.0	103	70-130	N2

SAMPLE DUPLICATE: 1047333

Parameter	Units	5093037005 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	ND	ND		20	N2

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093134

QC Batch: MPRP/12836 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 5093134001

METHOD BLANK: 1046831 Matrix: Water
Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/10/14 09:36	
Calcium	mg/L	ND	1.0	02/10/14 09:36	
Iron	mg/L	ND	0.10	02/10/14 09:36	
Magnesium	mg/L	ND	1.0	02/10/14 09:36	
Manganese	mg/L	ND	0.010	02/10/14 09:36	
Potassium	mg/L	ND	1.0	02/10/14 09:36	
Sodium	mg/L	ND	1.0	02/10/14 09:36	
Strontium	mg/L	ND	0.010	02/10/14 09:36	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/10/14 09:36	

LABORATORY CONTROL SAMPLE: 1046832

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.97	97	85-115	
Calcium	mg/L	10	10.1	101	85-115	
Iron	mg/L	10	9.7	97	85-115	
Magnesium	mg/L	10	10.1	101	85-115	
Manganese	mg/L	1	0.97	97	85-115	
Potassium	mg/L	10	9.7	97	85-115	
Sodium	mg/L	10	9.9	99	85-115	
Strontium	mg/L	1	0.99	99	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	66.6	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046833 1046834

Parameter	Units	5093132001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Barium	mg/L	0.029	1	1	1	1	98	97	70-130	1	20	
Calcium	mg/L	85.8	10	10	96.5	92.0	108	63	70-130	5	20	P6
Iron	mg/L	ND	10	10	9.5	9.4	95	94	70-130	1	20	
Magnesium	mg/L	17.9	10	10	27.8	26.8	99	89	70-130	4	20	
Manganese	mg/L	ND	1	1	0.96	0.96	96	96	70-130	1	20	
Potassium	mg/L	1.2	10	10	11.1	11.0	99	97	70-130	1	20	
Sodium	mg/L	7.1	10	10	17.1	16.7	101	96	70-130	3	20	
Strontium	mg/L	0.31	1	1	1.3	1.3	100	98	70-130	2	20	N2
Total Hardness by 2340B	mg/L	288	66.2	66.2	356	340	103	79	70-130	4	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch:	MPRP/12839	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Dissolved
Associated Lab Samples:	5093134001		

METHOD BLANK: 1046839 Matrix: Water

Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/10/14 13:13	
Iron, Dissolved	ug/L	ND	100	02/10/14 13:13	

LABORATORY CONTROL SAMPLE: 1046840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	927	93	85-115	
Iron, Dissolved	ug/L	10000	9670	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046841 1046842

Parameter	Units	5093139001 Result	MS		MSD		% Rec		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec				
Barium, Dissolved	ug/L	0.024 mg/L	1000	1000	966	991	94	97	70-130	3	20	
Iron, Dissolved	ug/L	<0.10 mg/L	10000	10000	9890	10000	99	100	70-130	2	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093134

QC Batch: MSV/61657 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 5093134001

METHOD BLANK: 1047222 Matrix: Water
Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/11/14 01:49	
Ethylbenzene	mg/L	ND	0.0050	02/11/14 01:49	
Toluene	mg/L	ND	0.0050	02/11/14 01:49	
Xylene (Total)	mg/L	ND	0.010	02/11/14 01:49	
4-Bromofluorobenzene (S)	%	101	80-114	02/11/14 01:49	
Dibromofluoromethane (S)	%	102	79-116	02/11/14 01:49	
Toluene-d8 (S)	%	102	81-110	02/11/14 01:49	

LABORATORY CONTROL SAMPLE: 1047223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.051	103	74-122	
Ethylbenzene	mg/L	.05	0.048	96	66-133	
Toluene	mg/L	.05	0.050	100	72-122	
Xylene (Total)	mg/L	.15	0.14	96	70-124	
4-Bromofluorobenzene (S)	%			97	80-114	
Dibromofluoromethane (S)	%			102	79-116	
Toluene-d8 (S)	%			99	81-110	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch: WET/14595

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093134001

METHOD BLANK: 1046938

Matrix: Water

Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/10/14 11:28	

LABORATORY CONTROL SAMPLE: 1046939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	48.5	97	90-110	

SAMPLE DUPLICATE: 1046941

Parameter	Units	5093139004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	257	256	0	20	

SAMPLE DUPLICATE: 1046959

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	260	262	1	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch:	WET/14664	Analysis Method:	SM 2510B
QC Batch Method:	SM 2510B	Analysis Description:	2510B Specific Conductance
Associated Lab Samples:	5093134001		

METHOD BLANK: 1049185 Matrix: Water
Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/17/14 07:19	N2

LABORATORY CONTROL SAMPLE: 1049186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1420	101	90-110	N2

SAMPLE DUPLICATE: 1049187

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	559	557	0	20	N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch: WET/14614

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093134001

METHOD BLANK: 1047229

Matrix: Water

Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/11/14 09:15	

LABORATORY CONTROL SAMPLE: 1047230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	318	106	80-120	

SAMPLE DUPLICATE: 1047231

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	355	369	4	10	

SAMPLE DUPLICATE: 1047778

Parameter	Units	5093139006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	371	342	8	10	

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch: WET/14613

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 5093134001

METHOD BLANK: 1047226

Matrix: Water

Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/11/14 08:56	

LABORATORY CONTROL SAMPLE: 1047227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	100	100	80-120	

SAMPLE DUPLICATE: 1047228

Parameter	Units	5093134001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch:	WET/14597	Analysis Method:	EPA 9038
QC Batch Method:	EPA 9038	Analysis Description:	9038 Sulfate Water
Associated Lab Samples:	5093134001		

METHOD BLANK: 1046980 Matrix: Water
Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/10/14 08:30	N2

LABORATORY CONTROL SAMPLE: 1046981

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	19.9	100	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1046982 1046983

Parameter	Units	5093139006 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
Sulfate	mg/L	13.9	20	20	41.1	40.0	136	131	90-110	3	20	E,M3, N2

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

QC Batch: WETA/28212 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 5093134001

METHOD BLANK: 1330856 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	02/17/14 12:35	

LABORATORY CONTROL SAMPLE: 1330857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1330858 1330859

Parameter	Units	60162622001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Bromide	mg/L		50	50	53.6	50.3	107	101	80-120	6	15		

MATRIX SPIKE SAMPLE: 1330860

Parameter	Units	60162841001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L		10	10	100	80-120	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill FarmsPre-Drill 750217
Pace Project No.: 5093134

QC Batch: WETA/11718 Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
Associated Lab Samples: 5093134001

METHOD BLANK: 1047500 Matrix: Water
Associated Lab Samples: 5093134001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/12/14 08:37	

LABORATORY CONTROL SAMPLE: 1047501

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1047502 1047503

Parameter	Units	5093037005 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD
Chloride	mg/L	18.1	20	20	37.3	37.1	96	95	90-110	1	20

MATRIX SPIKE SAMPLE: 1047504

Parameter	Units	5093139007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	16.0	20	35.5	97	90-110	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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METHOD CROSS REFERENCE TABLE

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill FarmsPre-Drill 750217

Pace Project No.: 5093134

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093134001	RHF-RW-Mi-01	RSK 175 Modified	GCV/17675		
5093134001	RHF-RW-Mi-01	EPA 200.7	MPRP/12836	EPA 200.7	ICP/14516
5093134001	RHF-RW-Mi-01	EPA 200.7	MPRP/12839	EPA 200.7	ICP/14528
5093134001	RHF-RW-Mi-01	EPA 8260	MSV/61657		
5093134001	RHF-RW-Mi-01	SM 2320B	WET/14595		
5093134001	RHF-RW-Mi-01	SM 2510B	WET/14664		
5093134001	RHF-RW-Mi-01	SM 2540C	WET/14614		
5093134001	RHF-RW-Mi-01	SM 2540D	WET/14613		
5093134001	RHF-RW-Mi-01	SM 4500-H+B	WET/14589		
5093134001	RHF-RW-Mi-01	EPA 9038	WET/14597		
5093134001	RHF-RW-Mi-01	EPA 300.0	WETA/28212		
5093134001	RHF-RW-Mi-01	SM 4500-CI-E	WETA/11718		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt



Client Name: CEISO INC

Project # 5093134

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 802A 63902729

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

Date/Time 5035A kits placed in freezer

Packing Material: Bubble Wrap Bubble Bags None Other Ziplock

Thermometer Used 1 2 3 4 6 A B C D E Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.3°C Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: 2/7/14 SP

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>PH</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Project Manager Review <u>SP 2/7/14</u>		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Regina H. Budl

Date:

2/7/14

Sample Container Count

CLIENT: CESO WR



COC PAGE 1 of 1
 COC ID# 1741028

Project # 5093134

Sample Line

Item	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	VG9H	pH <2	pH >12	Comments
1	3	2								1					3			
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFU	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag



800 Bursca Drive, Suite 804
 Bridgeville, Pennsylvania 15017-1451
 (412) 221-2236
www.cesoinc.com

Sent via Certified Mail
 7013 1090 0002 4389 9358

March 12, 2014

Phillip & Ellen Nisley
 20424 Cadiz Road
 Freeport, OH 43973

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mr. & Mrs. Nisley:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply spring located at 20424 Cadiz Road, Freeport, Ohio. The spring is identified herein as "RHF-DS-Ni" and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 18, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

The following constituents, listed in the table below, were above the EPA MCLs or SMCLs for public supplies.

Well ID	Sample ID	Parameter	Analytical Results	MCL/SMCLs
Red Hill Farm	RHF-RW-Pe-01	Total Dissolved Solids	970 mg/L	500 mg/L ²
Red Hill Farm	RHF-RW-Pe-01	Chloride	300 mg/L	250 mg/L ²

- 1- mg/L= milligrams per liter
- 2- Secondary Maximum Contaminant Levels (SMCLs)

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.



CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program

**Water Supply Pre-Drill Survey
SITE VISIT FORM**

GENERAL INFORMATION

Operator Name: AEU, LLC
 Location of Gas Well:
 Municipality: Madison Township
 County: Guernsey
 Physical Address: Cadiz Rd
 City, State, Zip Code: Freeport, OH 43973

Date Invented: 02/18/2014
 Invented by: NH/GB

Property of Interest Information:

Municipality: Madison Township County: Guernsey Tax Parcel ID: 220000792000
 Person Interviewed: Phillip Nisley Owner Resident Other
 If other, list relationship _____
 Length of time living at residence: 7 YEARS
 Send analytical results to: Owner Other If other, list _____
 Name: Phillip & Ellen Nisley
 Mailing Address: 20424 Cadiz Rd
 City, State, Zip Code: Freeport, OH 43973
 Phone: 740-489-9185

WATER SOURCE INFORMATION

Private Water Supply No Water Supply Public Water Supply
 How many water sources on this property? 1
 Number of wells: 1 abandoned Number of springs: 1
 Number of other (list): N/A
 Was there ever a well in the basement? NO
 If yes, explain.

