

September 14, 2010

Mr. Mike Bratcher  
Oil Conservation Division  
New Mexico Energy, Minerals and Natural Resources Department  
1301 W. Grand Avenue  
Artesia, New Mexico 88210

**Re: Remediation Workplan,  
Devon Energy, Ore Ida 14 Federal #12  
Unit Letter K (NE/4, SW/4), Section 14, Township 24 South, Range 29 East,  
Eddy County, New Mexico  
(Latitude: N 32.21516°, Longitude: W 103.94927°)**

Dear Mr. Bratcher:

Devon Energy (Devon), has retained Ocotillo Environmental, LLC (Ocotillo) to remediate impacts to soil from a leak at the Ore Ida 14 Federal #12. The well is located in the northeast quarter (NE/4) of the southwest quarter (SW/4), Section 14, Township 24 South, Range 29 East, Eddy County, New Mexico (Site). On May 27, 2010, approximately 15 barrels of produced water were released from a flow line at the site. A C-141 was submitted to the New Mexico Oil Conservation Division (NMOCD) on May 28, 2010. Appendix A provides a copy of the C141. Figure 1 shows the site location.

Based on published literature (1961), well records of the New Mexico State Engineer, and well records of the United States Geological Survey, groundwater occurs at approximately 90 feet bgs in the well located nearest the Site. No domestic water wells are located within 1,000 feet of the site. The NMOCD has established recommended remediation action levels (RRALs) for benzene, total BTEX and TPH resulting from spills of natural gas liquids ("Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"). Remediation levels for benzene, total BTEX and TPH were calculated using the following NMOCD criteria:

Criteria	Result	Ranking Score
Depth-to-Groundwater	50 - 99 Feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
		<b>Total: 10</b>

The following RRALs have been assigned based on NMOCD criteria:

**Benzene** 10 mg/kg  
**Total BTEX** 50 mg/kg  
**TPH** 1,000 mg/kg

#### **Initial Investigation**

On September 8, 2010, soil samples were collected from two locations (TH1 and TH2) by a backhoe and submitted to Cardinal Laboratories of Hobbs, New Mexico for chloride analysis. Figure 2 shows the soil sample locations. Laboratory analysis and chain of custody documentation are included in Appendix B.

Mr. Mike Bratcher  
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Referring to Figure #2, chloride concentrations in samples from point TH1 were all reported below the NMOCD standard of 250 mg/kg. The soil samples collected from point TH2 were reported above 250 mg/kg until a depth of 14 feet bgs, with the exception of the samples collected at 2 feet bgs (80 mg/kg) and 10 feet bgs (480 mg/kg).

**Proposed Remediation**

Devon proposes to conduct excavation of the chloride impacted soil in the vicinity of sample point TH2 to a depth of approximately eight (8) to nine (9) feet bgs. Horizontal delineation will be determined by laboratory analysis of samples collected during excavation. All excavated soil will be hauled to an NMOCD approved disposal facility. Soil samples will be collected from the bottom and sides of the excavation until confirmation samples from the bottom and side walls report chloride concentrations less than 1,000 mg/kg.

