AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5698 (03-2000)

RECEIVED
JAN 2 8 2020
ND OIL & GAS DIVISION

Well File No.
23361

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL.

Well Name and Number	Qtr-Qtr	Section	Township	Range	County
Atlanta 12-6H	**NENW**	**6**	**153 N**	**101 W**	**Williams**

Operator	Telephone Number	Field
Continental Resources, Inc.	**405-234-9000**	**Baker**

Address	City	State	Zip Code
P.O. Box 268870	**Oklahoma City**	**OK**	**73126**

Name of First Purchaser	Telephone Number	% Purchased	Date Effective
Continental Resources, Inc.	**405-234-9000**	**100**	**March 2, 2014**

Principal Place of Business	City	State	Zip Code
20 N. Broadway	**Oklahoma City**	**OK**	**73102**
Field Address	City	State	Zip Code

Name of Transporter	Telephone Number	% Transported	Date Effective
Hiland Crude	**580-616-2050**	**100**	**March 2, 2014**

Address	City	State	Zip Code
8811 S. Yale, Ste. 200	**Tulsa**	**OK**	**74137**

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective

Comments

I hereby swear or affirm that all transporters of Bakken Petroleum System oil listed above implement or adhere to a tariff specification as stringent as the Commissions $VPCR_4$ requirement ☑ 13.7 psi $VPCR_4$ Tariff Specification Hiland Crude Tariff Authority

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records. Date: **January 20, 2020**

Signature	Printed Name	Title
Terry L. Olson	**Terry L. Olson**	**Regulatory Compliance Specialist**

Above Signature Witnessed By

Witness Signature	Witness Printed Name	Witness Title
Christi Scritchfield	**Christi Scritchfield**	**Regulatory Compliance Specialist**

FOR STATE USE ONLY

Date Approved	NDIC CTB NO
JAN 29 2020	223372
By: Melissa Hess	
Title: Oil & Gas Production Analyst	

NORTH DAKOTA
OIL AND GAS DIVISION

Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director
Department of Mineral Resources
Lynn D. Helms - Director
North Dakota Industrial Commission
www.dmr.nd.gov/oilgas/

#23361

December 27, 2016

Ms. Donna Patocka
Continental Resources, Inc.
P.O. Box 269000
Oklahoma City, OK 73126

RE: Atlanta #12-6H
NENW Sec. 6, T.153N., R.101W.
Williams County, North Dakota
Baker Field
Well File No. 23361
STRIPPER WELL DETERMINATION

Dear Ms. Patocka:

Continental Resources, Inc. (Continental) filed with the North Dakota Industrial Commission – Oil and Gas Division (Commission) on December 15, 2016 an application for a Stripper Well Determination for the above captioned well.

Information contained in the application indicates that the above mentioned well is a stripper well pursuant to statute and rule, and Continental has elected to designate said well as a stripper well. The well produced from a well depth greater than 10000 feet and was completed after June 30, 2013. During the qualifying period, October 1, 2015 through September 30, 2016, the well produced at a maximum efficient rate or was not capable of exceeding the production threshold. The average daily production from the well was 34.8 barrels of oil per day during this period.

It is therefore determined that the above captioned well qualifies as a "Stripper Well" pursuant to Section 57-51.1-01 of the North Dakota Century Code. This determination is applicable only to the Bakken Pool in and under said well.

The Commission shall have continuing jurisdiction, and shall have the authority to review the matter, and to amend or rescind the determination if such action is supported by additional or newly discovered information. If you have any questions, do not hesitate to contact me.

Sincerely,

David J. McCusker
Petroleum Engineer

Cc: ND Tax Department

5

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

JUL 2014
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ND OIL & GAS DIVISION

Well File No.
23361

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

☐ Notice of Intent	Approximate Start Date	☐ Drilling Prognosis	☐ Spill Report
☑ Report of Work Done	Date Work Completed: **June 3, 2014**	☐ Redrilling or Repair	☐ Shooting
☐ Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	☐ Casing or Liner	☐ Acidizing
		☐ Plug Well	☐ Fracture Treatment
		☐ Supplemental History	☑ Change Production Method
		☐ Temporarily Abandon	☐ Reclamation
		☐ Other	

Well Name and Number: **Atlanta 12-6H**

Footages	Qtr-Qtr	Section	Township	Range
495 F N L 1395 F W L	**NENW**	**6**	**153 N**	**101 W**

Field	Pool	County
Baker	**Bakken**	**Williams**

24-HOUR PRODUCTION RATE

	Before		After	
Oil	**115**	Bbls	**107**	Bbls
Water	**335**	Bbls	**259**	Bbls
Gas	**75**	MCF	**57**	MCF

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Continental Resources would like to request a change in production on the Atlanta 12-6H. The well went from flowing to pumping on 6/3/2014.

Company: **Continental Resources**		Telephone Number: **(405) 234-9000**
Address: **P.O. Box 268870**		
City: **Oklahoma City**	State: **OK**	Zip Code: **73126**
Signature	Printed Name: **Zach Green**	
Title: **Regulatory Compliance Specialist**	Date: **July 17, 2014**	
Email Address: **Zach.Green@clr.com**		

FOR STATE USE ONLY

☒ Received	☐ Approved
Date: 7/28/14	
By	
Title	

WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 2468 (04-2010)

RECEIVED
MAR 2014
ND OIL & GAS DIVISION

Well File No.
23361

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Designate Type of Completion
☑ Oil Well ☐ EOR Well ☐ Recompletion ☐ Deepened Well ☐ Added Horizontal Leg ☐ Extended Horizontal Leg
☐ Gas Well ☐ SWD Well ☐ Water Supply Well ☐ Other:

Well Name and Number		Spacing Unit Description
Atlanta 12-6H		**Sec 5, 6, 7, & 8 T153N R101W**
Operator: **Continental Resources, Inc.**	Telephone Number: **405-234-9000**	Field: **Baker**
Address: **P.O. Box 268870**		Pool: **Bakken**
City: **Oklahoma City** / State: **OK** / Zip Code: **73126**		Permit Type: ☐ Wildcat ☑ Development ☐ Extension

LOCATION OF WELL

At Surface	Qtr-Qtr	Section	Township	Range	County
495 F N L 1395 F W L	**NENW**	**6**	**153 N**	**101 W**	**Williams**

Spud Date	Date TD Reached	Drilling Contractor and Rig Number	KB Elevation (Ft)	Graded Elevation (Ft)
3/10/2013	**5/12/2013**	**Cyclone 20**	**1967**	**1945**

Type of Electric and Other Logs Run (See Instructions)
CBL/GR/MAC/mud

CASING & TUBULARS RECORD (Report all strings set in well)

Well Bore	String Type	String Size (Inch)	Top Set (MD Ft)	Depth Set (MD Ft)	Hole Size (Inch)	Weight (Lbs/Ft)	Anchor Set (MD Ft)	Packer Set (MD Ft)	Sacks Cement	Top of Cement
Lateral1	Conductor	16		102	20	94				0
	Surface	13 3/8		540	13 1/2	36			481	0
	Surface	9 5/8		1990	13 1/2	36			658	0
	Liner	4 1/2		10004	8 3/4	11.6				
	Intermediate	7		10895	8 3/4	26-32			990	1100
	Liner	4 1/2	9984	19351	6	11.6		9984		

PERFORATION & OPEN HOLE INTERVALS

Well Bore	Well Bore TD Drillers Depth (MD Ft)	Completion Type	Open Hole/Perforated Interval (MD,Ft) Top	Bottom	Kick-off Point (MD Ft)	Top of Casing Window (MD Ft)	Date Perf'd or Drilled	Date Isolated	Isolation Method	Sacks Cement
Lateral1	14926	Perforations	10895	14926	10070					
Sidetrack1	19500	Perforations	14768	19500						

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft): **Bakken 10,895' - 19,500'**
Name of Zone (If Different from Pool Name): **Three Forks**

Date Well Completed (SEE INSTRUCTIONS)	Producing Method	Pumping-Size & Type of Pump	Well Status (Producing or Shut-In)
3/1/2014	**Flowing**		**Producing**

Date of Test	Hours Tested	Choke Size	Production for Test	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Oil Gravity-API (Corr.)	Disposition of Gas
3/24/2014	**24**	**18 /64**		**407**	**220**	**508**	**39.6 °**	**Sold**

Flowing Tubing Pressure (PSI)	Flowing Casing Pressure (PSI)	Calculated 24-Hour Rate	Oil (Bbls)	Gas (MCF)	Water (Bbls)	Gas-Oil Ratio
	500		**407**	**220**	**508**	**541**

GEOLOGICAL MARKERS

Formation	MD (Ft)	TVD (Ft)
Greenhorn		**4526**
Dakota Group		**4871**
Pine Salt		**7124**
Minnekahta		**7197**
Base of Last Salt		**9027**
Mission Canyon		**9247**
Lodgepole		**9794**
Upper Bakken Shale		**10494**
Middle Bakken		**10509**
Lower Bakken Shale		**10545**
Three Forks		**10553**

PLUG BACK INFORMATION

Well Bore	Type of Plug	Top (Ft)	Bottom (Ft)	Sacks Cement

CORES CUT

Top (Ft)	Bottom (Ft)	Formation	Top (Ft)	Bottom (Ft)	Formation

Drill Stem Test

Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (ºF)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								
Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (ºF)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								
Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (ºF)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								
Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (ºF)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								
Test Date	Formation	Top (Ft)	Bottom (Ft)	BH Temp (ºF)	CL ppm	H2S ppm	Shut-in 1 (PSIG)	Shut-in 2 (PSIG)
Drill Pipe Recovery								
Sample Chamber Recovery								

Well Specific Stimulations

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units
1/12/2014	3 Forks	10895	19500	29	53948	Barrels

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)
Sand Frac		3098438	8528	30.0

Details

Pumped 127023# 40/70 mesh, 2085421# 20/40 sand and 885994# 20/40 ceramic.

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

Date Stimulated	Stimulated Formation	Top (Ft)	Bottom (Ft)	Stimulation Stages	Volume	Volume Units

Type Treatment	Acid %	Lbs Proppant	Maximum Treatment Pressure (PSI)	Maximum Treatment Rate (BBLS/Min)

Details

ADDITIONAL INFORMATION AND/OR LIST OF ATTACHMENTS

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address Terry.Olson@clr.com	Date 3/25/2014
Signature Terry L. Olso	Printed Name **Terry L. Olson**	Title **Regulatory Compliance Specialist**

AUTHORIZATION TO PURCHASE AND TRANSPORT OIL FROM LEASE - FORM 8

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5698 (03-2000)

MAR [illegible]
RECEIVED
ND OIL & GAS
DIVISION

Well File No.
23361
NDIC CTB No.
223372

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.

Well Name and Number	Qtr-Qtr	Section	Township	Range	County
Atlanta 12-6H	**NENW**	**6**	**153 N**	**101 W**	**Williams**

Operator	Telephone Number	Field
Continental Resources, Inc.	**405-234-9000**	**Baker**

Address	City	State	Zip Code
P.O. Box 268870	**Oklahoma City**	**OK**	**73126**

Name of First Purchaser	Telephone Number	% Purchased	Date Effective
Continental Resources, Inc.	**405-234-9000**	**100**	**March 2, 2014**

Principal Place of Business	City	State	Zip Code
20 N. Broadway	**Oklahoma City**	**OK**	**73102**
Field Address	City	State	Zip Code

Name of Transporter	Telephone Number	% Transported	Date Effective
Hiland Crude ~~(West Camp Creek Pipe)~~			**March 2, 2014**

Address	City	State	Zip Code
P.O. Box 3886	**Enid**	**OK**	**73702**

The above named producer authorizes the above named purchaser to purchase the percentage of oil stated above which is produced from the lease designated above until further notice. The oil will be transported by the above named transporter.

Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other First Purchasers Purchasing From This Lease	% Purchased	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective
Other Transporters Transporting From This Lease	% Transported	Date Effective

Comments

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records. Date: **March 21, 2014**

Signature	Printed Name	Title
Terry L. Olson	**Terry L. Olson**	**Regulatory Compliance Specialist**

Above Signature Witnessed By

Witness Signature	Witness Printed Name	Witness Title
Christi Scritchfield	**Christi Scritchfield**	**Regulatory Compliance Specialist**

FOR STATE USE ONLY

Date Approved	APR 14 2014
By	[signature]
Title	**Oil & Gas Production Analyst**

Continental Resources Inc.

Atlanta 12-6H – Cyclone 2
Atlanta 14 Well Eco Pad
NENW Sec 6 – NESE Sec 5
Sec 6 & 5 - T153N-R100W
Williams & McKenzie Co., North Dakota
API# 33-105-02721

By: Adam Swoboda/Jed D Nelson &
Joe Dunn/R.C. Whitmore
Geo-Link Inc.

Table of Contents

Well Information

WELL NAME:	Atlanta 12-6H Atlanta 14 Well Eco Pad
OPERATOR:	Continental Resources, Inc. P.O. Box 269000 Oklahoma City, Ok 73126
SURFACE LOCATION:	495ôFNL & 1395ôFWL NENW Section 6, T153N, R101W
CASING:	7ò intermediate casing set at 10895ôMD; 10594ôTVD 678ôFNL & 1918ôFWL NENW Section 6, T153N, R101W
BOTTOM HOLE LOCATION:	Projection to Bit: 19500ôMD; 10568ôTVD 2334ôFSL & 234ôFEL NESE Section 5, T153N, R101W
FIELD/AREA:	Williston
COUNTY:	Williams & McKenzie Co.
STATE:	North Dakota
API#:	33-105-02721
ELEVATION:	GL: 1945ô KB: 1967ô
SPUD:	March 10th 2013
DRILLED OUT OF SURFACE:	March 25th 2013
DRILLED OUT OF 7ò CASING: (LATERAL SECTION)	May 5th 2013
TOTAL DEPTH/DATE:	19500ôMD ï May 12th 2013
Total Days:	63
BOTTOM HOLE DATA:	
Kick-off Point:	MD=10070ôTVD=10067ô
Vertical Section:	9087.07ô
Drift of Azimuth	104.22°
Average Inclination (lateral):	90.1°
Lateral footage:	8605ô
WELL STATUS:	To be completed as a Three Forks oil well

MWD REP:	Baker Hughes: Vertical & Build Section & MS Energy Services: Lateral section
DIRECTIONAL REP:	Baker Hughes / Keith Garrett MS Energy Services / Kurt
MUD LOGGING SERVICE:	Geo-Link Inc.
GEOLOGICAL CONSULTANT: Second Hand:	Adam Swoboda & Jed D Nelson Joe Dunn & R.C. Whitmore
GAS EQUIPMENT:	M-Logger / M-Control ï SN ML-197 Spare SN ML-077
SAMPLE PROGRAM:	Vertical & Build Section: 30ôSamples lagged and caught by mud loggers 8900ô10895ô Charles Salt, Mission Canyon, Lodgepole, Upper Bakken Shale, Middle Bakken Member, Lower Bakken Shale, Three Forks Dolomite Lateral Section: 100ôSamples lagged and caught by mud loggers 10950ô19500ô Logging: Three Forks Dolomite One set sent to NDGS Core Library (Grand Forks, ND)

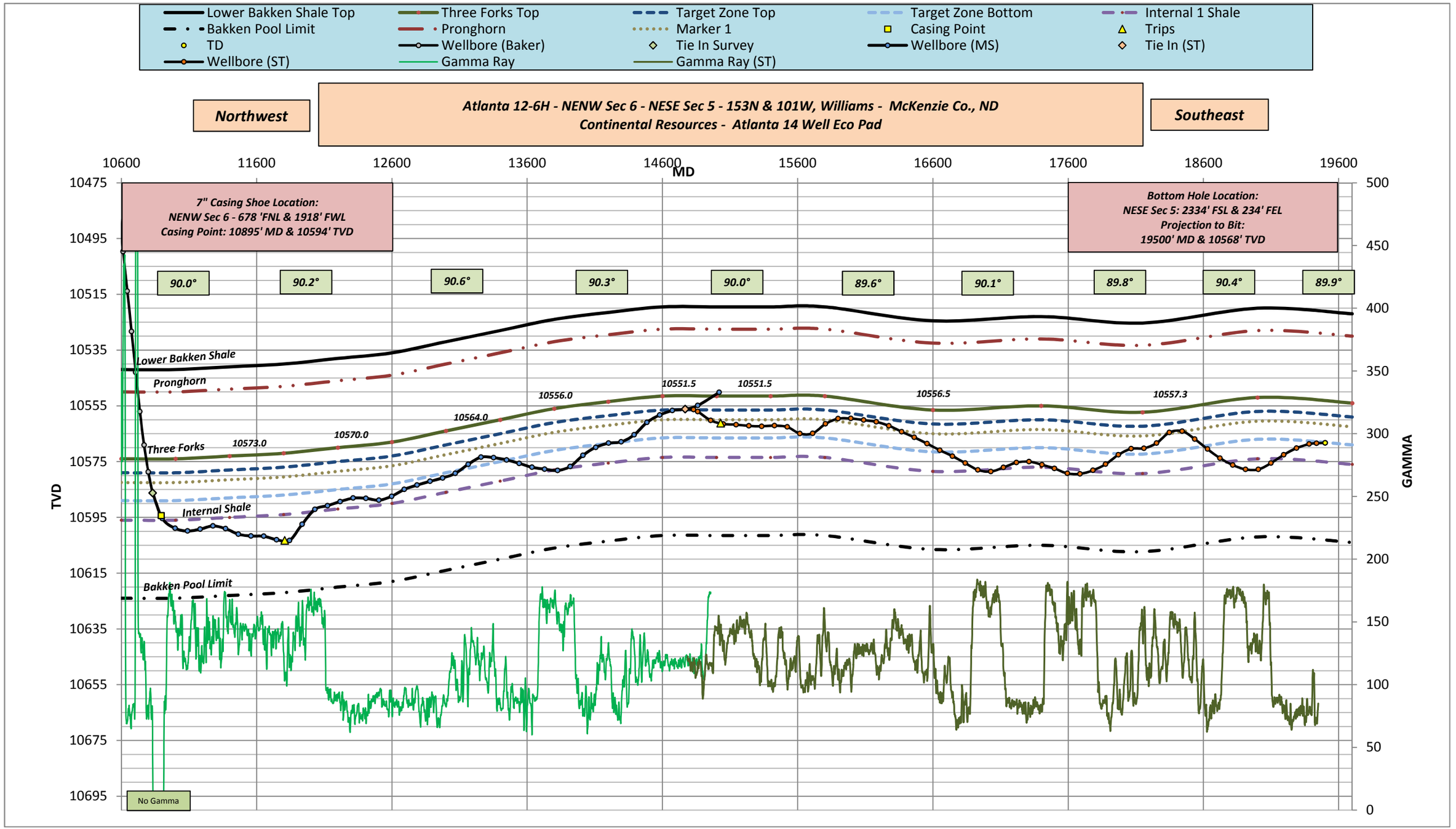
DISTRIBUTION LIST:

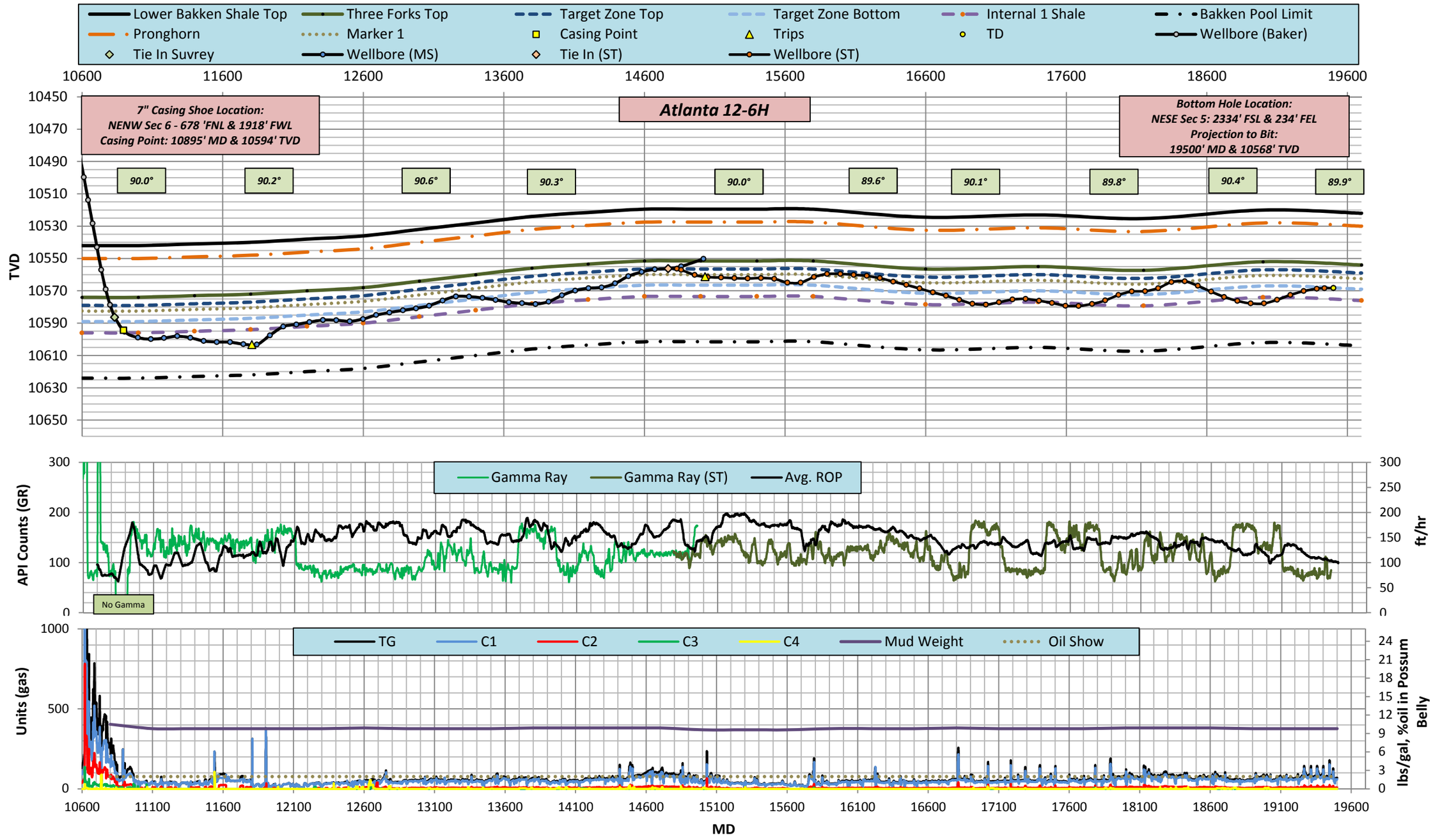
Owner	Information	Casing Point Election	Dry Hole Takeover Election
NDIC Oil and Gas Division Attn: Open Hole Logs 1016 East Calgary Ave. Bismarck, ND 58503-5512 Email: digitallogs@nd.gov	**Open Hole Logs (1 paper copy) – (email TIFF/ LAS)**	No	No
Continental Resources, Inc. Attn: Robert Sandbo P.O. Box 269000 OKC, OK 73126 Email: GeoOps@clr.com	Standard Information **(2 copies of Final Geological Reports/Mud Logs) – (email PDF)**	No	No

Continental Resources, Inc. Attn: Robert Sandbo P.O. Box 269000 OKC, OK 73126 Email: GeoOps@clr.com	**Cased and Open Hole Logs (2 hard-copies) – (email TIFF/LAS)**	No	No
Black Stone Energy Company, LLC c/o Mark Connally 1001 Fannin, Suite 2020 Houston, TX 77002 Phone: 713.658.0647 Fax: 713.658.0943 Email: kdolfi@blackstoneminerals.com, mconnally@blackstoneminerals.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Boedecker Resources 151 O'Brien Ln. Moore, MT 59464 Phone: 406.374.2270 (Send Well Info weekly, via US Mail)	Standard Well Information	No	Yes
Brigham Oil & Gas, L.P. 6300 Bridge Point Parkway Building 2, Suite 500 Austin, TX 78730 Phone: 512.427.3300 Fax: 512.427.3388 Email: reports@bexp3d.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Dale Lease Acquisitions 2011-B, L.P. Attn: John D. Crocker, Jr. 2100 Ross Avenue, Suite 1870 Dallas, TX 75201 Phone: 214.979.9010, Ext. 16 Fax: 214.969.9394 Email: reports@dale-energy.com, johnc@dale-energy.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Golden Eye Resources, LLC 5460 South Quebec Street, Suite 335 Greenwood Village, CO 80111 Phone: 303.832.1994 Fax: 303.832.5118 Email:	See Attached Well Requirements	No	Yes

reports@goldeneyeresources.com (Send Well Information daily, via email)			
Helm Energy, LLC c/o Joe Brinkman 5251 DTC Parkway Suite 425 Greenwood Village, CO 80111 Email: jbrinkman@helmenergy.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Intervention Energy, LLC Attn: John Zimmerman P.O. Box 1028 Minot, ND 58702-1028 Email: john@interventionenergy.com (Send Well Information daily, via email)	Standard Well Information	No	Yes
John H. Holt Oil Properties, Inc. Attn: John H. Holt P.O. Box 24 Williston, ND 58802 Phone: 701.774.1200 Fax: 701.572.8499 Email: john@jhhop.com (Send Well Information daily, via email)	Standard Well Information	No	Yes
Lario Oil & Gas Company P.O. Box 29 Denver, CO 80201-0029 Fax: 303.595.4849 Email: reportsdenver@lario.net (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Liberty Resources, LLC Attn: Reports 1200 17th Street, Suite 2050 Denver, CO 80202 Email: reports@libertyresourcesllc.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
MHM Resources, LP Attn: Julie Larson P.O. Box 51570 Midland, TX 79710 Phone: 432.685.6045 Fax: 432.685.9081 Email:	See Attached Well Requirements	No	Yes

drlgreports@mhmresourceslp.com, jlarson@mhmresourceslp.com (Send Well Information daily, via email)			
Michael Harrison Moore 2006 Trust Attn: Julie Larson P.O. Box 51570 Midland, TX 79710 Phone: 432.685.6045 Fax: 432.685.9081 Email: drlgreports@mhmresourceslp.com, jlarson@mhmresourceslp.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes
Steven H. Harris Family L.P. P.O. Box 2323 Bismarck, ND 58502 Phone: 701.223.4866 Fax: 701.223.2556 Email: w2harris@aol.com (Send Well Information daily, via email)	Standard Well Information	No	Yes
XTO Energy, Inc. Attn: Randy Hosey 810 Houston Street Fort Worth, TX 76102 Phone: 817.885.2398 Fax: 817.885.2698 Email: randy_hosey@xtoenergy.com, non-op_reports@xtoenergy.com, rose_holman@xtoenergy.com (Send Well Information daily, via email)	See Attached Well Requirements	No	Yes


Lower Bakken Shale Top
Three Forks Top
Target Zone Top
Target Zone Bottom
Internal 1 Shale
Bakken Pool Limit
Pronghorn
Marker 1
Casing Point
Trips
TD
Wellbore (Baker)
Tie In Survey
Wellbore (MS)
Tie In (ST)
Wellbore (ST)
Gamma Ray
Gamma Ray (ST)
Northwest
Atlanta 12-6H - NENW Sec 6 - NESE Sec 5 - 153N & 101W, Williams - McKenzie Co., ND
Continental Resources - Atlanta 14 Well Eco Pad
Southeast
MD
TVD
GAMMA
7" Casing Shoe Location:
NENW Sec 6 - 678 'FNL & 1918' FWL
Casing Point: 10895' MD & 10594' TVD
Bottom Hole Location:
NESE Sec 5: 2334' FSL & 234' FEL
Projection to Bit:
19500' MD & 10568' TVD
90.0°
90.2°
90.6°
90.3°
90.0°
89.6°
90.1°
89.8°
90.4°
89.9°
Lower Bakken Shale
Pronghorn
Three Forks
Internal Shale
Bakken Pool Limit
10573.0
10570.0
10564.0
10556.0
10551.5
10551.5
10556.5
10557.3
No Gamma


Lower Bakken Shale Top
Three Forks Top
Target Zone Top
Target Zone Bottom
Internal 1 Shale
Bakken Pool Limit
Pronghorn
Marker 1
Casing Point
Trips
TD
Wellbore (Baker)
Tie In Suvrey
Wellbore (MS)
Tie In (ST)
Wellbore (ST)
7" Casing Shoe Location:
NENW Sec 6 - 678 'FNL & 1918' FWL
Casing Point: 10895' MD & 10594' TVD
Atlanta 12-6H
Bottom Hole Location:
NESE Sec 5: 2334' FSL & 234' FEL
Projection to Bit:
19500' MD & 10568' TVD
90.0°
90.2°
90.6°
90.3°
90.0°
89.6°
90.1°
89.8°
90.4°
89.9°
TVD
Gamma Ray
Gamma Ray (ST)
Avg. ROP
API Counts (GR)
ft/hr
No Gamma
TG
C1
C2
C3
C4
Mud Weight
Oil Show
Units (gas)
lbs/gal, %oil in Possum Belly
MD

WELL SYNOPSIS

Well Plan: *The Atlanta 12-6H was spud on March 10th, 2013 with a surface location of 495' FNL and 1395' FWL, NENW Section 6 - Township 153 North and Range 101 West in Williams Co., North Dakota. This well was operated by Continental Resources Incorporated with the objective target of the late Devonian Three Forks Formation. The plan showed a build section with a kickoff point of 10011' MD in the Mississippian Lodgepole with a 10°/100' build rate to the landing point of 10911' MD; 10584' TVD in the clean gamma zone within the Three Forks Formation. This zone started approximately 10' below the Three Forks. The landing target was approximately 15' into the Three Forks Formation. The plan was to drill lateral for an estimated 8617' to the hardline in the NESE corner of section 5 - Township 153 North and Range 101 West following the estimated dip of 89.9°. The projected well path is to the Southeast with a proposed azimuth of 104.22°.*

The offsets provided were the Atlanta wells already drilled on the Atlanta Eco pad. These include the Atlanta 1-6H, 2-6H, 3-6H, and 4-6H drilled by Continental Resources.

Gas logged in the vertical and lateral sections were monitored using Mud Logging Systems – Mlogger & Mcontrol. (Primary Logger: ML-197 – Backup Logger ML-077) M-Logger CC & TC filaments calibrated with 1% and 100% test gas – Chromatograph calibrated with 1% test gas (gas–units).

Build Section: *The well was kicked off at 10070' MD on March 29th, 2013 at 15:50hrs. The Build assembly was picked up @ 9991' MD – 3/29/13 and 79' of vertical was drilled before we reached kickoff with the curve assembly. This assembly was able to generate sufficient builds to land the build section within the target zone. The up hole markers logged were the Base of the Last Salt (9015' TVD), Mission Canyon (9240' TVD), and the Lodgepole (9784' TVD). The down hole markers below kick off point consisted of the False Bakken (10484' TVD), Upper Bakken Shale (10493' TVD), Middle Bakken Member (10508' TVD), Lower Bakken Shale (10542' TVD), and the Three Forks Dolomite (10574' TVD). These markers came in consistently with the Atlanta 2-6H and 4-6H, with these markers coming in close to the Atlanta 2-6H and 4-6H our landing was estimated @ 10589' TVD and was never changed throughout the build section. The Lower Bakken Shale had a thickness of 11' of actual black-brown shale, but consisted of a sticky intermediate layer (Pronghorn) below the shale that was 24' thick – our landing was targeted 15' below this intermediate layer. The landing for 7" intermediate casing was completed March 30th, 2013 at 10:12 hrs, 20' into the Three Forks Dolomite with a landing at 10594' TVD. Casing point: 10895' MD; 10594' TVD and casing location of NENW Sec 6: 678' FNL & 1918' FWL (See Atlanta 12-6H Build and TVD log for more information regarding samples & formation thicknesses)*

Gas observed in the build section showed gas ranging from 34-323 units through the Lodgepole formation with no background sample shows and oil shows. Both Upper and Lower Bakken Shale resulted in 388-2834 units. The Middle Bakken Member ranged from 259-910 units, averaging 481units. The Three Forks ranged from 47-314 units, averaging 201 units. Circulating trip gas through casing resulted in 150-1000 units. (See Atlanta 12-6H Build Log, for more detailed gas data).

Lateral Leg: *Penetration of the lateral section started on May 5th, 2013 at 17:00 hrs with a depth of 10895' MD, drilling with a 6" PDC bit and 1.5° mud motor. The plan was to drill in the Target zone and follow the 9' zone of interest between two hot gamma markers, close to the Three Forks top (Pronghorn) in the condensed Pyrite zone. The lateral section was drilled from 10895' MD to 19500' MD for a lateral length of 8605', with a bottom hole location: 2334' FSL & 234' FEL – NESE Sec 5, T153N-R101W – completed on May 12th, 2013 – 05:10 hrs. The lateral section was drilled entirely in the Three Forks Formation with one complete trip for the BHA at 11807' MD on 05/06/13 at 13:45 hrs, resuming lateral operations on 05/07/13 at 00:50 hrs. There was one open hole sidetrack; for a Three Forks top strike (Pronghorn Formation). Time drilling commenced at our estimated Sidetrack point of 14838' MD. Time drilling the sidetrack at 14838' MD; 10556' TVD Started 05/08/13 – 23:45 and was successful, kicking off the sidetrack 05/09/13 – 08:45 – lateral operations resumed. There was another short trip for a MWD Tool at 15030' MD on 05/09/12 at 12:10hrs, resuming lateral operations on 05/09/13 at 21:15*

Samples collected in the lateral section mostly consisted of light-medium gray, buff-tan Dolomite/Limestone consisting of large amounts of disseminated Pyrite, mainly in our target zone starting 5' below the Three Forks top. The lower zone resulted in tan/brown clean Dolomite, above the Internal 1 Shale. These two zones showed fair to good porosity, but trace amounts of oil shows and cut. Gas averaged 61 units and ranged from 43 units to 73 units of gas and displayed about 2% oil accumulating in the possum belly – fluorescence was generally increasing the further out we got, but didn't display large amounts of hydrocarbons. Connection gasses ranged from 17 units to 123 units and trip gas ranged from 379 units to 2852 units. (For more detailed sample descriptions – see Atlanta 4-6H Lateral Log)

The formation dip was configured using two significant hot spots in our target zone. These were illustrated by the upper and lower target markers. Both markers ranged from 100–120 (API) and consisted of erratic gamma in between these with counts ranging from 70-100 (API). Below our bottom target zone was a cool gamma zone roughly 4' above the cooler gamma zone, below this cool gamma was the Internal 1 Shale with ranged from 160-200 (API). There was a total of 1460' MD drilled in the Internal 1 Shale, in the beginning of the well. The markers in the bottom were definitely clearer versus the top of the target zone. The target zone displayed more Pyrite giving more erratic and hotter counts whereas, below the target zone displayed less Pyrite in the clean tan-brown Dolomite giving us lower counts 60-100 (API). Utilizing both zones we were able to calculate an accurate dip angle with was close to the prognosis of the estimated structure. The Formation climbed 20' from the start of the lateral to the end of the lateral, an average formation dip rate of 90.1°. (For more detailed gamma signatures and structure please see Atlanta 4-6H cross section)

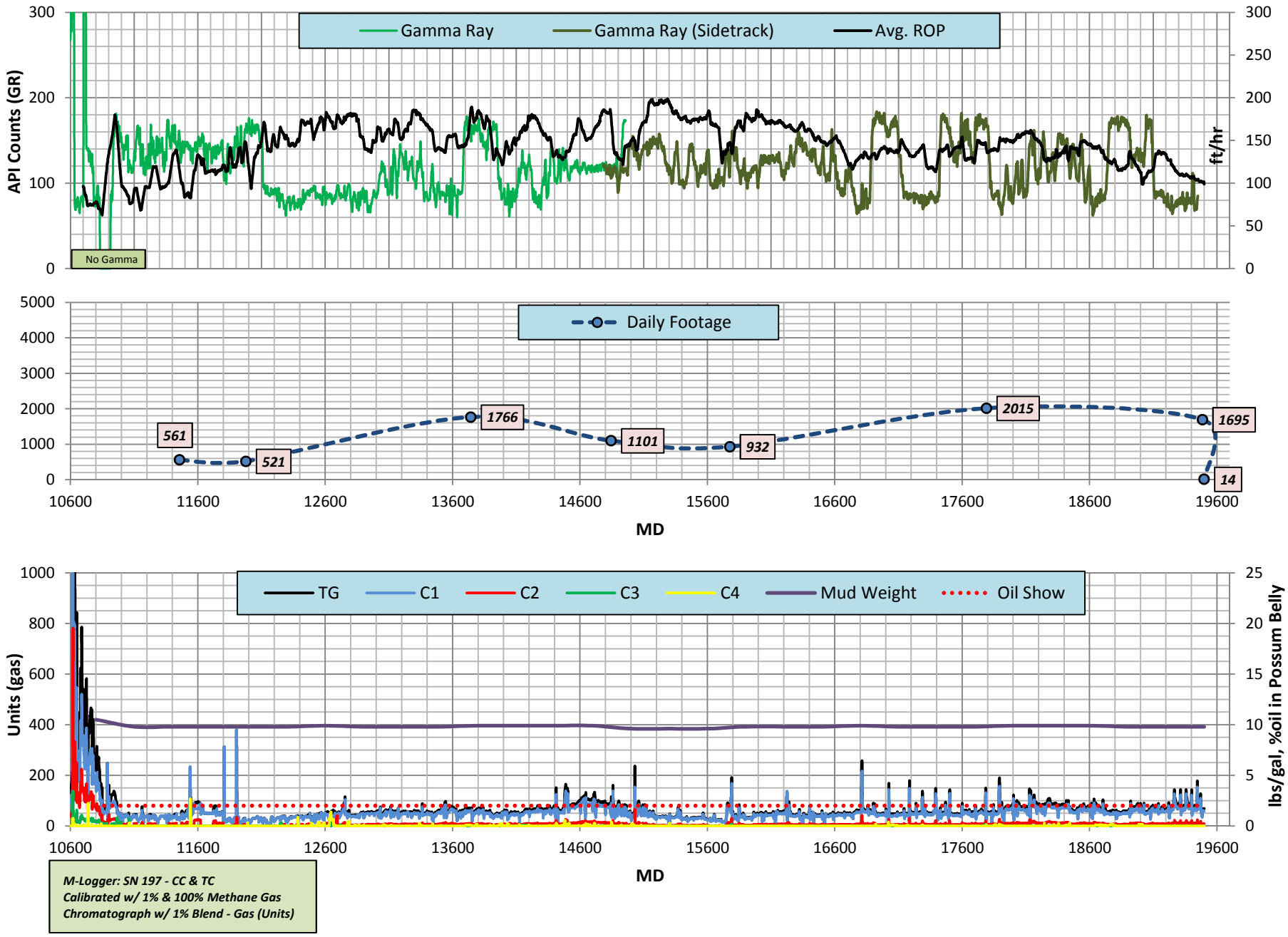
Drilling Activity

Atlanta 12-6H

Day	Date	Depth	Footage	WOB	RPM	Diff P	ROP	SPP	SPM	WT	VIS	ACTIVITY
18	3/28/2013	9665	1386	36.1	78	247.9	6.5	3487	109	10.3	60	TOOH for BHA, Drill, Slide, Survey, Rig Service
19	3/29/2013	9991	326	30.7	55	1.9	0	2712	104	10.3	56	TOOH for Build Assembly, Drill, Slide, Survey, Rig Service, TIH w/ new Vertical Assembly
20	3/30/2013	10725	734	15.1	0	191	46.3	3405	104	10.5	55	Drill, Slide, Survey, Rig Service, Reached KOP @ 10070' MD, TIH w/ Build Assembly, TOOH for BHA (Motor)
21	3/31/2013	10895	170	14.6	27	187.3	71.4	3458	103	10.4	62	TD Atlanta 12-6H Build Section @ 10895' MD, Drill, Slide, Survey, Rig Service, Casing Operations
22	4/1/2013	***Casing Operations***										
57	5/6/2013	11456	561	23.9	0	206.1	49.5	2346	99	9.8	27	Drilling Lateral Section: Drill, Survey, Slide, Rig Service
58	5/7/2013	11977	521	20.8	0	13.5	37.7	2073	90	9.7	27	TOOH for BHA, TIH, Drilling Lateral Section: Drill, Survey, Slide, Rig Service
59	5/8/2013	13743	1766	33.5	0	122	63.4	2582	96	9.9	27	Drilling Lateral Section: Drill, Survey, Slide, Rig Service
60	5/9/2013	14844	1101	17.4	0	61.6	2.4	2362	95	9.6	27	Drilling Lateral Section: Pulled Back for Sidetrack, Time Drilling Sidetrack
61	5/10/2013	15776	932	10.3	48	484.9	99.8	3154	96	9.6	27	Kick off Sidetrack, Drilling Lateral Section, Short Trip to Wireline MWD
62	5/11/2013	17791	2015	46.5	0	201.7	33.4	3065	96	9.9	27	Drilling Lateral Section: Drill, Survey, Slide, Rig Service
63	5/12/2013	19486	1695	12	47	676.3	87.6	3762	96	9.8	27	Drilling Lateral Section: Drill, Survey, Slide, Rig Service
64	5/13/2013	19500	14	NA	NA	NA	NA	NA	NA	NA	NA	Running Liner for Atlanta 12-6H Lateral

Chronological Gas/Sample/Oil
Atlanta 12-6H

Date	Depth 0500hrs	Max Gas(u)	Avg Gas(u)	Conn Gas(u)	Trip Gas(u)	Oil Show	Sample Show
3/28/2013	9665	102	34	47-74	na	0%	no shows
3/29/2013	9991	107	46	56-85	73-107	0%	no shows
3/30/2013	10725	2834	92	27-323	75-100	0%	DULL INVERT FLOR, G IMMED STREAMING WHT POS IVERT CUT
3/31/2013	10895	581	264	272	NA	0%	DULL BRI YEL POS INVT FLOR, G IMMED YEL BLU/WHT DIFF/STRMNG POS INVT C
4/1/2013	***Casing Operations***						
5/6/2013	11456	160	50	23-76	2852	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/7/2013	11977	379	54	22-69	311	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/8/2013	13743	113	45	17-111	NA	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/9/2013	14844	165	73	34-71	NA	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/10/2013	15776	236	43	30-39	236	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/11/2013	17791	258	50	28-111	NA	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/12/2013	19486	71	190	44-122	NA	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C
5/13/2013	19500	69	64	NA	NA	2%	FNT YEL/GRN FLOR, P SLW-WK BLU/WHT DIFF C