Water Supply ID: RHF-DS-N1-01

Is water source located on the property of interest? YES If no, please explain: _____
 Does this source supply any other property? NO If yes, please list owner(s): _____
 Is this water system ever winterized? If yes, what method is used? NO
 Number of persons using this water source? 2
 Distance from residence (ft): 150 Direction from residence: SE
 Distance from (proposed) gas well (ft): 1250 Direction from (proposed) gas well: SW

Uses:

- Domestic
- Husbandry
- Irrigation
- Industrial/Commercial
- Public, non-community
- Abandoned
- None

Surrounding Area Information:

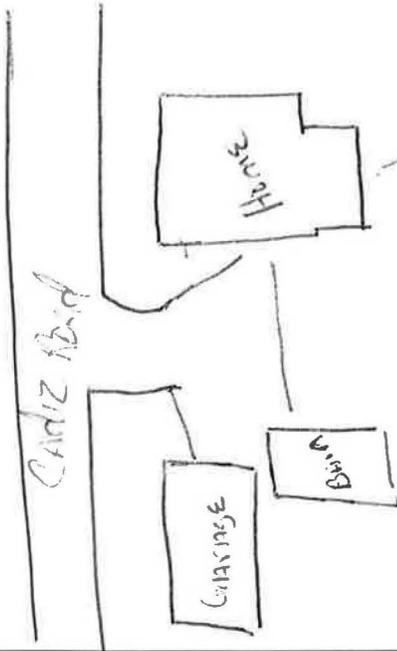
- Ground sloping toward water source
- Water source downgradient of septic
- Signs of failing septic, soggy, odor
- Close to crops, garden, greenhouse
- Close to junkyard, dump, landfill
- Close to fuel tanks, storage, garage
- Close to livestock, barn, barnyard, etc
- Close to salt storage, salted roadway

- Approximate distance (ft) _____

Water Supply Pre-Drill Survey

SITE VISIT FORM

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

Photo #1 - spring holding tank with concrete lid removed,
Photo #2 - inflow pipe into holding tank; sampling location
Photo #3 - view of the Nisley's residence from the spring holding/settling tank

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed: Phil Nisley

Printed: Phil Nisley

Date: 2-15-14



Photograph 1: Up close view of the opening to the holding tank to collect spring water for domestic uses on the Phillip and Ellen Nisely property, parcel # 220000792000, at 20424 Cadiz Road, Freeport, Ohio 43973.



Photograph 2: Northwest view of the Nisley residence from the opening to the holding tank parcel # 220000792000, at 20424 Cadiz Road, Freeport, Ohio 43973.



Photograph 3: Up close view of the inflow pipe inside of the holding tank used as the sampling point for the spring water on Phillip and Ellen Nisely property, parcel # 220000792000, at 20424 Cadiz Road, Freeport, Ohio 43973.

March 07, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 19, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio,
Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio,
Inc.



REPORT OF LABORATORY ANALYSIS

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Columbus, OH 43215
(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

CERTIFICATIONS

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093573001	RHF-DS-Ni-01	Water	02/18/14 09:50	02/19/14 09:40

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SAMPLE ANALYTE COUNT

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093573001	RHF-DS-Ni-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	LLB	9	PASI-I
		EPA 200.7	FRW	2	PASI-I
		EPA 8260	JLZ	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	TPD	1	PASI-I
		EPA 9038	ZM	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	ILP	1	PASI-I

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

Sample: RHF-DS-Ni-01	Lab ID: 5093573001	Collected: 02/18/14 09:50	Received: 02/19/14 09:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace		Analytical Method: RSK 175 Modified						
Methane	ND mg/L		0.010	1		02/25/14 16:47	74-82-8	N2
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	0.057 mg/L		0.010	1	02/21/14 14:30	02/24/14 14:09	7440-39-3	
Calcium	172 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:09	7440-70-2	
Iron	ND mg/L		0.10	1	02/21/14 14:30	02/24/14 14:09	7439-89-6	
Magnesium	52.1 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:09	7439-95-4	
Manganese	ND mg/L		0.010	1	02/21/14 14:30	02/24/14 14:09	7439-96-5	
Potassium	5.8 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:09	7440-09-7	
Sodium	85.4 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:09	7440-23-5	
Strontium	2.0 mg/L		0.010	1	02/21/14 14:30	02/24/14 14:09	7440-24-6	N2
Total Hardness by 2340B	645 mg/L		2.0	1	02/21/14 14:30	02/24/14 14:09		
200.7 Metals, Dissolved (LF)		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	59.6 ug/L		10.0	1	02/24/14 07:21	02/24/14 13:32	7440-39-3	
Iron, Dissolved	ND ug/L		100	1	02/24/14 07:21	02/24/14 13:32	7439-89-6	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND mg/L		0.0050	1		02/21/14 14:50	71-43-2	
Toluene	ND mg/L		0.0050	1		02/21/14 14:50	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/21/14 14:50	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/21/14 14:50	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	98 %		79-116	1		02/21/14 14:50	1868-53-7	
Toluene-d8 (S)	93 %		81-110	1		02/21/14 14:50	2037-26-5	
4-Bromofluorobenzene (S)	98 %		80-114	1		02/21/14 14:50	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	298 mg/L		2.0	1		02/21/14 09:50		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	1700 umhos/cm		1.0	1		02/27/14 10:09		N2
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	970 mg/L		10.0	1		02/21/14 14:01		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	ND mg/L		5.0	1		02/24/14 09:44		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.3 Std. Units		0.10	1		02/20/14 11:31		H3,H6
9038 Sulfate Water		Analytical Method: EPA 9038						
Sulfate	162 mg/L		50.0	10		02/21/14 09:54	14808-79-8	N2

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

Sample: RHF-DS-Ni-01		Lab ID: 5093573001		Collected: 02/18/14 09:50	Received: 02/19/14 09:40	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		03/05/14 16:42	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	300	mg/L	5.0	5		02/28/14 12:26	16887-00-6	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: GCV/17718

Analysis Method: RSK 175 Modified

QC Batch Method: RSK 175 Modified

Analysis Description: RSK 175 HEADSPACE

Associated Lab Samples: 5093573001

METHOD BLANK: 1052600

Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/25/14 15:49	N2

LABORATORY CONTROL SAMPLE: 1052601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.3	117	70-130	N2

SAMPLE DUPLICATE: 1052602

Parameter	Units	5093656001 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	3240 ug/L	3.6	12	20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: MPRP/12890 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 5093573001

METHOD BLANK: 1051432 Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/24/14 15:23	
Calcium	mg/L	ND	1.0	02/24/14 15:23	
Iron	mg/L	ND	0.10	02/24/14 15:23	
Magnesium	mg/L	ND	1.0	02/24/14 15:23	
Manganese	mg/L	ND	0.010	02/24/14 15:23	
Potassium	mg/L	ND	1.0	02/24/14 15:23	
Sodium	mg/L	ND	1.0	02/24/14 15:23	
Strontium	mg/L	ND	0.010	02/24/14 15:23	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/24/14 15:23	

LABORATORY CONTROL SAMPLE: 1051433

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.94	94	85-115	
Calcium	mg/L	10	9.3	93	85-115	
Iron	mg/L	10	9.5	95	85-115	
Magnesium	mg/L	10	9.4	94	85-115	
Manganese	mg/L	1	0.92	92	85-115	
Potassium	mg/L	10	9.1	91	85-115	
Sodium	mg/L	10	9.0	90	85-115	
Strontium	mg/L	1	0.96	96	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	62.1	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051434 1051435

Parameter	Units	5093564002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Barium	mg/L	0.13	1	1	1	1.1	1.1	101	100	70-130	1	20	
Calcium	mg/L	89.0	10	10	10	102	100	125	115	70-130	1	20	
Iron	mg/L	6.3	10	10	10	16.5	16.2	102	99	70-130	2	20	
Magnesium	mg/L	33.5	10	10	10	43.7	43.0	103	95	70-130	2	20	
Manganese	mg/L	0.36	1	1	1	1.4	1.3	100	98	70-130	2	20	
Potassium	mg/L	56.5	10	10	10	66.6	65.8	101	93	70-130	1	20	
Sodium	mg/L	479	10	10	10	486	481	76	21	70-130	1	20	E,P6
Strontium	mg/L	1.4	1	1	1	2.5	2.5	107	104	70-130	1	20	N2
Total Hardness by 2340B	mg/L	360	66.2	66.2	66.2	433	428	111	102	70-130	1	20	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch:	MPRP/12885	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Dissolved
Associated Lab Samples:	5093573001		

METHOD BLANK: 1050766 Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/24/14 13:14	
Iron, Dissolved	ug/L	ND	100	02/24/14 13:14	

LABORATORY CONTROL SAMPLE: 1050767

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	973	97	85-115	
Iron, Dissolved	ug/L	10000	9590	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050768 1050769

Parameter	Units	5093574001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Barium, Dissolved	ug/L	99.2	1000	1000	1040	1060	94	96	70-130	2	20		
Iron, Dissolved	ug/L	ND	10000	10000	9060	9290	90	93	70-130	3	20		

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch:	MSV/61935	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	5093573001		

METHOD BLANK: 1051025 Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/21/14 13:09	
Ethylbenzene	mg/L	ND	0.0050	02/21/14 13:09	
Toluene	mg/L	ND	0.0050	02/21/14 13:09	
Xylene (Total)	mg/L	ND	0.010	02/21/14 13:09	
4-Bromofluorobenzene (S)	%	101	80-114	02/21/14 13:09	
Dibromofluoromethane (S)	%	98	79-116	02/21/14 13:09	
Toluene-d8 (S)	%	94	81-110	02/21/14 13:09	

LABORATORY CONTROL SAMPLE: 1051026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.057	115	74-122	
Ethylbenzene	mg/L	.05	0.056	111	66-133	
Toluene	mg/L	.05	0.052	105	72-122	
Xylene (Total)	mg/L	.15	0.16	107	70-124	
4-Bromofluorobenzene (S)	%			103	80-114	
Dibromofluoromethane (S)	%			99	79-116	
Toluene-d8 (S)	%			95	81-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051027 1051028

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max		Qual	
		5093569015 Result	Spike Conc.	Spike Conc.	MS Result				MSD Result	RPD		RPD
Benzene	mg/L	ND	.05	.05	0.040	0.043	81	86	62-129	7	20	
Ethylbenzene	mg/L	ND	.05	.05	0.021	0.020	42	40	28-153	4	20	
Toluene	mg/L	ND	.05	.05	0.028	0.028	55	57	50-132	3	20	
Xylene (Total)	mg/L	ND	.15	.15	0.062	0.061	42	41	29-145	2	20	
4-Bromofluorobenzene (S)	%						104	107	80-114			
Dibromofluoromethane (S)	%						96	98	79-116			
Toluene-d8 (S)	%						93	93	81-110			

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: WET/14723

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093573001

METHOD BLANK: 1051083

Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/21/14 09:50	

LABORATORY CONTROL SAMPLE: 1051084

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	48.2	96	90-110	

SAMPLE DUPLICATE: 1051085

Parameter	Units	5093551001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	245	242	2	20	

SAMPLE DUPLICATE: 1051086

Parameter	Units	5093585001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	426	436	2	20	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: WET/14775

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 5093573001

METHOD BLANK: 1052934

Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/27/14 10:09	N2

LABORATORY CONTROL SAMPLE: 1052935

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1400	100	90-110	N2

SAMPLE DUPLICATE: 1052936

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	1700	1700	0	20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: WET/14735

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093573001

METHOD BLANK: 1051330

Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/21/14 14:01	

LABORATORY CONTROL SAMPLE: 1051331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	299	100	80-120	

SAMPLE DUPLICATE: 1051332

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	970	959	1	10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: WET/14744

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 5093573001

METHOD BLANK: 1051960

Matrix: Water

Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/24/14 09:44	

LABORATORY CONTROL SAMPLE: 1051961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	90	90	80-120	

