

NM1-63

**Permit
Application
Vol 4
Part 2 of 3**

10/12/16

ATTACHMENT IV.2.D

LITHOLOGIC LOG OF POST RUSTLER FORMATION

CONTINENTAL OIL COMPANY NO. 2 BELL LAKE UNIT

FROM NICOOLSON AND CLEBSCH, 1961 TABLE 4

Attachment IV.2.D

Lithologic log of the post-Rustler Fm. Section, Continental Oil Company No. 2 Bell Lake Unit, Sec 30 T.23S.R34E.
from Nicholson and Clebsch, 1961, Table 4

AGE	FORMATION AND THICKNESS (ft)	DEPTH (ft)	THICKNESS (ft)	DESCRIPTION
Tertiary	Ogallala	0- 60	60	Caliche, white, sandy.
	125	60- 125	65	Sandstone, tan, fine- to medium-grained, sub-rounded, calcareous.
Triassic	Chinle 325	125- 210	85	Sandstone, fine, and siltstone, greenish-gray; slightly calcareous.
		210- 280	70	Siltstone and clay, red and green; some sandstone, green, fine-grained, calcareous.
		280- 300	20	Sandstone, light-gray, fine- to very fine-grained, slightly calcareous; much pyrite with many small euhedral crystals.
		300- 450	150	Siltstone and clay, red and green; some sandstone, green, fine-grained, calcareous.
Triassic	Santa Rosa 310	450- 680	230	Sandstone, red, generally fine- to medium-grained but ranging from very fine to coarse, angular, friable; moderately calcareous with silica and ferric-oxide cement; some gravel, chert, and gypsum.
		680- 720	40	Clay and siltstone, red.
		720- 760	40	Sandstone, red, fine- to very fine-grained, friable, moderately calcareous; some siltstone and clay.
Triassic or Permian, undiffer- entiated	495	760- 790	30	Siltstone, red, noncalcareous, micaceous, green streaks, and spots; some gypsum.
		790- 800	10	Clay, red, silty, micaceous.
		800- 820	20	Siltstone, red, clayey, micaceous.
		820-1,000	180	Siltstone, red, noncalcareous, micaceous, green streaks, and spots; some gypsum.
		1,000-1,010	10	Clay, red, silty.
Permian	Rustler	1,010-1,255	245	Siltstone, red, noncalcareous, micaceous, green streaks and spots; some gypsum.
		1,255-1,270	15+	Anhydrite.

ATTACHMENT IV.2.E

LABORATORY TESTING REPORTS

GROUNDWATER SAMPLES FROM WELLS

OWL SITE VICINITY



*Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com*

June 09, 2015

Charles Fiedler

Gordon Environmental, Inc.
213 S. Camino del Pueblo
Bernalillo, NM 87004
TEL: (505) 867-6990
FAX (505) 867-6991

RE: OWL Section 23

OrderNo.: 1505690

Dear Charles Fiedler:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1505690**

Date Reported: **6/9/2015**

CLIENT: Gordon Environmental, Inc.