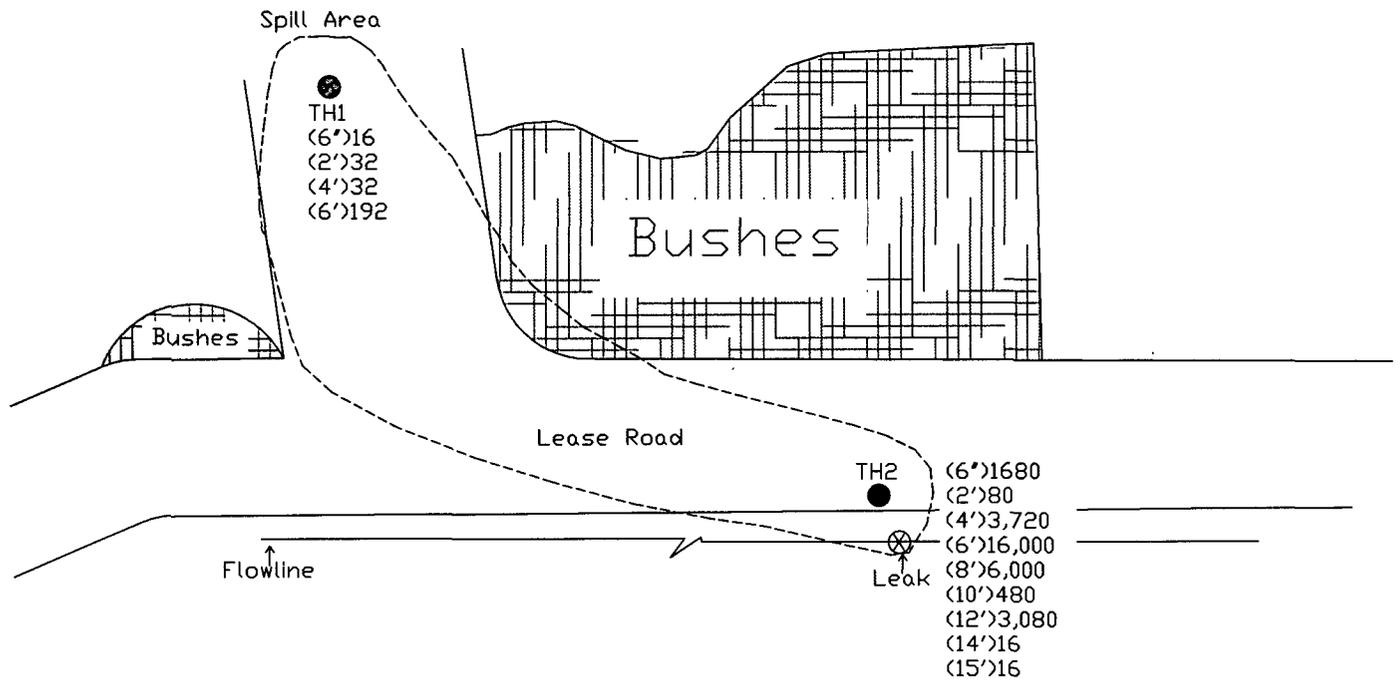
Upon obtaining laboratory chloride results less than 1,000 mg/kg, a 20 mil plastic liner will be installed at the eight to nine foot depth, and the excavated area will be backfilled with clean soil. A final report will be submitted to the NMOCD following completion of remediation activities.

If you have any questions or need additional information, please call Mr. Jerry Mathews at (575) 748-5234, or myself at (575) 441-7244. We may also be reached by email at [Jerry.Mathews@dvn.com](mailto:Jerry.Mathews@dvn.com) or [Cindy.Crain@gmail.com](mailto:Cindy.Crain@gmail.com).

Sincerely,  
***Ocotillo Environmental, LLC***

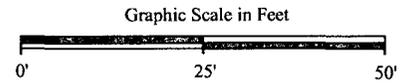
Cindy K. Crain, P.G.  
Environmental Manager

cc: Jerry Mathews, Devon



GPS Coordinates	
TH1	N32.21306°, W103.95564°
TH2	N32.21499°, W103.95534°

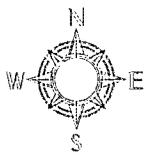
LEGEND	
	TH1
(6')16	Soil Sample Location With Depth (feet bgs) and Chloride Concentrations (mg/kg) 09-08-10
(2')32	
(4')32	
(6')192	