SAMPLE DUPLICATE: 1051962

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 1051963

Parameter	Units	5093683003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	217	212	2	10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch:	WET/14707	Analysis Method:	SM 4500-H+B
QC Batch Method:	SM 4500-H+B	Analysis Description:	4500H+B pH
Associated Lab Samples:	5093573001		

SAMPLE DUPLICATE: 1050538

Parameter	Units	5093551001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0	20	H6

SAMPLE DUPLICATE: 1050737

Parameter	Units	5093580001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	1	20	H6

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

QC Batch: WET/14726 Analysis Method: EPA 9038
QC Batch Method: EPA 9038 Analysis Description: 9038 Sulfate Water
Associated Lab Samples: 5093573001

METHOD BLANK: 1051167 Matrix: Water
Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/21/14 09:00	N2

LABORATORY CONTROL SAMPLE: 1051168

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	20.7	104	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051169 1051170

Parameter	Units	5093551002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	% Rec	% Rec	% Rec					
Sulfate	mg/L	4120	5000	5000	9090	99	9230	102	90-110	1	20	N2	

MATRIX SPIKE SAMPLE: 1051171

Parameter	Units	5093551003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1140	2000	3030	95	90-110	N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

QC Batch: WETA/28420 Analysis Method: EPA 300.0
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
 Associated Lab Samples: 5093573001

METHOD BLANK: 1339070 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	03/05/14 12:05	

LABORATORY CONTROL SAMPLE: 1339071

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1337981 1337982

Parameter	Units	60163186003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Bromide	mg/L	ND	100	100	98.5	96.4	99	96	80-120	2	15	

MATRIX SPIKE SAMPLE: 1337983

Parameter	Units	60163399002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L		3.0	5	7.5	89	80-120

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

QC Batch: WETA/11811 Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
Associated Lab Samples: 5093573001

METHOD BLANK: 1054419 Matrix: Water
Associated Lab Samples: 5093573001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/28/14 11:43	

LABORATORY CONTROL SAMPLE: 1054420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1054421 1054422

Parameter	Units	5092615003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.5	20	20	21.7	22.2	101	103	90-110	2	20	

MATRIX SPIKE SAMPLE: 1054423

Parameter	Units	5093641004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	15.1	20	35.5	102	90-110	

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QUALIFIERS

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093573

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H3 Sample was received or analysis requested beyond the recognized method holding time.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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METHOD CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093573

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093573001	RHF-DS-Ni-01	RSK 175 Modified	GCV/17718		
5093573001	RHF-DS-Ni-01	EPA 200.7	MPRP/12890	EPA 200.7	ICP/14647
5093573001	RHF-DS-Ni-01	EPA 200.7	MPRP/12885	EPA 200.7	ICP/14651
5093573001	RHF-DS-Ni-01	EPA 8260	MSV/61935		
5093573001	RHF-DS-Ni-01	SM 2320B	WET/14723		
5093573001	RHF-DS-Ni-01	SM 2510B	WET/14775		
5093573001	RHF-DS-Ni-01	SM 2540C	WET/14735		
5093573001	RHF-DS-Ni-01	SM 2540D	WET/14744		
5093573001	RHF-DS-Ni-01	SM 4500-H+B	WET/14707		
5093573001	RHF-DS-Ni-01	EPA 9038	WET/14726		
5093573001	RHF-DS-Ni-01	EPA 300.0	WETA/28420		
5093573001	RHF-DS-Ni-01	SM 4500-CI-E	WETA/11811		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt



Client Name: CEISO, INC Project # 5093573

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 5348 26810920424

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

Date/Time 5035A kits placed in freezer

Packing Material: Bubble Wrap Bubble Bags None Other Ice

Thermometer Used 2346ABCDE Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.8c Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C Comments: Date and Initials of person examining contents: *A. West/Kelly*

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>Ph took to letchem</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Includes date/time/ID/Analysis		
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) <u>HNO3</u> H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

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

Project Manager Review: *Regina N. Bell* Date: 2/20/14

Sample Container Count

CLIENT: CESO, Inc



COC PAGE 1 of 1
 COC ID# 1718025

Project # 5093573

Sample Line	Item	DG9H	AG1U	WG9U	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	<u>BP1U</u>	pH <2	pH >12	Comments
1		<u>3</u>	<u>3</u>								<u>1</u>	<u>1</u>				<u>2</u>			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber gl	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber gla	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WG9U	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber g	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber g	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber g	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear gl	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plasti	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag



800 Bursca Drive, Suite 804
 Bridgeville, Pennsylvania 15017-1451
 (412) 221-2236
www.cesoinc.com

Sent via Certified Mail
 7013 1090 0002 4389 9341

March 12, 2014

Randy Raber
 71963 Lodge Road
 Freeport, OH 43973

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mr. Raber:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply well located at 20633 Halfpenny Lane, Freeport, Ohio. The well is identified herein as "RHF-RW-Pe" and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 19, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

The following constituents, listed in the table below, were above the EPA MCLs or SMCLs for public supplies.

Well ID	Sample ID	Parameter	Analytical Results	MCL/SMCLs
Red Hill Farm	RHF-RW-Pe-01	Iron	9.3 mg/L	0.3 mg/L ²
Red Hill Farm	RHF-RW-Pe-01	Manganese	0.40 mg/L	0.05 mg/L ²
Red Hill Farm	RHF-RW-Pe-01	Total Dissolved Solids	536 mg/L	500 mg/L ²

- 1- mg/L= milligrams per liter
- 2- Secondary Maximum Contaminant Levels (SMCLs)

Iron and Manganese are considered secondary contaminants by EPA and have been assigned a SMCL set by the non-enforceable National Secondary Drinking Water Regulations. Secondary contaminants may cause cosmetic effects (discoloration) or aesthetic effects (undesired taste, odor, or color), but are not considered to present a risk to human health at the SMCLs.

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.

CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program

**Water Supply Pre-Drill Survey
SITE VISIT FORM**

GENERAL INFORMATION

Operator Name: AELU, LLC Gas Well Permit #: N/A
 Location of Gas Well: Municipality: Madison Township Date Invented: 02/19/14
 County: Guernsey Invented by: GB/NH
 Physical Address: Cadiz Rd
 City, State, Zip Code: Freeport, OH

Property of Interest Information:

Municipality: Madison Township County: Guernsey Tax Parcel ID: 220006226000
 Person Interviewed: Brandy Barber Owner Resident Other
 If other, list relationship: Trustee
 Length of time living at residence: Since 1987
 Send analytical results to: Owner Other If other, list: Trustee
 Name: Brandy Barber
 Mailing Address: 71963 Lodge Road
 City, State, Zip Code: Freeport, OH 43973
 Phone: 740-260-3399

WATER SOURCE INFORMATION

Private Water Supply No Water Supply Public Water Supply
 How many water sources on this property? 1
 Number of wells: 1 Number of springs: 0
 Number of other (list): pond (1)
 Was there ever a well in the basement? NO
 If yes, explain.

Water Supply ID: RHF-RW-Pe-01

Is water source located on the property of interest? YES If no, please explain: _____
 Does this source supply any other property? NO If yes, please list owner(s): _____
 Is this water system ever winterized? If yes, what method is used? No - well not currently used
 Number of persons using this water source? ~500 cattle
 Distance from ^{cattle barn} residence (ft): 150 Direction from residence: S
 Distance from (proposed) gas well (ft): 800 Direction from (proposed) gas well: NW

- Uses:**
- Domestic
 - Husbandry
 - Irrigation
 - Industrial/Commercial
 - Public, non-community
 - Abandoned
 - None

Surrounding Area Information:

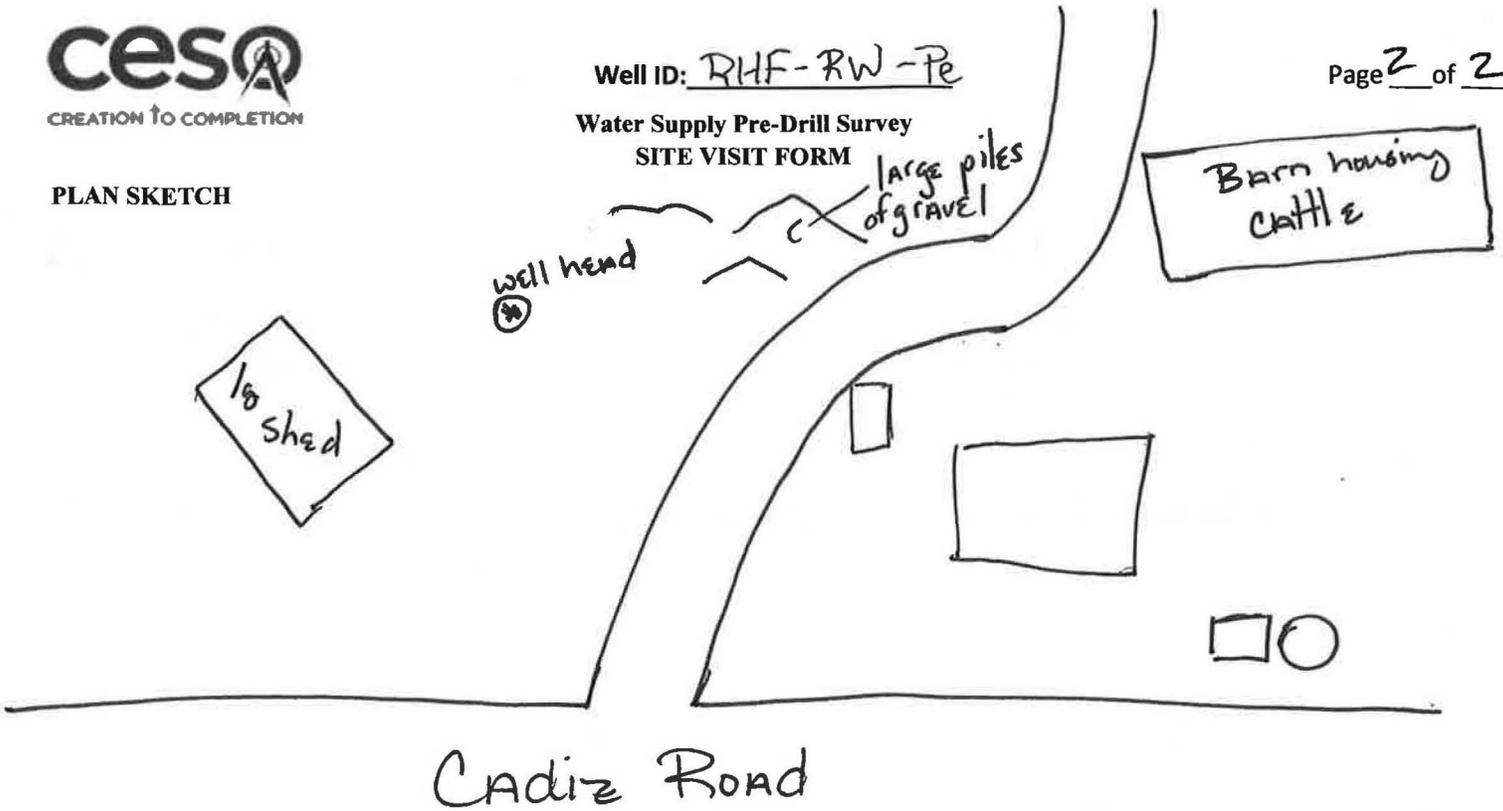
- Ground sloping toward water source
- Water source downgradient of septic
- Signs of failing septic, soggy, odor
- Close to crops, garden, greenhouse
- Close to junkyard, dump, landfill
- Close to fuel tanks, storage, garage
- Close to livestock, barn, barnyard, etc
- Close to salt storage, salted roadway

- Approximate distance (ft) 5
- Approximate distance (ft) _____
- Approximate distance (ft) ~150
- Approximate distance (ft) _____

Well ID: RHF-RW-Te

Water Supply Pre-Drill Survey
SITE VISIT FORM

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

- checked location of second well on Lodge Road & determined that it was out of the 2000 foot radius
- checked location of the large pond identified by Mr. Baber on the property & determined water/pond was outside the 2,000 Foot Radius

While purging - the well ran dry on three occasions. On each occasion, the pump was dropped to a greater depth & the flow rate reduced to attempt to get a steady flow & allow for recharge. Final attempt, pump was set ~4 feet above the measured depth. Well was allowed to recharge for 20 minutes prior to re-start. Sediment was apparent on the pump & the line.