Client Sample ID: Well C-3662 POD 1

Project: OWL Section 23

Collection Date: 5/13/2015 1:18:00 PM

Lab ID: 1505690-001

Matrix: AQUEOUS

Received Date: 5/15/2015 7:52:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	1.2	0.10		mg/L	1	5/15/2015 10:47:06 AM	R26247
Chloride	32	10		mg/L	20	5/15/2015 10:59:31 AM	R26247
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	5/15/2015 10:47:06 AM	R26247
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	5/15/2015 10:47:06 AM	R26247
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	5/15/2015 10:47:06 AM	R26247
Sulfate	99	10		mg/L	20	5/15/2015 10:59:31 AM	R26247
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	507	20.0	*	mg/L	1	5/22/2015 8:10:00 AM	19320
EPA METHOD 7470: MERCURY							Analyst: MED
Mercury	ND	0.00020		mg/L	1	5/28/2015 10:26:46 AM	19402
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	5/26/2015 10:13:22 AM	19328
Arsenic	ND	0.020		mg/L	1	5/26/2015 10:13:22 AM	19328
Barium	0.036	0.020		mg/L	1	5/26/2015 10:13:22 AM	19328
Cadmium	ND	0.0020		mg/L	1	5/26/2015 10:13:22 AM	19328
Calcium	17	1.0		mg/L	1	5/26/2015 10:13:22 AM	19328
Chromium	ND	0.0060		mg/L	1	5/26/2015 10:13:22 AM	19328
Iron	0.11	0.050		mg/L	1	5/26/2015 10:13:22 AM	19328
Lead	ND	0.0050		mg/L	1	5/26/2015 10:13:22 AM	19328
Magnesium	19	1.0		mg/L	1	5/26/2015 10:13:22 AM	19328
Potassium	3.9	1.0		mg/L	1	5/26/2015 10:13:22 AM	19328
Selenium	ND	0.050		mg/L	1	5/26/2015 10:13:22 AM	19328
Silver	ND	0.0050		mg/L	1	5/26/2015 10:13:22 AM	19328
Sodium	170	5.0		mg/L	5	5/26/2015 10:15:13 AM	19328
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	5/15/2015 11:57:23 PM	R26234
Benzene	ND	1.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
Toluene	ND	1.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
Ethylbenzene	ND	1.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
Xylenes, Total	ND	2.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/15/2015 11:57:23 PM	R26234
Surr: 4-Bromofluorobenzene	99.2	80-120		%REC	1	5/15/2015 11:57:23 PM	R26234

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 7
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1505690**

Date Reported: **6/9/2015**

CLIENT: Gordon Environmental, Inc.

Client Sample ID: TRIP BLANK

Project: OWL Section 23

Collection Date:

Lab ID: 1505690-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 7:52:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	5/16/2015 12:26:00 AM	R26234
Benzene	ND	1.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
Toluene	ND	1.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
Ethylbenzene	ND	1.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
Xylenes, Total	ND	2.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/16/2015 12:26:00 AM	R26234
Surr: 4-Bromofluorobenzene	97.3	80-120		%REC	1	5/16/2015 12:26:00 AM	R26234

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 7
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505690

09-Jun-15

Client: Gordon Environmental, Inc.

Project: OWL Section 23

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R26247			RunNo: 26247					
Prep Date:		Analysis Date: 5/15/2015			SeqNo: 779359		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.100								
Chloride	ND	0.500								
Nitrogen, Nitrite (As N)	ND	0.100								
Nitrogen, Nitrate (As N)	ND	0.100								
Phosphorus, Orthophosphate (As P)	ND	0.500								
Sulfate	ND	0.500								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R26247		RunNo: 26247					
Prep Date:			Analysis Date: 5/15/2015		SeqNo: 779360		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.508	0.100	0.5000	0	102	90	110			
Chloride	4.98	0.500	5.000	0	99.7	90	110			
Nitrogen, Nitrite (As N)	1.02	0.100	1.000	0	102	90	110			
Nitrogen, Nitrate (As N)	2.58	0.100	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	4.88	0.500	5.000	0	97.6	90	110			
Sulfate	10.2	0.500	10.00	0	102	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505690

09-Jun-15

Client: Gordon Environmental, Inc.

Project: OWL Section 23

Sample ID	100NG BTEX LCS			SampType:	LCS			TestCode:	EPA Method 8021B: Volatiles		
Client ID:	LCSW			Batch ID:	R26234			RunNo:	26234		
Prep Date:				Analysis Date:	5/15/2015			SeqNo:	779458		
								Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	16	2.5	20.00	0	82.2	72.5	125				
Benzene	21	1.0	20.00	0	104	80	120				
Toluene	21	1.0	20.00	0	106	80	120				
Ethylbenzene	21	1.0	20.00	0	106	80	120				
Xylenes, Total	62	2.0	60.00	0	103	80	120				
1,2,4-Trimethylbenzene	18	1.0	20.00	0	91.7	80	120				
1,3,5-Trimethylbenzene	19	1.0	20.00	0	95.0	80	120				
Surr: 4-Bromofluorobenzene	19		20.00		94.3	80	120				

Sample ID	5ML RB	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID: R26234			RunNo: 26234					
Prep Date:		Analysis Date: 5/15/2015			SeqNo: 779481			Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Surr: 4-Bromofluorobenzene	18		20.00		92.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505690

09-Jun-15

Client: Gordon Environmental, Inc.