Gamma Ray
Gamma Ray (Sidetrack)
Avg. ROP
API Counts (GR)
ft/hr
No Gamma
Daily Footage
561
521
1766
1101
932
2015
1695
14
MD
TG
C1
C2
C3
C4
Mud Weight
Oil Show
Units (gas)
lbs/gal, %oil in Possum Belly
MD
M-Logger: SN 197 - CC & TC
Calibrated w/ 1% & 100% Methane Gas
Chromatograph w/ 1% Blend - Gas (Units)

Formation Tops - Atlanta 12-6H

VERTICAL & BUILD SECTIONS

FORMATION TOPS	Ground Elevation:		1945	Kelly Bushing:		1967
Formation	MD (ft)	TVD (ft)	VS (ft)	SS (ft)	Prognosed SS (ft)	Difference
Pierre Shale		1867			100	
Greenhorn		4549			-2582	
Dakota Grp. (fka Mowry)		4925			-2958	
Base of Dakota Sand		5624			-3657	
Dunham Salt Top		na			na	
Dunham Salt Base		na			na	
Pine Salt Top		7156			-5189	
Pine Salt Base		7183			-5216	
Minnekahta		7202			-5235	
Opeche Salt Top		na			na	
Opeche Salt Base		na			na	
Minnelusa Grp.		7431			-5464	
Tyler		7617			-5650	
Kibbey		8153			-6186	
Charles		8300			-6333	
BLS	9018	9015	-6.95	-7048	-7044	4
Mission Canyon	9243	9240	-4.28	-7273	-7267	6
Lodgepole	9787	9784	2.48	-7817	-7820	-3
False Bakken	10581	10484	261.68	-8517		
Upper Bakken Shale	10600	10493	278.42	-8526	-8529	-3
Middle Bakken	10632	10508	306.78	-8541	-8543	-2
Lower Bakken Shale	10705	10542	371.29	-8575	-8574	1
Three Forks	10783	10574	442.58	-8607	-8602	5
Three Forks Target	10799	10579	457.77	-8612	-8617	-5
		Projected Tops				
		Tops picked by Drilling breaks (ROP & Differential Data), Samples, and Gamma				

Critical Points	MD	TVD	SUBSEA	V/S
Three Forks Formation	**10783**	**10574**	**-8607**	**442.58**
Kick off Point (KOP)	**10070**	**10067**	**-8100**	**5.47**
Surface Hole location	**NENW Sec 6: 495' FNL & 1395' FWL**			
Casing Point	**10895**	**10594**	**-8627**	**551.84**
Casing Location	**NENW Sec 6: 678' FNL & 1918' FWL**			
Total Depth (projection to Bit)	**19500**	**10568**	**-8601**	**9151.07**
Bottom Hole Location	**NESE Sec 5: 2334' FSL & 234' FEL**			

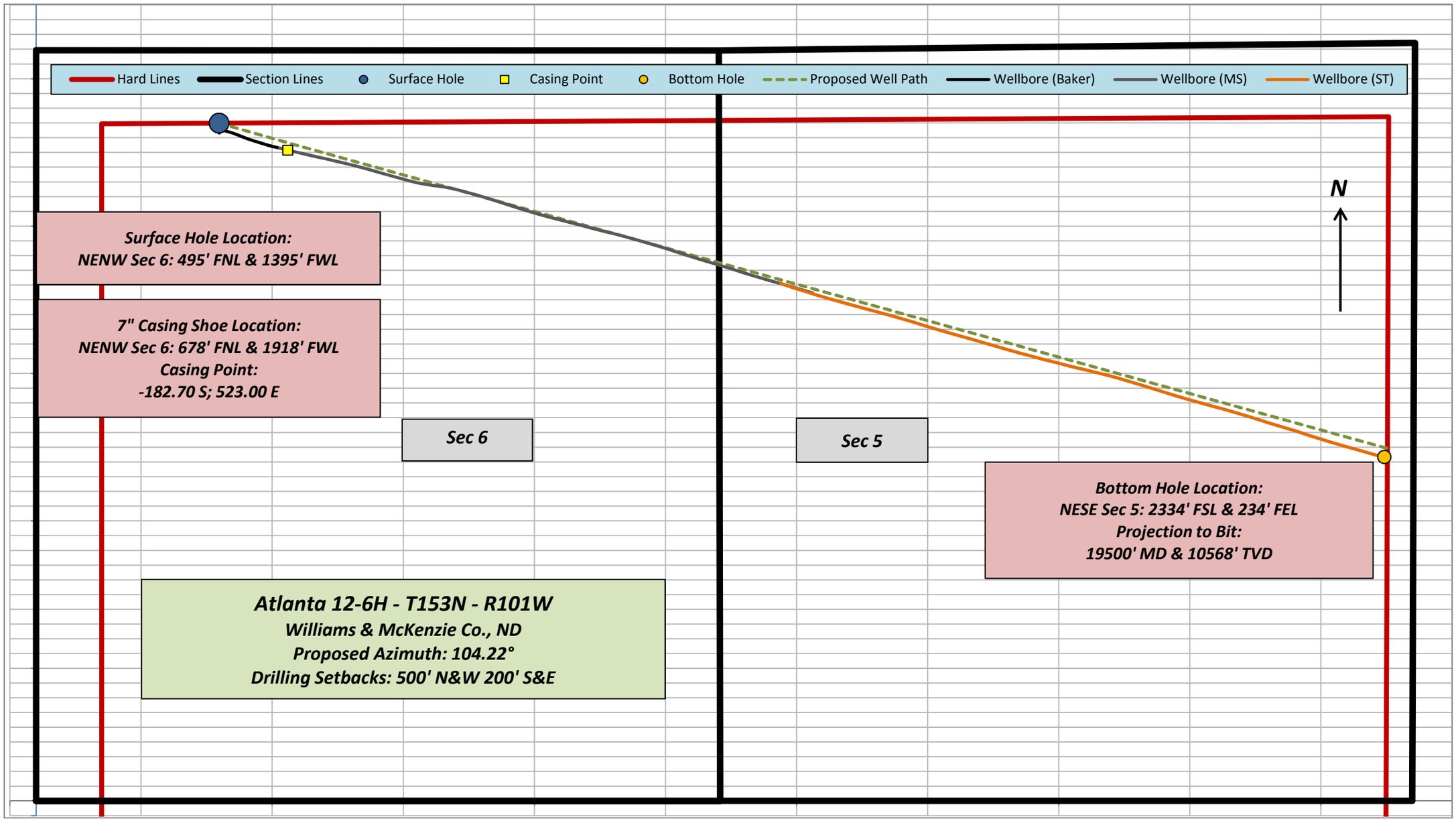
Lateral Trips	MD	TVD	Vertical & Build Trips	MD	TVD
BHA	**11807**	**10603.2**	TOOH for BHA (Bit)	**9665**	**9662**
Short Trip to Wireline MWD	**15030**	**10561.2**	TOOH for BHA (Mud Motor) Picked up Build Assembly	**9991**	**9988**

LATERAL SUMMARY

Total Lateral Footage	**8605**	**%**	
Three Forks	7145	83.0%	*Target Zone*
Internal Shale	1460	17.0%	*Out of Target Zone*
		100.0%	

STRUCTURE (MD - TVD) - Atlanta 12-6H

MD (ft)	Lower Bakken Shale Top	Three Forks Top	Target Zone Top	Target Zone Bottom	Internal 1 Shale	Bakken Pool Limit	Pronghorn	Marker 1	Dip (angle)	Dip Rate (ft/100)
10600.0	10542.0	**10574.0**	10579.0	10589.0	10596.0	10624.0	10550.0	10582.5		
11000.0	10542.0	**10574.0**	10579.0	10589.0	10596.0	10624.0	10550.0	10582.5	**#DIV/0!**	**0.00**
11400.0	10541.0	**10573.0**	10578.0	10588.0	10595.0	10623.0	10549.0	10581.5	**90.14**	**-0.25**
11800.0	10540.0	**10572.0**	10577.0	10587.0	10594.0	10622.0	10548.0	10580.5	**90.14**	**-0.25**
12200.0	10538.0	**10570.0**	10575.0	10585.0	10592.0	10620.0	10546.0	10578.5	**90.29**	**-0.50**
12600.0	10536.0	**10568.0**	10573.0	10583.0	10590.0	10618.0	10544.0	10576.5	**90.29**	**-0.50**
13000.0	10532.0	**10564.0**	10569.0	10579.0	10586.0	10614.0	10540.0	10572.5	**90.57**	**-1.00**
13400.0	10528.0	**10560.0**	10565.0	10575.0	10582.0	10610.0	10536.0	10568.5	**90.57**	**-1.00**
13800.0	10524.0	**10556.0**	10561.0	10571.0	10578.0	10606.0	10532.0	10564.5	**90.57**	**-1.00**
14200.0	10521.5	**10553.5**	10558.5	10568.5	10575.5	10603.5	10529.5	10562.0	**90.36**	**-0.63**
14600.0	10519.5	**10551.5**	10556.5	10566.5	10573.5	10601.5	10527.5	10560.0	**90.29**	**-0.50**
15000.0	10519.5	**10551.5**	10556.5	10566.5	10573.5	10601.5	10527.5	10560.0	**#DIV/0!**	**0.00**
15400.0	10519.5	**10551.5**	10556.5	10566.5	10573.5	10601.5	10527.5	10560.0	**#DIV/0!**	**0.00**
15800.0	10519.5	**10551.5**	10556.5	10566.5	10573.5	10601.5	10527.5	10560.0	**#DIV/0!**	**0.00**
16600.0	10524.5	**10556.5**	10561.5	10571.5	10578.5	10606.5	10532.5	10565.0	**89.64**	**0.63**
17400.0	10523.0	**10555.0**	10560.0	10570.0	10577.0	10605.0	10531.0	10563.5	**90.11**	**-0.19**
18150.0	10525.3	**10557.3**	10562.3	10572.3	10579.3	10607.3	10533.3	10565.8	**89.82**	**0.31**
19000.0	10520.0	**10552.0**	10557.0	10567.0	10574.0	10602.0	10528.0	10560.5	**90.36**	**-0.62**
19700.0	10522.0	**10554.0**	10559.0	10569.0	10576.0	10604.0	10530.0	10562.5	**89.84**	**0.29**


Hard Lines
Section Lines
Surface Hole
Casing Point
Bottom Hole
Proposed Well Path
Wellbore (Baker)
Wellbore (MS)
Wellbore (ST)
N
Surface Hole Location:
NENW Sec 6: 495' FNL & 1395' FWL
7" Casing Shoe Location:
NENW Sec 6: 678' FNL & 1918' FWL
Casing Point:
-182.70 S; 523.00 E
Sec 6
Sec 5
Bottom Hole Location:
NESE Sec 5: 2334' FSL & 234' FEL
Projection to Bit:
19500' MD & 10568' TVD
Atlanta 12-6H - T153N - R101W
Williams & McKenzie Co., ND
Proposed Azimuth: 104.22°
Drilling Setbacks: 500' N&W 200' S&E

ADVANTAGE Field Survey Listing

BAKER HUGHES INTEQ

Operator	Continentail Resources	**Fields**	Williams County	**API No**	33-105-02721	**Location**	S6 T153N R101E
Well	Atlanta 12-6H	**Wellbore**	Atlanta 12-6H Orig Hole	**Rig**	Cyclone 2	**Job**	5335080

Well Origin

Latitude	48.109 deg	**Longitude**	-103.728 deg
North Reference	True	**Drill Depth Zero**	Kelly Bushing
Vertical Datum is	Mean Sea Level	**Vertical Datum to DDZ**	1967.00 ft
Vertical Section North	0.00 ft	**Vertical Section East**	0.00 ft
Vertical Section Azimuth	104.220 deg	**Vertical Section Depth**	0.00 ft
Grid Convergence	0.000 deg	**Magnetic Declination**	8.536 deg
Total Correction	8.536 deg	**TVD Calculation Method**	Minimum Curvature
D-Raw Calculation	None	**Local Magnetic Field**	56513 nT
Local Magnetic Dip Angle	73.017 deg	**Local Gravity Field**	9.808 m/s^2

Tie In	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Temperature degF	CRS LEN ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
U	1946.00	0.50	224.40	20.68	-1.57	1945.85	0.00					
	2081.00	1.28	236.95	19.44	-3.25	2080.83	-7.92		135.00	0.59	0.58	9.30
	2175.00	2.28	207.21	17.20	-4.98	2174.79	-9.05		94.00	1.41	1.06	-31.64
	2269.00	3.61	192.01	12.64	-6.45	2268.66	-9.36		94.00	1.63	1.41	-16.17
	2362.00	3.69	197.26	6.92	-7.95	2361.47	-9.41		93.00	0.37	0.09	5.65
	2456.00	4.23	198.37	0.74	-9.94	2455.25	-9.82		94.00	0.58	0.57	1.18
	2549.00	2.95	180.75	-4.91	-11.05	2548.07	-9.51		93.00	1.80	-1.38	-18.95
	2643.00	3.13	190.97	-9.84	-11.57	2641.94	-8.80		94.00	0.61	0.19	10.87
	2735.00	3.15	166.92	-14.77	-11.48	2733.80	-7.50		92.00	1.42	0.02	-26.14
	2827.00	3.34	174.47	-19.90	-10.65	2825.66	-5.43		92.00	0.51	0.21	8.21
	2920.00	3.42	174.56	-25.36	-10.12	2918.49	-3.58		93.00	0.09	0.09	0.10
	3014.00	3.21	171.98	-30.76	-9.49	3012.34	-1.64		94.00	0.27	-0.22	-2.74
	3108.00	3.12	172.48	-35.90	-8.79	3106.19	0.30		94.00	0.10	-0.10	0.53
	3201.00	3.04	168.55	-40.82	-7.97	3199.06	2.31		93.00	0.24	-0.09	-4.23
	3293.00	2.75	169.26	-45.38	-7.07	3290.94	4.29		92.00	0.32	-0.32	0.77
	3385.00	1.54	182.70	-48.79	-6.72	3382.88	5.47		92.00	1.42	-1.32	14.61
	3478.00	0.67	206.56	-50.52	-7.02	3475.86	5.60		93.00	1.04	-0.94	25.66
	3572.00	0.88	196.20	-51.71	-7.47	3569.85	5.46		94.00	0.27	0.22	-11.02
	3665.00	0.65	260.44	-52.48	-8.19	3662.84	4.96		93.00	0.90	-0.25	69.08
	3759.00	0.56	261.03	-52.64	-9.17	3756.84	4.04		94.00	0.10	-0.10	0.63
	3853.00	0.51	262.25	-52.77	-10.04	3850.83	3.23		94.00	0.05	-0.05	1.30
	3945.00	0.29	283.55	-52.77	-10.67	3942.83	2.62		92.00	0.28	-0.24	23.15
	4039.00	0.18	293.54	-52.65	-11.03	4036.83	2.24		94.00	0.12	-0.12	10.63
	4132.00	0.07	124.96	-52.63	-11.12	4129.83	2.15		93.00	0.27	-0.12	-181.27
	4225.00	0.09	131.21	-52.71	-11.02	4222.83	2.27		93.00	0.02	0.02	6.72
	4319.00	0.13	182.91	-52.86	-10.97	4316.83	2.35		94.00	0.11	0.04	55.00
	4413.00	0.06	265.53	-52.97	-11.02	4410.83	2.33		94.00	0.14	-0.07	87.89
	4506.00	0.12	142.41	-53.06	-11.01	4503.83	2.36		93.00	0.17	0.06	-132.39
	4600.00	0.09	89.59	-53.13	-10.88	4597.83	2.51		94.00	0.10	-0.03	-56.19
	4693.00	0.15	66.33	-53.08	-10.69	4690.83	2.67		93.00	0.08	0.06	-25.01
	4787.00	0.31	123.53	-53.17	-10.37	4784.83	3.01		94.00	0.28	0.17	60.85
	4881.00	0.77	137.95	-53.78	-9.74	4878.82	3.78		94.00	0.51	0.49	15.34
	4974.00	1.05	132.29	-54.82	-8.69	4971.81	5.05		93.00	0.32	0.30	-6.09
	5068.00	1.23	112.72	-55.79	-7.12	5065.79	6.80		94.00	0.45	0.19	-20.82
	5160.00	1.08	106.51	-56.42	-5.38	5157.78	8.65		92.00	0.21	-0.16	-6.75
	5254.00	1.28	113.45	-57.09	-3.56	5251.76	10.57		94.00	0.26	0.21	7.38
	5346.00	0.31	280.03	-57.45	-2.87	5343.75	11.33		92.00	1.72	-1.05	181.07
	5440.00	0.50	295.64	-57.23	-3.49	5437.75	10.68		94.00	0.23	0.20	16.61
	5534.00	0.51	310.30	-56.78	-4.18	5531.74	9.90		94.00	0.14	0.01	15.60
	5628.00	0.50	322.21	-56.19	-4.75	5625.74	9.20		94.00	0.11	-0.01	12.67
	5721.00	0.28	349.83	-55.64	-5.03	5718.74	8.79		93.00	0.30	-0.24	29.70
	5815.00	1.05	100.27	-55.57	-4.23	5812.73	9.55		94.00	1.25	0.82	117.49
	5909.00	0.74	56.81	-55.39	-2.87	5906.72	10.82		94.00	0.77	-0.33	-46.23
	6002.00	1.20	129.18	-55.68	-1.61	5999.71	12.11		93.00	1.29	0.49	77.82
	6096.00	0.95	203.73	-57.02	-1.16	6093.70	12.88		94.00	1.40	-0.27	79.31
	6190.00	1.66	174.72	-59.08	-1.35	6187.67	13.20		94.00	1.01	0.76	-30.86
	6283.00	1.53	152.71	-61.53	-0.66	6280.64	14.47		93.00	0.67	-0.14	-23.67
	6377.00	1.42	139.53	-63.53	0.67	6374.61	16.26		94.00	0.38	-0.12	-14.02
	6470.00	0.20	95.81	-64.42	1.58	6467.60	17.36		93.00	1.38	-1.31	-47.01
	6564.00	1.35	155.38	-65.45	2.21	6561.59	18.21		94.00	1.34	1.22	63.37

ADVANTAGE Field Survey Listing

BAKER HUGHES
INTEQ

Operator Continentail Resources **Fields** Williams County **API No** 33-105-02721 **Location** S6 T153N R101E
Well Atlanta 12-6H **Wellbore** Atlanta 12-6H Orig Hole **Rig** Cyclone 2 **Job** 5335080

Tie In	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Temperature degF	CRS LEN ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	6657.00	0.93	200.80	-67.15	2.39	6654.57	18.82		93.00	1.03	-0.45	48.84
	6751.00	1.58	315.05	-66.94	1.21	6748.56	17.61		94.00	2.27	0.69	121.54
	6843.00	1.52	317.92	-65.14	-0.51	6840.52	15.51		92.00	0.11	-0.07	3.12
	6937.00	1.49	315.39	-63.35	-2.20	6934.49	13.43		94.00	0.08	-0.03	-2.69
	7030.00	1.36	314.99	-61.70	-3.83	7027.46	11.44		93.00	0.14	-0.14	-0.43
	7124.00	1.39	316.38	-60.09	-5.41	7121.44	9.52		94.00	0.05	0.03	1.48
	7217.00	0.99	331.41	-58.57	-6.57	7214.42	8.02		93.00	0.54	-0.43	16.16
	7311.00	0.77	347.02	-57.24	-7.10	7308.41	7.18		94.00	0.34	-0.23	16.61
	7404.00	0.90	358.19	-55.90	-7.26	7401.40	6.69		93.00	0.22	0.14	12.01
	7498.00	0.55	338.05	-54.74	-7.45	7495.39	6.22		94.00	0.46	-0.37	-21.43
	7591.00	0.54	349.48	-53.90	-7.70	7588.38	5.78		93.00	0.12	-0.01	12.29
	7685.00	0.62	328.69	-53.03	-8.05	7682.38	5.23		94.00	0.24	0.09	-22.12
	7777.00	0.77	343.40	-52.01	-8.48	7774.37	4.56		92.00	0.25	0.16	15.99
	7871.00	0.56	0.94	-50.95	-8.65	7868.37	4.13		94.00	0.31	-0.22	18.66
	7964.00	0.54	341.89	-50.08	-8.78	7961.36	3.79		93.00	0.20	-0.02	-20.48
	8058.00	0.57	338.82	-49.22	-9.09	8055.36	3.28		94.00	0.04	0.03	-3.27
	8152.00	0.74	332.40	-48.25	-9.54	8149.35	2.60		94.00	0.20	0.18	-6.83
	8245.00	0.84	331.02	-47.12	-10.15	8242.34	1.74		93.00	0.11	0.11	-1.48
	8339.00	0.72	326.17	-46.02	-10.81	8336.33	0.83		94.00	0.15	-0.13	-5.16
	8433.00	0.69	333.00	-45.03	-11.40	8430.33	0.01		94.00	0.09	-0.03	7.27
	8526.00	0.80	325.68	-43.99	-12.02	8523.32	-0.84		93.00	0.16	0.12	-7.87
	8619.00	0.90	317.97	-42.92	-12.87	8616.31	-1.94		93.00	0.16	0.11	-8.29
	8711.00	0.98	322.45	-41.75	-13.84	8708.30	-3.15		92.00	0.12	0.09	4.87
	8805.00	0.96	312.26	-40.59	-14.91	8802.28	-4.48		94.00	0.18	-0.02	-10.84
	8899.00	0.90	308.95	-39.59	-16.07	8896.27	-5.85		94.00	0.09	-0.06	-3.52
	8992.00	0.68	309.23	-38.79	-17.06	8989.26	-7.01		93.00	0.24	-0.24	0.30
	9085.00	1.04	69.50	-38.14	-16.70	9082.26	-6.82		93.00	1.62	0.39	129.32
	9179.00	1.09	79.90	-37.69	-15.02	9176.24	-5.30		94.00	0.21	0.05	11.06
	9273.00	0.87	86.17	-37.48	-13.43	9270.23	-3.81		94.00	0.26	-0.23	6.67
	9366.00	0.84	81.85	-37.34	-12.05	9363.22	-2.51		93.00	0.08	-0.03	-4.65
	9460.00	0.74	85.98	-37.20	-10.76	9457.21	-1.29		94.00	0.12	-0.11	4.39
	9554.00	0.87	80.65	-37.04	-9.45	9551.20	-0.06		94.00	0.16	0.14	-5.67
	9647.00	0.80	72.83	-36.73	-8.13	9644.19	1.14	185.2	93.00	0.14	-0.08	-8.41
	9741.00	0.65	60.03	-36.27	-7.04	9738.18	2.08	187.9	94.00	0.23	-0.16	-13.62
	9834.00	0.69	64.23	-35.77	-6.08	9831.17	2.89	190.6	93.00	0.07	0.04	4.52
	9926.00	0.77	72.65	-35.34	-4.99	9923.17	3.84	193.3	92.00	0.15	0.09	9.15
	9958.00	0.67	41.59	-35.14	-4.66	9955.16	4.11	179.7	32.00	1.24	-0.31	-97.06
	9989.00	0.57	58.56	-34.92	-4.41	9986.16	4.30	182.5	31.00	0.67	-0.32	54.74
	10020.00	0.55	74.82	-34.80	-4.14	10017.16	4.54	182.5	31.00	0.51	-0.06	52.45
	10052.00	0.61	77.26	-34.72	-3.82	10049.16	4.82	182.5	32.00	0.20	0.19	7.62
	10083.00	3.61	101.78	-34.89	-2.71	10080.13	5.95	187.9	31.00	9.89	9.68	79.10
	10114.00	7.83	106.93	-35.70	0.27	10110.97	9.03	187.9	31.00	13.70	13.61	16.61
	10145.00	11.36	109.32	-37.33	5.17	10141.53	14.18	187.9	31.00	11.46	11.39	7.71
	10176.00	15.90	110.56	-39.83	12.03	10171.65	21.45	187.9	31.00	14.67	14.64	4.00
	10207.00	19.05	112.84	-43.28	20.68	10201.22	30.67	190.6	31.00	10.40	10.16	7.35
	10239.00	21.59	107.81	-47.11	31.10	10231.23	41.72	190.6	32.00	9.63	7.94	-15.72
	10270.00	25.64	107.40	-50.86	42.93	10259.63	54.11	190.6	31.00	13.08	13.06	-1.32
	10301.00	29.39	105.78	-54.94	56.66	10287.12	68.42	193.3	31.00	12.33	12.10	-5.23
	10332.00	32.52	104.19	-59.05	72.06	10313.70	84.36	193.3	31.00	10.43	10.10	-5.13
	10363.00	36.17	104.43	-63.38	89.00	10339.29	101.84	193.3	31.00	11.78	11.77	0.77
	10394.00	38.46	107.75	-68.60	107.05	10363.94	120.62	193.3	31.00	9.83	7.39	10.71
	10425.00	42.28	108.53	-74.85	126.12	10387.56	140.65	193.3	31.00	12.43	12.32	2.52
	10457.00	47.29	109.33	-82.17	147.44	10410.26	163.10	198.7	32.00	15.75	15.66	2.50
	10488.00	49.98	109.49	-89.90	169.38	10430.75	186.27	198.7	31.00	8.69	8.68	0.52
	10519.00	51.56	108.75	-97.76	192.07	10450.35	210.20	198.7	31.00	5.42	5.10	-2.39
	10550.00	56.50	107.51	-105.56	215.90	10468.56	235.22	198.7	31.00	16.26	15.94	-4.00
	10582.00	61.06	107.06	-113.69	242.03	10485.14	262.54	198.7	32.00	14.30	14.25	-1.41
	10613.00	63.02	105.92	-121.46	268.28	10499.67	289.90	201.4	31.00	7.11	6.32	-3.68
	10644.00	62.53	105.33	-128.88	294.83	10513.85	317.45	201.4	31.00	2.32	-1.58	-1.90
	10675.00	61.92	104.78	-136.01	321.32	10528.30	344.88	198.7	31.00	2.52	-1.97	-1.77

ADVANTAGE Field Survey Listing

BAKER HUGHES
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Operator Continentail Resources **Fields** Williams County **API No** 33-105-02721 **Location** S6 T153N R101E
Well Atlanta 12-6H **Wellbore** Atlanta 12-6H Orig Hole **Rig** Cyclone 2 **Job** 5335080

Tie In	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Temperature degF	CRS LEN ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	10706.00	61.53	105.63	-143.17	347.66	10542.99	372.18	198.7	31.00	2.72	-1.26	2.74
	10737.00	64.51	104.47	-150.33	374.34	10557.05	399.80	198.7	31.00	10.17	9.61	-3.74
	10768.00	69.71	102.10	-156.88	402.12	10569.10	428.34	201.4	31.00	18.19	16.77	-7.65
	10799.00	74.36	101.46	-162.90	430.98	10578.66	457.79	201.4	31.00	15.13	15.00	-2.06
	10831.00	78.53	102.01	-169.23	461.43	10586.16	488.86	201.4	32.00	13.14	13.03	1.72

Tie Column Legend: I - interpolated tie-point, S - survey station, U - user-defined, T - Surface

Notice: Field Copy Only. Certified results will be provided after submission to the Baker Hughes INTEQ office.

SURVEY CALCULATION PROGRAM

ctrl-shift-I = Insert Survey
ctrl-shift-D = Delete Survey

Minimum Curviture

File:

OIL & GAS CO.:	**Continental Resources**	**Target Information**		**VS Referenced to Offset from Surface**	
WELL:	**Atlanta 12-6H**	**TARGET TVD:**	10600.00	**NORTH/SOUTH:**	0.00
COUNTY / STATE:	**North Dakota**	**TARGET INCL:**	89.89	**EAST/WEST:**	0.00
RIG:	**Cyclone#2**	**TARGET AZM:**	104.22	**(Enter 0' N and 0' E for Surface)**	
JOB NUMBER:	**DDMT-130260**				
SURVEY COMPANY:	**DIRECTIONAL COMPANY:**	**PROPOSED DIRECTION:**	104.22	**MAG-DEC. / TOTAL CORR.(+/-):**	**8.53**
MS Guidance	**MSGuidance**			**REFERENCED TO:**	**True North**
MWD SPECIALIST(S):	**DIRECTIONAL DRILLER(S):**	**COMMENTS:**			
Tim Coleman / Kevin Krenz	Kurt Wortley / Justin Klauser	Side Track Depth 14838' MD, (First Survey of Side Track 1 - 14862' MD, Survey #44)			

										Surface	CLOSURE		DLS/	BUR/	Target Calculations		
			TRUE	TEMP	Course										TVD AT 0'	RIGHT(+)	ABOVE (+)
SVY	**MD**	**INC**	**AZM**	**°F**	**Length**	**TVD**	**N-S**	**E-W**		**Vert Sect**	**DIST**	**DIR**	**100**	**100'**	**V. SEC.**	**LEFT(-)**	**BELOW (-)**
Tie In	**10831**	**78.53**	**102.01**			**10586.27**	**-169.94**	**460.83**		488.46	491.17	110.24			**10585.33**	**51.53**	**14.67**
1	10903	86.90	101.40	225.8	72	10595.39	-184.41	530.70		559.74	561.83	109.16	11.66	11.63	10594.32	48.40	5.68
2	10997	88.80	102.40		94	10598.92	-203.78	622.61		653.59	655.11	108.12	2.28	2.02	10597.66	44.60	2.34
3	11089	90.00	100.70	211.3	92	10599.88	-222.20	712.74		745.48	746.57	107.32	2.26	1.30	10598.45	40.31	1.55
4	11183	90.80	101.50	216.9	94	10599.23	-240.30	804.98		839.34	840.08	106.62	1.20	0.85	10597.61	35.19	2.39
5	11277	90.60	101.70	216.0	94	10598.08	-259.20	897.05		933.23	933.75	106.12	0.30	-0.21	10596.29	30.90	3.71
6	11371	88.20	102.20	220.5	94	10599.06	-278.66	989.00		1027.15	1027.51	105.74	2.61	-2.55	10597.09	27.17	2.91
7	11465	89.40	103.80	216.0	94	10601.03	-299.80	1080.57		1121.10	1121.38	105.51	2.13	1.28	10598.88	25.17	1.12
8	11559	89.80	103.80	219.6	94	10601.69	-322.22	1171.85		1215.10	1215.34	105.37	0.43	0.43	10599.35	24.49	0.65
9	11653	90.10	104.30	217.8	94	10601.77	-345.04	1263.04		1309.10	1309.32	105.28	0.62	0.32	10599.26	24.21	0.74
10	11748	88.40	103.60	219.6	95	10603.01	-367.94	1355.22		1404.08	1404.28	105.19	1.94	-1.79	10600.32	23.76	-0.32
11	11843	91.30	103.80	224.0	95	10603.26	-390.43	1447.51		1499.07	1499.24	105.10	3.06	3.05	10600.38	22.90	-0.38
12	11936	95.80	100.10	221.4	93	10597.50	-409.65	1538.28		1591.78	1591.89	104.91	6.26	4.84	10594.45	19.23	5.55
13	12031	90.70	95.80	222.3	95	10592.11	-422.76	1632.16		1686.00	1686.03	104.52	7.02	-5.37	10588.88	8.87	11.12
14	12124	90.90	98.70	224.9	93	10590.82	-434.49	1724.40		1778.30	1778.30	104.14	3.13	0.22	10587.40	-2.42	12.60
15	12218	90.90	102.40	226.7	94	10589.34	-451.69	1816.79		1872.08	1872.09	103.96	3.94	0.00	10585.75	-8.43	14.25
16	12314	90.60	104.80	227.6	96	10588.08	-474.26	1910.08		1968.05	1968.08	103.94	2.52	-0.31	10584.30	-9.47	15.70
17	12408	89.30	103.80	330.3	94	10588.16	-497.48	2001.16		2062.05	2062.07	103.96	1.74	-1.38	10584.21	-9.34	15.79
18	12504	89.90	106.30	231.2	96	10588.83	-522.41	2093.86		2158.03	2158.05	104.01	2.68	0.63	10584.69	-7.95	15.31
19	12598	91.80	105.70	232.1	94	10587.44	-548.31	2184.20		2251.97	2251.98	104.09	2.12	2.02	10583.12	-5.03	16.88
20	12692	91.20	105.60	233.9	94	10584.98	-573.66	2274.69		2345.91	2345.91	104.15	0.65	-0.64	10580.48	-2.68	19.52
21	12787	90.70	105.20	236.6	95	10583.40	-598.89	2366.26		2440.87	2440.87	104.20	0.67	-0.53	10578.72	-0.73	21.28

														Target Calculations		
			TRUE	TEMP	Course				Surface	CLOSURE		DLS/	BUR/	TVD AT 0'	RIGHT(+)	ABOVE (+)
SVY	MD	INC	AZM	°F	Length	TVD	N-S	E-W	Vert Sect	DIST	DIR	100	100'	V. SEC.	LEFT(-)	BELOW (-)
22	12882	90.90	104.10	235.7	95	10582.08	-622.91	2458.16	2535.86	2535.86	104.22	1.18	0.21	10577.21	-0.01	22.79
23	12975	90.60	103.10	234.8	93	10580.86	-644.78	2548.55	2628.85	2628.85	104.20	1.12	-0.32	10575.81	-1.02	24.19
24	13069	91.40	102.60	237.5	94	10579.22	-665.68	2640.18	2722.80	2722.81	104.15	1.00	0.85	10573.99	-3.27	26.01
25	13164	92.50	103.20	236.6	95	10575.99	-686.87	2732.73	2817.72	2817.73	104.11	1.32	1.16	10570.58	-5.45	29.42
26	13259	90.60	103.40	238.4	95	10573.42	-708.72	2825.14	2912.67	2912.68	104.08	2.01	-2.00	10567.83	-6.98	32.17
27	13353	89.20	102.50	239.3	94	10573.58	-729.78	2916.75	3006.64	3006.66	104.05	1.77	-1.49	10567.81	-9.06	32.19
28	13448	89.80	102.40	238.4	95	10574.41	-750.26	3009.51	3101.59	3101.62	104.00	0.64	0.63	10568.46	-12.00	31.54
29	13542	88.70	103.50	240.2	94	10575.64	-771.33	3101.11	3195.56	3195.59	103.97	1.65	-1.17	10569.51	-14.08	30.49
30	13636	89.60	104.80	239.3	94	10577.04	-794.30	3192.24	3289.55	3289.58	103.97	1.68	0.96	10570.72	-14.19	29.28
31	13730	89.60	103.70	238.4	94	10577.69	-817.44	3283.35	3383.54	3383.57	103.98	1.17	0.00	10571.20	-14.15	28.80
32	13825	89.80	105.10	241.1	95	10578.19	-841.07	3375.36	3478.54	3478.57	103.99	1.49	0.21	10571.51	-13.85	28.49
33	13918	92.00	106.70	240.2	93	10576.73	-866.54	3464.78	3571.48	3571.50	104.04	2.92	2.37	10569.87	-11.12	30.13
34	14013	92.80	106.10	242.0	95	10572.75	-893.34	3555.83	3666.33	3666.33	104.10	1.05	0.84	10565.71	-7.51	34.29
35	14107	90.70	104.90	242.0	94	10569.88	-918.44	3646.37	3760.25	3760.26	104.14	2.57	-2.23	10562.66	-5.41	37.34
36	14202	91.10	105.10	243.8	95	10568.39	-943.03	3738.12	3855.23	3855.23	104.16	0.47	0.42	10560.99	-4.12	39.01
37	14296	89.50	104.20	244.7	94	10567.90	-966.80	3829.06	3949.22	3949.22	104.17	1.95	-1.70	10560.31	-3.41	39.69
38	14391	93.50	106.80	243.8	95	10565.41	-992.17	3920.54	4044.14	4044.14	104.20	5.02	4.21	10557.65	-1.30	42.35
39	14486	91.90	105.30	248.3	95	10560.93	-1018.40	4011.73	4138.98	4138.98	104.24	2.31	-1.68	10552.99	1.73	47.01
40	14580	91.30	104.70	244.7	94	10558.31	-1042.72	4102.49	4232.93	4232.93	104.26	0.90	-0.64	10550.18	3.01	49.82
41	14674	90.70	104.30	246.5	94	10556.67	-1066.25	4193.49	4326.92	4326.92	104.27	0.77	-0.64	10548.36	3.47	51.64
42	14768	89.90	104.10	247.4	94	10556.18	-1089.31	4284.61	4420.92	4420.92	104.26	0.88	-0.85	10547.69	3.44	52.31
43	14831	89.80	106.90	233.0	63	10556.34	-1106.15	4345.31	4483.89	4483.90	104.28	4.45	-0.16	10547.73	4.85	52.27
44	14862	87.60	106.40	234.8	31	10557.04	-1115.03	4375.01	4514.86	4514.86	104.30	7.28	-7.10	10548.38	6.16	51.62
45	14957	88.60	105.50	237.5	95	10560.19	-1141.12	4466.30	4609.76	4609.77	104.33	1.42	1.05	10551.34	9.03	48.66
46	15051	89.80	105.10	243.8	94	10561.51	-1165.92	4556.95	4703.73	4703.74	104.35	1.35	1.28	10552.48	10.80	47.52
47	15145	89.90	104.20	244.7	94	10561.75	-1189.69	4647.90	4797.73	4797.74	104.36	0.96	0.11	10552.54	11.50	47.46
48	15240	89.60	103.80	245.6	95	10562.17	-1212.67	4740.07	4892.72	4892.74	104.35	0.53	-0.32	10552.77	11.14	47.23
49	15334	90.20	104.00	246.5	94	10562.33	-1235.26	4831.32	4986.72	4986.73	104.34	0.67	0.64	10552.76	10.61	47.24
50	15429	90.10	103.50	246.5	95	10562.08	-1257.84	4923.60	5081.72	5081.73	104.33	0.54	-0.11	10552.33	9.83	47.67
51	15523	89.30	103.50	248.3	94	10562.58	-1279.78	5015.00	5175.71	5175.72	104.32	0.85	-0.85	10552.64	8.65	47.36
52	15617	87.80	103.00	246.5	94	10564.95	-1301.32	5106.46	5269.66	5269.67	104.30	1.68	-1.60	10554.84	7.06	45.16
53	15711	92.30	104.80	246.5	94	10564.87	-1323.89	5197.68	5363.63	5363.64	104.29	5.16	4.79	10554.57	6.54	45.43
54	15806	91.80	105.60	246.5	95	10561.47	-1348.78	5289.30	5458.56	5458.56	104.31	0.99	-0.53	10550.99	8.16	49.01
55	15899	90.50	105.60	247.4	93	10559.61	-1373.79	5378.85	5551.51	5551.52	104.33	1.40	-1.40	10548.95	10.40	51.05
56	15993	89.60	104.40	249.2	94	10559.52	-1398.12	5469.65	5645.50	5645.51	104.34	1.60	-0.96	10548.69	11.68	51.31
57	16088	89.70	104.30	250.1	95	10560.11	-1421.66	5561.68	5740.50	5740.51	104.34	0.15	0.11	10549.08	11.90	50.92