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed:

Printed:

Randy Baber

Date:

2-19-14



Photograph 1: Southern view of the capped well head on parcel # 220000226000, at 20633 Halfpenny Lane, Freeport, Ohio 43973.



Photograph 2: Up close view of a Bascom-Turner Gas Explorer used to measure gases in the headspace immediately after the well cap is removed. The well is used to supply approximately 500 head of cattle on parcel # 220000226000, at 20633 Halfpenny Lane, Freeport, Ohio 43973.



Photograph 3: Northeastern view from the well head towards the barn housing over 450 head of cattle on parcel # 220000226000, at 20633 Halfpenny Lane, Freeport, Ohio 43973.

March 10, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093580

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 20, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio, Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093580001	RHF-RW-Pe-01	Water	02/19/14 12:55	02/20/14 09:48

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093580001	RHF-RW-Pe-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	LLB	9	PASI-I
		EPA 200.7	FRW	2	PASI-I
		EPA 8260	JLZ	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	TPD	1	PASI-I
		EPA 9038	ZM	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	ILP	1	PASI-I

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Sample: RHF-RW-Pe-01	Lab ID: 5093580001	Collected: 02/19/14 12:55	Received: 02/20/14 09:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace		Analytical Method: RSK 175 Modified						
Methane	ND mg/L		0.010	1		02/26/14 16:55	74-82-8	N2
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	0.11 mg/L		0.010	1	02/21/14 14:30	02/24/14 14:14	7440-39-3	
Calcium	5.4 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:14	7440-70-2	
Iron	9.3 mg/L		0.10	1	02/21/14 14:30	02/24/14 14:14	7439-89-6	
Magnesium	1.9 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:14	7439-95-4	
Manganese	0.40 mg/L		0.010	1	02/21/14 14:30	02/24/14 14:14	7439-96-5	
Potassium	2.2 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:14	7440-09-7	
Sodium	184 mg/L		1.0	1	02/21/14 14:30	02/24/14 14:14	7440-23-5	
Strontium	0.18 mg/L		0.010	1	02/21/14 14:30	02/24/14 14:14	7440-24-6	N2
Total Hardness by 2340B	21.2 mg/L		2.0	1	02/21/14 14:30	02/24/14 14:14		
200.7 Metals, Dissolved (LF)		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	63.0 ug/L		10.0	1	02/24/14 07:21	02/24/14 13:38	7440-39-3	
Iron, Dissolved	127 ug/L		100	1	02/24/14 07:21	02/24/14 13:38	7439-89-6	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND mg/L		0.0050	1		02/21/14 15:23	71-43-2	
Toluene	ND mg/L		0.0050	1		02/21/14 15:23	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/21/14 15:23	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/21/14 15:23	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	101 %.		79-116	1		02/21/14 15:23	1868-53-7	
Toluene-d8 (S)	93 %.		81-110	1		02/21/14 15:23	2037-26-5	
4-Bromofluorobenzene (S)	101 %.		80-114	1		02/21/14 15:23	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	381 mg/L		2.0	1		02/21/14 09:50		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	864 umhos/cm		1.0	1		02/27/14 10:09		N2
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	536 mg/L		10.0	1		02/21/14 14:02		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	76 mg/L		5.0	1		02/24/14 09:44		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.8 Std. Units		0.10	1		02/20/14 11:33		H6
9038 Sulfate Water		Analytical Method: EPA 9038						
Sulfate	67.3 mg/L		25.0	5		02/21/14 09:56	14808-79-8	N2

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Sample: RHF-RW-Pe-01		Lab ID: 5093580001	Collected: 02/19/14 12:55	Received: 02/20/14 09:48	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		03/07/14 23:39	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	5.8	mg/L	1.0	1		02/28/14 11:54	16887-00-6	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: GCV/17724

Analysis Method: RSK 175 Modified

QC Batch Method: RSK 175 Modified

Analysis Description: RSK 175 HEADSPACE

Associated Lab Samples: 5093580001

METHOD BLANK: 1053216

Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/26/14 16:16	N2

LABORATORY CONTROL SAMPLE: 1053217

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.2	110	70-130	N2

SAMPLE DUPLICATE: 1053218

Parameter	Units	5093699012 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	7690 ug/L	6.7	14	20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093580

QC Batch: MPRP/12890 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 5093580001

METHOD BLANK: 1051432 Matrix: Water
Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/24/14 15:23	
Calcium	mg/L	ND	1.0	02/24/14 15:23	
Iron	mg/L	ND	0.10	02/24/14 15:23	
Magnesium	mg/L	ND	1.0	02/24/14 15:23	
Manganese	mg/L	ND	0.010	02/24/14 15:23	
Potassium	mg/L	ND	1.0	02/24/14 15:23	
Sodium	mg/L	ND	1.0	02/24/14 15:23	
Strontium	mg/L	ND	0.010	02/24/14 15:23	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/24/14 15:23	

LABORATORY CONTROL SAMPLE: 1051433

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.94	94	85-115	
Calcium	mg/L	10	9.3	93	85-115	
Iron	mg/L	10	9.5	95	85-115	
Magnesium	mg/L	10	9.4	94	85-115	
Manganese	mg/L	1	0.92	92	85-115	
Potassium	mg/L	10	9.1	91	85-115	
Sodium	mg/L	10	9.0	90	85-115	
Strontium	mg/L	1	0.96	96	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	62.1	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051434 1051435

Parameter	Units	5093564002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Barium	mg/L	0.13	1	1	1	1.1	1.1	101	100	70-130	1	20	
Calcium	mg/L	89.0	10	10	10	102	100	125	115	70-130	1	20	
Iron	mg/L	6.3	10	10	10	16.5	16.2	102	99	70-130	2	20	
Magnesium	mg/L	33.5	10	10	10	43.7	43.0	103	95	70-130	2	20	
Manganese	mg/L	0.36	1	1	1	1.4	1.3	100	98	70-130	2	20	
Potassium	mg/L	56.5	10	10	10	66.6	65.8	101	93	70-130	1	20	
Sodium	mg/L	479	10	10	10	486	481	76	21	70-130	1	20	E,P6
Strontium	mg/L	1.4	1	1	1	2.5	2.5	107	104	70-130	1	20	N2
Total Hardness by 2340B	mg/L	360	66.2	66.2	66.2	433	428	111	102	70-130	1	20	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch:	MPRP/12885	Analysis Method:	EPA 200.7
QC Batch Method:	EPA 200.7	Analysis Description:	200.7 Metals, Dissolved
Associated Lab Samples:	5093580001		

METHOD BLANK: 1050766 Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/24/14 13:14	
Iron, Dissolved	ug/L	ND	100	02/24/14 13:14	

LABORATORY CONTROL SAMPLE: 1050767

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	973	97	85-115	
Iron, Dissolved	ug/L	10000	9590	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050768 1050769

Parameter	Units	5093574001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Barium, Dissolved	ug/L	99.2	1000	1000	1040	1060	94	96	70-130	2	20		
Iron, Dissolved	ug/L	ND	10000	10000	9060	9290	90	93	70-130	3	20		

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: MSV/61935 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 5093580001

METHOD BLANK: 1051025 Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/21/14 13:09	
Ethylbenzene	mg/L	ND	0.0050	02/21/14 13:09	
Toluene	mg/L	ND	0.0050	02/21/14 13:09	
Xylene (Total)	mg/L	ND	0.010	02/21/14 13:09	
4-Bromofluorobenzene (S)	%	101	80-114	02/21/14 13:09	
Dibromofluoromethane (S)	%	98	79-116	02/21/14 13:09	
Toluene-d8 (S)	%	94	81-110	02/21/14 13:09	

LABORATORY CONTROL SAMPLE: 1051026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.057	115	74-122	
Ethylbenzene	mg/L	.05	0.056	111	66-133	
Toluene	mg/L	.05	0.052	105	72-122	
Xylene (Total)	mg/L	.15	0.16	107	70-124	
4-Bromofluorobenzene (S)	%			103	80-114	
Dibromofluoromethane (S)	%			99	79-116	
Toluene-d8 (S)	%			95	81-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051027 1051028

Parameter	Units	5093569015		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Benzene	mg/L	ND	.05	.05	0.040	0.043	81	86	62-129	7	20	
Ethylbenzene	mg/L	ND	.05	.05	0.021	0.020	42	40	28-153	4	20	
Toluene	mg/L	ND	.05	.05	0.028	0.028	55	57	50-132	3	20	
Xylene (Total)	mg/L	ND	.15	.15	0.062	0.061	42	41	29-145	2	20	
4-Bromofluorobenzene (S)	%						104	107	80-114			
Dibromofluoromethane (S)	%						96	98	79-116			
Toluene-d8 (S)	%						93	93	81-110			

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: WET/14723

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093580001

METHOD BLANK: 1051083

Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/21/14 09:50	

LABORATORY CONTROL SAMPLE: 1051084

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	48.2	96	90-110	

SAMPLE DUPLICATE: 1051085

Parameter	Units	5093551001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	245	242	2	20	

SAMPLE DUPLICATE: 1051086

Parameter	Units	5093585001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	426	436	2	20	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: WET/14775

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 5093580001

METHOD BLANK: 1052934

Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/27/14 10:09	N2

LABORATORY CONTROL SAMPLE: 1052935

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1400	100	90-110	N2

SAMPLE DUPLICATE: 1052936

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	1700	1700	0	20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: WET/14735

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093580001

METHOD BLANK: 1051330

Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/21/14 14:01	

LABORATORY CONTROL SAMPLE: 1051331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	299	100	80-120	

SAMPLE DUPLICATE: 1051332

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	970	959	1	10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093580

QC Batch: WET/14744 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 5093580001

METHOD BLANK: 1051960 Matrix: Water
Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/24/14 09:44	

LABORATORY CONTROL SAMPLE: 1051961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	90	90	80-120	

SAMPLE DUPLICATE: 1051962

Parameter	Units	5093573001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 1051963

Parameter	Units	5093683003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	217	212	2	10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: WET/14707

Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B

Analysis Description: 4500H+B pH

Associated Lab Samples: 5093580001

SAMPLE DUPLICATE: 1050538

Parameter	Units	5093551001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.7	8.7	0	20	H6

SAMPLE DUPLICATE: 1050737

Parameter	Units	5093580001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.8	7.8	1	20	H6