Project: OWL Section 23

Sample ID	MB-19402		SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW		Batch ID:	19402		RunNo:	26454				
Prep Date:	5/27/2015		Analysis Date:	5/28/2015		SeqNo:	786394		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercurv	ND	0.00020									

Sample ID	LCS-19402		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 19402		RunNo: 26454					
Prep Date:	5/27/2015		Analysis Date: 5/28/2015		SeqNo: 786395		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	0	111	80	120			

Sample ID	1505690-001CMS		SampType: MS		TestCode: EPA Method 7470: Mercury					
Client ID:	Well C-3662 POD 1		Batch ID: 19402		RunNo: 26454					
Prep Date:	5/27/2015		Analysis Date: 5/28/2015		SeqNo: 786397		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0.0001402	110	75	125			

Sample ID	1505690-001CMSD		SampType: MSD		TestCode: EPA Method 7470: Mercury					
Client ID:	Well C-3662 POD 1		Batch ID: 19402		RunNo: 26454					
Prep Date:	5/27/2015		Analysis Date: 5/28/2015		SeqNo: 786398		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0.0001402	110	75	125	0.0854	20	

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505690

09-Jun-15

Client: Gordon Environmental, Inc.

Project: OWL Section 23

Sample ID	MB-19328	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 19328			RunNo: 26400					
Prep Date:	5/20/2015	Analysis Date: 5/26/2015			SeqNo: 784486		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-19328		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 19328		RunNo: 26400					
Prep Date:	5/20/2015		Analysis Date: 5/26/2015		SeqNo: 784487		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	80	120			
Arsenic	0.51	0.020	0.5000	0	102	80	120			
Barium	0.49	0.020	0.5000	0	98.4	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.7	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.3	80	120			
Iron	0.49	0.050	0.5000	0	98.4	80	120			
Lead	0.49	0.0050	0.5000	0	98.1	80	120			
Magnesium	51	1.0	50.00	0	102	80	120			
Potassium	50	1.0	50.00	0	99.6	80	120			
Selenium	0.49	0.050	0.5000	0	98.9	80	120			
Silver	0.10	0.0050	0.1000	0	105	80	120			
Sodium	51	1.0	50.00	0	102	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505690

09-Jun-15

Client: Gordon Environmental, Inc.

Project: OWL Section 23

Sample ID	MB-19320		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	19320		RunNo:	26351				
Prep Date:	5/20/2015		Analysis Date:	5/22/2015		SeqNo:	783057		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-19320		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 19320		RunNo: 26351					
Prep Date:	5/20/2015		Analysis Date: 5/22/2015		SeqNo: 783058		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: GEI

Work Order Number: 1505690

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

5/15/2015 7:52:00 AM

Completed By: Ashley Gallegos

5/15/2015 8:37:26 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 2
 (<2 or >12 unless noted)
 Adjusted? no
 Checked by: CS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



**FALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Gordon Environmental, Inc.				<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush				
Project Name: OWL Section 23								
Mailing Address: 213 S. Camino del Pueblo Bernalillo, NM 87004				Project #: 560.01.01				
Phone #: 505-867-6990				Project Manager: C. Fiedler				
email or Fax#: cfiedler@gordonenvironmental.com								
QA/QC Package: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)				Sampler: C. Fiedler				
Accreditation: <input type="checkbox"/> NELAP <input type="checkbox"/> Other				On Ice <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Sample Temperature: 10				
Date		Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	
5/13/15	13:18	Water	Well C-3662 POD 1				15056910	
							-001	
							002	
Date:	Time:	Relinquished by:	Received by:				Date	Time
5/14/15	13:50	[Signature]	Sara F. Fiedler				05-14-15	1550
Date:	Time:	Relinquished by:	Received by:				Date	Time
05-15-15	1752	[Signature]	C. Fiedler				05/15/15	0752

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



INTERA Incorporated
6000 Uptown Blvd, NE
Suite 220
Albuquerque, NM 87110
Telephone: (505) 246-1600
Fax: (505) 246-2600

May 31, 2013

Mr. and Mrs. McCloy
Double M Ranch
P.O. Box 1076
Jal, NM 88252

RE: Analytical results for water quality samples collected on behalf of Intercontinental Potash Corp. (USA) from wells on the Double M Ranch, Lea County, New Mexico

Dear Mr. and Mrs. McCloy,

Thank you for permitting INTERA Incorporated to collect samples from groundwater wells located on your Ranch. We are grateful to you for your hospitality during the sampling event and appreciate you taking the time to guide us to each well.