															Target Calculations		
			TRUE	TEMP	Course				Surface	CLOSURE		DLS/	BUR/	TVD AT 0'	RIGHT(+)	ABOVE (+)
SVY	MD	INC	AZM	°F	Length	TVD	N-S	E-W	Vert Sect	DIST	DIR	100	100'	V. SEC.	LEFT(-)	BELOW (-)
58	16181	89.50	104.00	250.1	93	10560.75	-1444.39	5651.86	5833.49	5833.50	104.34	0.39	-0.22	10549.55	11.78	50.45
59	16275	88.80	104.40	251.0	94	10562.15	-1467.45	5742.98	5927.48	5927.49	104.33	0.86	-0.74	10550.77	11.75	49.23
60	16369	88.60	103.70	251.0	94	10564.28	-1490.26	5834.14	6021.46	6021.47	104.33	0.77	-0.21	10552.72	11.47	47.28
61	16462	88.90	104.80	251.9	93	10566.31	-1513.15	5924.25	6114.43	6114.44	104.33	1.23	0.32	10554.57	11.52	45.43
62	16557	88.40	104.30	252.8	95	10568.55	-1537.01	6016.18	6209.40	6209.42	104.33	0.74	-0.53	10556.63	12.07	43.37
63	16651	88.70	104.20	253.7	94	10570.93	-1560.14	6107.26	6303.37	6303.39	104.33	0.34	0.32	10558.83	12.12	41.17
64	16745	88.70	102.80	252.8	94	10573.06	-1582.08	6198.64	6397.34	6397.35	104.32	1.49	0.00	10560.78	10.93	39.22
65	16839	88.30	103.50	253.7	94	10575.52	-1603.46	6290.14	6491.29	6491.30	104.30	0.86	-0.43	10563.06	9.18	36.94
66	16933	88.70	102.60	252.8	94	10577.98	-1624.67	6381.68	6585.24	6585.24	104.28	1.05	0.43	10565.34	7.26	34.66
67	17028	90.60	103.00	251.9	95	10578.56	-1645.72	6474.31	6680.20	6680.20	104.26	2.04	2.00	10565.74	4.91	34.26
68	17122	91.20	101.80	254.6	94	10577.09	-1665.90	6566.11	6774.14	6774.14	104.24	1.43	0.64	10564.08	1.92	35.92
69	17217	90.90	101.70	255.5	95	10575.34	-1685.25	6659.10	6869.04	6869.04	104.20	0.33	-0.32	10562.16	-2.17	37.84
70	17311	89.50	102.70	253.7	94	10575.02	-1705.11	6750.97	6962.97	6962.98	104.17	1.83	-1.49	10561.65	-5.48	38.35
71	17406	89.20	103.70	254.6	95	10576.09	-1726.80	6843.46	7057.95	7057.96	104.16	1.10	-0.32	10562.54	-7.18	37.46
72	17499	89.10	105.10	253.7	93	10577.47	-1749.93	6933.52	7150.94	7150.94	104.16	1.51	-0.11	10563.74	-6.88	36.26
73	17594	88.80	105.40	252.8	95	10579.21	-1774.91	7025.16	7245.91	7245.91	104.18	0.45	-0.32	10565.30	-5.18	34.70
74	17688	91.00	105.70	254.6	94	10579.38	-1800.11	7115.72	7339.88	7339.88	104.20	2.36	2.34	10565.29	-2.99	34.71
75	17783	90.50	105.20	254.6	95	10578.13	-1825.41	7207.27	7434.85	7434.85	104.21	0.74	-0.53	10563.86	-0.96	36.14
76	17877	92.20	105.10	256.4	94	10575.92	-1849.97	7297.98	7528.80	7528.80	104.22	1.81	1.81	10561.47	0.57	38.53
77	17972	91.90	104.20	257.3	95	10572.52	-1873.98	7389.83	7623.74	7623.74	104.23	1.00	-0.32	10557.89	1.28	42.11
78	18066	90.70	104.00	258.2	94	10570.39	-1896.88	7480.97	7717.71	7717.71	104.23	1.29	-1.28	10555.57	1.09	44.43
79	18160	89.50	103.10	257.3	94	10570.23	-1918.90	7572.35	7811.70	7811.70	104.22	1.60	-1.28	10555.23	-0.01	44.77
80	18254	92.80	104.70	257.3	94	10568.34	-1941.47	7663.57	7905.67	7905.67	104.22	3.90	3.51	10553.16	-0.54	46.84
81	18348	91.80	104.40	256.4	94	10564.57	-1965.07	7754.48	7999.59	7999.59	104.22	1.11	-1.06	10549.21	0.00	50.79
82	18443	88.80	105.30	256.4	95	10564.07	-1989.41	7846.29	8094.57	8094.57	104.23	3.30	-3.16	10548.53	1.05	51.47
83	18536	87.70	105.70	258.2	93	10566.91	-2014.25	7935.87	8187.50	8187.50	104.24	1.26	-1.18	10551.19	3.12	48.81
84	18630	87.90	105.00	257.3	94	10570.52	-2039.12	8026.45	8281.41	8281.41	104.25	0.77	0.21	10554.62	4.98	45.38
85	18723	88.10	104.90	257.3	93	10573.76	-2063.09	8116.24	8374.35	8374.35	104.26	0.24	0.22	10557.69	6.16	42.31
86	18817	88.90	105.70	257.3	94	10576.22	-2087.89	8206.88	8468.30	8468.30	104.27	1.20	0.85	10559.97	7.93	40.03
87	18912	89.20	105.80	256.4	95	10577.80	-2113.67	8298.30	8563.25	8563.26	104.29	0.33	0.32	10561.36	10.47	38.64
88	19006	90.80	105.70	256.4	94	10577.80	-2139.19	8388.77	8657.21	8657.22	104.31	1.71	1.70	10561.18	12.98	38.82
89	19100	92.00	104.80	259.1	94	10575.50	-2163.90	8479.43	8751.17	8751.18	104.32	1.60	1.28	10558.70	14.67	41.30
90	19194	91.60	104.70	260.0	94	10572.55	-2187.82	8570.28	8845.12	8845.13	104.32	0.44	-0.43	10555.57	15.53	44.43
91	19288	91.30	104.00	260.0	94	10570.17	-2211.11	8661.32	8939.09	8939.10	104.32	0.81	-0.32	10553.01	15.75	46.99
92	19382	90.50	104.20	259.1	94	10568.69	-2234.01	8752.48	9033.07	9033.09	104.32	0.88	-0.85	10551.35	15.55	48.65

														Target Calculations		
			TRUE	TEMP	Course				Surface	CLOSURE		DLS/	BUR/	TVD AT 0'	RIGHT(+)	ABOVE (+)
SVY	MD	INC	AZM	°F	Length	TVD	N-S	E-W	Vert Sect	DIST	DIR	100	100'	V. SEC.	LEFT(-)	BELOW (-)
93	19436	90.10	104.40	260.0	54	10568.41	-2247.35	8804.80	9087.07	9087.09	104.32	0.83	-0.74	10550.97	15.63	49.03
94	19500	90.10	104.40	PTB	64	10568.30	-2263.27	8866.79	9151.07	9151.09	104.32	0.00	0.00	10550.73	15.83	49.27

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	**Atlanta 12-6H (Atlanta 14 Well Eco Pad)**
Location:	**NENW Sec 6 - T153N - R101W - Williams Co., ND**
License Number:	**33-105-02721** **Region:** **Williston**
Spud Date:	**3/10/13** **Drilling Completed:** **3/30/13**
Surface Coordinates:	**NENW Sec 6 - T153N - R101W - Williams Co., ND** **495' FNL & 1395' FWL**
Bottom Hole Coordinates:	**NENW Sec 6 - T153N - R101W - Williams Co., ND** **CP 10895' MD; 10594' TVD, 678' FNL & 1918' FWL**
Ground Elevation (ft):	**1945'** **K.B. Elevation (ft):** **1967'**
Logged Interval (ft):	**9700'** **To:** **10586'** **Total Depth (ft):** **886'**
Formation:	**MCyn, Lodgp, UBkkn SH, MBkkn, LBkkn SH, ThrFks**
Type of Drilling Fluid:	**Invert**

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

CORE

Contractor:			
Core #:			
Formation:			
Core Interval:	**From:**	**Cut:**	
	To:	**Recovered:**	
Bit type:			
Size:			
Coring Time:			

OPERATOR

Company: **Continental Resources, Inc.**
Address: **20 N. Broadway**
P.O. Box 269000
Oklahoma City, Ok 73126

GEOLOGIST

Name: **Adam Swoboda**
Company: **Geo-Link Inc**
Address: **PO Box 1764**
Red Lodge, MT 59068

Directional

Baker Hughes

Second Hand

Joe Dunn

ROCK TYPES

Anhy
Bent
Brec
Cht
Clyst
Coal
Congl
Dol
Gyp
Igne
Lmst
Meta
Mrlst
Salt
Shale
Shcol
Shgy
Sltst
Ss
Till

ACCESSORIES

MINERAL

Anhy
Arggrn
Arg
Bent
Bit
Brecfrag
Calc
Carb
Chtdk
Chtlt
Dol
Feldspar
Ferrpel
Ferr
Glau
Gyp
Hvymin
Kaol
Marl
Minxl
Nodule
Phos
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff

FOSSIL

Algae
Amph
Belm
Bioclst
Brach
Bryozoa
Cephal
Coral
Crin
Echin
Fish
Foram
Fossil
Gastro
Oolite
Ostra
Pelec
Pellet
Pisolite
Plant
Strom

STRINGER

Anhy
Arg
Bent
Coal
Dol
Gyp
Ls
Mrst
Sltstrg
Ssstrg

TEXTURE

Boundst
Chalky
Cryxln
Earthy
Finexln
Grainst
Lithogr
Microxln
Mudst
Packst
Wackest

OTHER SYMBOLS

POROSITY TYPE

Earthy
Fenest
Fracture
Inter
Moldic
Organic
Pinpoint
Vuggy

SORTING

Well
Moderate
Poor

ROUNDING

Rounded
Subrnd
Subang
Angular

OIL SHOWS

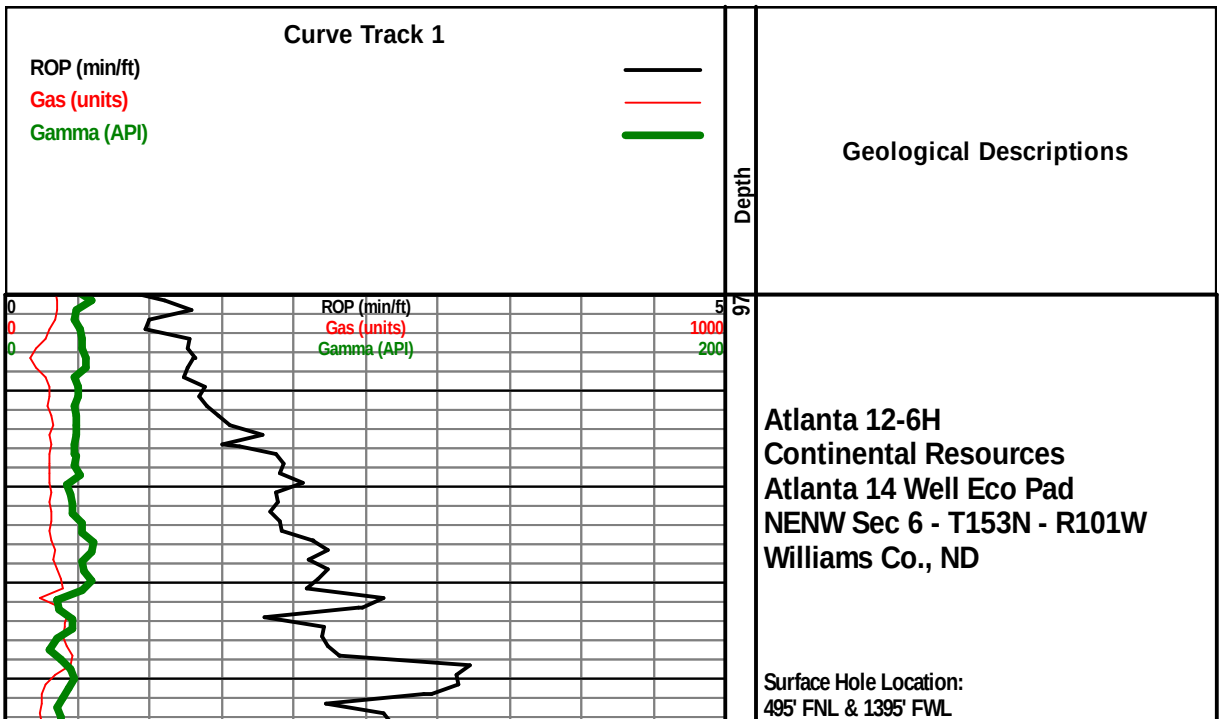
Even
Spotted
Ques
Dead

INTERVALS

Core
Dst

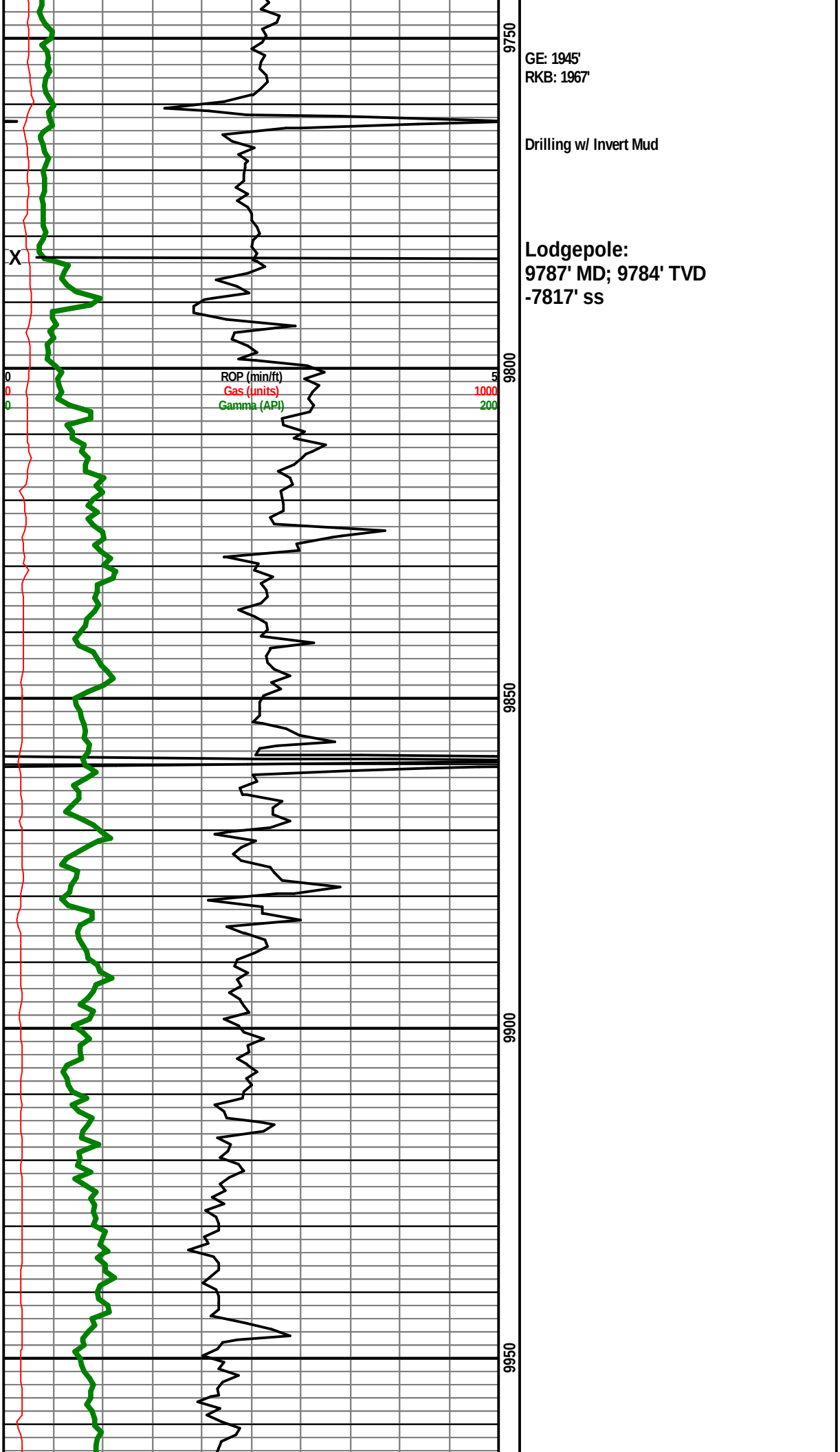
EVENTS

Rft
Sidewall



Atlanta 12-6H
Continental Resources
Atlanta 14 Well Eco Pad
NENW Sec 6 - T153N - R101W
Williams Co., ND

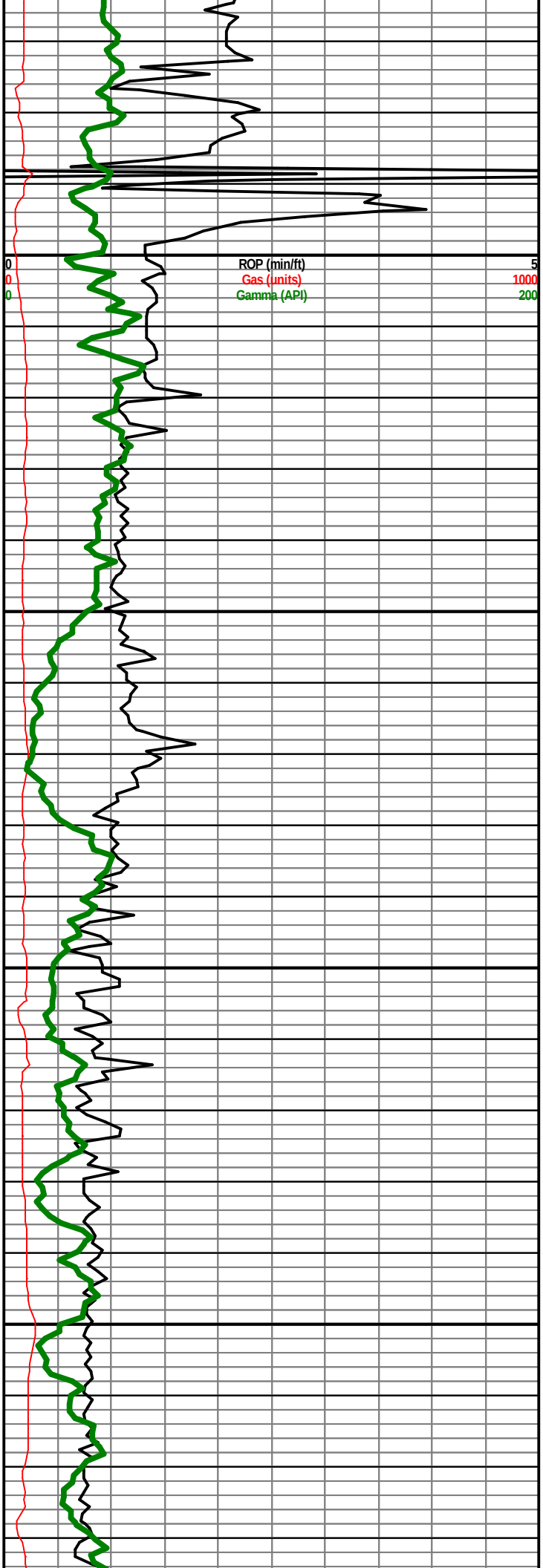
Surface Hole Location:
495' FNL & 1395' FWL



GE: 1945'
RKB: 1967'

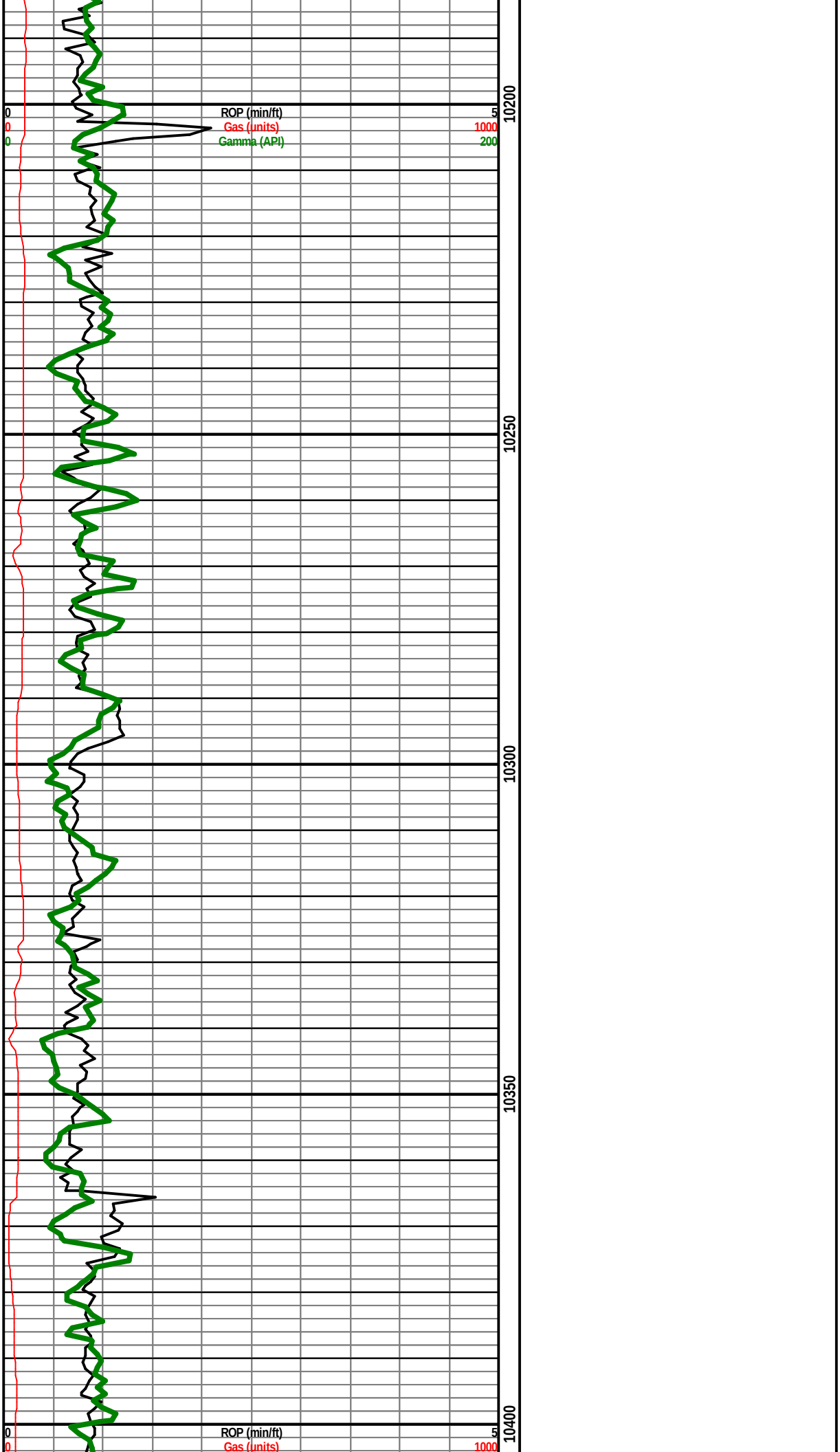
Drilling w/ Invert Mud

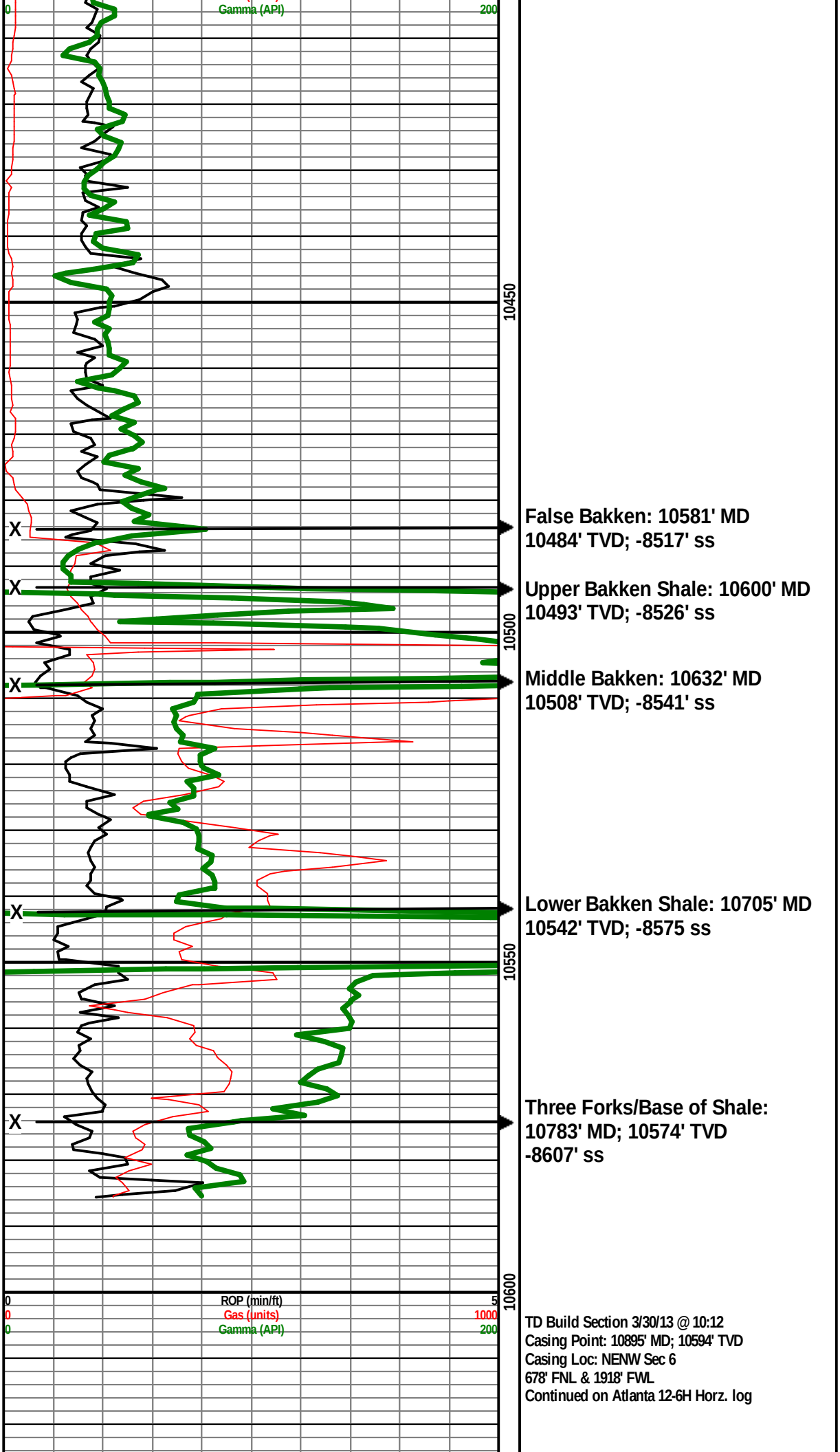
Lodgepole:
9787' MD; 9784' TVD
-7817' ss



TOOH for BHA @ 9991' MD - 03/29/13 - 04:00
Picked up Build Assembly
Resume Drilling - 03/29/13 - 13:55

KOP: 10070' MD; 10067' TVD
-8100' ss


0
ROP (min/ft)
5
0
Gas (units)
1000
0
Gamma (API)
200
10200
10250
10300
10350
10400
0
ROP (min/ft)
5
0
Gas (units)
1000


0
Gamma (API)
200
10450
10500
10550
10600
False Bakken: 10581' MD
10484' TVD; -8517' ss
Upper Bakken Shale: 10600' MD
10493' TVD; -8526' ss
Middle Bakken: 10632' MD
10508' TVD; -8541' ss
Lower Bakken Shale: 10705' MD
10542' TVD; -8575 ss
Three Forks/Base of Shale:
10783' MD; 10574' TVD
-8607' ss
0
ROP (min/ft)
5
0
Gas (units)
1000
0
Gamma (API)
200
TD Build Section 3/30/13 @ 10:12
Casing Point: 10895' MD; 10594' TVD
Casing Loc: NENW Sec 6
678' FNL & 1918' FWL
Continued on Atlanta 12-6H Horz. log

650

Field Geologist: Adam Swoboda
Second Hand: Joe Dunn
Geo-Link Inc.

Thank You For Using Geo-Link Inc.

MS Energy Services

7821 Will Rogers Blvd.
Fort Worth, Texas 76140

817.568.1038 (office)
817.568.1499 (fax)
www.msenergyservices.com

June 3, 2013

North Dakota Mineral Resources
Survey Certification Sheet

Company: Continental Resources, Inc.
Lease: Atlanta 12
Well Number: 6H
Location: Williams County, ND
Job Number: DDMT-130260

Well API# 33-105-02721

Attached please find the original surveys performed on the above referenced well by MS Energy Services. The data is true, correct, complete and within the limitations of the tool as set forth by MS Energy Services. I am authorized and qualified to make this report and it conforms to the principles and procedures as set forth by MS Energy Services. The surveys were performed as listed below.

Name of Surveyor	Drain hole No.	Surveyed Depths	Dates Performed	Survey
Tim Coleman	Original Wellbore	10,903' – 14,862' MD	05/03/2013 to 05/12/2013	MWD
	Sidetrack	14,831' – 19,436' MD		

If any other information is required, please contact the undersigned at the letterhead address and telephone number.

Sincerely,

Amber Greer
MWD Operations Office Administrator

Attachments

MS Energy Services

V09.04.02

SURVEY CALCULATION PROGRAM

6/3/13 16:19

Company:	Continental Resources, Inc.
Well Name:	Atlanta 12-6H OWB
Location:	Williams County, ND
Rig:	Cyclone #2
Job Number:	DDMT-130260
API #:	33-105-02721
Vertical Section Azimuth:	104.22
Survey Calculation Method:	Minimum Curvature

Magnetic Declination:	8.53
	REFERENCED TO TRUE NORTH
Proposed Direction:	104.22

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,926	90	104.6	10553.91	-1128.74	4437.59	4578.89

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
TIE IN	10,831	78.53	102.01	10586.27	-169.94	460.83	488.46	491.17	110.24		
1	10,903	86.90	101.40	10595.39	-184.41	530.70	559.74	561.83	109.16	11.66	11.63
2	10,997	88.80	102.40	10598.92	-203.78	622.61	653.59	655.11	108.12	2.28	2.02
3	11,089	90.00	100.70	10599.88	-222.20	712.74	745.48	746.57	107.32	2.26	1.30
4	11,183	90.80	101.50	10599.23	-240.30	804.98	839.34	840.08	106.62	1.20	0.85
5	11,277	90.60	101.70	10598.08	-259.20	897.05	933.23	933.75	106.12	0.30	-0.21
6	11,371	88.20	102.20	10599.06	-278.66	989.00	1027.15	1027.51	105.74	2.61	-2.55
7	11,465	89.40	103.80	10601.03	-299.80	1080.57	1121.10	1121.38	105.51	2.13	1.28
8	11,559	89.80	103.80	10601.69	-322.22	1171.85	1215.10	1215.34	105.37	0.43	0.43
9	11,653	90.10	104.30	10601.77	-345.04	1263.04	1309.10	1309.32	105.28	0.62	0.32
10	11,748	88.40	103.60	10603.01	-367.94	1355.22	1404.08	1404.28	105.19	1.94	-1.79
11	11,843	91.30	103.80	10603.26	-390.43	1447.51	1499.07	1499.24	105.10	3.06	3.05
12	11,936	95.80	100.10	10597.50	-409.65	1538.28	1591.78	1591.89	104.91	6.26	4.84
13	12,031	90.70	95.80	10592.11	-422.76	1632.16	1686.00	1686.03	104.52	7.02	-5.37
14	12,124	90.90	98.70	10590.82	-434.49	1724.40	1778.30	1778.30	104.14	3.13	0.22
15	12,218	90.90	102.40	10589.34	-451.69	1816.79	1872.08	1872.09	103.96	3.94	0.00
16	12,314	90.60	104.80	10588.08	-474.26	1910.08	1968.05	1968.08	103.94	2.52	-0.31
17	12,408	89.30	103.80	10588.16	-497.48	2001.16	2062.05	2062.07	103.96	1.74	-1.38
18	12,504	89.90	106.30	10588.83	-522.41	2093.86	2158.03	2158.05	104.01	2.68	0.63
19	12,598	91.80	105.70	10587.44	-548.31	2184.20	2251.97	2251.98	104.09	2.12	2.02
20	12,692	91.20	105.60	10584.98	-573.66	2274.69	2345.91	2345.91	104.15	0.65	-0.64
21	12,787	90.70	105.20	10583.40	-598.89	2366.26	2440.87	2440.87	104.20	0.67	-0.53
22	12,882	90.90	104.10	10582.08	-622.91	2458.16	2535.86	2535.86	104.22	1.18	0.21
23	12,975	90.60	103.10	10580.86	-644.78	2548.55	2628.85	2628.85	104.20	1.12	-0.32
24	13,069	91.40	102.60	10579.22	-665.68	2640.18	2722.80	2722.81	104.15	1.00	0.85
25	13,164	92.50	103.20	10575.99	-686.87	2732.73	2817.72	2817.73	104.11	1.32	1.16
26	13,259	90.60	103.40	10573.42	-708.72	2825.14	2912.67	2912.68	104.08	2.01	-2.00
27	13,353	89.20	102.50	10573.58	-729.78	2916.75	3006.64	3006.66	104.05	1.77	-1.49
28	13,448	89.80	102.40	10574.41	-750.26	3009.51	3101.59	3101.62	104.00	0.64	0.63
29	13,542	88.70	103.50	10575.64	-771.33	3101.11	3195.56	3195.59	103.97	1.65	-1.17
30	13,636	89.60	104.80	10577.04	-794.30	3192.24	3289.55	3289.58	103.97	1.68	0.96
31	13,730	89.60	103.70	10577.69	-817.44	3283.35	3383.54	3383.57	103.98	1.17	0.00

MS Energy Services

V09.04.02

SURVEY CALCULATION PROGRAM

6/3/13 16:19

Company:	Continental Resources, Inc.			
Well Name:	Atlanta 12-6H OWB			
Location:	Williams County, ND			
Rig:	Cyclone #2	Magnetic Declination:	8.53	REFERENCED TO TRUE NORTH
Job Number:	DDMT-130260			
API #:	33-105-02721			
Vertical Section Azimuth:	104.22	Proposed Direction:	104.22	
Survey Calculation Method:	Minimum Curvature			

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,926	90	104.6	10553.91	-1128.74	4437.59	4578.89

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
32	13,825	89.80	105.10	10578.19	-841.07	3375.36	3478.54	3478.57	103.99	1.49	0.21
33	13,918	92.00	106.70	10576.73	-866.54	3464.78	3571.48	3571.50	104.04	2.92	2.37
34	14,013	92.80	106.10	10572.75	-893.34	3555.83	3666.33	3666.33	104.10	1.05	0.84
35	14,107	90.70	104.90	10569.88	-918.44	3646.37	3760.25	3760.26	104.14	2.57	-2.23
36	14,202	91.10	105.10	10568.39	-943.03	3738.12	3855.23	3855.23	104.16	0.47	0.42
37	14,296	89.50	104.20	10567.90	-966.80	3829.06	3949.22	3949.22	104.17	1.95	-1.70
38	14,391	93.50	106.80	10565.41	-992.17	3920.54	4044.14	4044.14	104.20	5.02	4.21
39	14,486	91.90	105.30	10560.93	-1018.40	4011.73	4138.98	4138.98	104.24	2.31	-1.68
40	14,580	91.30	104.70	10558.31	-1042.72	4102.49	4232.93	4232.93	104.26	0.90	-0.64
41	14,674	90.70	104.30	10556.67	-1066.25	4193.49	4326.92	4326.92	104.27	0.77	-0.64
42	14,768	89.90	104.10	10556.18	-1089.31	4284.61	4420.92	4420.92	104.26	0.88	-0.85
43	14,862	91.70	104.60	10554.86	-1112.61	4375.67	4514.90	4514.90	104.27	1.99	1.91

MS Energy Services

V09.04.02

SURVEY CALCULATION PROGRAM

6/1/13 12:36

Company:	**Continental Resources, Inc.**				
Well Name:	**Atlanta 12-6H**				
Location:	**Williams County, ND**				
Rig:	**Cyclone #2**	**Magnetic Declination:**	8.53	REFERENCED TO TRUE NORTH	
Job Number:	**DDMT-130260**				
API #:	**33-105-02721**				
Vertical Section Azimuth:	**104.22**	**Proposed Direction:**	104.22		
Survey Calculation Method:	**Minimum Curvature**				

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	19,500	90.1	104.4	10568.3	-2263.26	8866.79	9151.07

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
TIE IN	14,768	89.90	104.10	10556.18	-1089.31	4284.61	4420.91	4420.91	104.26		
1	14,831	89.80	106.90	10556.34	-1106.14	4345.31	4483.89	4483.89	104.28	4.45	-0.16
2	14,862	87.60	106.40	10557.05	-1115.02	4375.00	4514.85	4514.86	104.30	7.28	-7.10
3	14,957	88.60	105.50	10560.20	-1141.11	4466.29	4609.75	4609.76	104.33	1.42	1.05
4	15,051	89.80	105.10	10561.51	-1165.92	4556.95	4703.73	4703.74	104.35	1.35	1.28
5	15,145	89.90	104.20	10561.76	-1189.69	4647.89	4797.72	4797.74	104.36	0.96	0.11
6	15,240	89.60	103.80	10562.17	-1212.67	4740.07	4892.72	4892.73	104.35	0.53	-0.32
7	15,334	90.20	104.00	10562.34	-1235.25	4831.32	4986.72	4986.73	104.34	0.67	0.64
8	15,429	90.10	103.50	10562.09	-1257.83	4923.59	5081.72	5081.72	104.33	0.54	-0.11
9	15,523	89.30	103.50	10562.58	-1279.78	5015.00	5175.71	5175.71	104.32	0.85	-0.85
10	15,617	87.80	103.00	10564.96	-1301.31	5106.46	5269.66	5269.66	104.30	1.68	-1.60
11	15,711	92.30	104.80	10564.88	-1323.89	5197.68	5363.63	5363.63	104.29	5.16	4.79
12	15,806	91.80	105.60	10561.48	-1348.78	5289.30	5458.55	5458.56	104.31	0.99	-0.53
13	15,899	90.50	105.60	10559.61	-1373.78	5378.85	5551.51	5551.52	104.33	1.40	-1.40
14	15,993	89.60	104.40	10559.53	-1398.11	5469.65	5645.49	5645.51	104.34	1.60	-0.96
15	16,088	89.70	104.30	10560.11	-1421.66	5561.68	5740.49	5740.51	104.34	0.15	0.11
16	16,181	89.50	104.00	10560.76	-1444.39	5651.86	5833.49	5833.50	104.34	0.39	-0.22
17	16,275	88.80	104.40	10562.15	-1467.45	5742.97	5927.48	5927.49	104.33	0.86	-0.74
18	16,369	88.60	103.70	10564.28	-1490.26	5834.14	6021.45	6021.46	104.33	0.77	-0.21
19	16,462	88.90	104.80	10566.31	-1513.15	5924.25	6114.43	6114.44	104.33	1.23	0.32
20	16,557	88.40	104.30	10568.55	-1537.01	6016.18	6209.40	6209.41	104.33	0.74	-0.53
21	16,651	88.70	104.20	10570.93	-1560.14	6107.26	6303.37	6303.38	104.33	0.34	0.32
22	16,745	88.70	102.80	10573.06	-1582.08	6198.64	6397.34	6397.35	104.32	1.49	0.00
23	16,839	88.30	103.50	10575.52	-1603.45	6290.14	6491.29	6491.29	104.30	0.86	-0.43
24	16,933	88.70	102.60	10577.98	-1624.67	6381.68	6585.24	6585.24	104.28	1.05	0.43
25	17,028	90.60	103.00	10578.56	-1645.72	6474.31	6680.20	6680.20	104.26	2.04	2.00
26	17,122	91.20	101.80	10577.09	-1665.90	6566.10	6774.14	6774.14	104.24	1.43	0.64
27	17,217	90.90	101.70	10575.35	-1685.24	6659.10	6869.03	6869.03	104.20	0.33	-0.32
28	17,311	89.50	102.70	10575.02	-1705.11	6750.97	6962.97	6962.97	104.17	1.83	-1.49
29	17,406	89.20	103.70	10576.10	-1726.80	6843.45	7057.95	7057.95	104.16	1.10	-0.32
30	17,499	89.10	105.10	10577.48	-1749.92	6933.52	7150.94	7150.94	104.16	1.51	-0.11
31	17,594	88.80	105.40	10579.22	-1774.91	7025.16	7245.90	7245.91	104.18	0.45	-0.32

MS Energy Services

V09.04.02

SURVEY CALCULATION PROGRAM

6/1/13 12:36

Company:	Continental Resources, Inc.				
Well Name:	Atlanta 12-6H				
Location:	Williams County, ND				
Rig:	Cyclone #2	Magnetic Declination:	8.53	REFERENCED TO TRUE NORTH	
Job Number:	DDMT-130260				
API #:	33-105-02721				
Vertical Section Azimuth:	104.22	Proposed Direction:	104.22		
Survey Calculation Method:	Minimum Curvature				

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	19,500	90.1	104.4	10568.3	-2263.26	8866.79	9151.07

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
32	17,688	91.00	105.70	10579.38	-1800.10	7115.71	7339.87	7339.87	104.20	2.36	2.34
33	17,783	90.50	105.20	10578.14	-1825.41	7207.27	7434.84	7434.84	104.21	0.74	-0.53
34	17,877	92.20	105.10	10575.92	-1849.97	7297.98	7528.80	7528.80	104.22	1.81	1.81
35	17,972	91.90	104.20	10572.53	-1873.98	7389.83	7623.74	7623.74	104.23	1.00	-0.32
36	18,066	90.70	104.00	10570.39	-1896.87	7480.97	7717.71	7717.71	104.23	1.29	-1.28
37	18,160	89.50	103.10	10570.23	-1918.90	7572.35	7811.70	7811.70	104.22	1.60	-1.28
38	18,254	92.80	104.70	10568.34	-1941.47	7663.57	7905.66	7905.66	104.22	3.90	3.51
39	18,348	91.80	104.40	10564.57	-1965.06	7754.48	7999.59	7999.59	104.22	1.11	-1.06
40	18,443	88.80	105.30	10564.07	-1989.41	7846.29	8094.57	8094.57	104.23	3.30	-3.16
41	18,536	87.70	105.70	10566.91	-2014.25	7935.86	8187.50	8187.50	104.24	1.26	-1.18
42	18,630	87.90	105.00	10570.52	-2039.11	8026.44	8281.41	8281.41	104.25	0.77	0.21
43	18,723	88.10	104.90	10573.77	-2063.09	8116.24	8374.35	8374.35	104.26	0.24	0.22
44	18,817	88.90	105.70	10576.23	-2087.89	8206.88	8468.30	8468.30	104.27	1.20	0.85
45	18,912	89.20	105.80	10577.80	-2113.67	8298.30	8563.25	8563.26	104.29	0.33	0.32
46	19,006	90.80	105.70	10577.80	-2139.18	8388.77	8657.21	8657.22	104.31	1.71	1.70
47	19,100	92.00	104.80	10575.51	-2163.90	8479.43	8751.17	8751.18	104.32	1.60	1.28
48	19,194	91.60	104.70	10572.55	-2187.82	8570.28	8845.12	8845.13	104.32	0.44	-0.43
49	19,288	91.30	104.00	10570.17	-2211.11	8661.32	8939.08	8939.10	104.32	0.81	-0.32
50	19,382	90.50	104.20	10568.70	-2234.01	8752.48	9033.07	9033.09	104.32	0.88	-0.85
51	19,436	90.10	104.40	10568.42	-2247.35	8804.80	9087.07	9087.08	104.32	0.83	-0.74

NEWSCO
International Energy Services Inc.

Continental Resources	33144	3/14/2013
Company	Job Number	Date
Cyclone 2	Atlanta 12-6H	Williams Co., ND
Rig	Well Name	County & State

Surveyed from depth of: Surface to 1946'

GL to KB: 22'

Type of Survey: Nvader

True North

Directional Supervisor/Surveyor: David Hopper

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Newsco International Energy Services Inc. This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore

Certified by: Joshua Mahoney

NEWSCO

Directional Services U.S.A.