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch:	WET/14726	Analysis Method:	EPA 9038
QC Batch Method:	EPA 9038	Analysis Description:	9038 Sulfate Water
Associated Lab Samples:	5093580001		

METHOD BLANK: 1051167 Matrix: Water
Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/21/14 09:00	N2

LABORATORY CONTROL SAMPLE: 1051168

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	20.7	104	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1051169 1051170

Parameter	Units	5093551002		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Sulfate	mg/L	4120	5000	5000	9090	9230	99	102	90-110	1	20	N2			

MATRIX SPIKE SAMPLE: 1051171

Parameter	Units	5093551003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	1140	2000	3030	95	90-110	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

QC Batch: WETA/11811

Analysis Method: SM 4500-Cl-E

QC Batch Method: SM 4500-Cl-E

Analysis Description: 4500 Chloride

Associated Lab Samples: 5093580001

METHOD BLANK: 1054419

Matrix: Water

Associated Lab Samples: 5093580001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/28/14 11:43	

LABORATORY CONTROL SAMPLE: 1054420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1054421 1054422

Parameter	Units	5092615003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Chloride	mg/L	1.5	20	20	21.7	22.2	101	103	90-110	2	20		

MATRIX SPIKE SAMPLE: 1054423

Parameter	Units	5093641004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	15.1	20	35.5	102	90-110	

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QUALIFIERS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

METHOD CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093580

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093580

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093580001	RHF-RW-Pe-01	RSK 175 Modified	GCV/17724		
5093580001	RHF-RW-Pe-01	EPA 200.7	MPRP/12890	EPA 200.7	ICP/14647
5093580001	RHF-RW-Pe-01	EPA 200.7	MPRP/12885	EPA 200.7	ICP/14651
5093580001	RHF-RW-Pe-01	EPA 8260	MSV/61935		
5093580001	RHF-RW-Pe-01	SM 2320B	WET/14723		
5093580001	RHF-RW-Pe-01	SM 2510B	WET/14775		
5093580001	RHF-RW-Pe-01	SM 2540C	WET/14735		
5093580001	RHF-RW-Pe-01	SM 2540D	WET/14744		
5093580001	RHF-RW-Pe-01	SM 4500-H+B	WET/14707		
5093580001	RHF-RW-Pe-01	EPA 9038	WET/14726		
5093580001	RHF-RW-Pe-01	EPA 300.0	WETA/28457		
5093580001	RHF-RW-Pe-01	SM 4500-CI-E	WETA/11811		

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Sample Condition Upon Receipt



Client Name: Cesro Project # 5093580

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 8024 6390 2773

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

Date/Time 5035A kits placed in freezer _____

Packing Material: Bubble Wrap Bubble Bags None Other Zyphloc

Thermometer Used 12346ABCDE Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.4°C Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C Comments: Date and Initials of person examining contents: 2/20/14 sj

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>pH</u>
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: Natalie H Date/Time: 2/20/14 1041

Comments/ Resolution: Concerned about pH of VOA vials. I noted to lab to run within 7 day hold.

Project Manager Review: Roger N Bell Date: 2/20/14

Sample Container Count

CLIENT: Ces0



COC PAGE 1 of 1
 COC ID# 1741034

Project # 5793580

Sample Line	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BPIU	VG9H	pH <2	pH >12	Comments
1	3									1					2	3			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFU	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag



800 Bursca Drive, Suite 804
Bridgeville, Pennsylvania 15017-1451
(412) 221-2236
www.cesoinc.com

Sent via Certified Mail
7013 1090 0002 4389 8658

March 5, 2014

Karen Taylor
Po Box 265
Howard, OH 43028

RE: Notification of Water Well Sampling Results Performed on Behalf of AEU, LLC

Dear Mrs. Taylor:

CESO, Inc., on behalf of American Energy- Utica, LLC (AEU), has collected water samples from the water supply spring located at 20530 Crossline Lane, Freeport, Ohio. The spring is identified herein as "RHF-DS-Ta" and is located within 2,000 feet of the proposed Red Hill Farm wellhead.

The sampling event occurred on February 11, 2014 as part of the pre-drill sampling process, pursuant Chapter 1509 of the Ohio Revised Code (2005) and Ohio Senate Bill 165 (2010), and Ohio Senate Bill 315 (2012), for the above mentioned well pad.

The water quality results of the samples collected are provided in the analytical report attached to this letter. The analyses were performed by Pace Analytical Services, Inc. (Pace) of Indianapolis, Indiana which is Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified.

Please note that this sampling event was not performed to determine the potability of your water. However, to assist you in assessing your water supply, the analytical results for your water source were evaluated against Maximum Contaminant Levels (MCLs) standards and Secondary Maximum Contaminant Levels (SMCLs) established by the United States Environmental Protection Agency (EPA) for public water supplies. These MCLs and SMCLs are not enforced by the EPA, OEPA or Ohio Department of Natural Resources (ODNR) on private residential water supplies.

All chemical analytes sampled in RHF-DS-Ta were below MCLs and SMCLs established by the EPA, OEPA, and ODNR.

The Ohio State University (OSU) Extension and the Penn State University (PSU) Cooperative Extension websites offer useful publications regarding the interpretation of analytical results and additional information on private water supplies. The OSU information can be accessed at <http://extension.osu.edu/topics/environment/water-testing-and-treatment> and the PSU information can be found at <http://extension.psu.edu/natural-resources/water/drinking-water>.

CESO, Inc. will be submitting a copy of this notification letter to AEU, LLC and ODNR as part of the well permit package. Should you have any questions or comments, please contact CESO, Inc. at 412.221.2236.

Sincerely,



Environmental Program



Spring
Well ID: BHF-DS-Ta

Water Supply Pre-Drill Survey
SITE VISIT FORM

GENERAL INFORMATION

Operator Name: AELI, LLC
Location of Gas Well:
Municipality: Madison Township
County: Guernsey
Physical Address: Cadiz Road
City, State, Zip Code: Freeport, OH 43973

Date Inventoried: 02/11/2014 - Site Visit
Inventoried by: Phone Interview 02/10
NH

Property of Interest Information:

Municipality: Londonderry Township County: Guernsey Tax Parcel ID: Z00000617000

Person Interviewed: Karen Taylor (phone) Owner Resident Other
If other, list relationship _____

Length of time living at residence: _____
Send analytical results to: Owner Other If other, list _____

Name: Karen Taylor
Mailing Address: P.O. Box 265
City, State, Zip Code: Howard, OH 43028
Phone: 740-599-7008

WATER SOURCE INFORMATION

Private Water Supply No Water Supply Public Water Supply

How many water sources on this property? 1
Number of wells: 0 Number of springs: 1
Number of other (list): _____

Was there ever a well in the basement? NO
If yes, explain. _____

Water Supply ID: BHF-DS-Ta-01

Is water source located on the property of interest? Yes If no, please explain: _____

Does this source supply any other property? NO If yes, please list owner(s): _____

Is this water system ever winterized? If yes, what method is used? NO

Number of persons using this water source? Unknown

Distance from residence (ft): _____

Direction from residence: South

Distance from (proposed) gas well (ft): 1700

Direction from (proposed) gas well: SouthEast

- Uses:
Domestic
Husbandry
Irrigation
Industrial/Commercial
Public, non-community
Abandoned
None

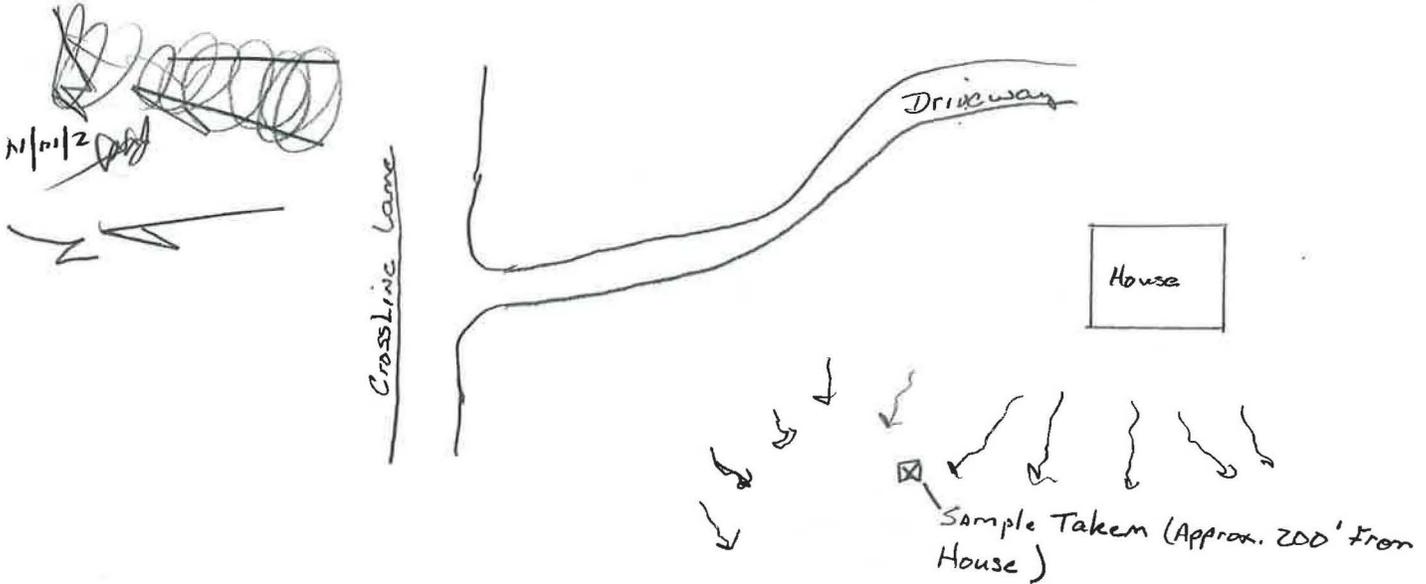
- Surrounding Area Information:
Ground sloping toward water source
Water source downgradient of septic
Signs of failing septic, soggy, odor
Close to crops, garden, greenhouse
Close to junkyard, dump, landfill
Close to fuel tanks, storage, garage
Close to livestock, barn, barnyard, etc
Close to salt storage, salted roadway

- Approximate distance (ft) _____
Approximate distance (ft) _____

Water Supply Pre-Drill Survey
SITE VISIT FORM

Biens

PLAN SKETCH



COMMENTS/PHOTO DESCRIPTIONS

Phone interview conducted on 02/07/2014 - owner does not live on the Londonderry township parcel (200000617000) and is unable to meet CESO on the property. However, Ms Taylor would like the spring water on this property sampled & has given CESO permission to access her property in her absence. Developed spring reportedly collects in stainless steel drum.

- No water was observed flowing into either holding tank although the above ground spring had some flow
- Large metal tank covered w/ fiberglass insulation & wooden boards
- Sampled from small overflow hole on the side of the large holding tank until water dropped below hole. Large poly bottles were sampled via dipping

- Photo #1 - metal holding tank covered
- Photo #2 - view from spring to house
- Photo #3 - view of metal lid covering a small holding/settling tank
- Photo #4 - view of small tank with water (no flow was observed)
- Photo #5 - small hole in large metal holding tank for overflow control used as sampling location
- Photo #6 - view of insulation used to cover metal, aboveground holding tank

I hereby acknowledge that I have supplied the correct information to the best of my knowledge.