Enclosed for your records is a copy of the analytical results for samples that we collected on behalf of Intercontinental Potash Corp. (USA) ("ICP"). These samples were submitted to Hall Environmental Analysis Laboratories (HEAL) of Albuquerque, New Mexico to analyze the concentration of potential contaminants as defined by the New Mexico Water Quality Control Commission (WQCC) under 20.6.2.3103 NMAC.

Groundwater samples were collected from the wells identified in Table 1 and shown in Figure 1. INTERA assigned a well identification number that corresponds to the "Client Sample ID" in Table 1, on Figure 1, and on each page of the laboratory report.

Table 1. Wells located on the Double M Ranch sampled on April 11, 2013.

Client Sample ID	Well Name	Use	Owner's Estimate of Total Depth (ft bgs)	Northing	Easting	Approximate Flow Rate (gpm)*
ICP-DHR-01	East	Stock	540	772442.1	441253.6	Unknown
ICP-DHR-02	Tower	Stock	Unknown	772352.3	441277.7	Unknown
ICP-DHR-03	North	Stock	Unknown	772541.4	441246.1	26.3
ICP-DHR-04 Well	North XX	Stock	Unknown	772543.0	441223.5	Unknown
ICP-DHR-04 Outlet	North XX	Stock	NA	771945.1	432478.9	24.4
ICP-DHR-05	House Windmill	Stock	180	776148.3	428865.1	3.6
ICP-DHR-06	South XX	Stock	180	763035.2	425356.6	Unknown
ICP-DHR-07	Unknown	Stock	540	800922.8	428744.7	28
ICP-DHR-08	East House	Stock	Unknown	776147.1	428840.5	13.3
ICP-DHR-09	House	Domestic	Unknown	776095.2	428609.0	Unknown

Mr. and Mrs. McCloy
May 31, 2013
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Client Sample ID	Well Name	Use	Owner's Estimate of Total Depth (ft bgs)	Northing	Easting	Approximate Flow Rate (gpm)*
ICP-DHR-10	James East	Stock	540	757177.0	450005.3	Unknown

*Values shown are rates measured at time of sampling; NA = not applicable; ft bgs = feet below ground surface; gpm = U.S. gallons per minute; Unknown = information not available

Samples that exceeded maximum concentration levels (MCL) established by the U.S. Environmental Protection Agency (EPA) for drinking water are noted in the laboratory report with an "*" in the "Qual" column (e.g., nitrate, arsenic, selenium, and TDS in ICP-DHR-09). The EPA has information about MCLs online at <http://water.epa.gov/drink/contaminants/index.cfm#List>. Please recall that the sample collected from your drinking water well, Client Sample ID ICP-DHR-09, was collected upstream of your reverse osmosis system.

Again, we are grateful for the access that you granted to INTERA for collecting these samples on behalf of ICP. If you have any questions about these results, please contact me at (505) 246-1600.

Sincerely,
INTERA Incorporated



Peter Castiglia
Senior Hydrogeologist

CC: ICP Ochoa Project File



Photo Log



Photo 1 - Discharge point for ICP-DHR-01 ("East Well"). Discharge is near 6 red tanks north of NM 128 (empties into third tank from the east).



Photo 2 - Collection of sample from ICP-DHR-02 ("Tower") well. Previous to sampling, a hose was connected to spigot that discharged into a tank labeled "DO NOT USE THIS TANK".



Photo 3 - Discharge point for ICP-DHR-03 ("North") well.



Photo 4 - Discharge point for ICP-DHR-04 ("North XX") well. Pipe was submerged prior to sampling.



Photo 5 - Windmill and collection tank for ICP-DHR-05 ("House Windmill") well.



Photo 6 - Discharge point for ICP-DHR-06 ("South XX") well. Windmill in this photo pumps water from tank shown to another tank. The well sampled is not shown in this photo.