CLIENT:	Continental Resources	**NEWSCO JOB #**	33144
DATE:	3/14/2013	**WELL NAME:**	Atlanta 12-6 H
STATE:	North Dakota	**RIG:**	2
FIELD:		**CONTRACTOR:**	Cyclone

TIE-ON DATA

C/L (10,30,100):	100.00	Feet
MEASURED DEPTH:	0.00	Feet
TVD:	0.00	Feet
INCLINATION:	0.00	Deg.
AZIMUTH:	0.00	Deg.
N(+) S(-):	0.00	Feet
E(+) W(-):	0.00	Feet
V/SECTION PLANE:	0.00	Deg.
V/SECTION :	0.00	Feet

TARGET DATA

SENSOR TO BIT:	54.00
KB TO GL :	22.00
Total:	54.00
TVD:	0.00
INC:	0.00
VS:	0.00

Big rig KB to GL

0.00

#	DEPTH	INC	AZM	CRSL	TVD	VS	+N/S-	+E/W-	DLS	/100 FEET VBUR	WALK	TF
1	140.00	0.60	34.20	140.00	140.00	0.61	0.61	0.41	0.43	0.43	24.43	MAG
2	231.00	0.40	20.90	91.00	230.99	1.30	1.30	0.79	0.25	-0.22	-14.62	MAG
3	324.00	0.80	33.50	93.00	323.99	2.14	2.14	1.27	0.45	0.43	13.55	MAG
4	418.00	0.60	7.20	94.00	417.98	3.18	3.18	1.69	0.40	-0.21	-27.98	MAG
5	486.00	0.80	344.30	68.00	485.98	3.99	3.99	1.61	0.50	0.29	-33.68	MAG
6	594.00	1.10	353.40	108.00	593.96	5.74	5.74	1.28	0.31	0.28	8.43	MAG
7	685.00	1.10	354.20	91.00	684.95	7.48	7.48	1.10	0.02	0.00	0.88	MAG
8	776.00	0.90	10.70	91.00	775.93	9.05	9.05	1.14	0.38	-0.22	18.13	MAG
9	867.00	0.80	347.50	91.00	866.92	10.37	10.37	1.14	0.39	-0.11	-25.49	MAG
10	958.00	0.70	359.40	91.00	957.91	11.55	11.55	0.99	0.20	-0.11	13.08	MAG
11	1047.00	0.80	336.60	89.00	1046.91	12.66	12.66	0.74	0.35	0.11	-25.62	MAG
12	1138.00	0.60	332.90	91.00	1137.90	13.67	13.67	0.27	0.23	-0.22	-4.07	MAG
13	1228.00	0.60	3.60	90.00	1227.90	14.56	14.56	0.08	0.35	0.00	34.11	MAG
14	1320.00	0.90	335.20	92.00	1319.89	15.70	15.70	-0.19	0.51	0.33	-30.87	MAG
15	1411.00	0.70	14.20	91.00	1410.88	16.88	16.88	-0.35	0.62	-0.22	42.86	MAG
16	1499.00	0.40	23.30	88.00	1498.87	17.69	17.69	-0.10	0.35	-0.34	10.34	MAG
17	1594.00	0.50	12.10	95.00	1593.87	18.40	18.40	0.12	0.14	0.11	-11.79	MAG
18	1688.00	0.60	322.20	94.00	1687.87	19.19	19.19	-0.10	0.50	0.11	-53.09	MAG
19	1782.00	0.50	296.80	94.00	1781.86	19.76	19.76	-0.76	0.28	-0.11	-27.02	MAG
20	1875.00	0.50	291.60	93.00	1874.86	20.09	20.09	-1.50	0.05	0.00	-5.59	MAG
21	1946.00	0.50	224.40	71.00	1945.86	19.99	19.99	-2.01	0.78	0.00	-94.65	MAG
22												
23												
24												
25												
26												
27												
28												

#	DEPTH	INC	AZM	CRSL	TVD	VS	+N/S-	+E/W-	DLS	/100 FEET VBUR	WALK	TF
28	0.00	0.00	0.00									
29												
30												
31												
32												
33												
34												
35												
36												
37												
38												
39												
40												
41												

BAKER HUGHES
INTEQ

717 17th Street, Suite 2000
Denver, CO 80202
303-534-3223 Fax 303-534-1822

Report of Sub-Surface Directional Survey

CONTINENTAL
Company

ATLANTA 12-6H
Well Name

WILLIAMS/ND
Location

3/10/2013
Date

5335080
Job Number

Denver
Office

BAKER HUGHES
INTEQ

717 17th Street, Suite 2000
Denver, CO 80202
303-534-3223 Fax 303-534-1822

Survey Certification Sheet

CONTINENTAL	5335080	03/10/13
Company	Job Number	Date
SEC.06-T153N-R101W	ATLANTA 12-6H	WILLIAMS/ND
Lease	Well Name	County & State

Surveyed from a measured depth of: 2081 feet to 10831 feet

Type of Survey: MWD

Directional Surveyor: PHIL PETTEY

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Baker Hughes INTEQ. This report represents a true and correct Directional Survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Seth Painter
Well Planner

This document has been subscribed and affirmed, or sworn to before me in the county of Denver, state of Colorado, this 8th day of April, 2013.

My commission expires 7/14/14

Certification Number: 11014
Certification Date: 4/8/13

CONTINENTAL RESOURCES

Location:	NORTH DAKOTA	Slot:	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Field:	WILLIAMS COUNTY	Well:	ATLANTA 12-6H
Facility:	SEC.06-T153N-R101W	Wellbore:	ATLANTA 12-6H PWB

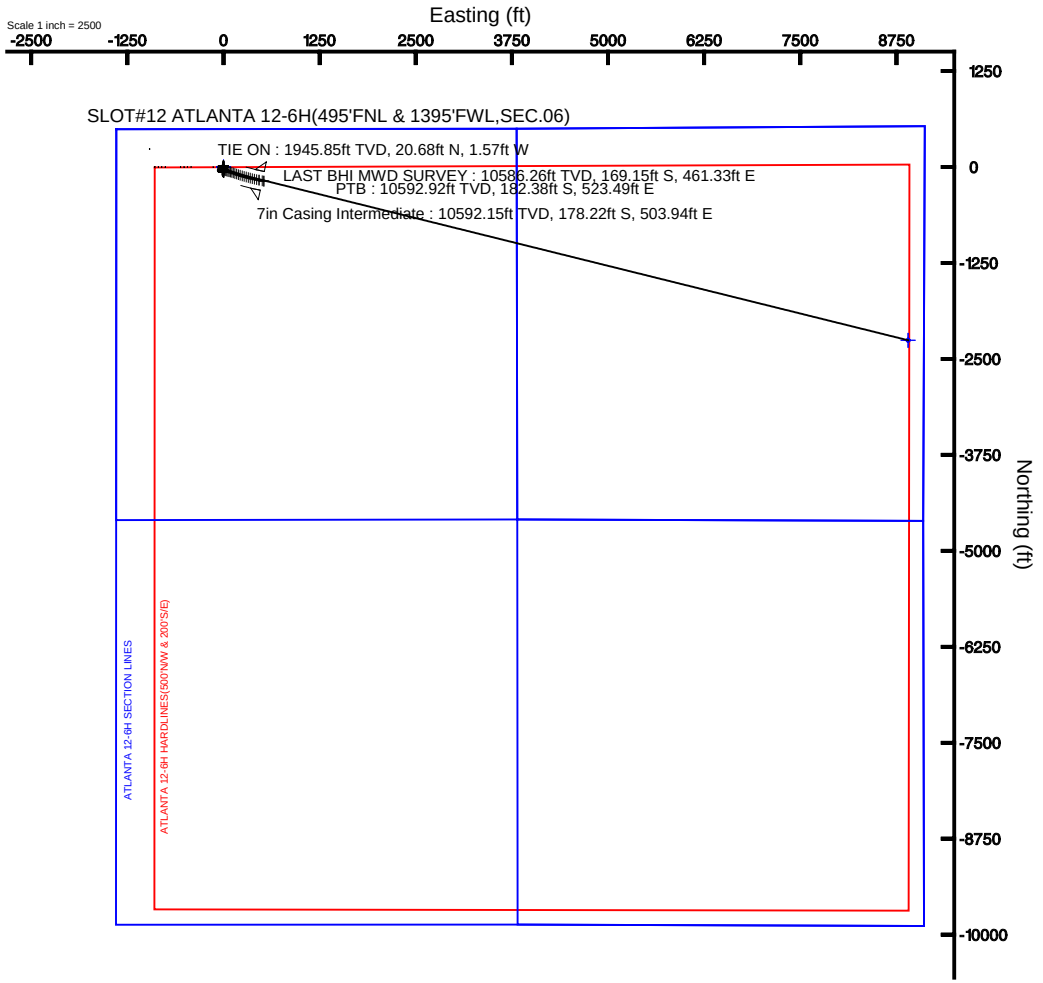
Plot reference wellpath is ATLANTA 12-6H (REV-F.0) PWP	
True vertical depths are referenced to CYCLONE 2 (RKB)	Grid System: NAD83 / Lambert North Dakota SP, Northern Zone (3301), US feet
Measured depths are referenced to CYCLONE 2 (RKB)	North Reference: True north
CYCLONE 2 (RKB) to Mean Sea Level: 1967 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr on 4/8/2013

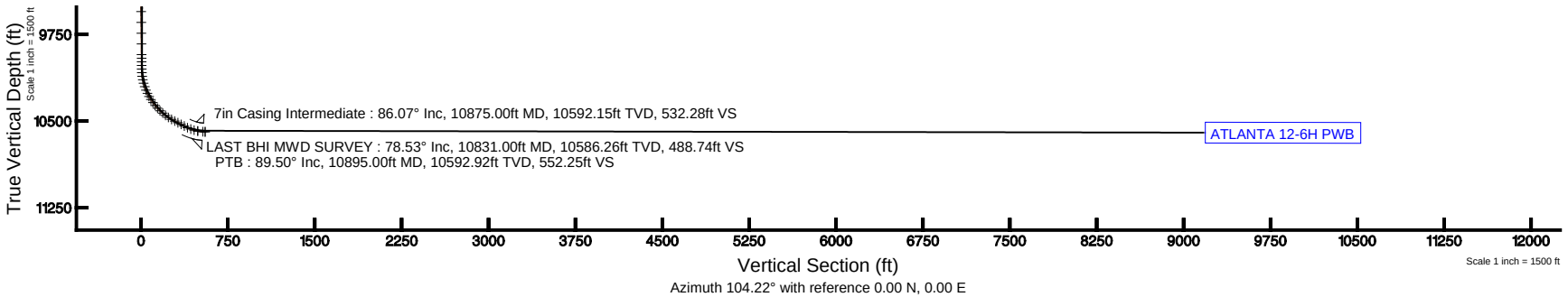
BAKER HUGHES

Continental RESOURCES

BGGM (1945.0 to 2014.0) Dip: 73.02° Field: 56527.2 nT
Magnetic North is 8.54 degrees East of True North (at 4/1/2013)

To correct azimuth from Magnetic to True add 8.54 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the True North Azimuth = 90 + 8.54 = 98.54





Azimuth 104.22° with reference 0.00 N, 0.00 E

Actual Wellpath Report

ATLANTA 12-6H AWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

REPORT SETUP INFORMATION			
Projection System	**NAD83 / Lambert North Dakota SP, Northern Zone (3301), US feet**	Software System	**WellArchitect® 3.0.2**
North Reference	**True**	User	**Painsetr**
Scale	**0.999936**	Report Generated	**4/8/2013** at **8:22:08 AM**
Convergence at slot	**2.40° West**	Database/Source file	**WA_Denver/ATLANTA_12-6H_AWB.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	27.39	1124.94	1180159.22	421179.25	**48°06'33.649"N**	**103°43'40.384"W**
Facility Reference Pt			1179034.20	421199.10	**48°06'33.379"N**	**103°43'56.960"W**
Field Reference Pt			1379474.78	594749.03	**48°36'17.680"N**	**102°56'05.560"W**

WELLPATH DATUM			
Calculation method	**Minimum curvature**	CYCLONE 2 (RKB) to Facility Vertical Datum	**1967.00ft**
Horizontal Reference Pt	**Slot**	CYCLONE 2 (RKB) to Mean Sea Level	**1967.00ft**
Vertical Reference Pt	**CYCLONE 2 (RKB)**	CYCLONE 2 (RKB) to Mud Line at Slot (SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06))	**1967.00ft**
MD Reference Pt	**CYCLONE 2 (RKB)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**104.22°**

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
1946.00	0.500	224.400	1945.85	-6.60	20.68	-1.57	0.78	TIE ON
2081.00	1.280	236.950	2080.83	-7.92	19.44	-3.25	0.59	
2175.00	2.280	207.210	2174.79	-9.06	17.20	-4.98	1.41	
2269.00	3.610	192.010	2268.66	-9.36	12.64	-6.45	1.63	
2362.00	3.690	197.260	2361.47	-9.41	6.92	-7.95	0.37	
2456.00	4.230	198.370	2455.25	-9.82	0.74	-9.94	0.58	
2549.00	2.950	180.750	2548.07	-9.51	-4.90	-11.05	1.80	
2643.00	3.130	190.970	2641.94	-8.80	-9.84	-11.57	0.61	
2735.00	3.150	166.920	2733.80	-7.50	-14.77	-11.48	1.42	
2827.00	3.340	174.470	2825.66	-5.44	-19.90	-10.65	0.51	
2920.00	3.420	174.560	2918.49	-3.59	-25.36	-10.13	0.09	
3014.00	3.210	171.980	3012.34	-1.65	-30.76	-9.49	0.27	
3108.00	3.120	172.480	3106.19	0.30	-35.90	-8.79	0.10	
3201.00	3.040	168.550	3199.06	2.30	-40.82	-7.97	0.24	
3293.00	2.750	169.260	3290.94	4.29	-45.38	-7.07	0.32	
3385.00	1.540	182.700	3382.88	5.47	-48.79	-6.72	1.42	
3478.00	0.670	206.560	3475.86	5.60	-50.52	-7.02	1.04	
3572.00	0.880	196.200	3569.85	5.46	-51.71	-7.47	0.27	
3665.00	0.650	260.440	3662.84	4.95	-52.48	-8.19	0.90	
3759.00	0.560	261.030	3756.84	4.04	-52.64	-9.17	0.10	
3853.00	0.510	262.250	3850.83	3.23	-52.77	-10.04	0.05	
3945.00	0.290	283.550	3942.83	2.62	-52.77	-10.67	0.28	
4039.00	0.180	293.540	4036.83	2.23	-52.65	-11.04	0.12	
4132.00	0.070	124.960	4129.83	2.14	-52.63	-11.12	0.27	
4225.00	0.090	131.210	4222.83	2.26	-52.71	-11.02	0.02	
4319.00	0.130	182.910	4316.83	2.35	-52.86	-10.97	0.11	
4413.00	0.060	265.530	4410.83	2.32	-52.97	-11.03	0.14	
4506.00	0.120	142.410	4503.83	2.35	-53.05	-11.02	0.17	
4600.00	0.090	89.590	4597.83	2.50	-53.13	-10.88	0.10	
4693.00	0.150	66.330	4690.83	2.67	-53.08	-10.70	0.08	

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
4787.00	0.310	123.530	4784.83	3.01	-53.17	-10.37	0.28	
4881.00	0.770	137.950	4878.82	3.77	-53.78	-9.74	0.51	
4974.00	1.050	132.290	4971.81	5.04	-54.82	-8.69	0.32	
5068.00	1.230	112.720	5065.79	6.80	-55.79	-7.12	0.45	
5160.00	1.080	106.510	5157.77	8.64	-56.42	-5.38	0.21	
5254.00	1.280	113.450	5251.76	10.56	-57.09	-3.57	0.26	
5346.00	0.310	280.030	5343.75	11.33	-57.45	-2.87	1.72	
5440.00	0.500	295.640	5437.75	10.68	-57.23	-3.49	0.23	
5534.00	0.510	310.300	5531.74	9.90	-56.78	-4.18	0.14	
5628.00	0.500	322.210	5625.74	9.20	-56.19	-4.75	0.11	
5721.00	0.280	349.830	5718.74	8.79	-55.64	-5.04	0.30	
5815.00	1.050	100.270	5812.73	9.55	-55.57	-4.23	1.25	
5909.00	0.740	56.810	5906.72	10.82	-55.39	-2.87	0.77	
6002.00	1.200	129.180	5999.71	12.11	-55.68	-1.62	1.29	
6096.00	0.950	203.730	6093.70	12.87	-57.01	-1.17	1.40	
6190.00	1.660	174.720	6187.67	13.20	-59.08	-1.36	1.01	
6283.00	1.530	152.710	6280.64	14.47	-61.53	-0.66	0.67	
6377.00	1.420	139.530	6374.61	16.25	-63.53	0.67	0.38	
6470.00	0.200	95.810	6467.60	17.35	-64.42	1.58	1.38	
6564.00	1.350	155.380	6561.59	18.21	-65.45	2.20	1.34	
6657.00	0.930	200.800	6654.57	18.81	-67.15	2.39	1.03	
6751.00	1.580	315.050	6748.56	17.61	-66.94	1.21	2.27	
6843.00	1.520	317.920	6840.52	15.51	-65.14	-0.51	0.11	
6937.00	1.490	315.390	6934.49	13.42	-63.34	-2.20	0.08	
7030.00	1.360	314.990	7027.46	11.44	-61.70	-3.83	0.14	
7124.00	1.390	316.380	7121.44	9.52	-60.09	-5.41	0.05	
7217.00	0.990	331.410	7214.42	8.02	-58.57	-6.57	0.54	
7311.00	0.770	347.020	7308.40	7.18	-57.24	-7.10	0.34	
7404.00	0.900	358.190	7401.39	6.69	-55.90	-7.26	0.22	
7498.00	0.550	338.050	7495.39	6.22	-54.74	-7.46	0.46	

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
7591.00	0.540	349.480	7588.38	5.77	-53.90	-7.70	0.12	
7685.00	0.620	328.690	7682.38	5.22	-53.03	-8.05	0.24	
7779.00	0.770	343.400	7776.37	4.54	-51.99	-8.49	0.25	
7871.00	0.560	0.940	7868.37	4.12	-50.95	-8.66	0.32	
7964.00	0.540	341.890	7961.36	3.78	-50.08	-8.79	0.20	
8058.00	0.570	338.820	8055.36	3.27	-49.22	-9.10	0.04	
8152.00	0.740	332.400	8149.35	2.59	-48.25	-9.55	0.20	
8245.00	0.840	331.020	8242.34	1.73	-47.12	-10.16	0.11	
8339.00	0.720	326.170	8336.33	0.82	-46.02	-10.82	0.15	
8433.00	0.690	333.000	8430.33	0.00	-45.03	-11.40	0.09	
8526.00	0.800	325.680	8523.32	-0.85	-43.99	-12.02	0.16	
8619.00	0.900	317.970	8616.31	-1.94	-42.91	-12.88	0.16	
8711.00	0.980	322.450	8708.30	-3.16	-41.75	-13.84	0.12	
8805.00	0.960	312.260	8802.28	-4.49	-40.59	-14.92	0.18	
8899.00	0.900	308.950	8896.27	-5.86	-39.59	-16.07	0.09	
8992.00	0.680	309.230	8989.26	-7.02	-38.79	-17.07	0.24	
9085.00	1.040	69.500	9082.26	-6.83	-38.14	-16.71	1.62	
9179.00	1.090	79.900	9176.24	-5.31	-37.69	-15.03	0.21	
9273.00	0.870	86.170	9270.23	-3.82	-37.48	-13.43	0.26	
9366.00	0.840	81.850	9363.21	-2.51	-37.34	-12.05	0.08	
9460.00	0.740	85.980	9457.21	-1.30	-37.20	-10.77	0.12	
9554.00	0.870	80.650	9551.20	-0.07	-37.04	-9.46	0.16	
9647.00	0.800	72.830	9644.19	1.13	-36.73	-8.14	0.14	
9741.00	0.650	60.030	9738.18	2.07	-36.27	-7.05	0.23	
9834.00	0.690	64.230	9831.17	2.88	-35.76	-6.09	0.07	
9926.00	0.770	72.650	9923.17	3.83	-35.34	-5.00	0.15	
9958.00	0.670	41.590	9955.16	4.10	-35.14	-4.67	1.24	
9989.00	0.570	58.560	9986.16	4.29	-34.92	-4.42	0.67	
10020.00	0.550	74.820	10017.16	4.53	-34.80	-4.14	0.51	
10052.00	0.610	77.260	10049.16	4.82	-34.72	-3.83	0.20	

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
10083.00	3.610	101.780	10080.13	5.94	-34.89	-2.71	9.89	
10114.00	7.830	106.930	10110.97	9.02	-35.70	0.26	13.70	
10145.00	11.360	109.320	10141.53	14.18	-37.33	5.17	11.46	
10176.00	15.900	110.560	10171.65	21.44	-39.83	12.03	14.67	
10208.00	19.050	112.840	10202.17	30.96	-43.40	20.95	10.07	
10239.00	21.590	107.810	10231.24	41.66	-47.10	31.04	9.94	
10270.00	25.640	107.400	10259.64	54.05	-50.86	42.88	13.08	
10301.00	29.390	105.780	10287.13	68.36	-54.93	56.60	12.33	
10332.00	32.520	104.190	10313.71	84.30	-59.04	72.00	10.43	
10363.00	36.170	104.430	10339.30	101.79	-63.37	88.95	11.78	
10394.00	38.460	107.750	10363.96	120.56	-68.59	106.99	9.83	
10426.00	42.280	108.530	10388.34	141.24	-75.05	126.68	12.04	
10457.00	47.290	109.330	10410.33	162.99	-82.13	147.33	16.26	
10488.00	49.980	109.490	10430.82	186.16	-89.87	169.27	8.69	
10519.00	51.560	108.750	10450.42	210.08	-97.73	191.96	5.42	
10550.00	56.500	107.510	10468.62	235.11	-105.53	215.80	16.26	
10582.00	61.060	107.060	10485.21	262.43	-113.65	241.92	14.30	
10613.00	63.020	105.920	10499.74	289.78	-121.42	268.18	7.11	
10644.00	62.530	105.320	10513.92	317.34	-128.84	294.72	2.34	
10675.00	61.920	104.780	10528.37	344.77	-135.97	321.21	2.50	
10706.00	61.530	105.630	10543.05	372.06	-143.13	347.56	2.72	
10737.00	64.510	104.470	10557.12	399.68	-150.29	374.23	10.17	
10768.00	69.710	102.100	10569.17	428.23	-156.84	402.02	18.19	
10799.00	74.300	101.400	10578.75	457.67	-162.84	430.88	14.96	
10831.00	78.530	102.010	10586.26	488.74	-169.15	461.33	13.35	LAST BHI MWD SURVEY
10895.00	89.500	102.010	10592.92	552.25	-182.38	523.49	17.14	PTB

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

HOLE & CASING SECTIONS - **Ref Wellbore: ATLANTA 12-6H AWB** **Ref Wellpath: ATLANTA 12-6H AWP**

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing Surface	22.00	1986.00	1964.00	22.00	1985.85	0.00	0.00	20.40	-1.89
8.75in Open Hole	1986.00	10895.00	8909.00	1985.85	10592.92	20.40	-1.89	-182.38	523.49
7in Casing Intermediate	22.00	10875.00	10853.00	22.00	10592.15	0.00	0.00	-178.22	503.94

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
ATLANTA 12-6H SECTION 05		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION 06		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION 08		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION LINES		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H BHL ON PLAT REV-1(2342'FSL & 500'FEL,SEC.05)		10586.00	-2442.96	8665.04	1188713.70	418375.47	48°06'09.521"N	103°41'32.721"W	point
ATLANTA 12-6H BHL REV-2 (2342'FSL & 200'FEL,SEC.05)		10586.00	-2443.04	8965.00	1189013.37	418362.82	48°06'09.519"N	103°41'28.302"W	point
ATLANTA 12-6H BHL REV-3 (2342'FSL & 200'FEL,SEC.05)		10600.00	-2256.70	8900.90	1188957.14	418551.67	48°06'11.358"N	103°41'29.245"W	point
ATLANTA 12-6H BHL REV-4 (2342'FSL & 200'FEL,SEC.05)		10600.00	-2256.70	8906.50	1188962.74	418551.44	48°06'11.358"N	103°41'29.162"W	point
ATLANTA 12-6H HARDLINES (500'N/W & 200'S/E)		10600.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH COMPOSITION - Ref Wellbore: ATLANTA 12-6H AWB Ref Wellpath: ATLANTA 12-6H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.00	1946.00	ISCWSA MWD, Rev. 2 (Standard)	NEWSCO SURFACE MWD<140-1946>	ATLANTA 12-6H AWB
1946.00	10831.00	NaviTrak (Standard)	BHI MWD 8.75 HOLE<2081-10831>	ATLANTA 12-6H AWB
10831.00	10895.00	Blind Drilling (std)	Projection to bit	ATLANTA 12-6H AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H AWB**
Facility	**SEC.06-T153N-R101W**		

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
1946.00	0.500	224.400	1945.85	TIE ON
10831.00	78.530	102.010	10586.26	LAST BHI MWD SURVEY
10895.00	89.500	102.010	10592.92	PTB

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (03-2004)

DEC 2012
RECEIVED
ND OIL & GAS DIVISION

Well File No.
23361

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

- [x] Notice of Intent — Approximate Start Date: **January 29, 2013**
- [ ] Report of Work Done — Date Work Completed:
- [ ] Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. — Approximate Start Date:

- [ ] Drilling Prognosis
- [ ] Redrilling or Repair
- [ ] Casing or Liner
- [ ] Plug Well
- [ ] Supplemental History
- [ ] Temporarily Abandon
- [ ] Spill Report
- [ ] Shooting
- [ ] Acidizing
- [ ] Fracture Treatment
- [ ] Change Production Method
- [ ] Reclamation
- [x] Other **Flow back exemption**

Well Name and Number: **Atlanta 12-6H**

Footages	Qtr-Qtr	Section	Township	Range
495 F N L 1395 F W L	NENW	6	153 N	101 W

Field	Pool	County
Baker	Bakken	Williams

24-HOUR PRODUCTION RATE

Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)

Address	City	State	Zip Code

DETAILS OF WORK

Continental Resources, Inc. requests a waiver from the tubing/pkr requirement included in NDIC 43-02-03-21: Casing, Tubing, and Cementing Requirements during the completion period immediately following the upcoming fracture stimulation. The following assurances apply:

1) The well is equipped with 26#/ft P-110 7" casing at surface with an API burst rating of 9960 psig for the 26 #/ft casing.
2) The frac design will use a safety factor of 0.85 * API burst rating to determine the max pressure.
3) Damage to the casing during the frac would be detected immediately by monitoring equipment.
4) The casing is exposed to significantly lower rates and pressures during flow back than during the frac job.
5) The frac fluid and formation fluids have very low corrosion and erosion rates
6) Production equipment will be installed as soon as possible after the well ceases flowing.
7) A 300# gauge will be installed on surface casing during flowback period.

Company	Telephone Number
Continental Resources, Inc.	405-234-9000
Address: P.O. Box 269000	
City: Oklahoma City	State: OK — Zip Code: 73126
Signature	Printed Name: Jim Landrigan
Title: Completion Engineer	Date: December 3, 2012

FOR STATE USE ONLY

- [ ] Received
- [x] Approved

Date: December 14, 2012
By:
Title: PETROLEUM ENGINEER

AMERICAN
TECHNICAL
SERVICES, INC.

8105 Black Hawk Rd • PO Box 658 • Black Hawk, SD 57718-0558 • Phone (605) 787-9303 • FAX (605) 787-9515
140 Pine Needle Drive • Spearfish, SD 57783 • Phone (605) 642-2742 • Mobile 390-3768

CONTINENTAL RESOURCES, INC.
C/O Brosz Engineering
P.O. Box 357
Bowman, North Dakota 58623

June 12, 2012

Attn: Jade Hedge

Subj: Report of Geotechnical Engineering Analysis
Atlanta Drill Pad
Continental Resources
Near Williston, North Dakota

ATS No. 12-12165

We have completed the geotechnical engineering analysis of the soils at the proposed Atlanta Drill Pad site located approximately 5 miles southwest of Williston, North Dakota. This analysis was authorized by Jade Hedge of Brosz Engineering on behalf of Continental Resources. Our soil design and construction recommendations are attached.

Geologic Profile:

Based on our analysis, we have determined the soil profile at the proposed Atlanta Drill Pad site consists of variable depths of sand and clay glacial deposits overlying fat clay glacial till and Pierre Shale. The sand and clay glacial deposits have variable amounts of clay, sand, gravel and traces of coal. The sands are of low plasticity and the fat clay glacial till is highly plastic and expansive.

Global Slope Stability:

The Owner elected not to conduct a slope stability analysis at this site. Thus, our recommendations are given with no acceptance or assumption of the global stability of the slopes at this site. Global stability issues may be present and may create land shifting or sliding in the future.

Geotechnical Summary:

The Atlanta Drill Pad will be constructed on a site with ridge and swale topography on the breaks of the Missouri River near Williston. We understand the Atlanta Drill pad will be created with massive cut and fill earthwork techniques. Cut depths on the order of 20 to 25 feet and fill depths up to 50 feet are planned for the construction of the drill pad.

We are providing drill pad construction earthwork recommendations given the soil profile and knowing the earthwork required to create the drill pad. We offer the following:

Cut Sections:

We recommend that any structure, drill rig, or other more permanent elements which are intolerant to differential movement be placed on the cut areas of the site.

Based on our drill program, we know that variable depths of sand mixtures overlie fat clay glacial till in the cut areas of the site. We recommend the fill pad finished elevation be established at the fat clay till contact or the sands be totally removed to the glacial till contact and then replaced with compacted clays. It is desired to not have layers of sand over clays as instability can result with moisture accumulation below sands and atop clays.

Fill Sections:

We recommend that no structure, drill rig, or other more permanent elements which are intolerant to differential movement be placed over fill areas. If it is desired or necessary to occupy fill areas, we recommend placement of such elements not be conducted until the fill sections have been allowed to consolidate for a minimum of one (1) year. We recommend the fill sections be monitored for vertical and horizontal movement upon completion in order to determine the stability of the sections.

We recommend the swales (valleys) which will be filled have underdrains installed prior to placing fill. We recommend pairs (set of 2 pipes) of 6" flexible PVC drain tile materials be installed along the toes of the existing swales prior to placing fill. The underdrain pipes should be sloped to daylight and must be kept unobstructed.

Fill placed on the existing toes of slopes must be keyed in a minimum depth of five (5) feet prior to placing fill. Fill must also be horizontally benched into existing slopes as fill is placed. We recommend benches be a minimum of 8 feet wide and be installed every two (2) feet vertically.

Drainage Considerations:

We recommend an intercepting drainage trench be excavated atop the cut to divert surface runoff away from the site. We also recommend the final drill pad be sloped to drain at a minimum rate of 5%.

We recommend the drill pad finished surface consist of compacted clays (either exposed native soils or placed clay soils) to minimize subsurface infiltration. Service gravel with separation fabric should be used in traffic areas to allow for access over clay surfaces.

Earthwork Considerations:

All fill soils must be moisture conditioned to +/-3% of optimum moisture content and be compacted to a minimum of 95% of ASTM D 698 standard proctor value.

Loose lifts of fill must not exceed 8" and may be increased to 12" if proper compaction equipment is used and density is verified. Cut/fill earthwork operations in freezing weather must be monitored for frost intrusion and frost lensing. Cut/fill earthwork in winter months is not recommended for this site due to the depths of fill planned.

Closure:

Critical specific recommendations are presented in the report. Reference the site plan in the Appendix for boring locations.

We are available to give further design or consultation if necessary. We should be retained to observe, test, and approve the soils at the time of construction.

We look forward to working with you on future projects.

Sincerely,
American Technical Services, Inc.

Dave G. Bressler, P.E.
Director of Engineering

Copies to: Addressee (4)

INTRODUCTION

This report presents the results of our geotechnical engineering analysis of the soils at the proposed Atlanta Drill Pad site located approximately 5 miles southwest of Williston, North Dakota. This analysis was authorized by Jade Hedge of Brosz Engineering on behalf of Continental Resources.

Our services included laboratory testing of provided samples, performing engineering analysis, providing recommendations for use in drill pad design and construction. Results of the laboratory tests are presented in the report.

Our professional services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by geotechnical engineers practicing in this or similar localities. No other warranty, express or implied, is made. This report is not a bidding document. Any contractor reviewing this report must draw his own conclusions regarding site conditions and specific construction techniques to be used on this project.

PROJECT INFORMATION

Project information supplied by Brosz Engineering indicates Continental Resources intends to construct a drill pad near Williston, North Dakota. It is our understanding the site will be leveled by massive cut/fill construction. Based on our review of the provided site plans, some fill sections will be upwards of 50 feet in depth. Based on the request for proposal from Brosz Engineering, we are to provide a geotechnical evaluation of the site, provide recommendations for benching and side slopes, and provide slope construction guidelines.

We previously submitted (March, 2012) a proposal for the work at this site which included a slope stability analysis. We understand the Owner elected not to conduct the slope stability analysis.

SUBSURFACE EXPLORATION & TESTING PROGRAMS

We conducted ten (10) explorations to depths of 21 to 61 feet below existing site grades at the Atlanta Drill pad site. The explorations were at the approximate location shown on the attached site plan.

The Unified Soil Classification System was used to classify the soils encountered. Laboratory analyses were performed on representative soil samples to aid in material classification and to estimate pertinent engineering properties of the on-site soils. Testing was performed in accordance with applicable ASTM specifications.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on or below this site. All conditions noted or observed are strictly for the information of our client. If environmental information is required, we recommend an environmental assessment be conducted which addresses environmental concerns.

SITE CONDITIONS

Surface:

The Atlanta Drill Pad site is located approximately 5 miles southwest of Williston, North Dakota. The site lies on the breaks of the Missouri River. The surface at the pad site consists of ridge and swale topography with well defined drainage swales present. The surface is primarily grass and weed covered with overall drainage trending to the south.

Subsurface:

Detailed soil profiles are presented in the boring logs in the Appendix. Based on our analysis, we have determined the soil profile at the proposed Atlanta Drill Pad site consists of variable depths of sand and clay glacial deposits overlying fat clay glacial till and Pierre Shale. The sand and clay glacial deposits have variable amounts of clay, sand, gravel and traces of coal. The sands are of low plasticity and the fat clay glacial till is highly plastic and expansive.

Groundwater Conditions:

Groundwater was encountered at our Boring 1 (57' below existing site grades) location, and at approximately 15 to 18 feet below existing site grades at our boring 8, 9, and 10 locations (lower area of site). Fluctuations in the groundwater table may occur for various reasons, i.e., variations in precipitation, evaporation, surface runoff, groundwater withdrawal and recharge. A more accurate evaluation of the water table would require installing and monitoring piezometers over an extended time period.

Laboratory Analyses:

In-situ moisture contents and dry densities of representative samples from the borings are presented on the boring logs in the Appendix.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

Our recommendations are based on the assumption that the soil conditions are similar to those disclosed by the provided samples. If variations are noted during construction or if changes are made in the site plan, structural loading, or foundation type, we should be notified so we can supplement our recommendations, as applicable. This report does not encompass the effects, if any, of underlying geologic hazards or regional groundwater withdrawal and expresses no opinion regarding their effects on surface movement.

Global Slope Stability:

The Owner elected not to conduct a slope stability analysis at this site. Thus, our recommendations are given with no acceptance or assumption of the global stability of the slopes at this site. Global stability issues may be present and may create land shifting or sliding in the future.

Geotechnical Summary:

The Atlanta Drill Pad will be constructed on a site with ridge and swale topography on the breaks of the Missouri River near Williston. We understand the Atlanta Drill pad will be created with massive cut and fill earthwork techniques. Cut depths on the order of 20 to 25 feet and fill depths up to 50 feet are planned for the construction of the drill pad.

We recommend an intercepting drainage trench be excavated atop the cut to divert surface runoff away from the site. We also recommend the final drill pad be sloped to drain at a minimum rate of 5%.

We recommend the drill pad finished surface consist of compacted clays (either exposed native soils or placed clay soils) to minimize subsurface infiltration. Service gravel with separation fabric should be used in traffic areas to allow for access over clay surfaces.

We are providing drill pad construction earthwork recommendations given the soil profile and knowing the earthwork required to create the drill pad.

DRILL PAD CUT SECTIONS:

We recommend that any structure, drill rig, or other more permanent elements which are intolerant to differential movement be placed on the cut areas of the site.

Based on our drill program, we know that variable depths of sand mixtures overlie fat clay glacial till in the cut areas of the site. We recommend the fill pad finished elevation be established at the fat clay till contact or the sands be totally removed to the glacial till contact and then replaced with compacted clays. It is desired to not have layers of sand over clays as instability can result with moisture accumulation below sands and atop clays.

For grading cut slope design purposes and due to the presence of sandy soils, we recommend cut slopes be designed to slope at a rate of no steeper than 3:1 (horizontal to vertical). Said slopes will allow for maintenance and repair as necessary and will minimize erosion after vegetation is established. We offer the following grading guidelines for construction of surfacing or elements (excluding permanent structures) over cut sections:

1) We recommend a minimum of 8 inches of the on-site surficial soils and topsoil be removed, as applicable.

2) We recommend the soils exposed in the cut area be scarified a minimum of 8 inches, and be moisture conditioned to +/-3% of optimum moisture content.

3) We recommend the soils be compacted to a minimum of 95% of ASTM 698 standard proctor value. Compaction equipment must be sufficient to gain the desired results and will depend on the soils placed. The geotechnical engineer should observe, classify, and test the soils during the fill placement to assure proper techniques are employed.

4) After subgrade preparation and compaction, we recommend gravel base course or desired surfacing be placed. We recommend stabilization/separation fabric such as Mirafi HP370 be placed between the soil subgrade and surfacing material. Oversized rock may be required high traffic or soft soil areas.

DRILL PAD FILL SECTIONS:

We recommend that no structure, drill rig, or other more permanent elements which are intolerant to differential movement be placed over fill areas.

If it is desired or necessary to occupy fill areas, we recommend placement of such elements not be conducted until the fill sections have been allowed to consolidate for a minimum of one (1) year. We recommend the fill sections be monitored for vertical and horizontal movement upon completion in order to determine the stability of the sections.

We recommend the final slopes be no steeper than 3:1 (horizontal to vertical).

Underdrains:

We recommend the swales (valleys) which will be filled have underdrains installed prior to placing fill. We recommend pairs (set of 2 pipes) be installed along the toes of the existing swales prior to placing fill. We recommend the underdrains consist of 6" diameter fabric wrapped flexible perforated drain pipe. We recommend the drain pipe be bedded with a minimum of 12 inches of 1" clean rock bedding for the entire pipe length at the specified locations. The underdrain pipes should be sloped to daylight and must be kept unobstructed.

Keyways:

At the toes of the existing slopes, we recommend the native soils have a keyway cut to aid in supporting slope fill retention. We recommend the slope keyway consist of a five (5) foot minimum vertical cut in the native approved soils along the east side toe. Keyway areas over daylight pipe areas may be modified depending on depth. We recommend the keyway be a minimum of 10 feet in width. Additional underdrains may be required for the system if water is encountered within keyways.

Fill Construction:

We understand the fill for the pad will come from on-site as the grading is conducted. With the aforementioned grading plan in mind and our analysis of the soils present, we offer the following grading recommendations:

1) We recommend the fill areas be stripped to receive new fill. Stripping should clear all vegetation, topsoil and debris. The depth of such materials and horizontal extent of the fill/cut slopes will vary along the proposed toe slopes.

2) We recommend a minimum of 8 inches of the soils at the base of fill sections be removed (includes topsoil).

3) We recommend the soils present at the bottom of the aforementioned stripping depth be proofrolled in the presence of the geotechnical engineer. Soft or debris laden soil areas may require removal or stabilization with oversized rock prior to placing fill.

4) It is critical that newly placed embankment fill be benched into the existing side slopes as the fill is raised. We recommend a minimum bench width of eight (8) feet or one (1) scraper width per every two (2) feet of fill placed.

5) The soils placed must be placed in an engineered manner. The soils should be moisture conditioned to within 3% of optimum moisture content and be compacted to a minimum of 95% of ASTM D 698 standard proctor value. Compaction equipment must be sufficient to gain the desired results and will depend on the soils placed. The geotechnical engineer should observe, classify, and test the soils during the fill placement to assure proper techniques are employed.

6) Loose lifts of fill must not exceed 8" and may be increased to 12" if proper compaction equipment is used and density is verified. Cut/fill earthwork operations in freezing weather must be monitored for frost intrusion and frost lensing. Cut/fill earthwork in winter months is not recommended for this site due to the depths of fill planned.

7) We recommend that all finished fill slopes for the roadways be covered with topsoil and/or be hydro-seeded as soon as possible after the slopes have been finished to avoid excessive moisture intrusion and erosion. Seeding and erosion control measures should then follow as dictated by progress.

8) Erosion control measures must be implemented during and after construction to avoid loss of soil structure and sedimentation due to surface water infiltration and erosion. Erosion control techniques and materials should be upgraded or repaired as necessary during the course of construction. We recommend final slopes be no steeper than 3:1 (horizontal to vertical) to reduce erosion and facilitate mowing, etc. Steeper slopes can be used, however, maintenance during and after construction must be provided.

9) We estimate a shrinkage of soil from cut to fill of 25%.

Buried Debris, Large Cobbles, Boulders & Lignite Coal Lenses:

Buried debris may be present at any location at this site. Traces of lignite coal was encountered during our drilling and sampling program at this site. Cobbles were also encountered in the mixed glacial deposit areas.

We recommend buried debris pockets and lignite coal lenses, if exposed, be observed by the geotechnical engineer to determine the affects of the soils with respect to the drill pad. Removal and replacement of said materials may be required.

Large cobbles or boulders encountered may be placed at the bottom of fill areas as long as large particles are not allowed to "nest". Such particles should be isolated and surrounded by compacted fill.