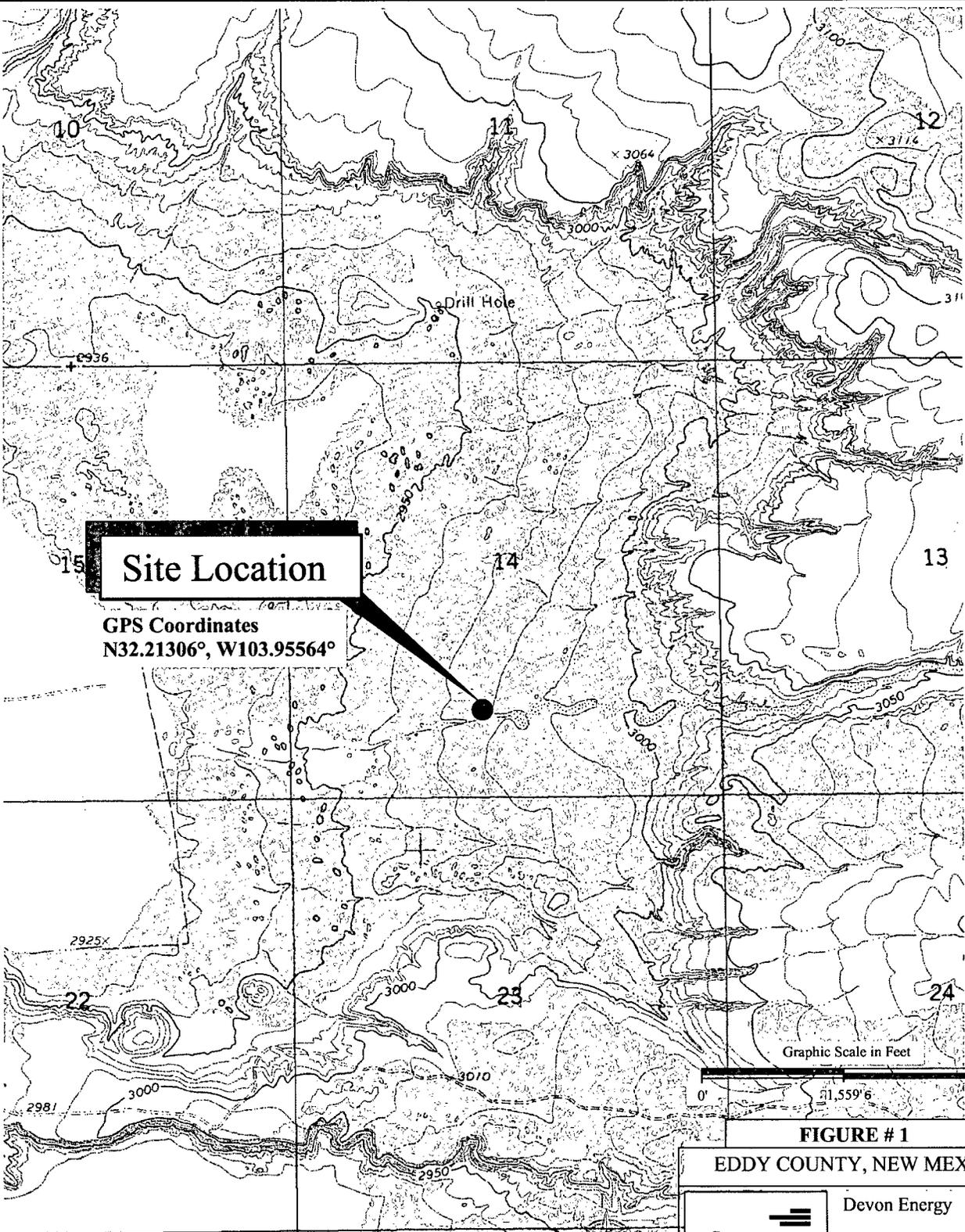
**FIGURE # 2**

EDDY COUNTY, NEW MEXICO

	Devon Energy
	Ore Ida 14 Federal #12
UL - K, Sec. 14, T24S, R29E	
Site Drawing with Soil Sample Locations September 9, 2010	
	ENVIRONMENTAL

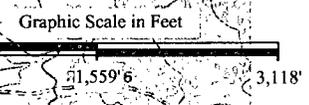


DATE:	09-14-10
NAME:	JTC
PROJECT NO.:	0610-028C



**Site Location**

**GPS Coordinates**  
**N32.21306°, W103.95564°**



<b>FIGURE # 1</b>	
EDDY COUNTY, NEW MEXICO	
	Devon Energy
	Ore Ida 14 Federal #12
	UL - K, Sec. 14, T24S, R29E
	<b>Site Location</b>
Ocotillo	<b>ENVIRONMENTAL</b>