Signed: N/A Printed: KAREN TAYLOR Date: _____



Photograph 1: Northern view of the covered large stainless steel basin used for holding water which is pumped to the cabin for drinking water on Karen L. and Gary N. Taylor's property, parcel # 200000617000, at 20530 Crossline Lane, Freeport, Ohio 43973.



Photograph 2: Southeastern view from the spring of the cabin that relies on the spring for a drinking water supply on Karen L. and Gary N. Taylor's property, parcel # 200000617000, at 20530 Crossline Lane, Freeport, Ohio 43973.



Photograph 3: Up close view of the metal lid covering a small below ground settling/holding container up gradient from the large stainless steel basin used as a holding tank for spring water on Karen L. and Gary N. Taylor's property, parcel # 200000617000, at 20530 Crossline Lane, Freeport, Ohio 43973.



Photograph 4: Up close view of the overflow hole in the side of the large stainless steel holding tank used as the sampling location for the spring water on Karen L. and Gary N. Taylor's property, parcel # 200000617000, at 20530 Crossline Lane, Freeport, Ohio 43973.



Photograph 5: Up close view of the insulation used to cover the large aboveground stainless steel basin used as a holding tank on Karen L. and Gary N. Taylor's property, parcel # 200000617000, at 20530 Crossline Lane, Freeport, Ohio 43973.

February 25, 2014

Mr. Andrew Longenecker
Civil Engineers of Southwest Ohio, Inc.
800 Bursca Drive
Suite 804
Bridgeville, PA 15017

RE: Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

Dear Mr. Longenecker:

Enclosed are the analytical results for sample(s) received by the laboratory on February 12, 2014. 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.

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

Sincerely,



Regina Bedel
regina.bedel@pacelabs.com
Project Manager

Enclosures

cc: Ms. Natalie Hooton, Civil Engineers of Southwest Ohio,
Inc.
Ms. Carolyn Rummell, Civil Engineers of Southwest Ohio,
Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #: E-10247
Kentucky UST Certification #: 0042

Louisiana/NELAP Certification #: 04076
Ohio VAP Certification #: CL-0065
Pennsylvania Certification #: 68-04991
West Virginia Certification #: 330

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-13-4
Utah Certification #: KS000212013-3
Illinois Certification #: 003097

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SAMPLE SUMMARY

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5093252001	RHF-DS-Ta-01	Water	02/11/14 12:20	02/12/14 10:11

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5093252001	RHF-DS-Ta-01	RSK 175 Modified	PTH	1	PASI-I
		EPA 200.7	FRW	9	PASI-I
		EPA 200.7	LLB	2	PASI-I
		EPA 8260	JLZ	7	PASI-I
		SM 2320B	SLB	1	PASI-I
		SM 2510B	MLS	1	PASI-I
		SM 2540C	MLS	1	PASI-I
		SM 2540D	MLS	1	PASI-I
		SM 4500-H+B	ZM	1	PASI-I
		EPA 9038	TPD	1	PASI-I
		EPA 300.0	OL	1	PASI-K
		SM 4500-CI-E	WDB	1	PASI-I

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

Sample: RHF-DS-Ta-01	Lab ID: 5093252001	Collected: 02/11/14 12:20	Received: 02/12/14 10:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 Headspace		Analytical Method: RSK 175 Modified						
Methane	ND mg/L		0.010	1		02/14/14 19:57	74-82-8	N2
200.7 Metals, Total		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium	0.043 mg/L		0.010	1	02/12/14 13:44	02/13/14 09:07	7440-39-3	
Calcium	26.3 mg/L		1.0	1	02/12/14 13:44	02/13/14 09:07	7440-70-2	
Iron	0.14 mg/L		0.10	1	02/12/14 13:44	02/13/14 09:07	7439-89-6	
Magnesium	4.5 mg/L		1.0	1	02/12/14 13:44	02/13/14 09:07	7439-95-4	
Manganese	ND mg/L		0.010	1	02/12/14 13:44	02/13/14 09:07	7439-96-5	
Potassium	1.6 mg/L		1.0	1	02/12/14 13:44	02/13/14 09:07	7440-09-7	
Sodium	2.7 mg/L		1.0	1	02/12/14 13:44	02/13/14 09:07	7440-23-5	
Strontium	0.080 mg/L		0.010	1	02/12/14 13:44	02/13/14 09:07	7440-24-6	N2
Total Hardness by 2340B	84.1 mg/L		2.0	1	02/12/14 13:44	02/13/14 09:07		
200.7 Metals, Dissolved (LF)		Analytical Method: EPA 200.7 Preparation Method: EPA 200.7						
Barium, Dissolved	43.1 ug/L		10.0	1	02/20/14 14:05	02/21/14 09:54	7440-39-3	
Iron, Dissolved	ND ug/L		100	1	02/20/14 14:05	02/21/14 09:54	7439-89-6	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND mg/L		0.0050	1		02/13/14 16:09	71-43-2	
Toluene	ND mg/L		0.0050	1		02/13/14 16:09	108-88-3	
Ethylbenzene	ND mg/L		0.0050	1		02/13/14 16:09	100-41-4	
Xylene (Total)	ND mg/L		0.010	1		02/13/14 16:09	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	99 %.		79-116	1		02/13/14 16:09	1868-53-7	
Toluene-d8 (S)	93 %.		81-110	1		02/13/14 16:09	2037-26-5	
4-Bromofluorobenzene (S)	102 %.		80-114	1		02/13/14 16:09	460-00-4	
2320B Alkalinity		Analytical Method: SM 2320B						
Alkalinity, Total as CaCO3	75.0 mg/L		2.0	1		02/17/14 10:30		
2510B Specific Conductance		Analytical Method: SM 2510B						
Specific Conductance	189 umhos/cm		1.0	1		02/17/14 07:19		N2
2540C Total Dissolved Solids		Analytical Method: SM 2540C						
Total Dissolved Solids	105 mg/L		10.0	1		02/17/14 13:28		
2540D Total Suspended Solids		Analytical Method: SM 2540D						
Total Suspended Solids	ND mg/L		5.0	1		02/18/14 09:30		
4500H+ pH, Electrometric		Analytical Method: SM 4500-H+B						
pH at 25 Degrees C	7.2 Std. Units		0.10	1		02/12/14 10:39		H6
9038 Sulfate Water		Analytical Method: EPA 9038						
Sulfate	21.5 mg/L		12.5	2.5		02/17/14 09:21	14808-79-8	N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

Sample: RHF-DS-Ta-01		Lab ID: 5093252001	Collected: 02/11/14 12:20	Received: 02/12/14 10:11	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0						
Bromide	ND	mg/L	1.0	1		02/23/14 23:05	24959-67-9	
4500 Chloride		Analytical Method: SM 4500-Cl-E						
Chloride	ND	mg/L	1.0	1		02/20/14 10:29	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: GCV/17675

Analysis Method: RSK 175 Modified

QC Batch Method: RSK 175 Modified

Analysis Description: RSK 175 HEADSPACE

Associated Lab Samples: 5093252001

METHOD BLANK: 1047331

Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	mg/L	ND	0.010	02/14/14 15:47	N2

LABORATORY CONTROL SAMPLE: 1047332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methane	mg/L	2	2.0	103	70-130	N2

SAMPLE DUPLICATE: 1047333

Parameter	Units	5093037005 Result	Dup Result	RPD	Max RPD	Qualifiers
Methane	mg/L	ND	ND		20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: MPRP/12847 Analysis Method: EPA 200.7
 QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Total
 Associated Lab Samples: 5093252001

METHOD BLANK: 1047753 Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	mg/L	ND	0.010	02/13/14 08:39	
Calcium	mg/L	ND	1.0	02/13/14 08:39	
Iron	mg/L	ND	0.10	02/13/14 08:39	
Magnesium	mg/L	ND	1.0	02/13/14 08:39	
Manganese	mg/L	ND	0.010	02/13/14 08:39	
Potassium	mg/L	ND	1.0	02/13/14 08:39	
Sodium	mg/L	ND	1.0	02/13/14 08:39	
Strontium	mg/L	ND	0.010	02/13/14 08:39	N2
Total Hardness by 2340B	mg/L	ND	2.0	02/13/14 08:39	

LABORATORY CONTROL SAMPLE: 1047754

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	mg/L	1	0.98	98	85-115	
Calcium	mg/L	10	9.9	99	85-115	
Iron	mg/L	10	9.8	98	85-115	
Magnesium	mg/L	10	9.7	97	85-115	
Manganese	mg/L	1	0.99	99	85-115	
Potassium	mg/L	10	9.7	97	85-115	
Sodium	mg/L	10	9.7	97	85-115	
Strontium	mg/L	1	0.98	98	80-120 N2	
Total Hardness by 2340B	mg/L	66.2	64.6	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1047755 1047756

Parameter	Units	5093230002		MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result							
Barium	mg/L	0.10	1	1	1	1.2	1.1	105	103	70-130	2	20		
Calcium	mg/L	91.6	10	10	10	103	98.7	115	70	70-130	4	20		
Iron	mg/L	3.6	10	10	10	13.9	13.4	103	98	70-130	3	20		
Magnesium	mg/L	32.6	10	10	10	43.3	41.4	106	87	70-130	4	20		
Manganese	mg/L	0.24	1	1	1	1.3	1.2	105	101	70-130	3	20		
Potassium	mg/L	44.9	10	10	10	55.9	53.9	110	90	70-130	4	20		
Sodium	mg/L	316	10	10	10	328	314	114	-28	70-130	4	20	E,P6	
Strontium	mg/L	1.1	1	1	1	2.2	2.2	107	101	70-130	3	20	N2	
Total Hardness by 2340B	mg/L	363	66.2	66.2	66.2	436	417	109	81	70-130	4	20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

QC Batch: MPRP/12883 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 Metals, Dissolved
Associated Lab Samples: 5093252001

METHOD BLANK: 1050597 Matrix: Water
Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium, Dissolved	ug/L	ND	10.0	02/21/14 09:21	
Iron, Dissolved	ug/L	ND	100	02/21/14 09:21	

LABORATORY CONTROL SAMPLE: 1050598

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium, Dissolved	ug/L	1000	953	95	85-115	
Iron, Dissolved	ug/L	10000	9760	98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050599 1050600

Parameter	Units	5093315001		MS		MSD		% Rec		Limits		RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Result	Spike Conc.	Result	Result	% Rec	% Rec				
Barium, Dissolved	ug/L	27.2	1000	1000	979	985	95	96	70-130	1	20			
Iron, Dissolved	ug/L	ND	10000	10000	9720	9820	97	98	70-130	1	20			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: MSV/61755 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 5093252001

METHOD BLANK: 1048328 Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/L	ND	0.0050	02/13/14 12:42	
Ethylbenzene	mg/L	ND	0.0050	02/13/14 12:42	
Toluene	mg/L	ND	0.0050	02/13/14 12:42	
Xylene (Total)	mg/L	ND	0.010	02/13/14 12:42	
4-Bromofluorobenzene (S)	%	101	80-114	02/13/14 12:42	
Dibromofluoromethane (S)	%	99	79-116	02/13/14 12:42	
Toluene-d8 (S)	%	94	81-110	02/13/14 12:42	

LABORATORY CONTROL SAMPLE: 1048329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	mg/L	.05	0.055	110	74-122	
Ethylbenzene	mg/L	.05	0.051	103	66-133	
Toluene	mg/L	.05	0.049	97	72-122	
Xylene (Total)	mg/L	.15	0.15	100	70-124	
4-Bromofluorobenzene (S)	%			103	80-114	
Dibromofluoromethane (S)	%			100	79-116	
Toluene-d8 (S)	%			94	81-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1048330 1048331