Frost Depth Considerations

A minimum frost depth of 5 feet (60 inches) should be used for pertinent element design.

DRAINAGE AND MOISTURE PROTECTION

It is extremely important that the site soils not be allowed to become saturated during or after construction. Sump pumps should be present during construction to facilitate water removal after inclement weather.

Surface drainage is critical to assure long tank pad life. Grades should be such that drainage is away from all structures. Utility line excavations should be properly backfilled to avoid possible sources for subsurface saturation. The finished exterior grades of the pad must be sloped a minimum of 5% to promote positive drainage. Respective structure or well pads should be elevated relative to the surrounding finished grades to aid in promoting positive drainage.

We recommend the surface across the pad consist of native or placed compacted clay. We recommend any clay cap material be moisture conditioned to +/-3% of optimum moisture content and be compacted to a minimum of 95% of ASTM D 698 standard proctor value.

OSHA SLOPE STABILITY

GENERAL

The owner and contractor should make themselves aware of and become familiar with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing this information solely as a service to our client. Under no circumstances should the information provided below be interpreted to mean that American Technical Services, Inc., is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

EXCAVATIONS AND SLOPES

The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety regulations, e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations, such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

For this site, the overburden soil encountered in our exploratory investigation is primarily a sand. This is considered to be a type B soil when applying the OSHA regulations. OSHA recommends a maximum slope inclination of 1:1 - (horizontal/vertical) for type B soils. As a safety measure, it is recommended that all vehicles and soil piles be kept a minimum lateral distance from the crest of the slope equal to no less than the slope height. Also, the exposed slope face should be protected against the elements.

We recommend that you retain us to monitor the soils exposed in all excavations and provide engineering services for such slopes. This will provide an opportunity to monitor the soil types encountered and to modify the excavation slope as necessary. It also offers an opportunity to verify the soil type and bearing capacity of the exposed soils.

EARTHWORK

GENERAL

1. The conclusions in this report are contingent upon compliance with recommendations in this section.

2. Due to the possible presence of buried debris, lignite coal, and groundwater impacted soils, we recommend the geotechnical engineer or his representative observe the soils exposed at bottom of slope keyway elevations and along underdrain areas prior to placing fill. Additional overexcavation and replacement may be required.

SITE CLEARING

Strip and remove existing debris, soft or loose soil and any other deleterious materials from the building and parking areas and at least 5 feet beyond. All exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

EXCAVATION

1. Standard excavation equipment should be sufficient for excavations at this site. Buried debris or large cobble to boulder sized materials may be encountered which are difficult to handle.

2. On-site soils may pump if allowed to become saturated. Scarification and drying, replacement with granular materials, use of special equipment or stabilization may be required to minimize subgrade pumping.

CONSTRUCTION OVER CUT OR FILL AREAS

1. Drain, prepare and construct cut or fill areas as presented in the respective sections of this report. Fill section consolidation period with monitoring is recommended prior to construction of elements.

2. Drainage of cut and fill slope surfaces in critical to prevent erosion and slope movement. Drill pad surface cross-slopes must be maintained at a minimum of 5% to promote surface drainage.

3. Respective subgrade preparation area to be accomplished in a manner which will result in uniform water contents and densities after compaction.

4. Soft, wet or debris laden soil lenses may require additional removal and replacement with oversized rock to stabilize.

MATERIALS

1. Granular engineered fill for structures should consist of on-site or imported sand or gravel. Structure placement recommendations is beyond the scope of this report.

2. Frozen soils should not be used as fill or backfill.

3. Gravel surfacing materials should conform to the following:

o	Gradation (ASTM C136):	
	Sieve Size	Percent Finer By Weight
	3"	100
	No. 4 Sieve	40-100
	No. 200 Sieve	15 (max)
	Liquid Limit	25 (max)
o	Maximum expansive potential(%)	*0.2

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 3 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged.

4. Acceptance of use of on-site materials shall be at the direction of the geotechnical engineer. The on-site soils shall be placed in an engineered manner. Moisture and density conditioning of the soil is critical.

PLACEMENT AND COMPACTION

1. Place and compact fill in horizontal lifts using equipment and procedures that will produce recommended water contents and densities throughout the lift.

2. No fill should be placed over frozen ground.

3. Materials should be compacted to the following:

Soil Placement	Minimum Percent Compaction (ASTM D698)
Miscellaneous fill	95

4. On -site and imported soils should be compacted at or near optimum moisture conditions.

COMPLIANCE

Structure foundation and slab support is beyond the scope of this report. Structures supported on cut surfaces or compacted fills are dependent upon compliance to respective cut and fill construction recommendations. To assess compliance with these recommendations, observation and testing should be performed under the direction of a geotechnical engineer.

CLOSURE

Our conclusions and recommendations are predicated on observation and testing of the earthwork preparations directed by a geotechnical engineer. Responsibility for any design or construction work or for our conclusions, recommendations, opinions or interpretations, either oral or written, cannot be accepted unless we perform the plan and specification review and construction monitoring to determine whether or not the work performed is in substantial compliance with our conclusions, recommendations, opinions or interpretations, and whether changed soil conditions have occurred.

Deviations from our recommendations by the plans, written specifications, or field applications shall relieve us of responsibility unless our written concurrence with such deviations has been obtained.

APPENDIX

PROJECT LOCATION MAP

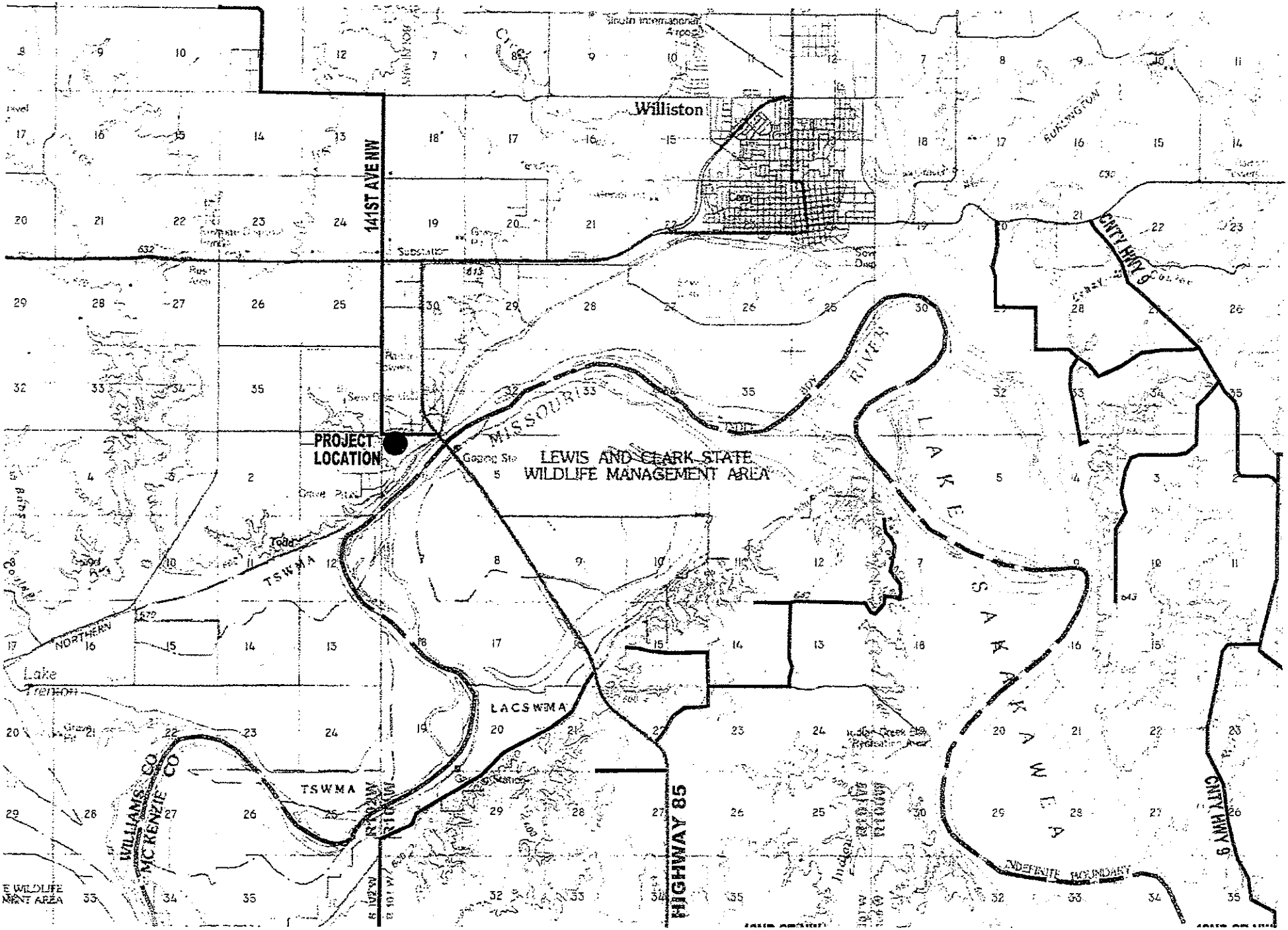
SITE PLAN WITH BORING LOCATIONS

BORING LOGS

BORING LOG GENERAL NOTES

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

MOISTURE-DENSITY CURVES


Williston
141ST AVE NW
PROJECT LOCATION
MISSOURI RIVER
LEWIS AND CLARK STATE
WILDLIFE MANAGEMENT AREA
LAKE SAKAKAWEA
TSWMA
LACSWMA
HIGHWAY 85
CNTY HWY 9
WILLIAMS CO
MC KENZIE CO
NORTHERN
Lake
Trenton
INDEFINITE WORK BOUNDARY

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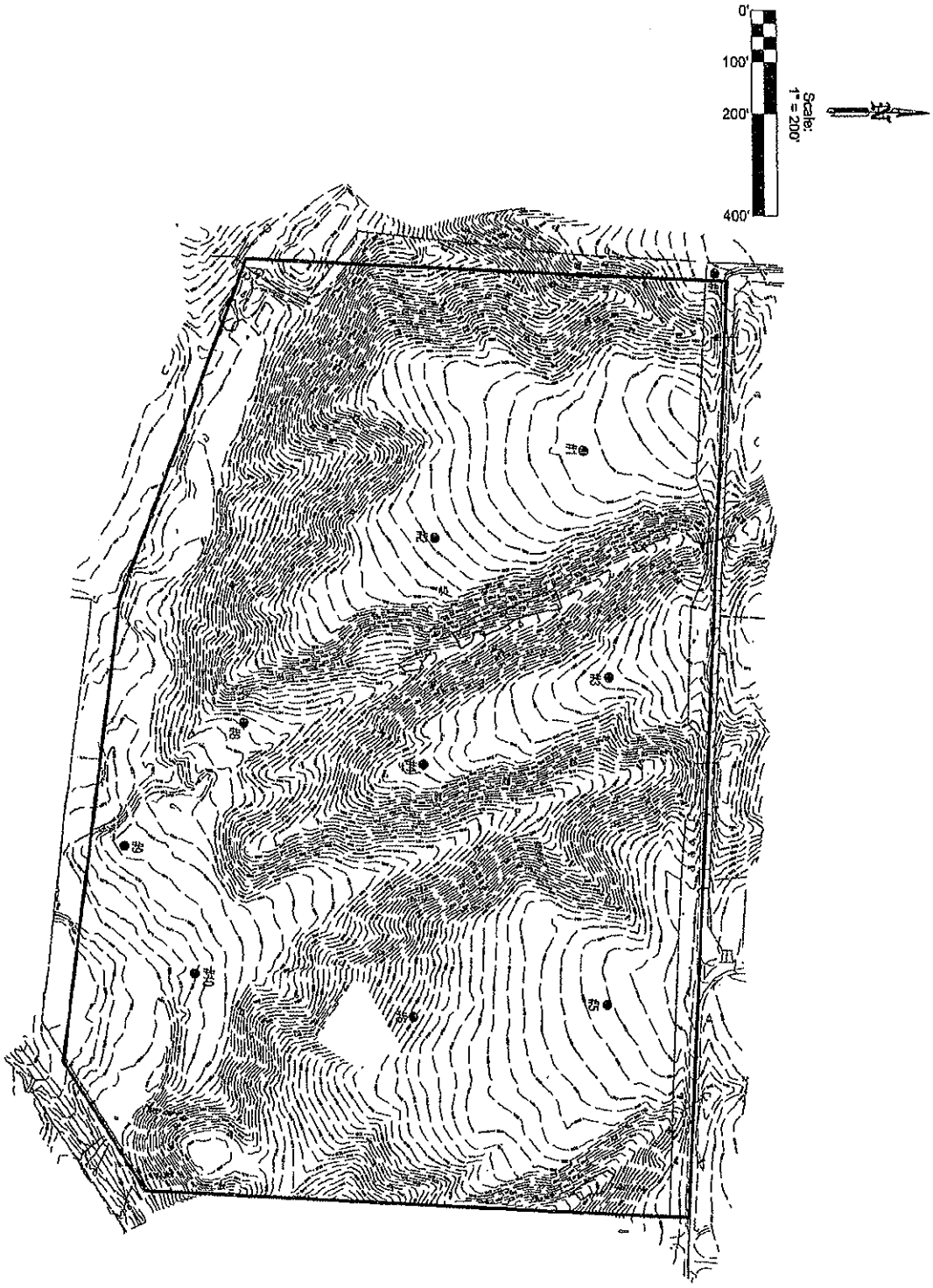


Brosz Engineering, Inc.	SHEET DESCRIPTION: Site Layout	REVISION / DATE	DESIGNED BY:	0 OF
	PROJECT NAME: Atlanta Site	1 xx/xx/xx	DRAWN BY: JBE	
	PROJECT NO.: N12B10	2	DATE PRINTED: 3/9/12	
		3		
		4		

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND

PROJECT NUMBER: 12-12165 BORING NO: 1

DEPTH IN FEET	Approximate Surface Elevation = 1969.2' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
2.5'	Sand w/clay: Brown, dry, loose (SC)	Alluvium								
	Sand: Brown, sl. moist, loose, m. grained, poorly graded, gravel	Glacial Deposit								
5.0'	present (SP)			7	1	SB	4	FR	NP	
9.0'										
10.0'	Sandy Clay w/gravel: Brown, sl. Moist			15	2	SB	9	118		
12.0'	v. stiff, cobble present, variable gravel and sand content (CL w/sand and gravel)									
15.0'	cobble absent, less gravel			12	3	SB	17	110		
17.5'										
	Fat Clay w/sand: Brown, moist,	Glacial Till								
20.0'	stiff, gravel present (CH w/sand) traces of gravel, variable sand content			14	4	SB	16	108		
24.0'										
25.0'				14	5	SB				
30.0'				12	6	SB	18	108		
35.0'					NSR					
36.0'										
40.0'				13	7	SB	18	111		
45.0'					NSR					
48.0'										
50.0'	Dk gray			14	8	SB				
55.0'					NSR					
57.0'			V							
58.0'										
	Shale: Dk. Gray, wet,	Pierre								
60.0'	m. stiff (CH)	Shale		9	9	SB	30	95		
61.0'	End of Boring									

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/5/12
6/5/12	Encountered at 57'	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 40'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND

PROJECT NUMBER: 12-12165

BORING NO: 2

DEPTH IN FEET	Approximate Surface Elevation = 1955.0' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
	Sand w/clay: Brown, dry, loose	Glacial								
2.5'	variable clay content (SC)	Deposit								
	Clayey Sand: Brown, sl. Moist,									
	m. dense, variable sand content,									
5.0'	trace of gravel (SC)			16	1	SB	8	117		
8.0'										
	Fat Clay w/sand: Brown, moist,	Glacial Till								
10.0'	v. stiff, traces of gravel,			16	2	SB	16	105	64/28	
	variable sand content (CH)									
15.0'	stiff			13	3	SB	17	111		
16.0'										
20.0'	v. stiff			21	4	SB	18	102		
24.0'										
25.0'				21	5	SB	19	107		
30.0'					NSR					
32.0'										
35.0'				15	6	SB				
40.0'				14	7	SB				
41.0'	End of Boring									

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/5/12
6/5/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 25'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND
PROJECT NUMBER: 12-12165

BORING NO: 3

DEPTH IN FEET	Approximate Surface Elevation = 1958.9' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
1.5'	Sand w/clay: Brown, dry, loose (SC)	Glacial Deposit								
	Sand w/clay: Brown, dry, m. dense m. grained, poorly graded (SP) variable clay content									
5.0'				18	1	SB	4	FR	NP	
8.0'										
10.0'				11	2	SB				
	Sandy Clay: Brown, moist, stiff, gravel present, variable sand content (CL)									
13.0'										
	Fat Clay w/sand: Brown, moist, stiff, traces of gravel variable sand content (CH)	Glacial Till								
15.0'				11	3	SB	17	110		
16.0'										
20.0'				12	4	SB				
24.0'										
25.0'					NSR					
30.0'	dk. Gray			13	5	SB	15	107		
32.0'										
35.0'					NSR					
40.0'	less stiff			9	6	SB				
41.0'	End of Boring									

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/5/12
6/5/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 25'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND
PROJECT NUMBER: 12-12165

BORING NO: 4

DEPTH IN FEET	Approximate Surface Elevation = 1941.2' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
1.5'	Sand w/clay: Brown, dry, loose, gravel and cobble present (SC)	Glacial Deposit								
3.0'										
4.5'	Sand: Tan, dry, loose (SP)									
5.0'	Sandy Clay: Brown, moist, stiff, trace of gravel, variable sand content (CL)			17	1	SB	11	FR	36 / 22	
8.0'										
9.0'										
10.0'	Fat Clay w/sand: Brown, moist stiff, traces of gravel, variable sand content (CH)	Glacial Till		14	2	SB	16	107		
15.0'				14	3	SB				
16.0'										
20.0'				14	4	SB				
24.0'										
25.0'					NSR					
30.0'				9	5	SB				
31.0'	End of Boring									
32.0'										
40.0'										

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/6/12
6/6/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 24'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND

PROJECT NUMBER: 12-12165

BORING NO: 5

DEPTH IN FEET	Approximate Surface Elevation = 1963.6' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
1.0'	Sand w/clay: Brown, dry, loose (SC)	Alluvium								
	Sand w/clay: Brown, sl. moist, m. dense, m. grained, poorly graded, gravel present (SP)	Glacial Deposit								
5.0'				13	1	SB	5	FR		
10.0'				11	2	SB	15	112		
12.0'	Fat Clay w/sand: Brown, moist, stiff, gravel present, (CH w/sand)	Glacial Till								
15.0'				11	3	SB	20	97	62 / 26	
20.0'				10	4	SB	19	107		
24.0'										
25.0'					NSR					
30.0'				9	5	SB	19	108		
35.0'					NSR					
36.0'										
40.0'	dk. Gray			12	6	SB	15	115		
45.0'					NSR					
48.0'										
50.0'	v. stiff			15	7	SB	15	FR		
51.0'	End of Boring									
60.0'										

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/6/12
6/6/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 32'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND
PROJECT NUMBER: 12-12165

BORING NO: 6

DEPTH IN FEET	Approximate Surface Elevation = 1921.5' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
	Clayey Sand/Sandy Clay: Brown, dry, stiff/m. dense, variable clay & sand content (SC-CL)	Glacial Deposit								
4.5'										
5.0'	Fat Clay w/sand: Brown, moist, v. stiff, traces of gravel, variable sand content (CH)	Glacial Till		19	1	SB	11	114		
10.0'	less stiff			8	2	SB	11	118		
15.0'				11	3	SB	15	116		
17.0'										
	Shale: Gray & brown, moist, stiff, sand present (CH)	Pierre Shale								
20.0'				10	4	SB	34	88		
25.0'				11	5	SB				
26.0'	End of Boring									

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/6/12
6/6/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 24'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND

PROJECT NUMBER: 12-12165

BORING NO: 7

DEPTH IN FEET	Approximate Surface Elevation = 1977.1' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	O	LL / PL	QU
0.0'	Grass/weed cover									
2.0'	Sand w/clay: Brown, dry, loose (SC)	Alluvium								
	Sand: Brown, sl. moist, loose, m. grained, poorly graded, gravel present (SP)	Glacial Deposit								
5.0'				9	1	SB	6	FR		
	Fat Clay w/sand: Brown, moist, stiff, gravel present, (CH w/sand) variable sand content	Glacial Till								
10.0'				10	2	SB	16	109		
12.0'										
15.0'				8	3	SB				
20.0'				9	4	SB	16	111		
24.0'										
25.0'				10	5	SB				
30.0'					NSR					
35.0'				9	6	SB				
36.0'										
40.0'					NSR					
45.0'	Dk. Gray			10	7	SB				
48.0'										
50.0'					NSR					
55.0'				9	8	SB				
60.0'				8	9	SB				
61.0'	End of Boring									

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/6/12
6/6/12	Not Encountered	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 43'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND

PROJECT NUMBER: 12-12165

BORING NO: 8

DEPTH IN FEET	Approximate Surface Elevation = 1892.3' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
	Clay w/sand: Gray, moist, stiff, sand present (CL)	Alluvium								
5.0'				8	1	SB	21	97		
10.0'				10	2	SB	19	107		
	Fat Clay w/sand: Brown, moist, stiff, variable sand content (CH)									
15.0'				9	3	SB	22	97		
	Shale: Gray & brown, moist, stiff, sand present (CH)	Pierre Shale								
18.0'			V							
20.0'				10	4	SB	33	91		
21.0'	End of Boring									
25.0'										

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/7/12
6/7/12	Encountered at 18'	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 14'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND
PROJECT NUMBER: 12-12165

BORING NO: 9

DEPTH IN FEET	Approximate Surface Elevation = 1878.6' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
	Sand w/clay: Brown, moist, loose, variable clay content (SC), traces of gravel present	Alluvium								
5.0'				9	1	SB	14	105		
10.0'				22	2	SB	4	FR		
	Gravelly Sand: Brown, moist, dense, variable sand content (SW)									
15.0'	obstructed sampler			11	NSR	SB	4	FR		
18.0'	less dense, wet, less gravel		▽							
20.0'				4	4	SB	23	109		
21.0'	End of Boring									
25.0'										

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/7/12
6/7/12	Encountered at 18'	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 13'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

TEST BORING LOG

PROJECT TITLE: Continental Atlanta Drill Pad, Near Williston, ND
PROJECT NUMBER: 12-12165

BORING NO: 10

DEPTH IN FEET	Approximate Surface Elevation = 1874.4' Description of Materials	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL / PL	QU
0.0'	Grass/weed cover									
	Sandy Clay/Clayey Sand: Brown, moist, m. stiff/loose, variable sand & clay content (CL-SC)	Alluvium								
5.0'	traces of gravel present			6	1	SB	11	111		
10.0'	soft/v. loose			4	2	SB	19	105		
15.0'	wet, softer/looser		▽	2	3	SB	25	FR		
19.0'										
20.0'	Sand: Brown, poorly graded wet, v. loose (SP)				NSR					
22.0'	Gravel & cobble present									
25.0'										
26.0'	End of Boring				NSR					

DATE:	WATER TABLE MEASUREMENTS	DATE: 6/7/12
6/7/12	Encountered at 15'	METHOD OF DRILLING: 2.25" HSA
	Borehole caved to 13'	CREW CHIEF: MS

AMERICAN TECHNICAL SERVICES, INC. (605) 787-9303

GENERAL NOTES

DESCRIPTIVE TERMINOLOGY

Density Term	"N" Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 16
Dense	16 - 30
Very Dense	> 30

Consistency Term	"N" Value
Very Soft	0 - 2
Soft	2 - 4
Medium stiff	4 - 8
Stiff	8 - 15
Very stiff	15 - 30
Hard	< 30

RELATIVE SIZES

Boulder		> 12"
Cobble		3" - 12"
Gravel	Coarse	3/4" - 3"
	Fine	#4 - 3/4"
Sand	Coarse	#4 - #10
	Medium	#10 - #40
	Fine	#40 - #200
	Silt & Clay	<#200 (PI)

Term	Range
Trace	0 - 5%
A Little	5 - 15%
Some	15 - 30%
With	30 - 50%

BORING AND SAMPLING SYMBOLS

SYMBOL	DEFINITION
HSA	Hollow Stem Auger - 3 1/4" ID & 4 1/4" ID
FA	Flight Auger - 4" OD
HA	Hand Auger - 1 1/2" OD
DC	Drive Casing
PD	Pipe Drill or Clean Out Tube
CS	Continuous Split Barrel Sampling
DM	Drilling Mud
JW	Jetting Water
SB	Split Barrel Sampler
TW	Thin Wall Tube Sampler
LS	Split Barrel Liner Sample
W	Wash Sample
B	Bag Sample
NSR	No Sample Retrieved
NMR	No Water Level Measurement Recorded
WL	Water Level
N	Standard Penetration Value
	Water Level Symbol

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture Content-Percent of Dry Weight ASTM D2216
D	Dry Density-Pound Per Cubic Foot
LL & PL	Liquid Limit and Plastic Limit ASTM D4318
Qu	Unconfined Compressive Strength
	Pounds Per Square Foot ASTM D2166

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 — 69 AND D 2488 —69

(Unified Soil Classification System)

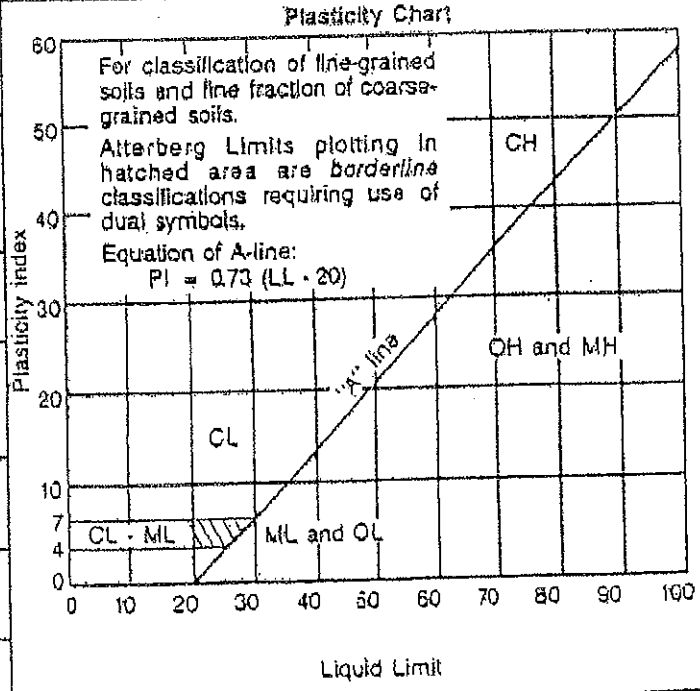
Major divisions			Group symbols	Typical Names	Classification Criteria
Coarse-grained soils: More than 50% retained on No. 200 sieve*	Gravels: 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_Z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines	Not meeting both criteria for GW
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
	Sands: More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_Z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			SP	Poorly graded sands and gravelly sands, little or no fines	Not meeting both criteria for SW
		Sands with fines	SM	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7
Fine-grained soils: 50% or more passes No. 200 sieve*	Silts and clays: Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
			OL	Organic silts and organic silty clays of low plasticity	
	Silts and clays: Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts	
			CH	Inorganic clays of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity	
	Highly organic soils		Pt	Peat, muck and other highly organic soils	

Classification on basis of percentage of fines
Less than 5% pass No. 200 sieve ..... GW, GP, SW, SP
More than 12% pass No. 200 sieve ..... GM, GC, SM, SC
5 to 12% pass No. 200 sieve ..... *Borderline* classifications requiring use of dual symbols

Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols

Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols

Plasticity Chart



* Based on the material passing the 3 in. (76 mm) sieve.

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140 Pine Needle Drive • Spearfish, SD 57783 • Phone (605) 642-2742 • Mobile 390-3768

PROCTOR TEST

MOISTURE DENSITY RELATION

BROSZ ENGINEERING

Proctor#: 1 Date:06/11/12

ASTM: 698 Method:A

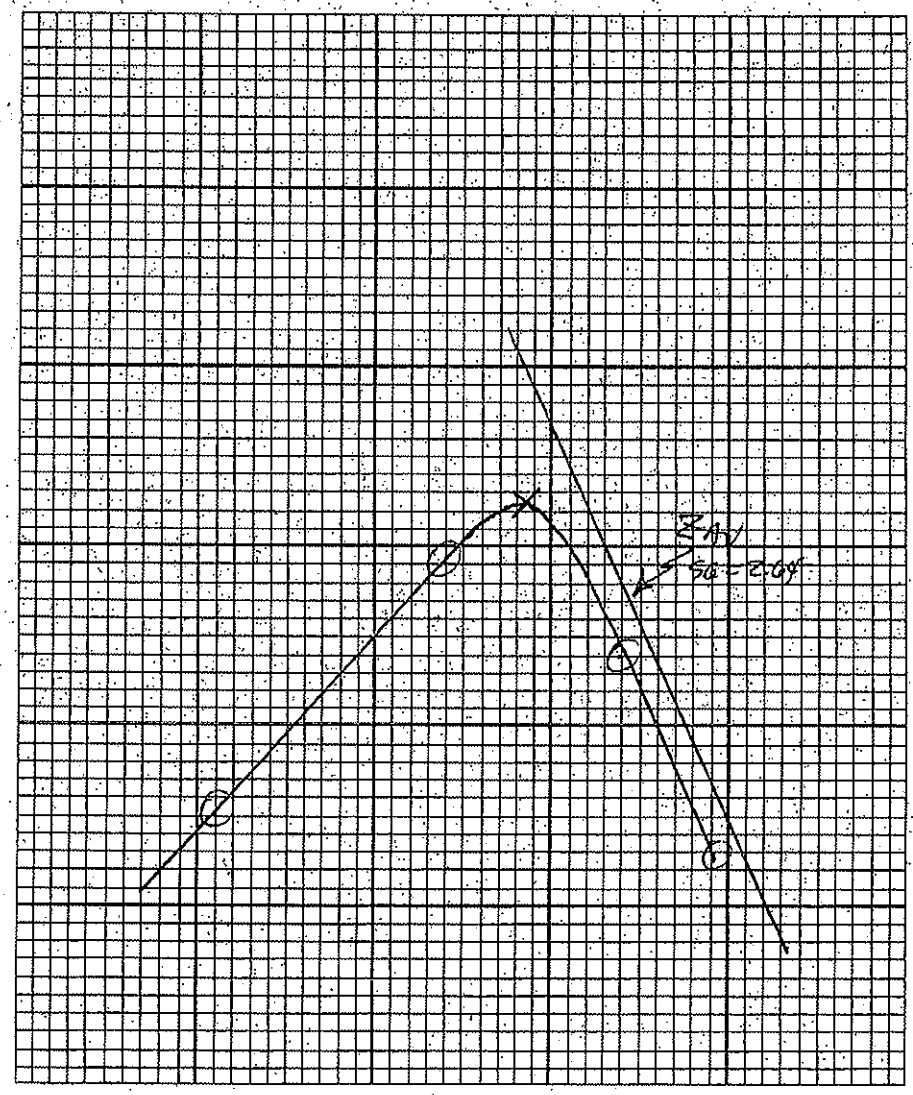
Attn: Jade

Soil Classification: (SC-CL) Clayey Sand/Sandy Clay

Project: Continental Atlanta Pad, Near Williston, North Dakota

Project Number: 12-12165

MAXIMUM DENSITY: 126.5 pcf **OPTIMUM MOISTURE CONTENT: 9.7%**



Cc:

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PROCTOR TEST

MOISTURE DENSITY RELATION

BROSZ ENGINEERING

Proctor#: 2 Date:06/11/12

ASTM: 698 Method:A

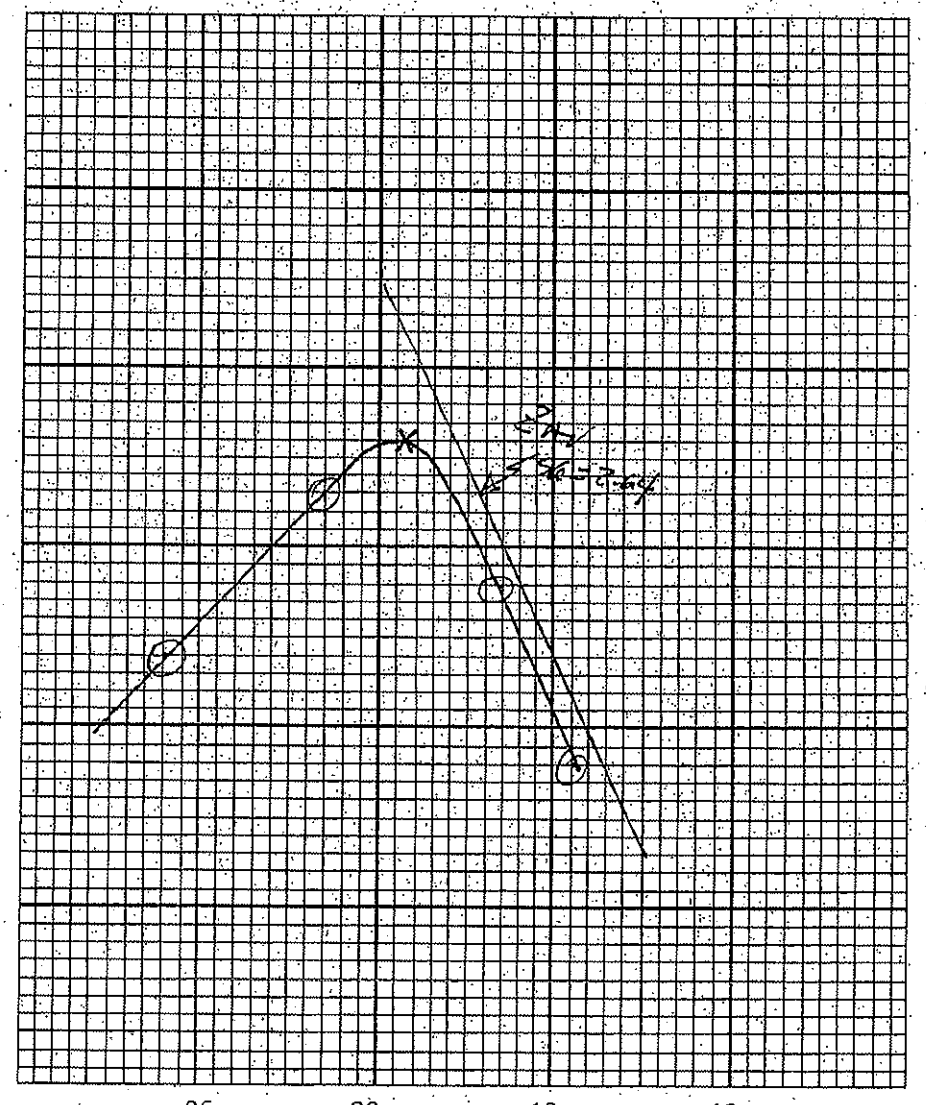
Attn: Jade

Soil Classification: (SP) Sand w/ Gravel, B15-0'-10'

Project: Continental Atlanta Pad, Near Williston, North Dakota

Project Number: 12-12165

MAXIMUM DENSITY: 123.2 pcf **OPTIMUM MOISTURE CONTENT: 8.3%**



Cc:

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 110.8
Moisture Before Test (%): 13.8
Moisture After Test (%): 0.0

Run Number:	1 ●	2 ▲
Cell Pressure (psi):	65.0	
Test Pressure(psi):	60.0	
Back Pressure(psi):	57.9	
Diff. Head (psi):	2.1	
Flow Rate (cc/sec):	6.93 x 10^-3	
Perm. (cm/sec):	9.08 x 10^-6	

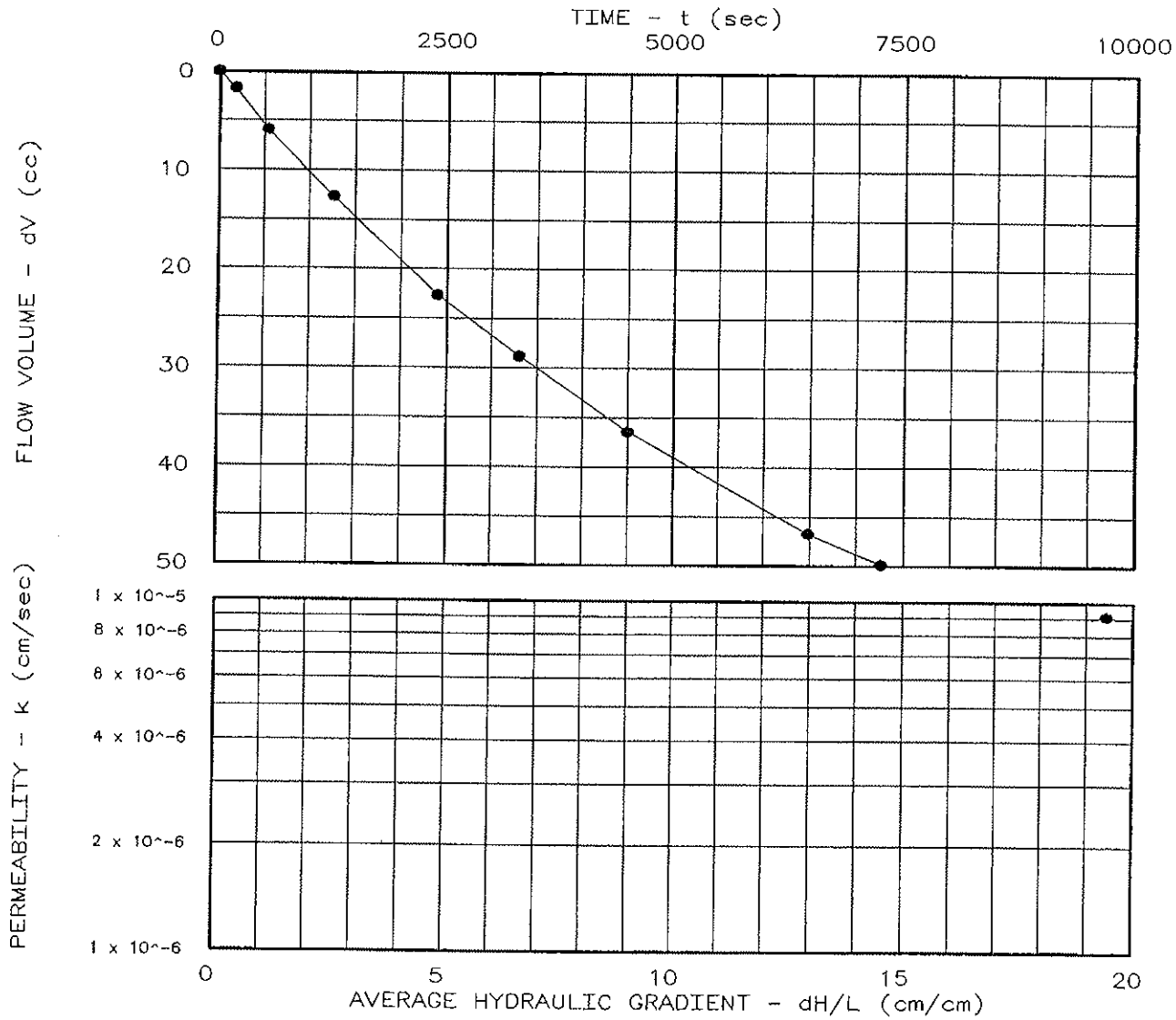
SAMPLE DATA:

Sample Identification: Fill No.3

Visual Description:

Remarks:

Maximum Dry Density (pcf): 116.6
Optimum Moisture Content (%): 13.8
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



Project: Atlanta Site
Location:
Date: 9/10/2012

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 258
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship

Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 116.6 pcf Optimum moisture = 13.8 %	

Project No. 114-551057 **Client:** Continental Resources
Project: Atlanta Site

○ **Source of Sample:** Fill No. 3

Remarks:

Tetra Tech, Inc.