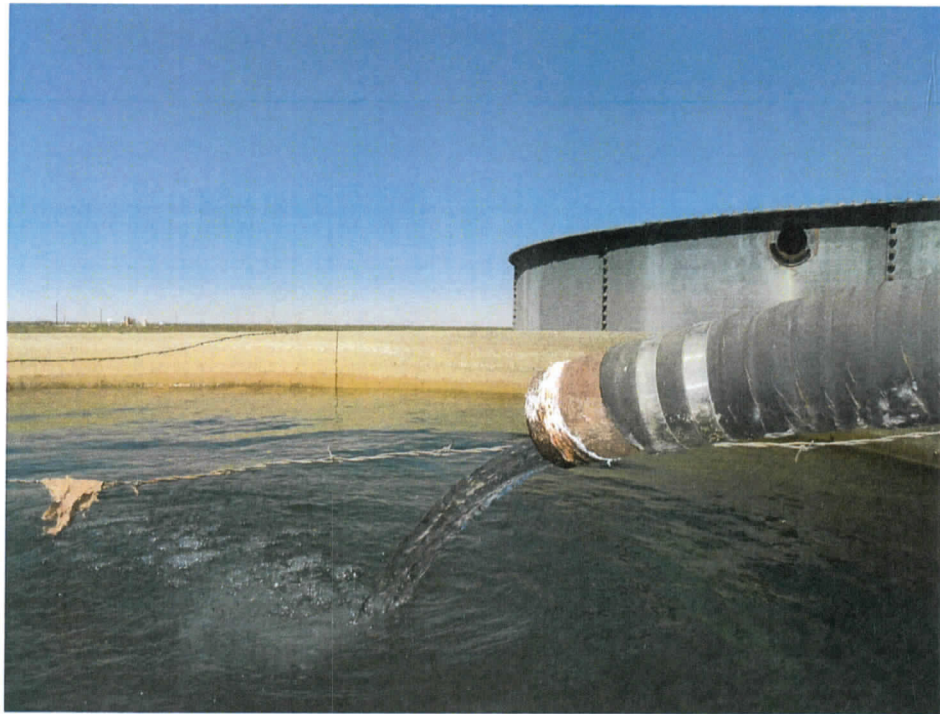


Photo 7 - Discharge point for ICP-DHR-07.

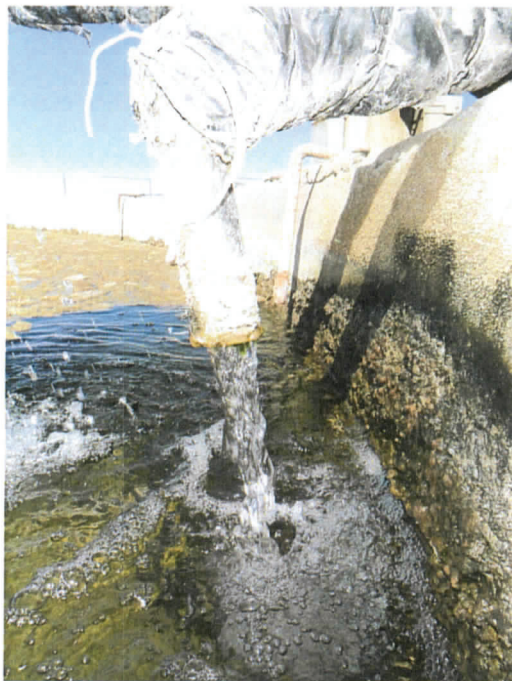


Photo 8 - Discharge point for ICP-DHR-08 ("East House Well"). Note mineral scaling and algal growth on discharge pipe.



Photo 9 - Wellhead (in foreground) for ICP-DHR-09 ("House Well").



Photo 10 - Discharge point inside collection tank for ICP-DHR-10 ("James East Well").