Parameter	Units	5093300001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Benzene	mg/L	ND	.05	.05	0.056	0.054	111	109	62-129	2	20		
Ethylbenzene	mg/L	ND	.05	.05	0.049	0.046	97	92	28-153	5	20		
Toluene	mg/L	ND	.05	.05	0.048	0.046	96	93	50-132	3	20		
Xylene (Total)	mg/L	ND	.15	.15	0.14	0.13	92	88	29-145	4	20		
4-Bromofluorobenzene (S)	%						106	108	80-114				
Dibromofluoromethane (S)	%						102	103	79-116				
Toluene-d8 (S)	%						95	94	81-110				

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: WET/14665

Analysis Method: SM 2320B

QC Batch Method: SM 2320B

Analysis Description: 2320B Alkalinity

Associated Lab Samples: 5093252001

METHOD BLANK: 1049197

Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	ND	2.0	02/17/14 10:30	

LABORATORY CONTROL SAMPLE: 1049198

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	50	49.8	100	90-110	

SAMPLE DUPLICATE: 1049199

Parameter	Units	5093315001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	36.0	36.4	1	20	

SAMPLE DUPLICATE: 1049200

Parameter	Units	5093364014 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	616	612	1	20	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: WET/14664

Analysis Method: SM 2510B

QC Batch Method: SM 2510B

Analysis Description: 2510B Specific Conductance

Associated Lab Samples: 5093252001

METHOD BLANK: 1049185

Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	02/17/14 07:19	N2

LABORATORY CONTROL SAMPLE: 1049186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1420	101	90-110	N2

SAMPLE DUPLICATE: 1049187

Parameter	Units	5093132001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	559	557	0	20	N2

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: WET/14663

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 5093252001

METHOD BLANK: 1049182

Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	02/17/14 13:28	

LABORATORY CONTROL SAMPLE: 1049183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	279	93	80-120	

SAMPLE DUPLICATE: 1049184

Parameter	Units	5093252001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	105	110	5	10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: WET/14676

Analysis Method: SM 2540D

QC Batch Method: SM 2540D

Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 5093252001

METHOD BLANK: 1049482

Matrix: Water

Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	02/18/14 09:29	

LABORATORY CONTROL SAMPLE: 1049483

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	85	85	80-120	

SAMPLE DUPLICATE: 1049484

Parameter	Units	5093233002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	240	224	7	10	

SAMPLE DUPLICATE: 1049485

Parameter	Units	5093430001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		10	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

QC Batch: WET/14639 Analysis Method: SM 4500-H+B

QC Batch Method: SM 4500-H+B Analysis Description: 4500H+B pH

Associated Lab Samples: 5093252001

SAMPLE DUPLICATE: 1047890

Parameter	Units	5093252001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.2	7.2	1	20	H6

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

QC Batch: WET/14669 Analysis Method: EPA 9038
QC Batch Method: EPA 9038 Analysis Description: 9038 Sulfate Water
Associated Lab Samples: 5093252001

METHOD BLANK: 1049248 Matrix: Water
Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	5.0	02/17/14 09:08	N2

LABORATORY CONTROL SAMPLE: 1049249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	20	18.6	93	90-110	N2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1049250 1049251

Parameter	Units	5093252001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Sulfate	mg/L	21.5	50	50	71.9	71.0	101	99	90-110	1	20	N2	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

QC Batch: WETA/28306 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 5093252001

METHOD BLANK: 1334139 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Bromide	mg/L	ND	1.0	02/23/14 17:57	

LABORATORY CONTROL SAMPLE: 1334140

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	5	5.1	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1334141 1334142

Parameter	Units	60163227001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Bromide	mg/L	ND	1000	1000	1000	1010	100	101	80-120	1	15

MATRIX SPIKE SAMPLE: 1334143

Parameter	Units	60163149004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromide	mg/L	ND	5	5.3	91	80-120	

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QUALITY CONTROL DATA

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

QC Batch: WETA/11757 Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E Analysis Description: 4500 Chloride
Associated Lab Samples: 5093252001

METHOD BLANK: 1050543 Matrix: Water
Associated Lab Samples: 5093252001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	02/20/14 10:25	

LABORATORY CONTROL SAMPLE: 1050544

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.5	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1050545 1050546

Parameter	Units	5092224003		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	3.6	20	20	20	23.2	23.5	98	99	90-110	1	20			

MATRIX SPIKE SAMPLE: 1050547

Parameter	Units	5093551009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	13.8	20	35.0	106	90-110	

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QUALIFIERS

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

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.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-K Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

H6 Analysis initiated outside of the 15 minute EPA recommended holding time.

N2 The lab does not hold TNI accreditation for this parameter.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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METHOD CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217

Pace Project No.: 5093252

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B	SW-846 5030B

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Red Hill Farm Pre-Drill 750217
Pace Project No.: 5093252

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5093252001	RHF-DS-Ta-01	RSK 175 Modified	GCV/17675		
5093252001	RHF-DS-Ta-01	EPA 200.7	MPRP/12847	EPA 200.7	ICP/14563
5093252001	RHF-DS-Ta-01	EPA 200.7	MPRP/12883	EPA 200.7	ICP/14635
5093252001	RHF-DS-Ta-01	EPA 8260	MSV/61755		
5093252001	RHF-DS-Ta-01	SM 2320B	WET/14665		
5093252001	RHF-DS-Ta-01	SM 2510B	WET/14664		
5093252001	RHF-DS-Ta-01	SM 2540C	WET/14663		
5093252001	RHF-DS-Ta-01	SM 2540D	WET/14676		
5093252001	RHF-DS-Ta-01	SM 4500-H+B	WET/14639		
5093252001	RHF-DS-Ta-01	EPA 9038	WET/14669		
5093252001	RHF-DS-Ta-01	EPA 300.0	WETA/28306		
5093252001	RHF-DS-Ta-01	SM 4500-CI-E	WETA/11757		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt



Client Name: CESO

Project # 5093252

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 8024 6390 2730

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

Date/Time 5035A kits placed in freezer

Packing Material: Bubble Wrap Bubble Bags None Other Ziploc

Thermometer Used 1 2 3 4 6 A B C D E Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.2°C Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C

Comments: _____
Date and Initials of person examining contents: 2/12/14 sj

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input 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.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>ptt</u>
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC: -Includes date/time/ID/Analysis	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rogee H. Beal Date: 2/12/14

Sample Container Count

CLIENT: CESO



COC PAGE 1 of 1
 COC ID# 17L8024

Project # 5093252

Sample Line

Item	DG9H	AG1U	WGFU	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP1U	VG9H	pH <2	pH >12	Comments	
1	3									1					2	3				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Container Codes

DG9H	40mL HCL amber vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1 liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	I	Wipe/Swab
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFU	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag



**RED HILL FARM WELL PAD
PRE-DRILLING SURVEY RESULTS**

ATTACHMENT A – PARCEL OWNER TABLE

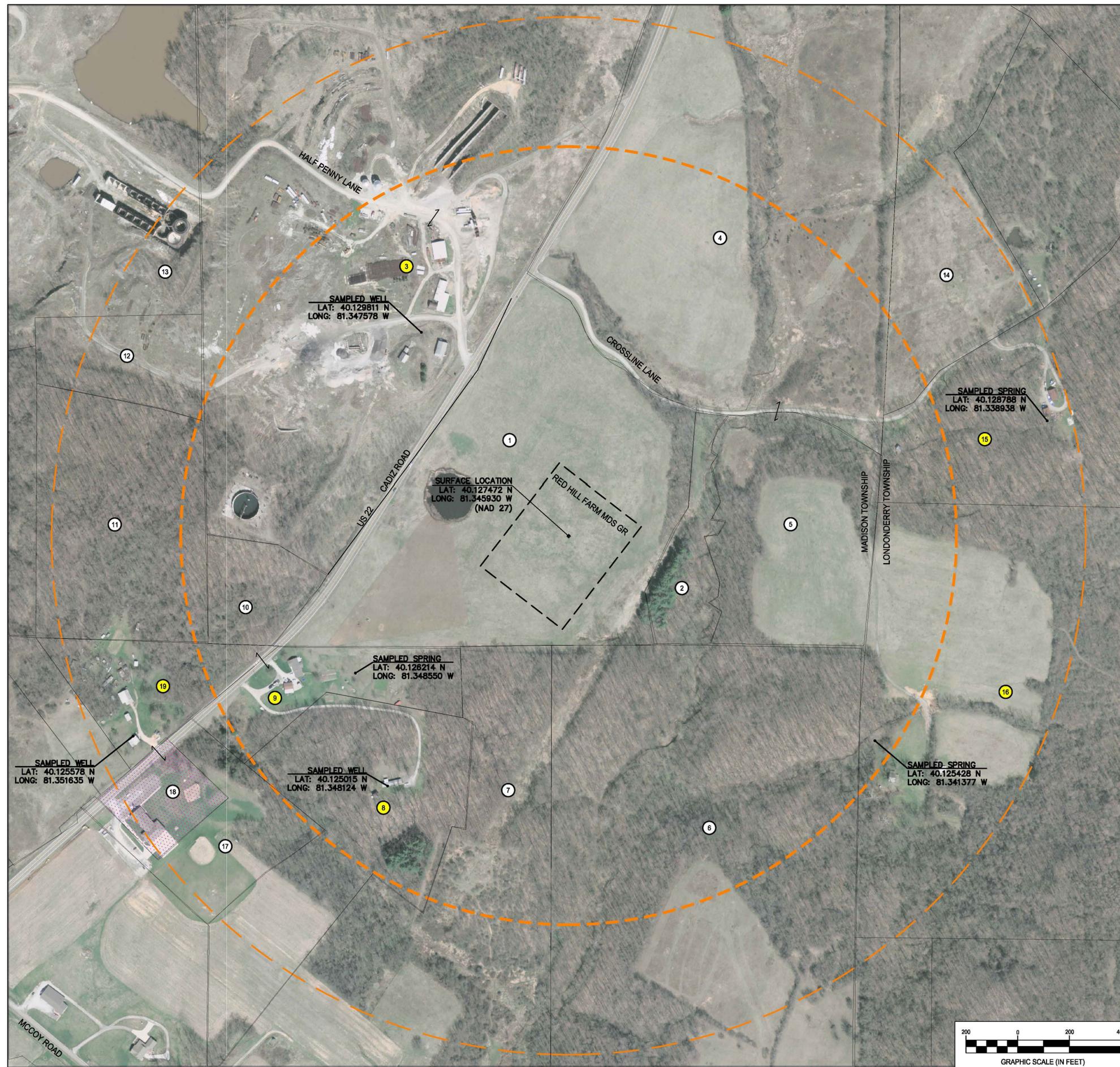
RED HILL FARM (Madison Township, Guernsey County, OH) WELL PAD- PARCELS WITHIN 2000 FOOT RADIUS