Billings, MT

Figure

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 112.3
Moisture Before Test (%): 13.1
Moisture After Test (%): 0.0

Run Number:	1 ●	2 ▲
Cell Pressure (psi):	65.0	
Test Pressure(psi):	60.0	
Back Pressure(psi):	57.9	
Diff. Head (psi):	2.1	
Flow Rate (cc/sec):	1.90 x 10^-2	
Perm. (cm/sec):	2.49 x 10^-5	

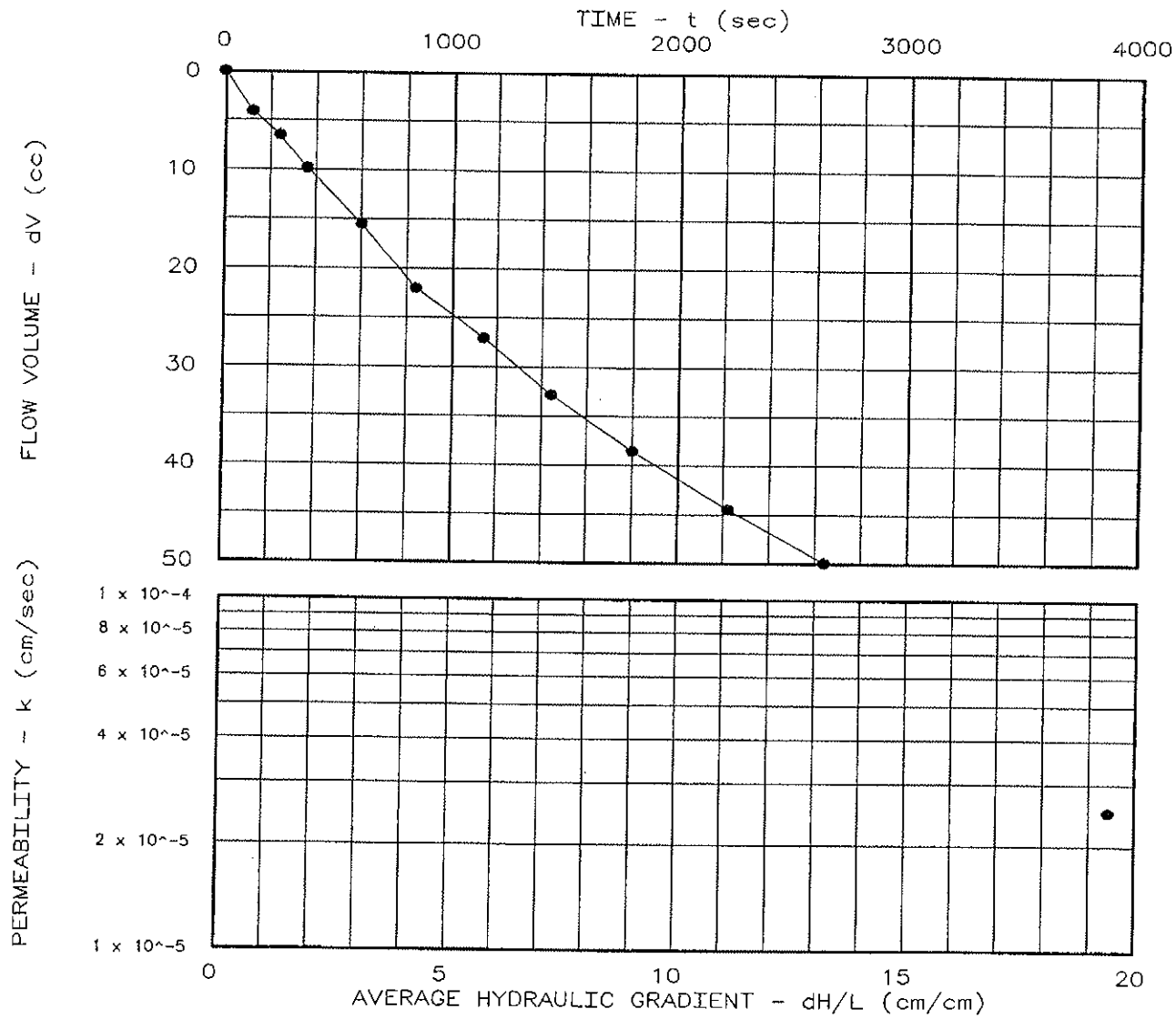
SAMPLE DATA:

Sample Identification: Fill No.1

Visual Description:

Remarks:

Maximum Dry Density (pcf): 118.2
Optimum Moisture Content (%): 12.1
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



Project: Atlanto Site
Location:
Date: 9/10/2012

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 259
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship

Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 118.2 pcf Optimum moisture = 12.1 %	
Project No. 114-551057 **Client:** Continental Resources **Project:** Atlanta Site ○ **Source of Sample:** Fill No.1	**Remarks:**
Tetra Tech, Inc. **Billings, MT**	**Figure**

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 112.1
Moisture Before Test (%): 12.6
Moisture After Test (%): 0.0
Run Number: 1 ● 2 ▲
Cell Pressure (psi): 65.0
Test Pressure(psi): 60.0
Back Pressure(psi): 57.9
Diff. Head (psi): 2.1
Flow Rate (cc/sec): 2.63 x 10^-2
Perm. (cm/sec): 1.97 x 10^-5

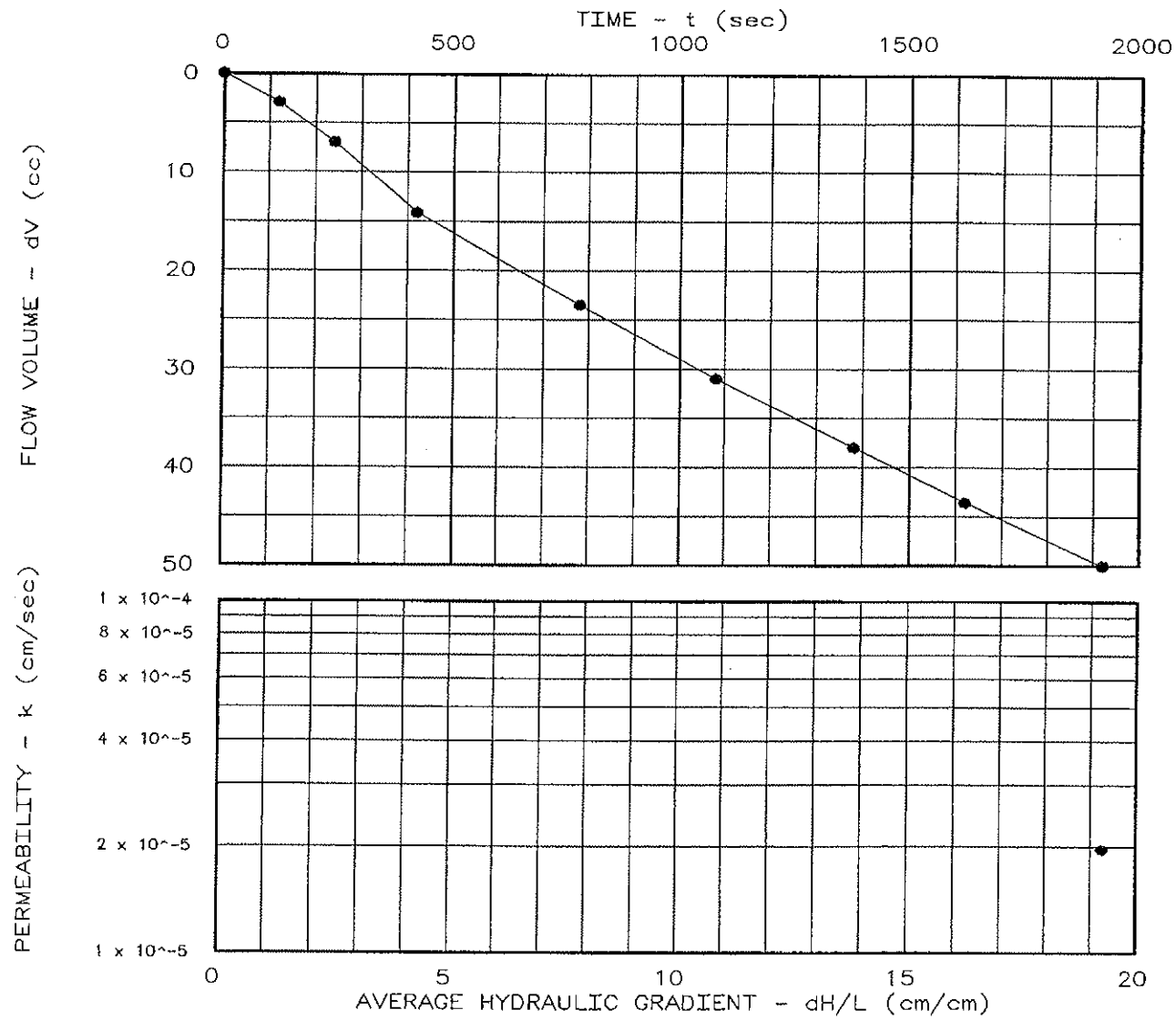
SAMPLE DATA:

Sample Identification: Fill No.2

Visual Description:

Remarks:

Maximum Dry Density (pcf): 118.0
Optimum Moisture Content (%): 12.6
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



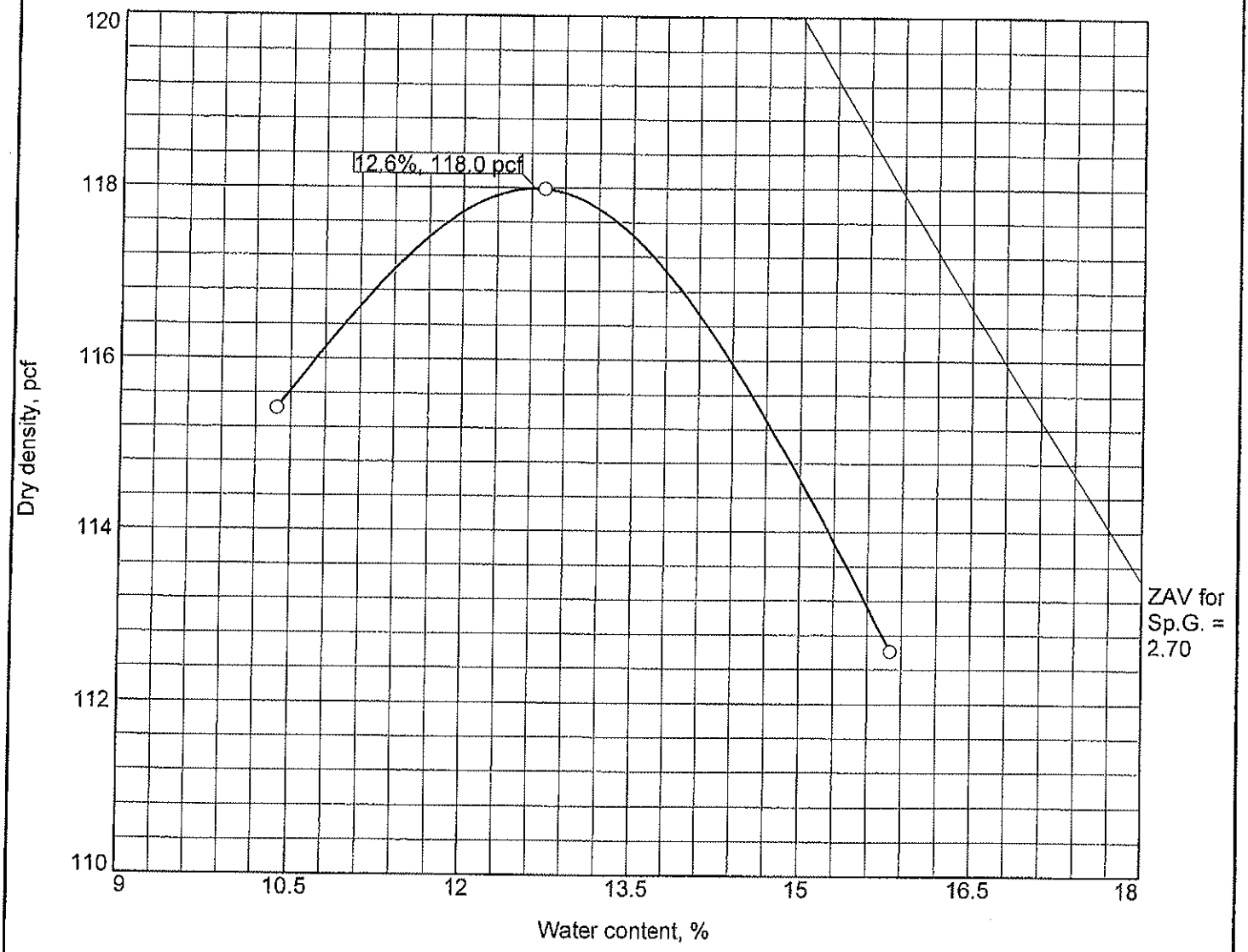
Project: Atlanta Site
Location:
Date: 9/10/2012

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 260
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship



Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 118.0 pcf Optimum moisture = 12.6 %	
Project No. 114-551057 **Client:** Continental Resources **Project:** Atlanta Site ○ **Source of Sample:** Fill No. 2 **Tetra Tech, Inc.** **Billings, MT**	**Remarks:** **Figure**

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 98.6
Moisture Before Test (%): 19.0
Moisture After Test (%): 0.0
Run Number: 1 ● 2 ▲
Cell Pressure (psi): 65.0
Test Pressure(psi): 60.0
Back Pressure(psi): 57.9
Diff. Head (psi): 2.1
Flow Rate (cc/sec): 1.25 x 10^-3
Perm. (cm/sec): 1.61 x 10^-6

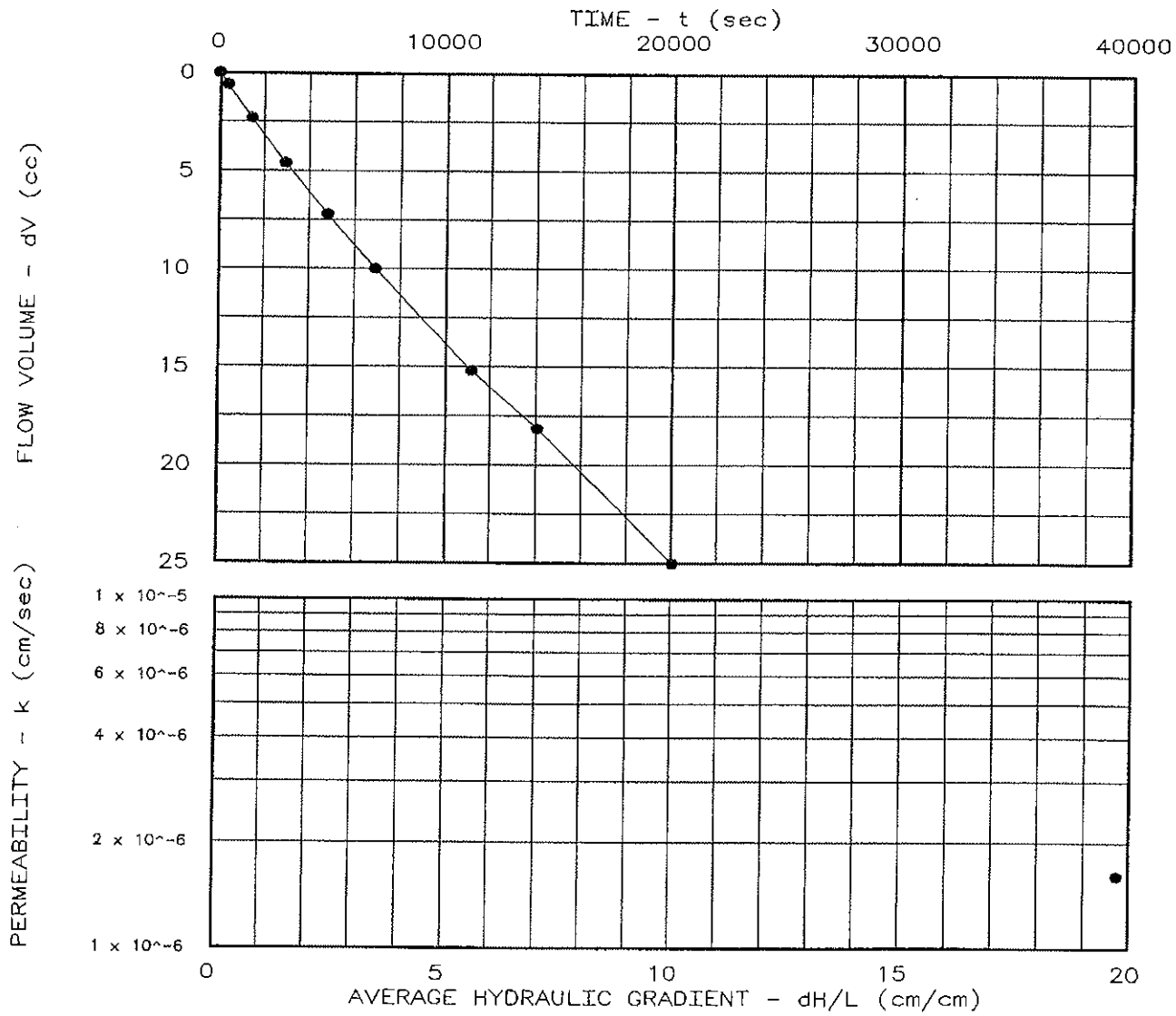
SAMPLE DATA:

Sample Identification: Cement No.1

Visual Description:

Remarks:

Maximum Dry Density (pcf): 103.7
Optimum Moisture Content (%): 18.9
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



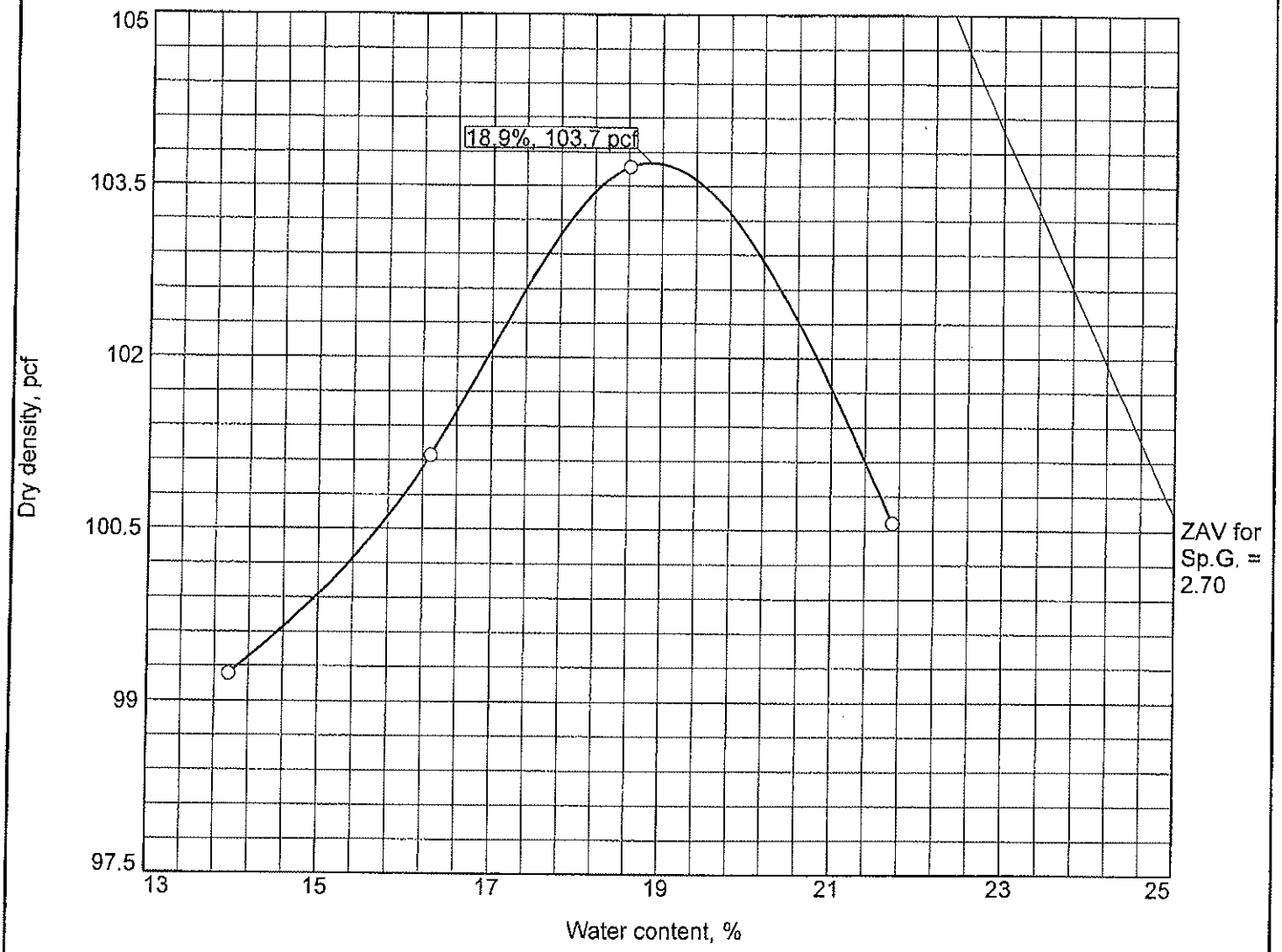
Project: Atlanta Site
Location:
Date: 9/12/2012

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 261
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship



Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 103.7 pcf Optimum moisture = 18.9 %	

Project No. 114-551057 **Client:** Continental Resources
Project: Atlanta Site

○ **Source of Sample:** Cement No.1

Tetra Tech, Inc.

Billings, MT

Remarks:

Figure

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 97.9
Moisture Before Test (%): 19.0
Moisture After Test (%): 0.0

Run Number:	1 ●	2 ▲
Cell Pressure (psi):	65.0	
Test Pressure(psi):	60.0	
Back Pressure(psi):	58.0	
Diff. Head (psi):	2.0	
Flow Rate (cc/sec):	4.84 x 10^-2	
Perm. (cm/sec):	6.51 x 10^-5	

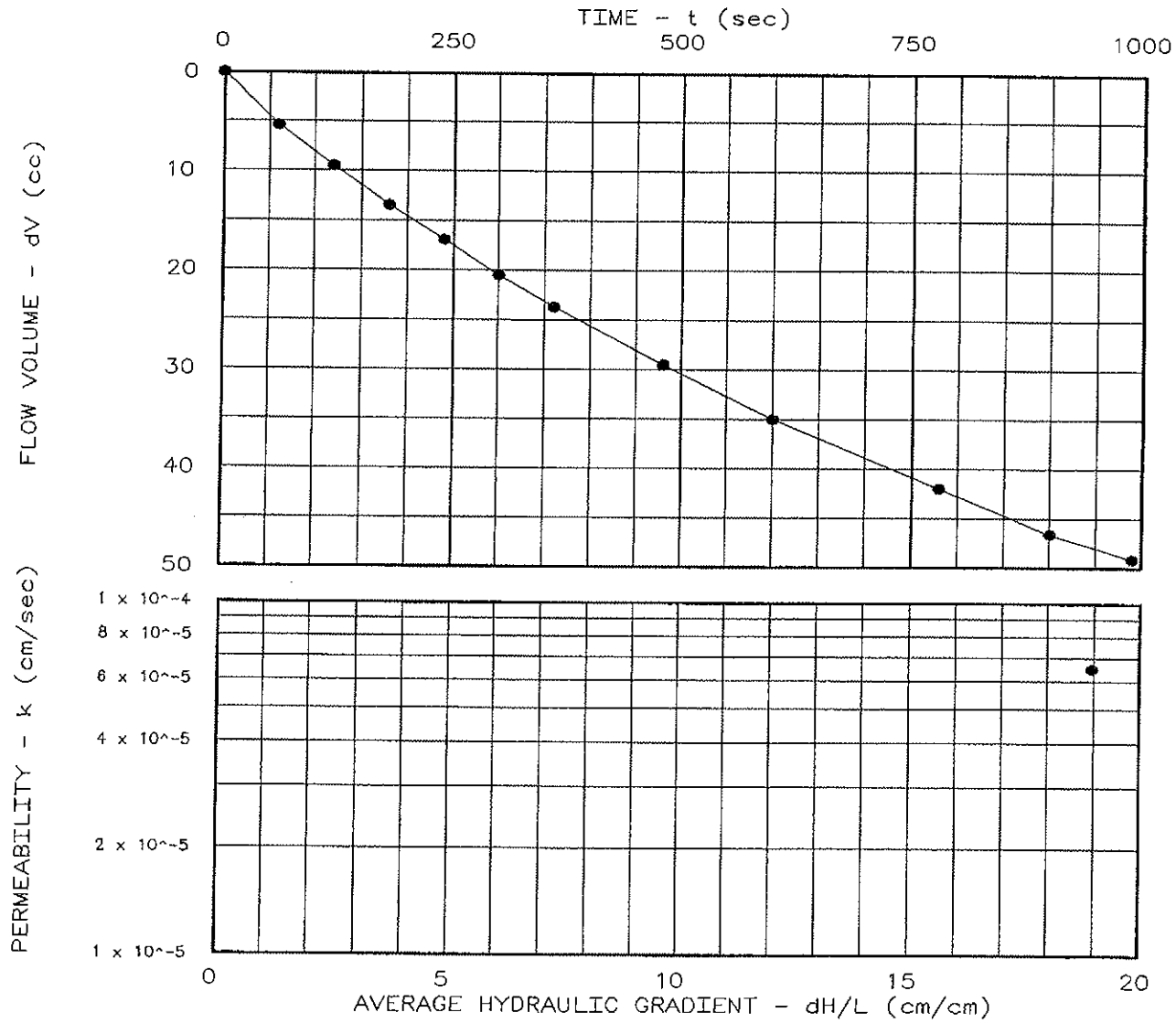
SAMPLE DATA:

Sample Identification: Cement No.3

Visual Description:

Remarks:

Maximum Dry Density (pcf): 103.0
Optimum Moisture Content (%): 19.0
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



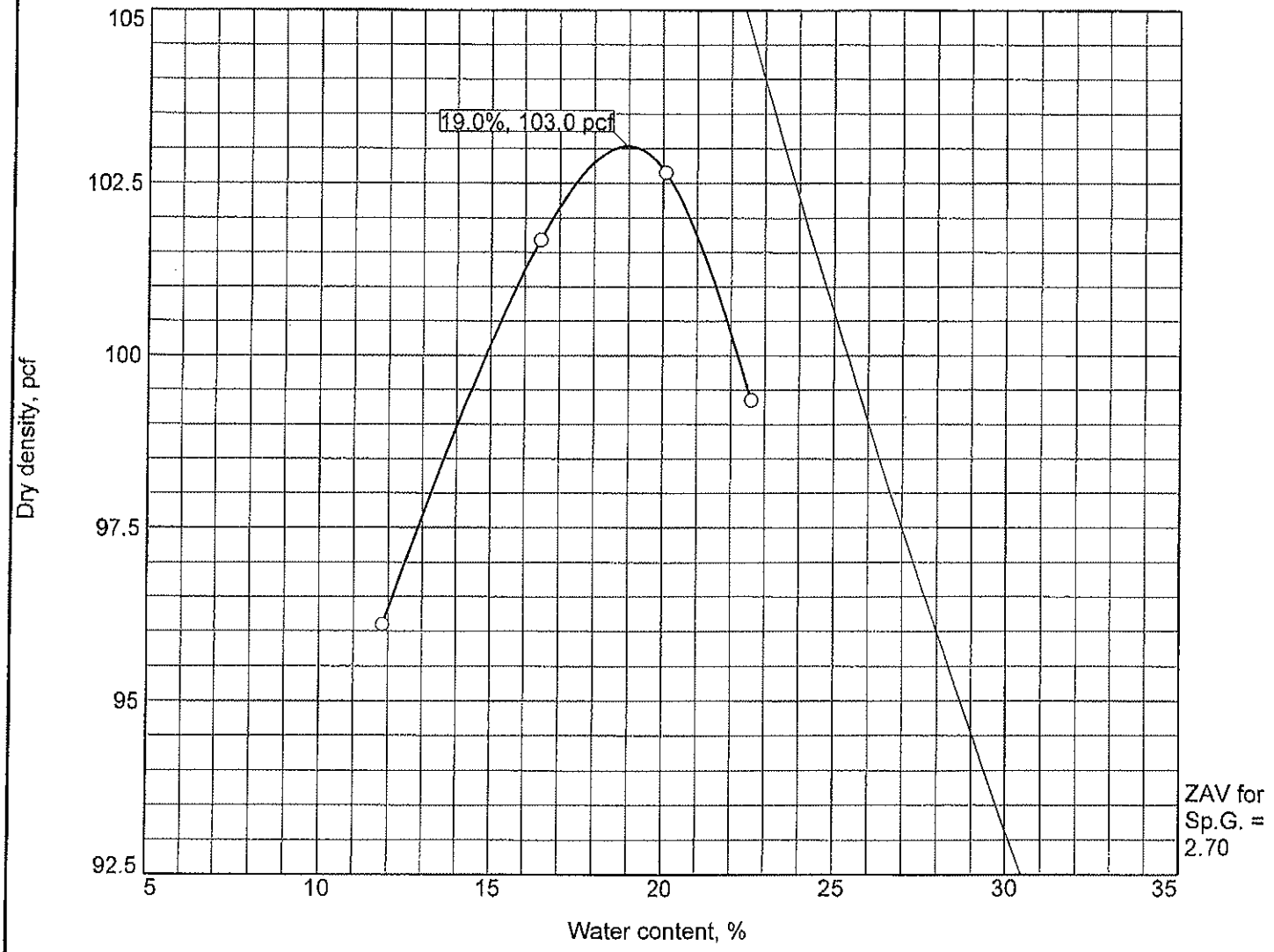
Project: Atlanta Site
Location:
Date: 9/12/12

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 262
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship



Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 103.0 pcf Optimum moisture = 19.0 %	

Project No. 114-551057 **Client:** Continental Resources
Project: Atlanta Site

○ **Source of Sample:** Cement No. 3

Tetra Tech, Inc.

Billings, MT

Remarks:

Figure

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diometer (cm): 7.07
Dry Unit Weight (pcf): 102.4
Moisture Before Test (%): 16.7
Moisture After Test (%): 0.0
Run Number: 1 ● 2 ▲
Cell Pressure (psi): 65.0
Test Pressure(psi): 60.0
Back Pressure(psi): 58.1
Diff. Head (psi): 1.9
Flow Rate (cc/sec): 3.50 x 10^-2
Perm. (cm/sec): 4.90 x 10^-5

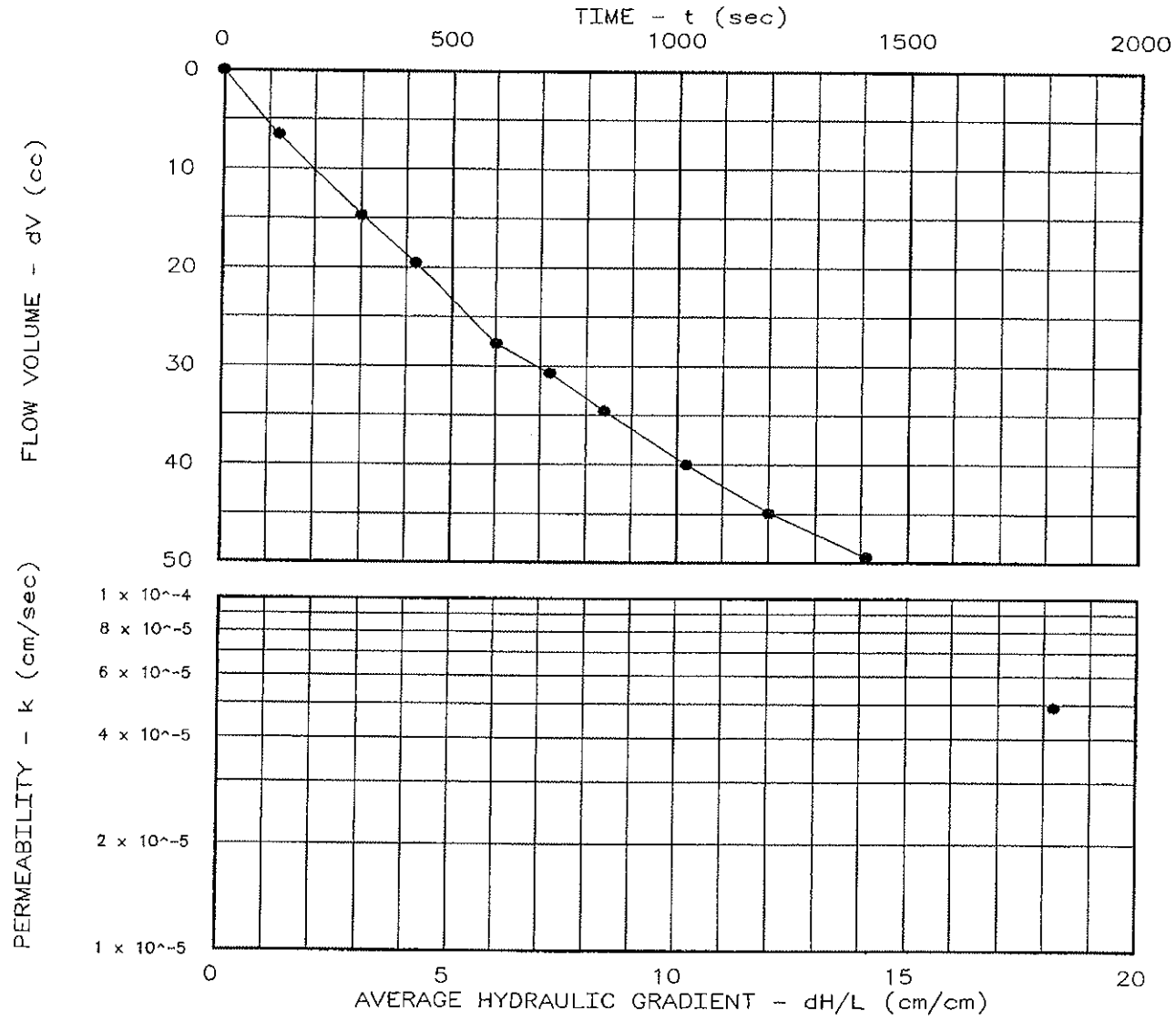
SAMPLE DATA:

Sample Identification: Cement No.2

Visual Description:

Remarks:

Maximum Dry Density (pcf): 107.7
Optimum Moisture Content (%): 16.7
ASTM(D698)
Percent Compaction: 95.0%
Permeometer type: Flexwall
Sample type: Remolded



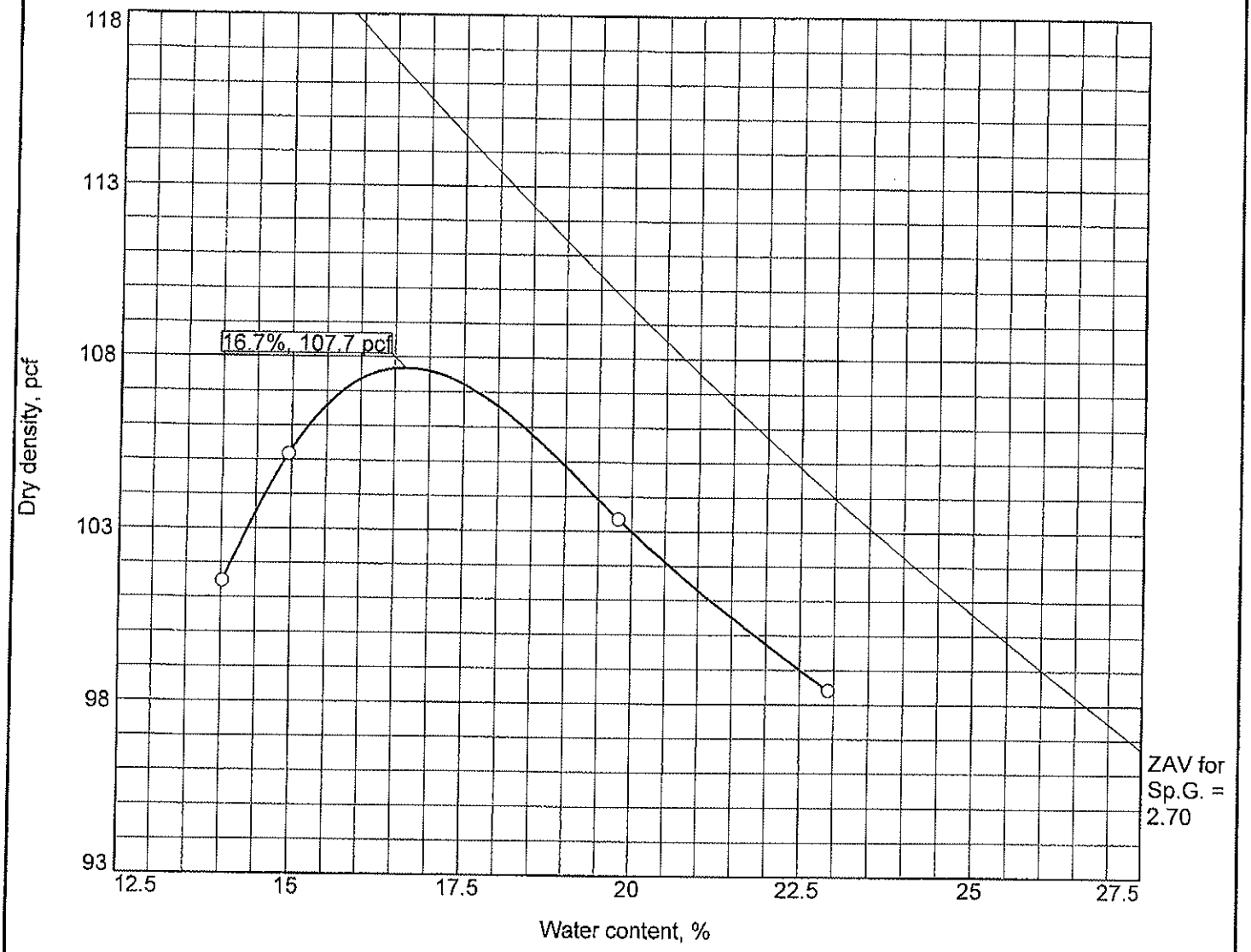
Project: Atlanta Site
Location:
Date: 9/12/12

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 263
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship



Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 107.7 pcf Optimum moisture = 16.7 %	

Project No. 114-551057 **Client:** Continental Resources
Project: Atlanta Site

○ **Source of Sample:** Cement No. 2

Tetra Tech, Inc.

Billings, MT

Remarks:

Figure

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.50
Specimen Diameter (cm): 7.07
Dry Unit Weight (pcf): 103.7
Moisture Before Test (%): 17.2
Moisture After Test (%): 0.0

Run Number:	1 ●	2 ▲
Cell Pressure (psi):	65.0	
Test Pressure(psi):	60.0	
Back Pressure(psi):	57.9	
Diff. Head (psi):	2.1	
Flow Rate (cc/sec):	4.99 x 10^-5	
Perm. (cm/sec):	6.35 x 10^-8	

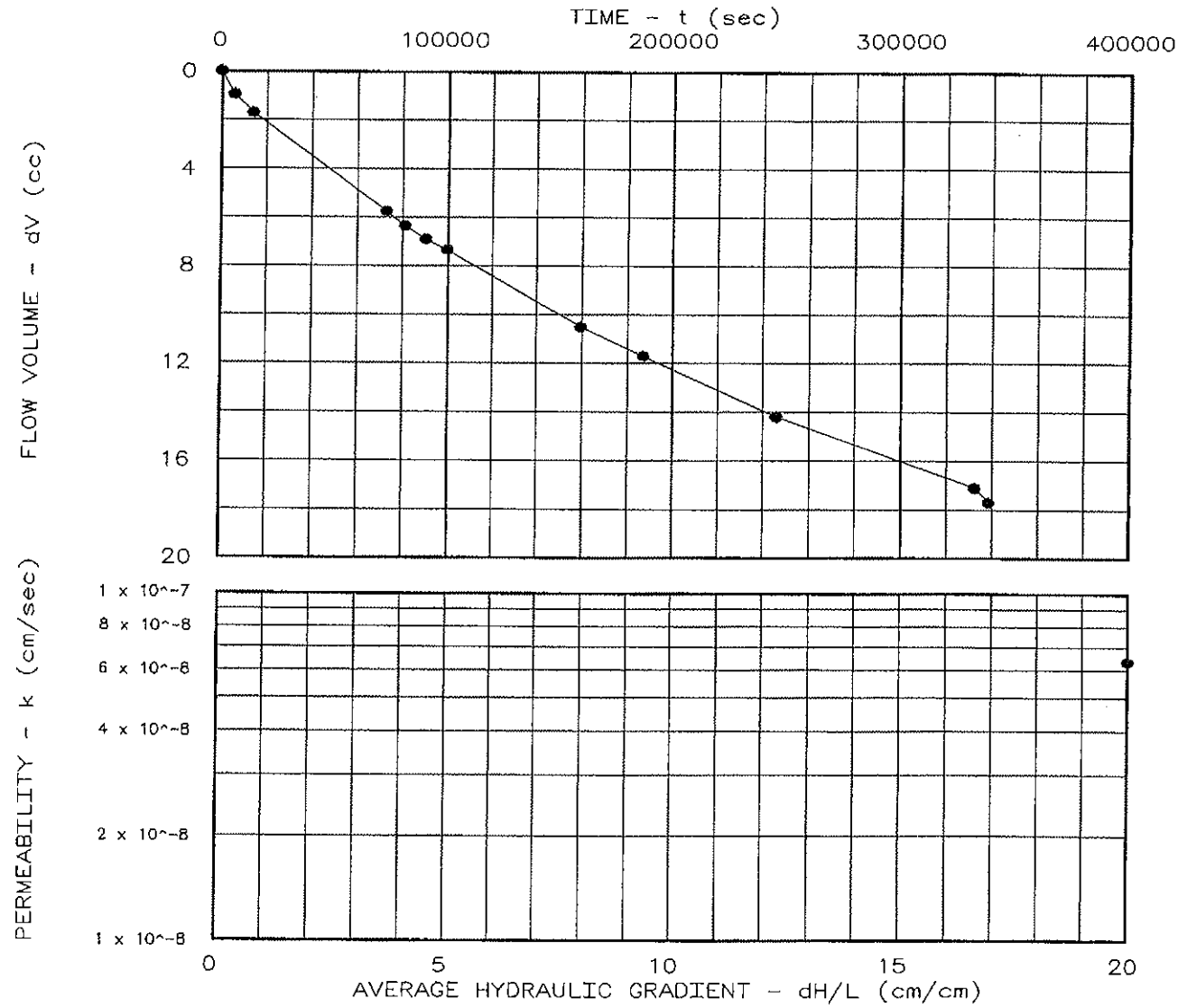
SAMPLE DATA:

Sample Identificotion: Fill No.4

Visual Description:

Remarks:

Maximum Dry Density (pcf): 109.1
Optimum Moisture Content (%): 17.2
ASTM(D698)
Percent Compaction: 95.0%
Permeameter type: Flexwall
Sample type: Remolded



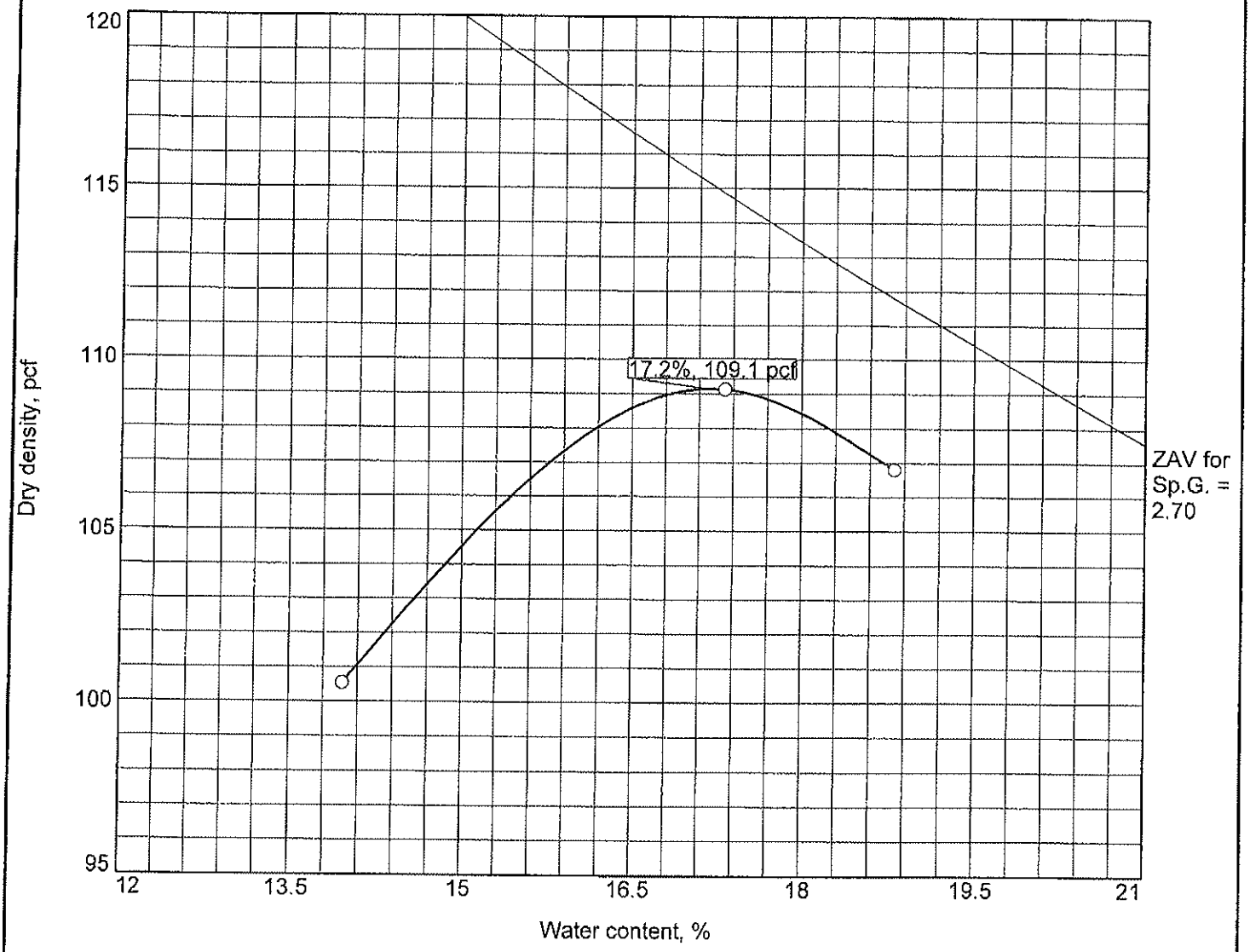
Project: Atlanto Site
Location:
Date: 9/14/2012

PERMEABILITY TEST REPORT

TETRA TECH

Project No.: 114-551057
File No.: 264
Lab No.:
Tested by:
Checked by:
Test: CH - Constant head

Moisture Density Relationship



Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
				2.70				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 109.1 pcf Optimum moisture = 17.2 %	

Project No. 114-551057 **Client:** Continental Resources
Project: Atlanta Site

○ **Source of Sample:** Fill No. 4

Tetra Tech, Inc.