DATE: 09-14-10  
 NAME: JTC  
 PROJECT NO.: 0610-028C



er Tank  
 ravel Pit

## FIGURES

**APPENDIX A**

**INITIAL C141 DOCUMENTATION**

**APPENDIX B**

**ANALYTICAL DATA AND CHAIN OF CUSTODY  
DOCUMENTATION**



September 10, 2010

Cindy Crain  
Ocotillo Environmental, LLC  
P.O. Box 1816  
Hobbs, NM 88241

RE: ORE IDA 14, FED #12

Enclosed are the results of analyses for samples received by the laboratory on 09/09/10 7:53.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

Ocotillo Environmental, LLC  
Cindy Crain  
P.O. Box 1816  
Hobbs NM, 88241  
Fax To: (432) 272-0304

Received: 09/09/2010  
Reported: 09/10/2010  
Project Name: ORE IDA 14, FED #12  
Project Number: NONE GIVEN  
Project Location: 10 MILES NE OF MALAGA, NM

Sampling Date: 09/08/2010  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: TH1 @ 6" (H020818-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH1 @ 2' (H020818-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH1 @ 4' (H020818-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH1 @ 6' (H020818-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 6" (H020818-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1680	16.0	09/09/2010	ND	432	108	400	0.00		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Ocotillo Environmental, LLC  
 Cindy Crain  
 P.O. Box 1816  
 Hobbs NM, 88241  
 Fax To: (432) 272-0304

Received: 09/09/2010  
 Reported: 09/10/2010  
 Project Name: ORE IDA 14, FED #12  
 Project Number: NONE GIVEN  
 Project Location: 10 MILES NE OF MALAGA, NM

Sampling Date: 09/08/2010  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: TH2 @ 2' (H020818-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 4' (H020818-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3720	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 6' (H020818-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16000	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 8' (H020818-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6000	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 10' (H020818-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	480	16.0	09/09/2010	ND	432	108	400	0.00		

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Ocotillo Environmental, LLC  
 Cindy Crain  
 P.O. Box 1816  
 Hobbs NM, 88241  
 Fax To: (432) 272-0304

Received: 09/09/2010  
 Reported: 09/10/2010  
 Project Name: ORE IDA 14, FED #12  
 Project Number: NONE GIVEN  
 Project Location: 10 MILES NE OF MALAGA, NM

Sampling Date: 09/08/2010  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Jodi Henson

**Sample ID: TH2 @ 12' (H020818-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3080	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @14' (H020818-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/09/2010	ND	432	108	400	0.00		

**Sample ID: TH2 @ 15' (H020818-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	09/09/2010	ND	432	108	400	0.00		

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\*=Accredited Analyte

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Celest D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

PAGE 2 OF 2

Company Name: <del>DEP CARBONATE</del> DEVON	<b>BILL TO</b>	<b>ANALYSIS REQUEST</b>											
Project Manager: CINDY CRAIN	P.O. #:												
Address: 2125 FRENCH DRIVE, P.O. Box 1816	Company: Ocotillo												
City: Hobbs State: NM Zip: 88240	Attn:												
Phone #: 575-44-7244 Fax #:	Address:												
Project #: Project Owner:	City:												
Project Name: ORE IDA 14, Fed. #12	State: Zip:												
Project Location: 10 MILE NE OF MALAGA, NM.	Phone #:												
Sampler Name: DON GREEN	Fax #:												

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP. # CONTAINERS	MATRIX						PRESERV.			SAMPLING		CL
			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME	
H20818-10	TH2@10'	G 1			✓							9/8/10	15:30	✓
11	TH2@12'	G 1			✓							"	"	✓
12	TH2@14'	G 1			✓							"	"	✓
13	TH2@15'	G 1			✓							"	"	✓

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Relinquished By: Don Green	Date: 9/9/10	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: 7:53		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By: Jodi Benson	REMARKS: RUSH	
	Time:			
Delivered By: (Circle One)	Sample Condition	CHECKED BY: JH		
Sampler: UPS - Bus - Other:	Cool Intact 19.5°C <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	(Initials)		

FORM-006  
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

#26