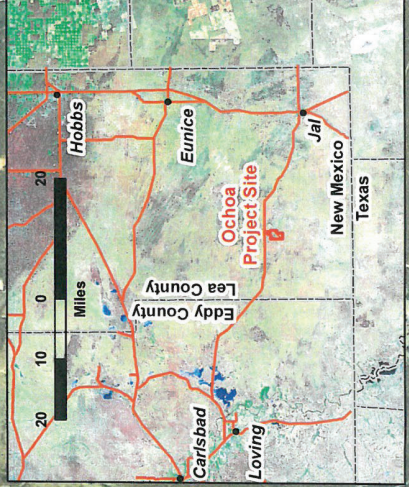
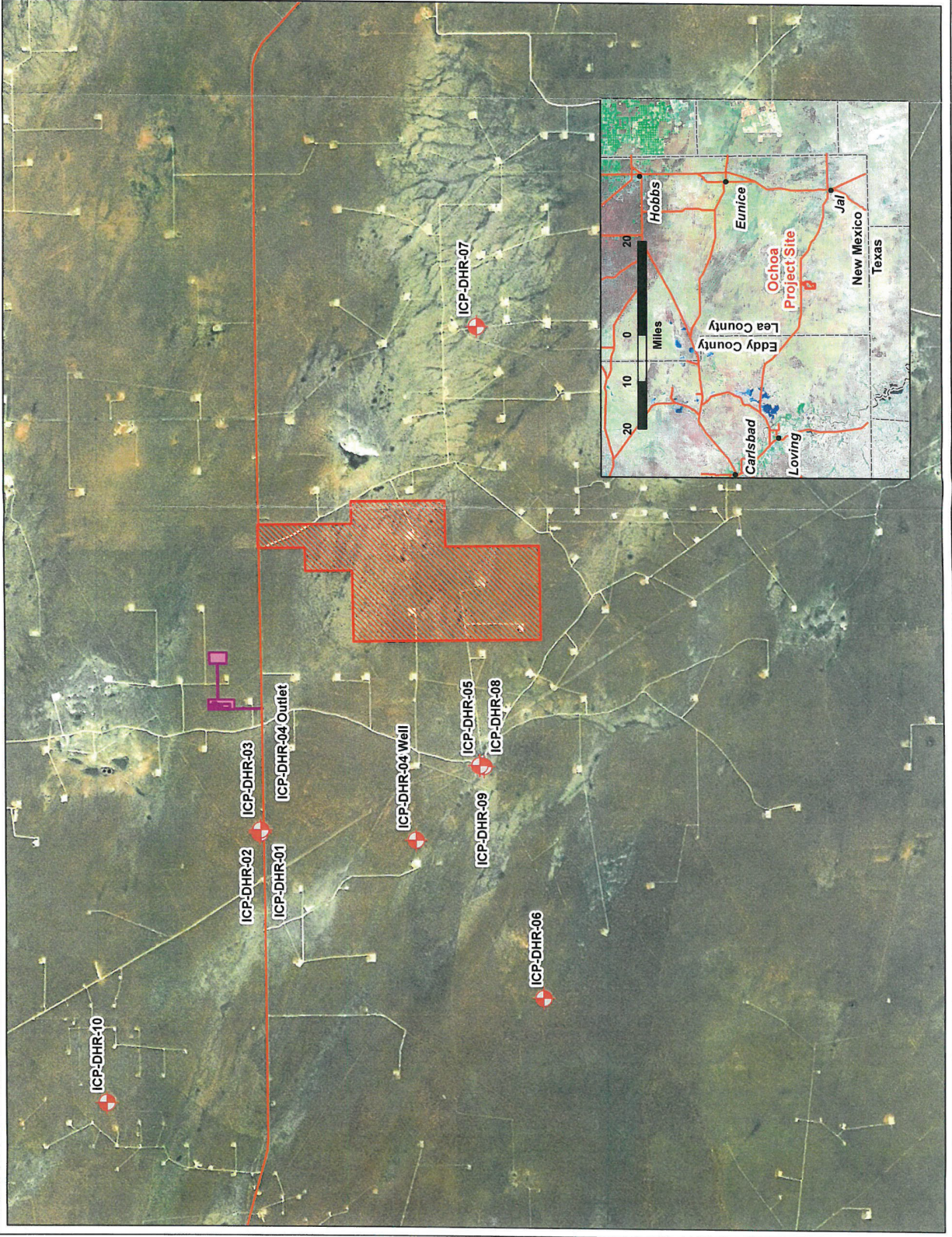


Figure 1
Location of Groundwater
Samples Collected from
Double M Ranch,
Lea County, NM

ICP(USA) Ochoa Project

Sources:
Well locations by INTERA Inc.
Proposed facilities and shaft site
by ICP(USA)