Billings, MT

Remarks:

Figure

ANALYTICAL SUMMARY REPORT

September 06, 2012

Continental Resources
PO Box 268870
Oklahoma City, OK 73126-8870

Workorder No.: B12082786

Project Name: Atlanta Site

Energy Laboratories Inc Billings MT received the following 4 samples for Continental Resources on 8/30/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B12082786-001	Original Material, From Cut	08/29/12 19:00	08/30/12	Soil	Cation Exchange Capacity Cations, Saturated Paste Conductivity pH, Saturated Paste NH4AC Soil Extraction for CEC Saturated Paste Extraction Sodium Adsorption Ratio
B12082786-002	Fill #1	08/29/12 19:00	08/30/12	Soil	Same As Above
B12082786-003	Fill #2	08/29/12 19:00	08/30/12	Soil	Same As Above
B12082786-004	Fill #3	08/29/12 19:00	08/30/12	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Sonya Mahaffey

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Continental Resources		
Project:	Atlanta Site	Report Date:	09/06/12
Client Sample ID:	Original Material, From Cut	Collection Date:	08/29/12 19:00
Location:	E-1180177.20, N-421287.75, Elv. 1940.40	Date Received:	08/30/12
Lab ID:	B12082786-001	Sampled By:	Spencer Ingalls

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
SATURATED PASTE					
pH, sat. paste	7.8	s.u.		ASAM10-3.	09/06/12 16:30 / srm
Conductivity, sat. paste	4.8	mmhos/cm		ASA10-3	09/06/12 16:30 / srm
Calcium, sat. paste	24.4	meq/L		SW6010B	09/05/12 13:07 / rlh
Magnesium, sat. paste	29.5	meq/L		SW6010B	09/05/12 13:07 / rlh
Sodium, sat. paste	18.7	meq/L	D	SW6010B	09/05/12 13:07 / rlh
Sodium Adsorption Ratio (SAR)	3.60	unitless		Calculation	09/06/12 16:30 / srm
CHEMICAL CHARACTERISTICS					
Cation Exchange Capacity	19.8	meq/100g	D	SW6010B	09/06/12 15:11 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Continental Resources		
Project:	Atlanta Site	**Report Date:**	09/06/12
Client Sample ID:	Fill #1	**Collection Date:**	08/29/12 19:00
Location:	E-1179926.05, N-421267.60, Elv. 1937.65	**Date Received:**	08/30/12
Lab ID:	B12082786-002	**Sampled By:**	Spencer Ingalls

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
SATURATED PASTE					
pH, sat. paste	7.7	s.u.		ASAM10-3.	09/06/12 16:30 / srm
Conductivity, sat. paste	2.8	mmhos/cm		ASA10-3	09/06/12 16:30 / srm
Calcium, sat. paste	14.2	meq/L		SW6010B	09/05/12 13:14 / rlh
Magnesium, sat. paste	20.1	meq/L		SW6010B	09/05/12 13:14 / rlh
Sodium, sat. paste	5.61	meq/L	D	SW6010B	09/05/12 13:14 / rlh
Sodium Adsorption Ratio (SAR)	1.35	unitless		Calculation	09/06/12 16:30 / srm
CHEMICAL CHARACTERISTICS					
Cation Exchange Capacity	15.1	meq/100g	D	SW6010B	09/06/12 15:15 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Continental Resources		
Project:	Atlanta Site	Report Date:	09/06/12
Client Sample ID:	Fill #2	Collection Date:	08/29/12 19:00
Location:	E-1179924.40, N-421196.70, Elv. 1937.95	Date Received:	08/30/12
Lab ID:	B12082786-003	Sampled By:	Spencer Ingalls

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
SATURATED PASTE					
pH, sat. paste	8.1	s.u.		ASAM10-3.	09/06/12 16:30 / srm
Conductivity, sat. paste	1.2	mmhos/cm		ASA10-3	09/06/12 16:30 / srm
Calcium, sat. paste	2.59	meq/L		SW6010B	09/05/12 13:28 / rlh
Magnesium, sat. paste	8.07	meq/L		SW6010B	09/05/12 13:28 / rlh
Sodium, sat. paste	3.40	meq/L		SW6010B	09/05/12 13:28 / rlh
Sodium Adsorption Ratio (SAR)	1.47	unitless		Calculation	09/06/12 16:30 / srm
CHEMICAL CHARACTERISTICS					
Cation Exchange Capacity	12.3	meq/100g	D	SW6010B	09/06/12 15:22 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Continental Resources		
Project:	Atlanta Site	**Report Date:**	09/06/12
Client Sample ID:	Fill #3	**Collection Date:**	08/29/12 19:00
Location:	E-1179963.65, N-421120.95, Elv. 1937.90	**Date Received:**	08/30/12
Lab ID:	B12082786-004	**Sampled By:**	Spencer Ingalls

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
SATURATED PASTE					
pH, sat. paste	7.9	s.u.		ASAM10-3.	09/06/12 16:30 / srm
Conductivity, sat. paste	4.5	mmhos/cm		ASA10-3	09/06/12 16:30 / srm
Calcium, sat. paste	25.1	meq/L		SW6010B	09/05/12 13:32 / rlh
Magnesium, sat. paste	36.7	meq/L		SW6010B	09/05/12 13:32 / rlh
Sodium, sat. paste	11.5	meq/L	D	SW6010B	09/05/12 13:32 / rlh
Sodium Adsorption Ratio (SAR)	2.07	unitless		Calculation	09/06/12 16:30 / srm
CHEMICAL CHARACTERISTICS					
Cation Exchange Capacity	16.4	meq/100g	D	SW6010B	09/06/12 15:29 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Continental Resources
Project: Atlanta Site

Report Date: 09/06/12
Work Order: B12082786

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									**Batch:** R191314
Sample ID: B12082786-001A DUP	Sample Duplicate				Run: MISC-SOIL_120906B				09/06/12 16:30
Conductivity, sat. paste	4.86	mmhos/cm	0.10				1.2	30	
Sample ID: LCS-1209061630	Laboratory Control Sample				Run: MISC-SOIL_120906B				09/06/12 16:30
Conductivity, sat. paste	7.54	mmhos/cm	0.10	97	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Continental Resources
Project: Atlanta Site

Report Date: 09/06/12
Work Order: B12082786

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASAM10-3.2									Batch: R191314
Sample ID: B12082786-001A DUP	Sample Duplicate				Run: MISC-SOIL_120906B				09/06/12 16:30
pH, sat. paste	7.60	s.u.	0.10				2.6	10	
Sample ID: LCS-1209061630	Laboratory Control Sample				Run: MISC-SOIL_120906B				09/06/12 16:30
pH, sat. paste	7.00	s.u.	0.10	99	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Continental Resources
Project: Atlanta Site

Report Date: 09/06/12
Work Order: B12082786

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Calculation									Batch: R191314
Sample ID: B12082786-001A DUP	Sample Duplicate				Run: MISC-SOIL_120906B				09/06/12 16:30
Sodium Adsorption Ratio (SAR)	3.85	unitless	0.010				6.7	30	
Sample ID: LCS-1209061630	Laboratory Control Sample				Run: MISC-SOIL_120906B				09/06/12 16:30
Sodium Adsorption Ratio (SAR)	5.11	unitless	0.010	83	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Continental Resources
Project: Atlanta Site

Report Date: 09/06/12
Work Order: B12082786

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 65170
Sample ID: LCS-65170	Laboratory Control Sample				Run: ICP201-B_120905A				09/05/12 13:03
Calcium, sat. paste	46.4	meq/L	0.050	88	50	150			
Magnesium, sat. paste	29.0	meq/L	0.082	86	50	150			
Sodium, sat. paste	32.0	meq/L	0.16	77	50	150			
Sample ID: B12082786-001A DUP	Sample Duplicate				Run: ICP201-B_120905A				09/05/12 13:10
Calcium, sat. paste	25.2	meq/L	0.050				3.1	30	
Magnesium, sat. paste	31.0	meq/L	0.082				4.8	30	
Sodium, sat. paste	20.4	meq/L	0.081				8.7	30	
Sample ID: B12082786-002AMS2	Sample Matrix Spike				Run: ICP201-B_120905A				09/05/12 13:25
Calcium, sat. paste	26.8	meq/L	0.050	101	50	150			
Magnesium, sat. paste	39.5	meq/L	0.082	94	50	150			
Sodium, sat. paste	16.1	meq/L	0.084	96	50	150			
Method: SW6010B									Batch: 65201
Sample ID: LCS-65201	Laboratory Control Sample				Run: ICP201-B_120905B				09/06/12 15:08
Cation Exchange Capacity	22.4	meq/100g	0.16	90	60	140			
Sample ID: B12082786-002A DUP	Sample Duplicate				Run: ICP201-B_120905B				09/06/12 15:18
Cation Exchange Capacity	13.8	meq/100g	0.16				8.8	50	
Sample ID: B12082786-003AMS2	Sample Matrix Spike				Run: ICP201-B_120905B				09/06/12 15:25
Cation Exchange Capacity	33.6	meq/100g	0.17	98	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

Continental Resources

B120082786

Login completed by: Randa Nees
Date Received: 8/30/2012
Reviewed by: BL2000\kmcdonald
Received by: jrz
Reviewed Date: 8/30/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	24.6°C No Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

Perc analysis not done at Energy Laboratories. These samples were taken to another laboratory by Mick Albright of Continental Resources.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name: Continental Resources	Project Name, PWS, Permit, Etc.: Atlanta Site	Sample Origin State: ND	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: PO Box 268870 Oklahoma City, OK 73126	Contact Name: Chad Newby Phone/Fax: 405-574-2172 Email: chad.newby@clr.com		Sampler: (Please Print) Spencer Ingalls
Invoice Address: PO Box 268870 Oklahoma City, OK 73126	Invoice Contact & Phone: Chad Newby 405-574-2172	Purchase Order: Chad Newby	Quote/Bottle Order: Unknown

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____
☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A Air, W Water, S Soils/Solids, V Vegetation, B Biossay, O Other

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	EC	SAR	CEC	pH	Boron	SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments
1 Original Material (From 2 wells)	8-29-12	7:00pm	1-S	✓	✓	✓	✓	✓			✓	E-1180177.20 N-421287.75 Elv. 1940.90
2												
3												
4												
5												
6												
7												
8												
9												
10												

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Shipped by: Hand

Cooler ID(s):

Receipt Temp: 24.6 °C

On Ice: Yes (No)

Custody Seal: Intact Y N Signature Match Y N

LABORATORY USE ONLY (20% 75% 02)

Custody Record MUST be Signed

Relinquished by (print): Mick Albright	Date/Time: 8-30-12 9:00 Am	Signature:	Received by (print): Date/Time: Signature:
Relinquished by (print): Mick Albright	Date/Time: 8-30-12 305	Signature:	Received by (print): Date/Time: Signature:
Sample Disposal: Return to Client: Lab Disposal: K			Received by Laboratory: Date/Time: 8/30/12 305 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 1 of 1

Company Name: Continental Resources

Report Mail Address: PO Box 268870 Oklahoma City, OK 73126

Invoice Address: PO Box 268870 Oklahoma City, OK 73126

Project Name, PWS, Permit, Etc.: Atlanta Site

Sample Origin State: ND

EPA/State Compliance: Yes ☒ No ☐

Contact Name: Chad Newbry Phone/Fax: 405-574-2172 Email: chad.newbry@clr.com

Sampler: (Please Print) Spencer Ingalls

Invoice Contact & Phone: Chad Newbry 405-574-2172

Purchase Order: Chad Newbry

Quote/Bottle Order: Unknown

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: E-1179926.05 N-421267.60 Elv. 1937.65

Shipped by: HAND

Cooler ID(s):

Receipt Temp 24.6 °C

On Ice: Yes (No)

Custody Seal Y (N) Intact Y (N) Signature Match Y N

LABORATORY USE ONLY $12082782-002

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Number of Containers / Sample Type: A W S V B O / Air Water Soils/Solids Vegetation Bioassay Other	EC	SAR	CEC	PH	Perc						SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1	Fill #1	8-29-12	7:00PM	I-S		X	X	X	X	X								X
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

ANALYSIS REQUESTED

Custody Record MUST be Signed

Relinquished by (print): Mick Albright Date/Time: 8-30-12 9:00AM Signature:

Relinquished by (print): Mick Albright Date/Time: 8-30-12 305 Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: BROOKE 8/30/12 305 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 1 of 1

Company Name: Continental Resources

Report Mail Address: PO Box 268870 Oklahoma City, OK 73126

Invoice Address: PO Box 268870 Oklahoma City, OK 73126

Project Name, PWS, Permit, Etc.: Atlanta Site

Contact Name: Chad Newbry Phone/Fax: 405-574-2172 Email: chad.newbry@dcrcorp.com

Invoice Contact & Phone: Chad Newbry 405-574-2172

Purchase Order: Chad Newbry

Sample Origin State: MD

EPA/State Compliance: Yes ☒ No ☐

Sampler: (Please Print) Spencer Ingalls

Quote/Bottle Order: Unknown

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: E-1179924.40 N-421196.70 Elv. 1937.95

Shipped by:

Cooler ID(s):

Receipt Temp 24.6 °C

On Ice: Yes (No)

Custody Seal Intact Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Number of Containers / Sample Type: A W S V B O / Air Water Soils/Solids Vegetation Biossay Other	EC	SAR	CEC	pH	Metals Perc.	SEE ATTACHED	Normal Turnaround (TAT)	RUSH
1	Fill # 2	8-29-12	7:00pm	I-S	4	X	X	X	X	X			X
2													
3													
4													
5													
6													
7													
8													
9													
10													

LABORATORY USE ONLY L0081742-003

Custody Record MUST be Signed

Relinquished by (print): Mark Albright Date/Time: 8-30-12 9:00AM Signature:

Relinquished by (print): Mick Albright Date/Time: 8-30-12 305 Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: R. Bremer Date/Time: 8/30/12 3057 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: ☒

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Page 1 of 1

Company Name: Continental Resources

Report Mail Address: PO Box 268870 Oklahoma City, OK 73126

Invoice Address: PO Box 268870 Oklahoma City, OK 73126

Project Name, PWS, Permit, Etc.: Atlanta Site

Contact Name: Chad Newby Phone/Fax: 405-574-2172 Email: chad.newby@clr.com

Invoice Contact & Phone: Chad Newby 405-574-2172

Sample Origin: State: ND

EPA/State Compliance: Yes ☒ No ☐

Sampler: (Please Print) Spencer Ingalls

Purchase Order: Chad Newby

Quote/Bottle Order: Unknown

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other	EC	SAR	CEC	pH	Perc	SEE ATTACHED	Normal Turnaround (TAT)	R U S H	Comments
1 Fill #3	8-29-12	7:00pm	1-S	1	X	X	X	X	X			X	E. 1179963.65 N. 421120.95 Elv. 1937.90
2													
3													
4													
5													
6													
7													
8													
9													
10													

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Shipped by:

Cooler ID(s):

Receipt Temp: 24.0 °C

On Ice: Yes (No)

Custody Seal: Y (N) Intact: Y (N) Signature Match: Y N

LABORATORY USE ONLY: L052781-004

Custody Record MUST be Signed

Relinquished by (print): Mark Albright Date/Time: 8-30-12 9:00am Signature:

Relinquished by (print): Mick Albright Date/Time: 8 30 12 305 Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Date/Time: 8/30/12 3:05P Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: ✓

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

AMERICAN TECHNICAL SERVICES, INC.

8106 Black Hawk Rd • PO Box 559 • Black Hawk, SD 57718-0559 • Phone (605) 787-9303 • FAX (605) 787-9515
140 Pine Needle Drive • Spearfish, SD 57783 • Phone (605) 642-2742 • Mobile 390-3768

PROCTOR TEST

MOISTURE DENSITY RELATION

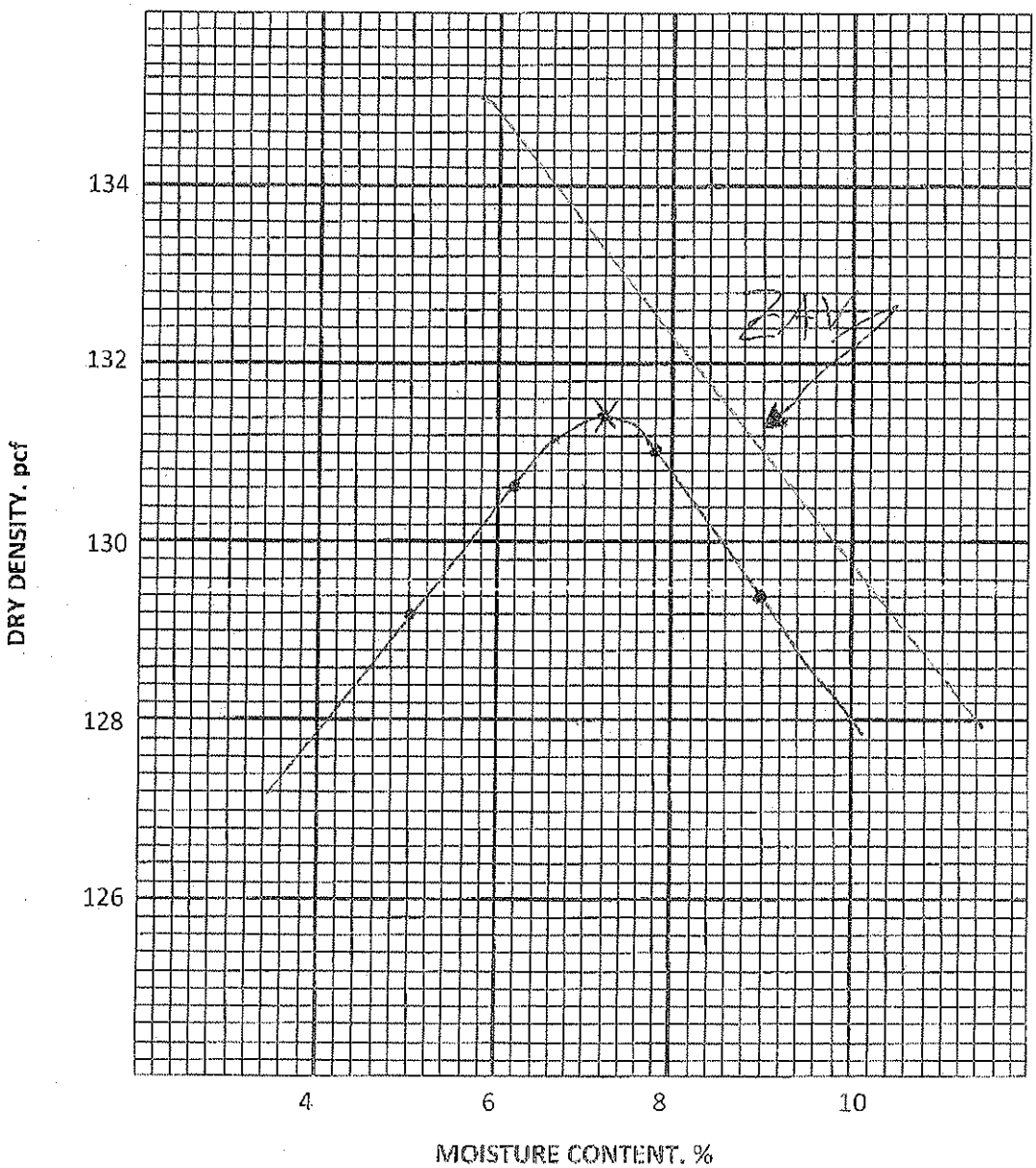
CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
Attn: Project Manager

Proctor#: Date: 08/21/12
ASTM: 698 Method: C
Soil Classification: Brown Gravelly Sand

Project: Atlanta Drill Pad, Williston, North Dakota

Project Number: 12-12165

MAXIMUM DENSITY: 131.4 pcf **OPTIMUM MOISTURE CONTENT: 7.2%**



Cc:

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140 Pine Needle Drive • Spearfish, SD 57783 • Phone (605) 642-2742 • Mobile 390-3788

PROCTOR TEST

MOISTURE DENSITY RELATION

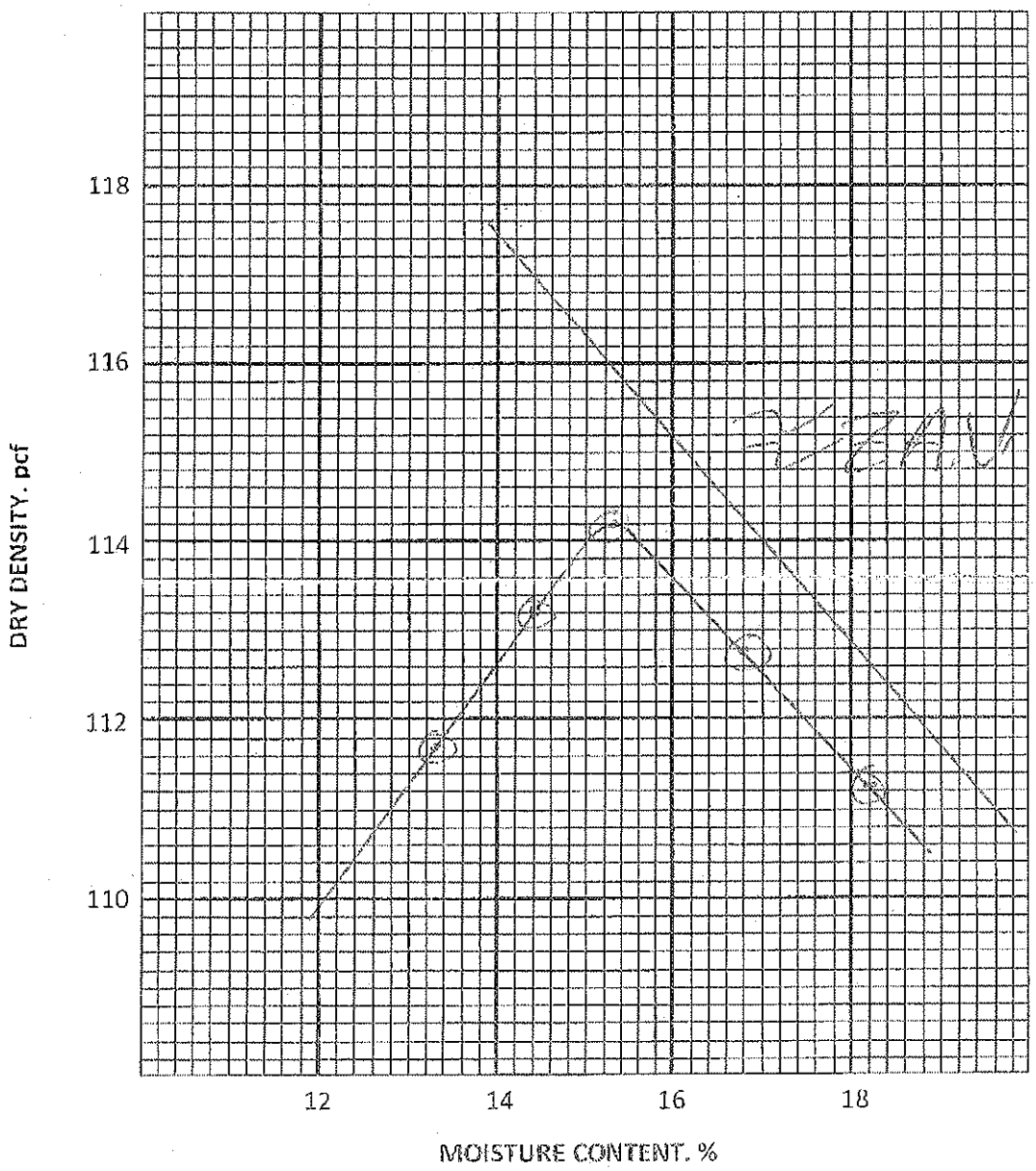
CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
Attn: Project Manager

Proctor#: Date: 07/31/12
ASTM: 698 Method:
Soil Classification: CL

Project: Atlanta Drill Pad, Williston, North Dakota

Project Number: 12-12165

MAXIMUM DENSITY: 114.2 pcf **OPTIMUM MOISTURE CONTENT: 15.3%**



Cc:

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TECHNICAL
SERVICES, INC.

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140 Pine Needle Drive • Spearfish, SD 57783 • Phone (605) 642-2742 • Mobile 390-3768

REPORT OF EXCAVATION OBSERVATIONS

CONTINENTAL RESOURCES
P.O. Box 268836
Oklahoma City, OK 73126

September 7, 2012

Attn: Project Manager

Subj: Report of Excavation Observations
Drill Pad Spillage Line Construction
Atlanta Drill Pad
Williston, North Dakota

ATS No. 12-12165

INTRODUCTION

Our presence on the above referenced project was requested by Continental Resources of Oklahoma City, Oklahoma.

We were to observe and test the overexcavation and fill placement over the spillage liner placed below the Atlanta Drill Pad being constructed in Williston, North Dakota.

EXCAVATION OBSERVATIONS

Pad Spillage Liner Excavation & Subgrade Preparation:

We observed the overexcavation of the spillage liner on August 12, 2012. We observed that the bottom of the overexcavation was taken to 5 feet below finished grades in the spillage liner site. The bottom of the overexcavation was recompacted and smoothed prior to synthetic liner installation.

The synthetic liner material was delivered in rolls and placed over the prepared subgrade soils. We observed that the liner laps were welded as the liner materials were pulled into place.

Liner Area Backfill:

On August 14, 2012, we observed on-site soil placement over the synthetic liner. A cushion layer was compacted in place then material was placed via scrapers. Water was added and dozers mixed the soils prior to compaction in lifts. All compaction tests taken indicate the backfill material was placed in an engineered manner.

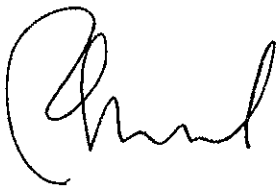
CONCLUSIONS AND RECOMMENDATIONS

Based on our observations and tests, it is our opinion that the liner subgrade was prepared and the backfill placed in an engineered manner.

CLOSURE

If you have questions or comments about this report, please contact us and we will be glad to respond.

Sincerely,
AMERICAN TECHNICAL SERVICES, INC.



Dave G. Bressler, P.E.
Geotechnical Consultant

cc: File

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TECHNICAL
SERVICES, INC.
Engineering • Environmental • Drilling • Materials
9105 Black Hawk Rd • PO Box 556
Black Hawk, SD 57718-0556

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT:	CONTINENTAL RESOURCES, INC.	ATS # :	12-12165
	PO Box 268836	DATE:	07/30/12
	Oklahoma City, OK 73126	ATS TECH:	Russell Harwood
ATTENTION:	Project Manager	GAGE # :	2
PROJECT:	Atlanta Drill Site	BENCHMARK:	

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
1	07/25/12	#1	9.7	126.5	7.7	128.2	101	+/-2%	95	PASS
2	07/25/12	#1	9.7	126.5	8.7	120.2	95	+/-2%	95	PASS
3	07/25/12	#1	9.7	126.5	8.8	125.8	99	+/-2%	95	PASS
4	07/25/12	#1	9.7	126.5	9.9	126.8	100	+/-2%	95	PASS
5	07/25/12	#1	9.7	126.5	9.1	120.4	95	+/-2%	95	PASS
6	07/25/12	#1	9.7	126.5	7.8	121.0	96	+/-2%	95	PASS
7							#DIV/0!			
8							#DIV/0!			
9							#DIV/0!			
10							#DIV/0!			

TEST #	LOCATION	ELEVATION
1	North 421071.00, East 117953.00	1913.95
2	North 421274.95, East 1179466.60	1924.65
3	North 421032.65, East 1179535.15	1911.2
4	North 421208.75, East 1179464.72	1922.6
5	North 421225.55, East 1179501.00	1923.1
6	North 420954.70, East 1179641.10	1905.35
7		
8		
9		
10		

NOTES: All Test in West Valley Fill

cc:

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8105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 07/30/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
7	07/26/12	#1	9.7	126.5	8.1	126.2	100	+/-2%	95	PASS
8	07/26/12	#1	9.7	126.5	7.8	128.4	102	+/-2%	95	PASS
9	07/26/12	#1	9.7	126.5	7.9	126.1	100	+/-2%	95	PASS
10	07/26/12	#1	9.7	126.5	7.7	120.2	95	+/-2%	95	PASS
11	07/26/12	#1	9.7	126.5	8.0	124.7	99	+/-2%	95	PASS
12	07/26/12	#1	9.7	126.5	8.1	123.7	98	+/-2%	95	PASS
13							#DIV/0!			
14							#DIV/0!			
15							#DIV/0!			
16							#DIV/0!			

TEST #	LOCATION	ELEVATION
7	North 420733.85, East 1179715.80	1889.35
8	North 421024.65, East 1179590.75	1911.8
9	North 4211162.20, East 1179535.00	1920.75
10	North 420989.90, East 1179617.40	1910.3
11	North 421163.80, East 1179533.60	1921.65
12	North 420730.65, East 1179774.25	1887.9
13		
14		
15		
16		

NOTES:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 07/30/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
13	07/27/12	#1	9.7	126.5	8.2	128.8	102	+/-2%	95	PASS
14	07/27/12	#1	9.7	126.5	7.8	125.7	99	+/-2%	95	PASS
15	07/27/12	#1	9.7	126.5	8.0	126.2	100	+/-2%	95	PASS
16	07/27/12	#1	9.7	126.5	7.9	126.7	100	+/-2%	95	PASS
17	07/27/12	#1	9.7	126.5	8.3	121.5	96	+/-2%	95	PASS
18	07/27/12	#1	9.7	126.5	8.0	120.7	95	+/-2%	95	PASS
19	07/27/12	#1	9.7	126.5	10.4	124.3	98	+/-2%	95	PASS
20	07/27/12	#1	9.7	126.5	8.3	121.5	96	+/-2%	95	PASS
21	07/27/12	#1	9.7	126.5	8.7	123.2	97	+/-2%	95	PASS
22	07/27/12	#1	9.7	126.5	10.1	121.2	96	+/-2%	95	PASS

TEST #	LOCATION	ELEVATION
13	North 420922.45, East 1179615.55	1907.5
14	North 421133.55, East 1179531.25	1920.75
15	North 421328.60, East 1179449.60	1930
16	North 420734.90, East 1179720.10	1891.95
17	North 421331.0, East 1179468.55	1930.25
18	North 421115.0, East 1179565.80	1920.35
19	North 421129.55, East 1179544.70	1921.55
20	North 420997.45, East 1179569.10	1913.85
21	North 421218.20, East 1179468.55	1927.65
22	North 421036.70, East 1179556.20	1916.5

NOTES:

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # 12-12165
DATE: 07/30/12
ATS TECH: Russell Harwood
GAGE # 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
23	07/28/12	#1	9.7	126.5	7.7	121.3	96	+/-2%	95	PASS
24	07/28/12	#1	9.7	126.5	8.6	122.3	97	+/-2%	95	PASS
25	07/28/12	#1	9.7	126.5	9.8	121.4	96	+/-2%	95	PASS
26	07/28/12	#1	9.7	126.5	10.3	120.4	95	+/-2%	95	PASS
27	07/28/12	#1	9.7	126.5	8.8	123.1	97	+/-2%	95	PASS
28	07/28/12	#1	9.7	126.5	10.2	121.1	96	+/-2%	95	PASS
29	07/28/12	#1	9.7	126.5	9.5	121.7	96	+/-2%	95	PASS
30	07/28/12	#1	9.7	126.5	8.9	121.6	96	+/-2%	95	PASS
31							#DIV/0!			
32							#DIV/0!			

TEST #	LOCATION	ELEVATION
23	North 421030.00, East 1179567.90	1917.25
24	North 421168.40, East 1179502.30	1925.8
25	North 420941.60, East 1179621.90	1910.9
26	North 420775.75, East 1179540.35	1915
27	North 420747.80, East 1179641.35	1901.75
28	North 421160.85, East 1179530.85	1925
29	North 421021.90, East 117618.15	1915.65
30	North 420886.85, East 1179717.40	1904.9
31		
32		

NOTES:

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 07/30/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
31	07/29/12	#1	9.7	126.5	10.2	120.4	95	+/-2%	95	PASS
32	07/29/12	#1	9.7	126.5	10.1	121.2	96	+/-2%	95	PASS
33	07/29/12	#1	9.7	126.5	8.2	121.7	96	+/-2%	95	PASS
34	07/29/12	#1	9.7	126.5	9.2	121.7	96	+/-2%	95	PASS
35	07/29/12	#1	9.7	126.5	9.9	120.4	95	+/-2%	95	PASS
36	07/29/12	#1	9.7	126.5	9.4	120.8	95	+/-2%	95	PASS
37							#DIV/0!			
38							#DIV/0!			
39							#DIV/0!			
40							#DIV/0!			

TEST #	LOCATION	ELEVATION
31	North 421067.10, East 1179554.40	1920.8
32	North 420928.65, East 1179636.40	1911.25
33	North 420835.80, East 1179608.55	1912.35
34	North 421077.20, East 1179797.50	1922.35
35	North 420932.15, East 1179576.05	1914.35
36	North 420901.40, East 1179652.05	1909.95
37		
38		
39		
40		

NOTES:

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/01/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
37	07/30/12	#3	15.3	114.2	14.2	108.7	95	+/-2%	95	PASS
38	07/30/12	#3	15.3	114.2	13.7	109.1	96	+/-2%	95	PASS
39	07/30/12	#3	15.3	114.2	13.6	110.4	97	+/-2%	95	PASS
40	07/30/12	#3	15.3	114.2	14.1	109.2	96	+/-2%	95	PASS
41	07/30/12	#3	15.3	114.2	13.8	110.0	96	+/-2%	95	PASS
42	07/30/12	#3	15.3	114.2	14.0	112.6	99	+/-2%	95	PASS
43							#DIV/0!			
44							#DIV/0!			
45							#DIV/0!			
46							#DIV/0!			

TEST #	LOCATION	ELEVATION
37	North 420807.75, East 1179702.80	1909.05
38	North 420783.10, East 1179629.25	1916.6
39	North 421008.30, East 1179597.45	1916.65
40	North 420912.45, East 1179672.00	1910.05
41	North 420800.0, East 1179606.85	1922.55
42	North 420784.65, East 1179714.00	1911.75
43		
44		
45		
46		

NOTES:

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/01/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
43	07/31/12	#3	15.3	114.2	13.4	108.9	95	+/-2%	95	PASS
44	07/31/12	#3	15.3	114.2	14.1	113.3	99	+/-2%	95	PASS
45	07/31/12	#3	15.3	114.2	13.3	109.5	96	+/-2%	95	PASS
46	07/31/12	#3	15.3	114.2	13.5	115.0	101	+/-2%	95	PASS
47	07/31/12	#1	9.7	126.5	8.9	124.7	99	+/-2%	95	PASS
48							#DIV/0!			
49							#DIV/0!			
50							#DIV/0!			
51							#DIV/0!			
52							#DIV/0!			

TEST #	LOCATION	ELEVATION
43	North 421075.80, East 1179492.75	1925.45
44	North 420939.60, East 1179667.90	1915.7
45	North 421024.15, East 1179494.95	1926.15
46	North 420978.15, East 1179573.50	1923.35
47	North 420958.05 East 1179629.60	1919.6
48		
49		
50		
51		
52		

NOTES:

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/03/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST.	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
48	08/01/12	#3	15.3	114.2	13.7	113.9	100	+/-2%	95	PASS
49	08/01/12	#3	15.3	114.2	13.4	112.6	99	+/-2%	95	PASS
50	08/01/12	#3	15.3	114.2	13.5	108.9	95	+/-2%	95	PASS
51	08/01/12	#3	15.3	114.2	14.2	110.0	96	+/-2%	95	PASS
52	08/01/12	#3	15.3	114.2	13.3	113.5	99	+/-2%	95	PASS
53							#DIV/0!			
54							#DIV/0!			
55							#DIV/0!			
56							#DIV/0!			
57							#DIV/0!			

TEST #	LOCATION	ELEVATION
48	78' North of South End of West Valley- Middle	
49	25' North of South End of West Valley-Middle	
50	225' North of South End of West Valley-Middle	
51	North 421100.20, East 1179617.10	1924.9
52	North 420962.20 East 1179574.20	1928.75
53		
54		
55		
56		
57		

NOTES: Not Able to Get GPS Readings System Down

cc:

RESPECTFULLY SUBMITTED

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/03/12
ATS TECH: Russell Harwood
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BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
53	08/02/12	#3	15.3	114.2	13.5	114.9	101	+/-2%	95	PASS
54	08/02/12	#3	15.3	114.2	13.7	112.9	99	+/-2%	95	PASS
55	08/02/12	#3	15.3	114.2	13.5	110.2	96	+/-2%	95	PASS
56	08/02/12	#3	15.3	114.2	13.6	114.0	100	+/-2%	95	PASS
57	08/02/12	#3	15.3	114.2	13.6	113.9	100	+/-2%	95	PASS
58	08/02/12	#3	15.3	114.2	13.8	115.5	101	+/-2%	95	PASS
59	08/02/12	#3	15.3	114.2	13.4	109.7	96	+/-2%	95	PASS
60							#DIV/0!			
61							#DIV/0!			
62							#DIV/0!			

TEST #	LOCATION	ELEVATION
53	North 420981.65, East 1179560.25	1930.75
54	North 420989.70, East 1179597.65	1928.25
55	North 420091.15, East 1179511.90	1933.95
56	North 421074.40, East 1179515.05	1933.45
57	North 421145.45, East 1179458.95	1932.75
58	North 421084.85, East 1179531.55	1934.45
59	North 421196.80, East 1179508.90	1934.35
60		
61		
62		

NOTES:

cc:

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AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/07/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST.	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
60	08/04/12	#3	15.3	114.2	13.9	112.2	98	+/-2%	95	PASS
61	08/04/12	#1	9.7	126.5	8.9	120.6	95	+/-2%	95	PASS
62	08/04/12	#3	15.3	114.2	14.1	113.9	100	+/-2%	95	PASS
63	08/04/12	#3	15.3	114.2	13.4	113.3	99	+/-2%	95	PASS
64							#DIV/0!			
65							#DIV/0!			
66							#DIV/0!			
67							#DIV/0!			
68							#DIV/0!			
69							#DIV/0!			

TEST #	LOCATION	ELEVATION
60	300' North of South Slope, East 1/3 of West Valley	4 to 5' Below
61	100' North of South Slope, East 1/3 of West Valley	4 to 5' Below
62	North 421154.15, East 1179488.85	1930.7
63	North 421086.15, East 1179544.25	1937.05
64		
65		
66		
67		
68		
69		

NOTES: No GPS for Location

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/07/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
64	08/05/12	#1	9.7	126.5	10.1	124.9	99	+/-2%	95	PASS
65	08/05/12	#3	15.3	114.2	13.4	112.2	98	+/-2%	95	PASS
66	08/05/12	#1	9.7	126.5	8.3	128.5	102	+/-2%	95	PASS
67	08/05/12	#1	9.7	126.5	9.1	121.8	96	+/-2%	95	PASS
68							#DIV/0!			
69							#DIV/0!			
70							#DIV/0!			
71							#DIV/0!			
72							#DIV/0!			
73							#DIV/0!			