ID	Parcel ID	Township	Status	Coordinates	CONTACT INFORMATION				Notes
					Parcel Owner	Mailing Address	Local Address	Phone Number	
1	220000225000	Madison	No Water Source	N/A	Thomas Perkowski & Joan Bond- Randy Raber	71963 Lodge Road, Freeport, OH 43973	Cadiz Road	740.260.3399	1/31 CR spoke with Joan Bond, owner stated property belong to Kimble Limestone. 2/6 techs assessing property in field. NH: 2/11/14 @ 1421 - no structures observed on property. CR: 2/13/14 @ 0845 - spoke with Randy Raber; there is no water source
2	220000225001	Madison	No Water Source	N/A	David & Mary Cooper	20411 Cadiz Road, Freeport, OH 43973	Crossline Road	740.489.5631	2/4 CR spoke with Mary Cooper; there is no water source
3	220000226000	Madison	Sampled	40.129811 -81.347578 (1 Well)	Thomas Perkowski & Joan Bond- Randy Raber	71963 Lodge Road, Freeport, OH 43973	20633 Halfpenny Lane	740.260.3399	1/31 CR spoke with Joan Bond, owner stated property belong to Kimble Limestone. 2/6 techs assessing property in field. NH: 2/11/14 @ 1355 spoke with Nathan Raber; 450 cattle on parcel but water supply is essentially rainwater collected in Irg cistern. N. Raber stated there is a well on property that is currently not hooked to electricity. Owner stated well is not used and was not necessary to sample. CR: 2/13/14 @ 0845 spoke with Randy Raber; owner indicated well on property. Well pump has no power, owner willing to pull pump for sampling.
4	220000362000	Madison	Outside 2000'	N/A	Sally Jo Yarnell (Son; Bryan Dennis)	3819 Holmes Road, Cambridge, OH 43725	Cadiz Road	740.439.5665 740.510.0883 (B. Dennis)	2/6 techs assessing property in field. 2/11 NH did not observe any structures on property. Son, Bryan Dennis lives on property. Techs assessing well location on 3/4/14; source believed to be outside 2000'. 3/4 NH met with Bryan Dennis; there is 1 well & 1 spring on property; both sources are outside 2000'.
5	220000329000	Madison	No Water Source	N/A	Gary & Karen Taylor	Box 265, Howard, OH 43028	Crossline Road	740.599.7008	1/31 CR spoke with Deborah Ritchie (owner's daughter); there is a undeveloped spring but no source(s) to sample. 2/7 CR spoke with Karen Taylor; confirmed there is no water source.
6	220000305000	Madison	Outside 2000'	N/A	Richard Lee Sheppard Jr	3506 Ridgestone Drive, Mansfield, OH 44903	20855 McCoy Road	419.706.5808	2/6 techs assessing property in field. NH: 2/11/14 @ 1427 no structure evident on parcel; however terrain made it difficult to see entire parcel. CR: 2/13/14 @ 1007 spoke with Richard Sheppard; there is a well located near a trailer home along McCoy Rd. The well is outside 2000'. There is a creek in the northern portion of parcel; owner was informed the creek would not be sampled.
7	220000791002	Madison	Outside 2000'	N/A	Hirsh Family Holdings, LLC	4381 Biltmore Court, New Albany, OH 43054	20615 McCoy Road	614.562.5586	2/6 techs assessing property in field. 2/11 NH did not observe any structures on property. 2/21 CR spoke with Suzie Hirsh, source is outside 2000'.
8	220000791000	Madison	Sampled	40.125015 -81.348124 (1 Well)	William & Edna Miller	20501 McCoy Road, Freeport, OH 43973	20410 Cadiz Road	740.489.5697	2/4 CR spoke with William Miller; there is a trailer on the property with 1 well
9	220000792000	Madison	Sampled	40.126214 -81.348550 (1 Spring)	Phillip & Ellen Nisley	20424 Cadiz Road, Freeport, OH 43973	20424 Cadiz Road	740.489.9185	2/3 CR spoke with Larry Nisley; owners are out of town until 2/7. CR: 2/13 left voicemail. CR: 1/14 @ 0857 spoke with Phillip Nisley; there is one spring and an abandoned well on property.
10	220000226001	Madison	No Water Source	N/A	David & Mary Cooper	20411 Cadiz Road, Freeport, OH 43973	Cadiz Road	740.489.5631	2/4 CR spoke with Mary Cooper; there is no water source
11	220000048000	Madison	No Water Source	N/A	David & Mary Cooper	20411 Cadiz Road, Freeport, OH 43973	Cadiz Road	740.489.5631	2/4 CR spoke with Mary Cooper; there is no water source
12	220000048001	Madison	No Water Source	N/A	Thomas Perkowski & Joan Bond- Randy Raber	71963 Lodge Road, Freeport, OH 43973	Lodge Road	740.260.3399	1/31 CR spoke with Joan Bond, owner stated property belong to Kimble Limestone. 2/6 techs assessing property in field. CR: 1/13/14 @ 0845 spoke with Randy Raber; there is no water source.
13	220000228000	Madison	Outside 2000'	N/A	Thomas Perkowski & Joan Bond- Randy Raber	71963 Lodge Road, Freeport, OH 43973	71379 Lodge Road	740.260.3399	1/31 CR spoke with Joan Bond, owner stated property belong to Kimble Limestone. 2/6 techs assessing property in field. CR: 2/13/14 @ 0845 spoke with Randy Raber; owner indicated well on property. Well currently not being use, but owner stated it could be used in future. No pump in well. 2/19 per assessment by NH/GB the well is outside 2000'.
14	200001421000	Londonderry	No Water Source	N/A	Thomas Perkowski & Joan Bond- Randy Raber	71963 Lodge Road, Freeport, OH 43973	Crossline Road	740.260.3399	1/31 CR spoke with Joan Bond, owner stated property belong to Kimble Limestone. 2/6 techs assessing property in field. NH: 2/11/14 @ 1416 no structures observed on the property. CR: 2/13/14 @ 0845 spoke with Randy Raber; there is no water source.
15	200000470000	Londonderry	Sampled	40.128788 -81.338938 (1 Spring)	Paul Kelm	21020 Crossline Road, Freeport, OH 43973	21020 Crossline Road	740.489.5227	2/3 CR spoke with Paul Kelm; there is 1 spring
16	200000617000	Londonderry	Sampled	40.125428 -81.341377 (1 Spring)	Gary & Karen Taylor	Box 265, Howard, OH 43028	20530 Crossline Road	740.599.7008	1/31 CR spoke with Deborah Ritchie (owner's daughter); there is a undeveloped spring but no source(s) to sample. 2/7 CR spoke with Karen Taylor; owner stated there is a spring that has a stainless steel drum that collects spring water. Accessibility maybe an issue; will have techs assess on 2/11. Sample was collected on 2/11
17	220000791001	Madison	No Water Source	N/A	Heritage Christian Fellowship- Antrim Mennonite Church	20360 Cadiz Road, Freeport, OH 43973	Cadiz Road	740.489.5161	2/4 CR spoke with William Miller (spoke on behalf of church); there is no water source. 2/7 CR spoke with Titus Lapp; informed property was now owned by Antrim Mennonite Church. Sold to church by William Miller. Confirmed there is no water source.
18	220000131000	Madison	No Water Source	N/A	Heritage Christian Fellowship- Antrim Mennonite Church	20501 McCoy Road, Freeport, OH 43973	20360 Cadiz Road	740.489.5161	2/4 CR spoke with William Miller (spoke on behalf of church); church is on public water; there is a well but it is no longer used. 2/7 CR spoke with Titus Lapp; informed property was now owned by Antrim Mennonite Church. Sold to church by William Miller. Confirmed well is no longer used and property on public water.
19	220000047000	Madison	Sampled	40.125578 -81.351635 (1 Well)	David & Mary Cooper	20411 Cadiz Road, Freeport, OH 43973	20411 Cadiz Road	740.489.5631	2/4 CR spoke with Mary Cooper; there is 1 well



**RED HILL FARM WELL PAD
PRE-DRILLING SURVEY RESULTS**

ATTACHM9NT B – WATER SOURCE IDENTIFICATION/LOCATION MAP



OHIO REGISTERED WATER WELL LOGS*				
WELL LOG #	ORIGINAL OWNER	LATITUDE	LONGITUDE	ADDRESS
N/A	N/A	N/A	N/A	N/A

* INFORMATION PER ODNR WATER WELL LOG ONLINE DATABASE (www.dnr.state.oh.us/water/maptech/welllogs/appNEW/ERINMapSearch.shtml)

PROPERTY DATA					
#	PROPERTY ID	OWNER	SOURCE ON PROPERTY	LAT (NAD 83/86)	LONG (NAD 83/86)
1	220000225000	PERKOWSKI THOMAS & BOND JOAN	NONE	---	---
2	220000225001	COOPER DAVID & MARY	NONE	---	---
3	220000226000	RABER RANDY	1 WELL (SAMPLED)	40.129811	-81.347578
4	220000362000	YARNELL SALLY JO	OUTSIDE OF TESTING RADIUS	---	---
5	220000329000	TAYLOR KAREN L & GARY N TRUSTEE	NONE	---	---
6	220000305000	SHEPPARD RICHARD LEE JR	OUTSIDE OF TESTING RADIUS	---	---
7	220000791002	HIRSH FAMILY HOLDINGS LLC	OUTSIDE OF TESTING RADIUS	---	---
8	220000791000	MILLER WILLIAM A & EDNA	1 WELL (SAMPLED)	40.125015	-81.348124
9	220000792000	NISLEY PHILLIP E & ELLEN I	1 SPRING (SAMPLED)	40.126214	-81.348550
10	220000226001	COOPER DAVID & MARY	NONE	---	---
11	220000048000	COOPER DAVID WILLIAM & MARY K	NONE	---	---
12	220000048001	PERKOWSKI THOMAS & JOAN BOND ET AL TRUSTEES	NONE	---	---
13	220000228000	PERKOWSKI THOMAS & BOND JOAN	OUTSIDE OF TESTING RADIUS	---	---
14	200001421000	PERKOWSKI THOMAS & BOND JOAN	NONE	---	---
15	200000470000	KELM PAUL	1 SPRING (SAMPLED)	40.128788	-81.338938
16	200000617000	TAYLOR KAREN L & GARY N TRUSTEE	1 SPRING (SAMPLED)	40.125428	-81.341377
17	220000791001	HERITAGE CHRISTIAN FELLOWSHIP	NONE	---	---
18	220000131000	HERITAGE CHRISTIAN FELLOWSHIP	NONE (PUBLIC WATER)	---	---
19	220000047000	COOPER DAVID WILLIAM & MARY K	1 WELL (SAMPLED)	40.125578	-81.351635

NOTE: PROPERTY LINES ARE SHOWN FOR REFERENCE ONLY AND ARE NOT BASED ON SURVEY DATA.

LEGEND

- PROPERTY REFERENCE NUMBER
- PROPERTY WITH SAMPLED WELL SOURCE
- PROPOSED SURFACE LOCATION
- ODNR REGISTERED WATER WELL (WITHIN 2,000')
- OTHER ODNR REGISTERED WATER WELL
- REQUIRED TESTING RADIUS (1,500')
- BUFFER ZONE (500')
- PROPERTY LINE
- ROADWAY
- STREAM
- TESTING REFUSED BY OWNER
- PUBLIC WATER SUPPLY

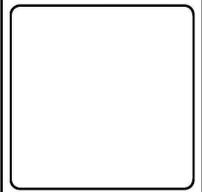
REVISIONS NO.	DATE	DESCRIPTION



WATER SAMPLING MAP

RED HILL FARM MDS GR

MADISON TOWNSHIP
GUERNSEY COUNTY, OHIO



ISSUE: EXHIBIT
DATE: 03.14.14
JOB NO.: 750217
DESIGN: NJD
DRAWN: NJD
CHECKED: CR
SHEET NO. 1