TEST #	LOCATION	ELEVATION
64	North 421047.10 East 1179483.90	1939
65	North 421236.15 East 1179463.75	1938.55
66	North 421344.40, East 1179447.75	1940.25
67	North 421219.15, East 1179501.00	1940.4
68		
69		
70		
71		
72		
73		

NOTES:

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REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

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PO Box 268836
Oklahoma City, OK 73126
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PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/09/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
68	08/07/12	#1	9.7	126.5	7.8	122.6	97	+/-2%	95	PASS
69	08/07/12	#2	8.3	123.2	7.5	118.7	96	+/-2%	95	PASS
70	08/07/12	#1	9.7	126.5	8.7	126.3	100	+/-2%	95	PASS
71	08/07/12	#1	9.7	126.5	7.8	123.8	98	+/-2%	95	PASS
72							#DIV/0!			
73							#DIV/0!			
74							#DIV/0!			
75							#DIV/0!			
76							#DIV/0!			
77							#DIV/0!			

TEST #	LOCATION	ELEVATION
68	North 420982.95 East 1179952.45	1895.45
69	North 421008.10 East 1179936.05	1896.5
70	North 421099.00 East 1179911.80	1898.75
71	North 421191.80 East 1179859.30	1904.05
72		
73		
74		
75		
76		
77		

NOTES:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager

PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/09/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
72	08/08/12	#1	9.7	126.5	8.6	124.9	99	+/-2%	95	PASS
73	08/08/12	#1	9.7	123.2	7.7	128.6	104	+/-2%	95	PASS
74	08/08/12	#2	8.3	123.2	8.4	117.5	95	+/-2%	95	PASS
75	08/08/12	#1	9.7	126.5	7.9	128.5	102	+/-2%	95	PASS
76							#DIV/0!			
77							#DIV/0!			
78							#DIV/0!			
79							#DIV/0!			
80							#DIV/0!			
81							#DIV/0!			

TEST #	LOCATION	ELEVATION
72	North 421032.80 East 1179904.95	1907.4
73	North 421121.00 East 1179879.00	1909.35
74	North 421046.25 East 1179873.80	1911.65
75	North 421154.10 East 1179910.70	1913.7
76		
77		
78		
79		
80		
81		

NOTES:

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Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
76	08/09/12	#1	9.7	126.5	8.0	120.4	95	+/-2%	95	PASS
77	08/09/12	#2	8.3	123.2	8.1	120.3	98	+/-2%	95	PASS
78							#DIV/0!			
79							#DIV/0!			
80							#DIV/0!			
81							#DIV/0!			
82							#DIV/0!			
83							#DIV/0!			
84							#DIV/0!			
85							#DIV/0!			

TEST #	LOCATION	ELEVATION
76	North 421078.95 East 1179862.60	1914.45
77	North 421199.70 East 1179870.90	1915.05
78		
79		
80		
81		
82		
83		
84		
85		

NOTES

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9105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
82	08/12/12	#1	9.7	126.5	10.0	124.2	98	+/-2%	95	PASS
83	08/12/12	#1	9.7	126.5	10.3	120.7	95	+/-2%	95	PASS
84	08/12/12	#1	9.7	126.5	10.1	122.8	97	+/-2%	95	PASS
85	08/12/12	#3	15.3	114.2	13.4	115.5	101	+/-2%	95	PASS
86	08/12/12	#3	15.3	114.2	14.0	116.6	102	+/-2%	95	PASS
87	08/12/12	#3	15.3	114.2	13.9	114.9	101	+/-2%	95	PASS
88							#DIV/0!			
89							#DIV/0!			
90							#DIV/0!			
91							#DIV/0!			

TEST #	LOCATION	ELEVATION
82	North 421169.15 East 1179661.00	1934.25
83	North 421281.75 East 1179530.30	1935.9
84	North 421187.85 East 1179466.20	1935.2
85	North 421265.35 East 1179372.75	1936.3
86	North 421179.15 East 1179257.80	1935.9
87	North 421253.65 East 1179177.25	1937.1
88		
89		
90		
91		

NOTES: All Test in Overex on West 1/2 Subgrade Before Liner Installation

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6105 Black Hawk Rd • PO Box 559
Black Hawk, SD 57718-0559

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
78	08/12/12	#3	15.3	114.2	13.5	113.9	100	+/-2%	95	PASS
79	08/12/12	#3	15.3	114.2	13.7	115.1	101	+/-2%	95	PASS
80	08/12/12	#3	15.3	114.2	13.4	114.9	101	+/-2%	95	PASS
81	08/12/12	#3	15.3	114.2	13.3	113.3	99	+/-2%	95	PASS
82							#DIV/0!			
83							#DIV/0!			
84							#DIV/0!			
85							#DIV/0!			
86							#DIV/0!			
87							#DIV/0!			

TEST #	LOCATION	ELEVATION
78	North 421150.90 East 1179896.40	1917
79	North 421240.60 East 1179845.60	1917.8
80	North 421006.70 East 1179882.55	1922.3
81	North 420992.55 East 1179992.15	1919.75
82		
83		
84		
85		
86		
87		

NOTES:

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8105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
88	08/13/12	#3	15.3	114.2	13.6	113.7	100	+/-2%	95	PASS
89	08/13/12	#3	15.3	114.2	13.8	113.3	99	+/-2%	95	PASS
90	08/13/12	#3	15.3	114.2	13.4	115.5	101	+/-2%	95	PASS
91	08/13/12	#2	8.3	123.2	8.8	118.9	97	+/-2%	95	PASS
92	08/13/12	#1	9.7	126.5	8.9	126.1	100	+/-2%	95	PASS
93							#DIV/0!			
94							#DIV/0!			
95							#DIV/0!			
96							#DIV/0!			
97							#DIV/0!			

TEST #	LOCATION	ELEVATION
88	North 421063.70 East 1179944.20	1918.35
89	North 421008.35 East 1179861.05	1927.7
90	North 421038.50 East 1179985.85	1920.7
91	North 421044.50 East 1179840.40	1927.5
92	North 421017.25 East 1179950.30	1925.65
93		
94		
95		
96		
97		

NOTES:

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ATTENTION: Project Manager

PROJECT: Atlanta Drill Site

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DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
98	08/14/12	#1	9.7	126.5	10.2	120.9	96	+/-2%	95	PASS
99	08/14/12	#1	9.7	126.5	10.3	121.3	96	+/-2%	95	PASS
100	08/14/12	#1	9.7	126.5	10.1	121.9	96	+/-2%	95	PASS
101	08/14/12	#3	15.3	114.2	13.3	114.5	100	+/-2%	95	PASS
102	08/14/12	#1	9.7	126.5	10.1	123.5	98	+/-2%	95	PASS
103	08/14/12	#1	9.7	126.5	10.2	121.2	96	+/-2%	95	PASS
104	08/14/12	#3	15.3	114.2	13.4	115.6	101	+/-2%	95	PASS
105							#DIV/0!			
106							#DIV/0!			
107							#DIV/0!			

TEST #	LOCATION	ELEVATION
98	North 421249.95 East 1179384.30	1937.55
99	North 421288.40 East 1179300.25	1938.65
100	North 421171.30 East 1179237.30	1937.9
101	North 421272.15 East 1179362.50	1938.75
102	North 421267.10 East 1179238.35	1939.7
103	North 421229.90 East 1179254.90	1939.2
104	North 421203.80 East 1179320.25	1938.65
105		
106		
107		

NOTES: Drill Pad Area on Liner Fill

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DATE: 08/15/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
93	08/14/12	#3	15.3	114.2	13.6	114.5	100	+/-2%	95	PASS
94	08/14/12	#3	15.3	114.2	13.7	114.7	100	+/-2%	95	PASS
95	08/14/12	#1	9.7	126.5	10.4	122.5	97	+/-2%	95	PASS
96	08/14/12	#1	9.7	126.5	8.7	124.0	98	+/-2%	95	PASS
97	08/14/12	#1	9.7	126.5	9.3	121.3	96	+/-2%	95	PASS
98							#DIV/0!			
99							#DIV/0!			
100							#DIV/0!			
101							#DIV/0!			
102							#DIV/0!			

TEST #	LOCATION	ELEVATION
93	North 421035.45 East 1179873.40	1927.55
94	North 421012.25 East 1179971.80	1925.7
95	North 421091.95 East 1179838.70	1927.15
96	North 421038.25 East 1179899.75	1928.35
97	North 420986.05 East 1170007.50	1925.5
98		
99		
100		
101		
102		

NOTES

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8105 Black Hawk Rd • PO Box 558
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ASTM D6938

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PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/17/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
111	08/15/12	#1	9.7	126.5	10.4	120.1	95	+/-2%	95	PASS
112	08/15/12	#3	15.3	114.2	13.7	113.9	100	+/-2%	95	PASS
113							#DIV/0!			
114							#DIV/0!			
115							#DIV/0!			
116							#DIV/0!			
117							#DIV/0!			
118							#DIV/0!			
119							#DIV/0!			
120							#DIV/0!			

TEST #	LOCATION	ELEVATION
111	North 421056.40 East 1179836.10	1931.4
112	North 421052.05 East 1179918.50	1927.8
113		
114		
115		
116		
117		
118		
119		
120		

NOTES:

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PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/17/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST.	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
105	08/15/12	#3	15.3	114.2	13.6	118.0	103	+/-2%	95	PASS
106	08/15/12	#2	8.3	123.2	8.9	119.5	97	+/-2%	95	PASS
107	08/15/12	#3	15.3	114.2	13.7	115.6	101	+/-2%	95	PASS
108	08/15/12	#1	9.7	126.5	10.6	123.6	98	+/-2%	95	PASS
109	08/15/12	#3	15.3	114.2	13.4	116.1	102	+/-2%	95	PASS
110	08/15/12	#3	15.3	114.2	13.7	114.7	100	+/-2%	95	PASS
111							#DIV/0!			
112							#DIV/0!			
113							#DIV/0!			
114							#DIV/0!			

TEST #	LOCATION	ELEVATION
105	North 421228.10 East 1179216.50	1941.2
106	North 421250.80 East 1179341.55	1940.4
107	North 421159.45 East 1179335.60	1939.75
108	North 421292.70 East 1179491.85	1939.45
109	North 421261.20 East 1179545.20	1938.45
110	North 421175.25 East 1179545.40	1937.05
111		
112		
113		
114		

NOTES: Drill Pad Back Fill

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AMERICAN TECHNICAL SERVICES, INC.

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AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/17/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
119	08/16/12	#1	15.3	114.2	13.7	110.0	96	+/-2%	95	PASS
120	08/16/12	#1	15.3	114.2	13.9	112.0	98	+/-2%	95	PASS
121	08/16/12	#1	15.3	114.2	13.6	112.4	98	+/-2%	95	PASS
122	08/16/12	#1	15.3	114.2	13.4	112.6	99	+/-2%	95	PASS
123	08/16/12	#1	15.3	114.2	13.6	114.0	100	+/-2%	95	PASS
124	08/16/12	#1	15.3	114.2	13.9	115.2	101	+/-2%	95	PASS
125							#DIV/0!			
126							#DIV/0!			
127							#DIV/0!			
128							#DIV/0!			

TEST #	LOCATION	ELEVATION
119	120' East of West Outlet	6' Above Top of Pipe
120	110' East of West Outlet	8' Above Top of Pipe
121	100' East of West Outlet	10' Above Top of Pipe
122	STA 2 + 80	6' Above Top of Pipe
123	STA 2 + 70	8' Above Top of Pipe
124	STA 2 + 60	10' Above Top of Pipe
125		
126		
127		
128		

NOTES: Northwest Storm Sewer Trench Back Fill

cc:

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/17/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
116	08/16/12	#3	15.3	114.2	13.6	115.5	101	+/-2%	95	PASS
117	08/16/12	#3	15.3	114.2	13.3	111.5	98	+/-2%	95	PASS
118	08/16/12	#3	15.3	114.2	13.8	111.3	97	+/-2%	95	PASS
119							#DIV/0!			
120							#DIV/0!			
121							#DIV/0!			
122							#DIV/0!			
123							#DIV/0!			
124							#DIV/0!			
125							#DIV/0!			

TEST #	LOCATION	ELEVATION
116	North 421295.55 East 1179462.65	1941.3
117	North 421250.20 East 1179528.35	1939.95
118	North 421191.60 East 1179541.70	1939.5
119		
120		
121		
122		
123		
124		
125		

NOTES: Drill Pad Area

cc:

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/17/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
113	08/16/12	#3	15.3	114.2	14.5	116.3	102	+/-2%	95	PASS
114	08/16/12	#2	8.3	123.2	9.4	119.5	97	+/-2%	95	PASS
115	08/16/12	#3	15.3	114.2	13.4	114.0	100	+/-2%	95	PASS
116							#DIV/0!			
117							#DIV/0!			
118							#DIV/0!			
119							#DIV/0!			
120							#DIV/0!			
121							#DIV/0!			
122							#DIV/0!			

TEST #	LOCATION	ELEVATION
113	North 421004.30 East 1180053.35	1925.95
114	North 421047.15 East 1179917.95	1929.8
115	North 421131.15 East 1179860.70	1923.2
116		
117		
118		
119		
120		
121		
122		

NOTES: East Valley Fill

cc:

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810S Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/20/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
125	08/17/12	#3	15.3	114.2	13.3	110.1	96	+/-2%	95	PASS
126	08/17/12	#1	9.7	126.5	10.4	122.2	97	+/-2%	95	PASS
127	08/17/12	#3	15.3	114.2	13.4	116.7	102	+/-2%	95	PASS
128							#DIV/0!			
129							#DIV/0!			
130							#DIV/0!			
131							#DIV/0!			
132							#DIV/0!			
133							#DIV/0!			
134							#DIV/0!			

TEST #	LOCATION	ELEVATION
125	421406.45 1178944.55	1951.4
126	421405.80 1179870.85	1952.55
127	421474.75 1179005.90	1952.45
128		
129		
130		
131		
132		
133		
134		

NOTES: Road Rebuild Going North & South Along West Side

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager

PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/20/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST.	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
128	08/17/12	#1	9.7	126.5	10.3	126.5	100	+/-2%	95	PASS
129	08/17/12	#1	9.7	126.5	9.3	124.1	98	+/-2%	95	PASS
130	08/17/12	#1	9.7	126.5	10.2	124.2	98	+/-2%	95	PASS
131							#DIV/0!			
132							#DIV/0!			
133							#DIV/0!			
134							#DIV/0!			
135							#DIV/0!			
136							#DIV/0!			
137							#DIV/0!			

TEST #	LOCATION	ELEVATION
128	N 421184.10 E 1179371.90	1943.55
129	N 421234.95 E 1179377.35	1943.6
130	N 421205.50 E 1179455.95	1943.55
131		
132		
133		
134		
135		
136		
137		

NOTES: Drill Pad Area

cc:

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REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/20/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
131	08/18/12	#2	8.3	123.2	9.0	118.4	96	+/-2%	95	PASS
132	08/18/12	#3	15.3	114.2	13.8	113.9	100	+/-2%	95	PASS
133	08/18/12	#3	15.3	114.2	13.6	113.3	99	+/-2%	95	PASS
134	08/18/12	#3	15.3	114.2	13.4	116.1	102	+/-2%	95	PASS
135	08/18/12	#2	8.3	123.2	9.1	118.5	96	+/-2%	95	PASS
136	08/18/12	#2	8.3	123.2	9.2	117.5	95	+/-2%	95	PASS
137							#DIV/0!			
138							#DIV/0!			
139							#DIV/0!			
140							#DIV/0!			

TEST #	LOCATION	ELEVATION
131	N 421121.60 E 1179889.35	1925.65
132	N 421052.95 E 1179930.80	1929.35
133	N 421037.40 E 1179997.15	1929.1
134	N 421186.90 E 1179885.25	1919.9
135	N 421258.50 E 1179843.35	1920
136	N 421339.55 E 1179823.35	1921.65
137		
138		
139		
140		

NOTES: All Test in East Valley

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Black Hawk, SD 57718-0558

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ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/20/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
137	08/19/12	#3	15.3	114.2	13.3	114.1	100	+/-2%	95	PASS
138	08/19/12	#3	15.3	114.2	14.2	113.5	99	+/-2%	95	PASS
139	08/19/12	#3	15.3	114.2	13.7	110.3	97	+/-2%	95	PASS
140	08/19/12	#3	15.3	114.2	13.5	115.5	101	+/-2%	95	PASS
141							#DIV/0!			
142							#DIV/0!			
143							#DIV/0!			
144							#DIV/0!			
145							#DIV/0!			
146							#DIV/0!			

TEST #	LOCATION	ELEVATION
137	N 421079.05 E 1180014.40	1927.3
138	N 421111.75 E 1179924.40	1928.6
139	N 421192.30 E 1179886.40	1920.7
140	N 421263.65 E 1179839.65	1922.1
141		
142		
143		
144		
145		
146		

NOTES: East Valley

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Black Hawk, SD 57718-0558

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Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/20/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
141	08/19/12	#2	8.3	123.2	8.8	121.8	99	+/-2%	95	PASS
142	08/19/12	#2	8.3	123.2	7.2	122.1	99	+/-2%	95	PASS
143	08/19/12	#2	8.3	123.2	7.1	120.4	98	+/-2%	95	PASS
144	08/19/12	#1	9.7	126.5	9.6	123.8	98	+/-2%	95	PASS
145							#DIV/0!			
146							#DIV/0!			
147							#DIV/0!			
148							#DIV/0!			
149							#DIV/0!			
150							#DIV/0!			

TEST #	LOCATION	ELEVATION
141	N 421638.85 E 1178871.85	1963.85
142	N 421644.55 E 1178852.40	1964
143	N 421637.05 E 1178851.85	1967.65
144	N 421669.20 E 1178823.50	1969.9
145		
146		
147		
148		
149		
150		

NOTES: Over Culvert North Road

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Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/23/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
145	08/20/12	#3	15.3	114.2	13.4	115.6	101	+/-2%	95	PASS
146	08/20/12	#2	8.3	123.2	7.2	121.5	99	+/-2%	95	PASS
147	08/20/12	#3	15.3	114.2	13.8	115.9	101	+/-2%	95	PASS
148	08/20/12	#3	15.3	114.2	14.2	111.6	98	+/-2%	95	PASS
149							#DIV/0!			
150							#DIV/0!			
151							#DIV/0!			
152							#DIV/0!			
153							#DIV/0!			
154							#DIV/0!			

TEST #	LOCATION	ELEVATION
145	N 421166.85 E 1179865.40	1922.8
146	N 421256.90 E 1179836.55	1923.95
147	N 420996.10 E 1180218.95	1928.9
148	N 421096.00 E 1180016.65	1927.85
149		
150		
151		
152		
153		
154		

NOTES: East Valley Fill

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GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
149	08/21/12	#3	15.3	114.2	15.2	111.7	98	+/-2%	95	PASS
150	08/21/12	#3	15.3	114.2	15.1	113.9	100	+/-2%	95	PASS
151	08/21/12	#3	15.3	114.2	15.8	109.2	96	+/-2%	95	PASS
152	08/21/12	#3	15.3	114.2	13.4	112.2	98	+/-2%	95	PASS
153	08/21/12	#1	9.7	126.5	9.8	122.0	96	+/-2%	95	PASS
154							#DIV/0!			
155							#DIV/0!			
156							#DIV/0!			
157							#DIV/0!			
158							#DIV/0!			

TEST #	LOCATION	ELEVATION
149	N 421037.20 E 1180130.55	1932.6
150	N 421061.85 E 1179979.85	1933.1
151	N 421067.40 E 1180184.00	1936.15
152	N 421064.45 E 1180152.60	1937.45
153	N 421025.40 E 1180078.60	1935.85
154		
155		
156		
157		
158		

NOTES: East Valley Fill

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

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ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
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Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/23/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
154	08/22/12	#3	15.3	114.2	14.7	108.8	95	+/-2%	95	PASS
155	08/22/12	#3	15.3	114.2	14.3	110.2	96	+/-2%	95	PASS
156	08/22/12	#3	15.3	114.2	14.4	109.7	96	+/-2%	95	PASS
157	08/22/12	#3	15.3	114.2	13.8	110.5	97	+/-2%	95	PASS
158	08/22/12	#3	15.3	114.2	13.5	113.9	100	+/-2%	95	PASS
159	08/22/12	#3	15.3	114.2	13.3	110.0	96	+/-2%	95	PASS
160							#DIV/0!			
161							#DIV/0!			
162							#DIV/0!			
163							#DIV/0!			

TEST #	LOCATION	ELEVATION
154	N 421280.95 E 1178919.20	1926.3
155	N 421212.65 E 1179814.85	1925.7
156	N 421284.60 E 1179834.35	1926.75
157	N 421178.25 E 1179842.25	1929.45
158	N 421253.35 E 1179825.80	1928.9
159	N 421234.00 E 1179906.10	1928.15
160		
161		
162		
163		

NOTES:

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/28/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
160	08/23/12	#3	15.3	114.2	13.3	111.8	98	+/-2%	95	PASS
161	08/23/12	#2	8.3	123.2	9.3	118.7	96	+/-2%	95	PASS
162	08/23/12	#3	15.3	114.2	13.7	115.4	101	+/-2%	95	PASS
163	08/23/12	#3	15.3	114.2	13.4	109.7	96	+/-2%	95	PASS
164	08/23/12	#3	15.3	114.2	13.6	109.3	96	+/-2%	95	PASS
165	08/23/12	#3	15.3	114.2	13.4	115.6	101	+/-2%	95	PASS
166	08/23/12	#3	15.3	114.2	13.5	113.9	100	+/-2%	95	PASS
167							#DIV/0!			
168							#DIV/0!			
169							#DIV/0!			

TEST #	LOCATION	ELEVATION
160	N 421096.35 E 1179858.25	1934.6
161	N 421213.05 E 1179810.50	1932.55
162	N 421263.40 E 1179882.15	1930.9
163	N 421144.40 E 1179949.80	1931.65
164	N 421153.10 E 1179905.35	1933.6
165	N 421225.20 E 1179886.80	1933.15
166	N 421206.55 E 1179945.15	1932.5
167		
168		
169		

NOTES:

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/28/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
167	08/24/12	#3	15.3	114.2	14.3	112.8	99	+/-2%	95	PASS
168	08/24/12	#2	8.3	123.2	9.2	119.9	97	+/-2%	95	PASS
169	08/24/12	#2	8.3	123.2	9.4	118.5	96	+/-2%	95	PASS
170							#DIV/0!			
171							#DIV/0!			
172							#DIV/0!			
173							#DIV/0!			
174							#DIV/0!			
175							#DIV/0!			
176							#DIV/0!			

TEST #	LOCATION	ELEVATION
167	N 421222.70 E 1179902.60	1934.85
168	N 421303.55 E 1179866.40	1934.45
169	N 421401.35 E 1179821.85	1933.25
170		
171		
172		
173		
174		
175		
176		

NOTES:

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ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE #: 2
BENCHMARK: East Valley Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
170	08/24/12	#3	15.3	114.2	14.6	113.5	99	+/-2%	95	PASS
171	08/24/12	#3	15.3	114.2	14.4	111.8	98	+/-2%	95	PASS
172	08/24/12	#3	15.3	114.2	14.9	112.3	98	+/-2%	95	PASS
173							#DIV/0!			
174							#DIV/0!			
175							#DIV/0!			
176							#DIV/0!			
177							#DIV/0!			
178							#DIV/0!			
179							#DIV/0!			

TEST #	LOCATION	ELEVATION
170	N 421153.30 E 1179861.65	1936.7
171	N 421252.75 E 1179826.85	1936.5
172	N 421346.00 E 1179790.95	1936.6
173		
174		
175		
176		
177		
178		
179		

NOTES:

cc:

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AMERICAN TECHNICAL SERVICES, INC.

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ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE # : 2
BENCHMARK: South Road Culvert Back Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
191	08/25/12	#3	15.3	114.2	14.0	110.5	97	+/-2%	95	PASS
192							#DIV/0!			
193							#DIV/0!			
194							#DIV/0!			
195							#DIV/0!			
196							#DIV/0!			
197							#DIV/0!			
198							#DIV/0!			
199							#DIV/0!			
200							#DIV/0!			

TEST #	LOCATION	ELEVATION
191	3' East of Center of Pipe-77' South of Type 2 Inlet at STA 545 + 70	5' Above Pipe
192		
193		
194		
195		
196		
197		
198		
199		
200		

NOTES: _____

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SERVICES, INC.
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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE # : 2
BENCHMARK: East Valley Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
173	08/25/12	#1	9.7	126.5	10.1	121.4	96	+/-2%	95	PASS
174	08/25/12	#1	9.7	126.5	9.4	121.7	96	+/-2%	95	PASS
175	08/25/12	#2	8.3	123.2	7.8	119.7	97	+/-2%	95	PASS
176							#DIV/0!			
177							#DIV/0!			
178							#DIV/0!			
179							#DIV/0!			
180							#DIV/0!			
181							#DIV/0!			
182							#DIV/0!			

TEST #	LOCATION	ELEVATION
173	N 421098.70 E 1179890.60	1936.15
174	N 421274.30 E 1179841.15	1936.7
175	N 421152.42 E 1179836.80	1937.7
176		
177		
178		
179		
180		
181		
182		

NOTES:

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8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE #: 2
BENCHMARK: East Valley Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
176	08/26/12	#1	9.7	126.5	9.5	123.2	97	+/-2%	95	PASS
177	08/26/12	#3	15.3	114.2	14.8	114.0	100	+/-2%	95	PASS
178	08/26/12	#2	8.3	123.2	8.6	121.6	99	+/-2%	95	PASS
179	08/26/12	#2	8.3	123.2	8.4	119.5	97	+/-2%	95	PASS
180	08/26/12	#1	9.7	126.5	8.9	126.3	100	+/-2%	95	PASS
181							#DIV/0!			
182							#DIV/0!			
183							#DIV/0!			
184							#DIV/0!			
185							#DIV/0!			

TEST #	LOCATION	ELEVATION
176	N 421289.45 E 1179811.95	1937.6
177	N 421261.50 E 1179823.70	1936.9
178	N 421129.50 E 1179936.90	1938.3
179	N 421407.25 E 1179820.20	1937.4
180	N 421405.25 E 1179828.90	1937.25
181		
182		
183		
184		
185		

NOTES:

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AMERICAN TECHNICAL SERVICES, INC.
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6105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE # : 2
BENCHMARK: South Road Culvert Back Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
192	08/26/12	#3	15.3	114.2	15.7	112.8	99	+/-2%	95	PASS
193	08/26/12	#3	15.3	114.2	14.2	114.1	100	+/-2%	95	PASS
194	08/26/12	#3	15.3	114.2	13.9	113.7	100	+/-2%	95	PASS
195	08/26/12	#3	15.3	114.2	15.1	113.9	100	+/-2%	95	PASS
196							#DIV/0!			
197							#DIV/0!			
198							#DIV/0!			
199							#DIV/0!			
200							#DIV/0!			
201							#DIV/0!			

TEST #	LOCATION	ELEVATION
192	3' West of Center Pipe-60' South of Type 2 Inlet at STA 545 + 71	4' Above Pipe
193	Center of Pipe-65' South of Type 2 Inlet at STA 545 + 72	7' Above Pipe
194	2' East of Center of Pipe-55' South of Type 2 Inlet at STA 545 + 73	10' Above Pipe
195	2' West of Center of Pipe-50' South of type 2 Inlet at STA 545 + 74	12' Above Pipe
196		
197		
198		
199		
200		
201		

NOTES:

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ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
3105 Black Hawk Rd • PO Box 550
Black Hawk, SD 57718-0550

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE # : 2
BENCHMARK: East Valley Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
181	08/27/12	#1	9.7	126.5	9.9	120.5	95	+/-2%	95	PASS
182	08/27/12	#3	15.3	114.2	13.9.	111.8	98	+/-2%	95	PASS
183	08/27/12	#2	8.3	123.2	8.1	120.1	97	+/-2%	95	PASS
184	08/27/12	#3	15.3	114.2	15.0	113.8	100	+/-2%	95	PASS
185	08/27/12	#3	15.3	114.2	14.8	111.3	97	+/-2%	95	PASS
186	08/27/12	#3	15.3	114.2	14.2	112.7	99	+/-2%	95	PASS
187	08/27/12	#3	15.3	114.2	14.9	112.7	99	+/-2%	95	PASS
188	08/27/12	#3	15.3	114.2	13.9	112.8	99	+/-2%	95	PASS
189	08/27/12	#1	9.7	126.5	10.1	122.0	96	+/-2%	95	PASS
190	08/27/12	#3	15.3	114.2	14.0	111.8	98	+/-2%	95	PASS

TEST #	LOCATION	ELEVATION
181	N 421380.15 E 1179686.15	1939.3
182	N 421450.10 E 1179722.45	1940.2
183	N 421439.30 E 1179760.00	1941.5
184	N 421399.40 E 1179722.30	1941.95
185	N 421415.95 E 1179832.95	1942.2
186	N 421485.05 E 1179852.75	1942.95
187	N 421491.20 E 1179749.45	1943.1
188	N 421264.40 E 1179734.90	1938.2
189	N 421224.35 E 1179924.85	1937.5
190	N 421295.60 E 1180039.95	1937.35

NOTES:

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ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 08/28/12
ATS TECH: Evan Schultze
GAGE # : 2
BENCHMARK: South Road Culvert Back Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
196	08/27/12	#3	15.3	114.2	14.8	112.8	99	+/-2%	95	PASS
197							#DIV/0!			
198							#DIV/0!			
199							#DIV/0!			
200							#DIV/0!			
201							#DIV/0!			
202							#DIV/0!			
203							#DIV/0!			
204							#DIV/0!			
205							#DIV/0!			

TEST #	LOCATION	ELEVATION
196	1' East of Center of Pipe-12' South of type 2 Inlet at STA 545 + 75	5' Above Pipe
197		
198		
199		
200		
201		
202		
203		
204		
205		

NOTES:

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REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/31/12
ATS TECH: Evan Schultze
GAGE #: 2
BENCHMARK: East Valley Fill

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
197	08/28/12	#1	9.7	126.5	8.2	121.3	96	+/-2%	95	PASS
198	08/28/12	#1	9.7	126.5	9.6	123.2	97	+/-2%	95	PASS
199	08/28/12	#1	9.7	126.5	9.8	124.5	98	+/-2%	95	PASS
200	08/28/12	#1	9.7	126.5	9.3	123.6	98	+/-2%	95	PASS
201							#DIV/0!			
202							#DIV/0!			
203							#DIV/0!			
204							#DIV/0!			
205							#DIV/0!			
206							#DIV/0!			

TEST #	LOCATION	ELEVATION
197	421186.95 1180094.55	1939.05
198	421133.25 1179974.25	1938.15
199	421273.45 1179880.10	1937.65
200	421117.15 1179767.85	1938.8
201		
202		
203		
204		
205		
206		

NOTES:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

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Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 08/31/12
ATS TECH: Evan Schultze
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
201	08/29/12	#3	15.3	114.2	15.0	112.1	98	+/-2%	95	PASS
202							#DIV/0!			
203							#DIV/0!			
204							#DIV/0!			
205							#DIV/0!			
206							#DIV/0!			
207							#DIV/0!			
208							#DIV/0!			
209							#DIV/0!			
210							#DIV/0!			

TEST #	LOCATION	ELEVATION
201	60' North of Type 2 Inlet at STA 545 + 70	4' Above Pipe
202		
203		
204		
205		
206		
207		
208		
209		
210		

NOTES:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/04/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
202	08/30/12	#2	8.3	123.2	9.7	122.5	99	+/-2%	95	PASS
203	08/30/12	#3	15.3	114.2	13.4	115.7	101	+/-2%	95	PASS
204	08/30/12	#3	15.3	114.2	13.6	113.0	99	+/-2%	95	PASS
205	08/30/12	#3	15.3	114.2	13.5	113.4	99	+/-2%	95	PASS
206							#DIV/0!			
207							#DIV/0!			
208							#DIV/0!			
209							#DIV/0!			
210							#DIV/0!			
211							#DIV/0!			

TEST #	LOCATION	ELEVATION
202	200' North of South Manhole	3' Below Grade
203	120' North of South Manhole	2' Below Grade
204	250' North of South Manhole	1' Below Grade
205	80' North of South Manhole	1' Below Grade
206		
207		
208		
209		
210		
211		

NOTES: Storm Sewer in Drill Pad Area

cc:

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

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Oklahoma City, OK 73126
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PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 09/04/12
ATS TECH: Russell Harwood
GAGE #: 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
206	09/01/12	#1	9.7	126.5	9.2	123.4	98	+/-2%	95	PASS
207	09/01/12	#2	8.3	123.2	8.7	121.5	99	+/-2%	95	PASS
208	09/01/12	#2	8.3	123.2	9.3	117.5	95	+/-2%	95	PASS
209	09/01/12	#1	9.7	126.5	10.5	120.4	95	+/-2%	95	PASS
210	09/01/12	#1	9.7	126.5	8.9	122.6	97	+/-2%	95	PASS
211	09/01/12	#1	9.7	126.5	9.0	120.5	95	+/-2%	95	PASS
212	09/01/12	#3	15.3	114.2	13.3	114.1	100	+/-2%	95	PASS
213							#DIV/0!			
214							#DIV/0!			
215							#DIV/0!			

TEST #	LOCATION	ELEVATION
206	N 421148.50 E 1179772.65	1939
207	N 421278.05 E 1179873.65	1936.95
208	N 421243.90 E 1179995.40	1937
209	N 421256.85 E 1180111.45	1937
210	N 421246.20 E 1180276.70	1936.7
211	N 421165.45 E 1180219.90	1937
212	N 421131.65 E 1180128.40	1937
213		
214		
215		

NOTES: Drill Pad Subgrade Pre-Liner

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Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

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PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/04/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
213	09/02/12	#3	15.3	114.2	13.4	112.5	99	+/-2%	95	PASS
214	09/02/12	#2	8.3	123.2	8.5	119.2	97	+/-2%	95	PASS
215	09/02/12	#2	8.3	123.2	7.6	119.4	97	+/-2%	95	PASS
216	09/02/12	#3	15.3	114.2	13.6	114.1	100	+/-2%	95	PASS
217	09/02/12	#3	15.3	114.2	13.5	114.1	100	+/-2%	95	PASS
218	09/02/12	#1	9.7	126.5	9.2	121.9	96	+/-2%	95	PASS
219	09/02/12	#1	9.7	126.5	8.5	121.7	96	+/-2%	95	PASS
220							#DIV/0!			
221							#DIV/0!			
222							#DIV/0!			

TEST #	LOCATION	ELEVATION
213	N 421177.85 E 1179944.00	1939.2
214	N 421197.20 E 1179980.55	1938.5
215	N 421155.10 E 1180018.00	1938.65
216	N 421161.40 E 1179809.10	1940.8
217	N 421166.65 E 1179943.15	1940.55
218	N 421198.80 E 1179984.45	1939.55
219	N 421207.30 E 1179940.30	1939.9
220		
221		
222		

NOTES: Drill Pad Area Over Liner Fill

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 556
Black Hawk, SD 57718-0556

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/04/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
220	09/03/12	#3	15.3	114.2	13.7	114.9	101	+/-2%	95	PASS
221	09/03/12	#3	15.3	114.2	13.4	114.1	100	+/-2%	95	PASS
222	09/03/12	#3	15.3	114.2	13.8	114.8	101	+/-2%	95	PASS
223							#DIV/0!			
224							#DIV/0!			
225							#DIV/0!			
226							#DIV/0!			
227							#DIV/0!			
228							#DIV/0!			
229							#DIV/0!			

TEST #	LOCATION	ELEVATION
220	N 421261.45 E 1179919.60	1940.9
221	N 421234.80 E 1179980.75	1940.75
222	N 421166.65 E 1179999.30	1940.65
223		
224		
225		
226		
227		
228		
229		

NOTES: Drill Pad Area Over Liner Fill

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AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
3105 Black Hawk Rd. • PO Box 559
Black Hawk, SD 57718-0559

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/07/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
223	09/04/12	#3	15.3	114.2	13.6	110.4	97	+/-2%	95	PASS
224	09/04/12	#3	15.3	114.2	13.4	110.8	97	+/-2%	95	PASS
225	09/04/12	#3	15.3	114.2	13.7	111.2	97	+/-2%	95	PASS
226	09/04/12	#3	15.3	114.2	13.3	115.9	101	+/-2%	95	PASS
227	09/04/12	#1	9.7	126.5	10.2	121.0	96	+/-2%	95	PASS
228	09/04/12	#1	9.7	126.5	10.1	121.1	96	+/-2%	95	PASS
229	09/04/12	#1	9.7	126.5	9.3	120.6	95	+/-2%	95	PASS
230	09/04/12	#3	15.3	114.2	13.8	115.6	101	+/-2%	95	PASS
231	09/04/12	#3	15.3	114.2	14.4	111.7	98	+/-2%	95	PASS
232							#DIV/0!			

TEST #	LOCATION	ELEVATION
223	N 421253.00 E 1180307.60	1938
224	N 421215.25 E 1180269.15	1938.7
225	N 421166.55 E 1180234.35	1938.1
226	N 421208.40 E 1180056.70	1941.35
227	N 421254.80 E 1179946.55	1941.45
228	N 421191.80 E 1179850.65	1941.75
229	N 421178.45 E 1179723.60	1943.35
230	N 421233.40 E 1180248.00	1939.75
231	N 421180.50 E 1180248.70	1940.4
232		

NOTES: Drill Pad Area

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN
TECHNICAL
SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
3105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/07/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
232	09/05/12	#3	15.3	114.2	13.3	114.1	100	+/-2%	95	PASS
233	09/05/12	#3	15.3	114.2	13.6	114.0	100	+/-2%	95	PASS
234	09/05/12	#2	8.3	123.2	9.5	120.3	98	+/-2%	95	PASS
235	09/05/12	#3	15.3	114.2	13.4	114.2	100	+/-2%	95	PASS
236	09/05/12	#3	15.3	114.2	13.7	114.4	100	+/-2%	95	PASS
237							#DIV/0!			
238							#DIV/0!			
239							#DIV/0!			
240							#DIV/0!			
241							#DIV/0!			

TEST #	LOCATION	ELEVATION
232	N 421154.40 E 1180235.30	1941.3
233	N 421194.20 E 1180115.05	1941.25
234	N 421154.70 E 1179961.25	1941.2
235	N 421215.40 E 1179812.25	1943.3
236	N 421164.80 E 1179750.50	1943.2
237		
238		
239		
240		
241		

NOTES: Drill Pad Final Subgrade

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
5105 Black Hawk Rd • PO Box 556
Black Hawk, SD 57718-0556

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/11/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
237	09/07/12	#2	8.3	123.2	7.9	122.1	99	+/-2%	95	PASS
238	09/07/12	#3	15.3	114.2	14.5	108.7	95	+/-2%	95	PASS
239	09/07/12	#2	8.3	123.2	8.1	118.5	96	+/-2%	95	PASS
240	09/07/12	#3	15.3	114.2	14.0	110.0	96	+/-2%	95	PASS
241	09/07/12	#3	15.3	114.2	13.4	114.1	100	+/-2%	95	PASS
242	09/07/12	#3	15.3	114.2	13.7	111.0	97	+/-2%	95	PASS
243	09/07/12	#2	8.3	123.2	8.1	117.4	95	+/-2%	95	PASS
244	09/07/12	#3	15.3	114.2	14.1	109.9	96	+/-2%	95	PASS
245							#DIV/0!			
246							#DIV/0!			

TEST #	LOCATION	ELEVATION
237	N 421519.00 E 1180368.00	1963.9
238	N 421460.00 E 1180390.40	1956.8
239	N 421424.20 E 1180438.15	1961.7
240	N 421414.40 E 1180424.20	1954.1
241	N 421365.45 E 1180416.00	1960.75
242	N 421362.70 E 1180451.00	1954.5
243	N 421279.10 E 1180484.90	1961.7
244	N 421283.65 E 1180471.85	1952.45
245		
246		

NOTES: Easr Berm

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT:	CONTINENTAL RESOURCES, INC.	ATS # :	12-12165
	PO Box 268836	DATE:	09/18/12
	Oklahoma City, OK 73126	ATS TECH:	Russell Harwood
ATTENTION:	Project Manager	GAGE # :	2
PROJECT:	Atlanta Drill Site	BENCHMARK:	

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
245	09/14/12	#4	7.2	131.4	5.3	127.4	97	+/-2%	95	PASS
246	09/14/12	#4	7.2	131.4	5.7	131.0	100	+/-2%	95	PASS
247	09/14/12	#4	7.2	131.4	5.4	131.1	100	+/-2%	95	PASS
248	09/14/12	#4	7.2	131.4	5.6	127.9	97	+/-2%	95	PASS
249	09/14/12	#4	7.2	131.4	5.5	131.5	100	+/-2%	95	PASS
250	09/14/12	#4	7.2	131.4	5.3	130.5	99	+/-2%	95	PASS
251	09/14/12	#4	7.2	131.4	5.4	131.3	100	+/-2%	95	PASS
252							#DIV/0!			
253							#DIV/0!			
254							#DIV/0!			

TEST #	LOCATION	ELEVATION
245	N 421250.10 E 1180221.35	1941.9
246	N 421172.20 E 1180121.95	1941.9
247	N 421231.95 E 1180017.80	1941.95
248	N 421271.80 E 1179924.75	1941.9
249	N 421228.85 E 1179835.15	1943.9
250	N 421180.60 E 1179720.90	1943.9
251	N 421236.80 E 1179604.75	1943.9
252		
253		
254		

NOTES: Drill Pad Gravel

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

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TECHNICAL
SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
9105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/18/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
252	09/17/12	#3	15.3	114.2	13.3	109.3	96	+/-2%	95	PASS
253	09/17/12	#3	15.3	114.2	13.4	108.9	95	+/-2%	95	PASS
254	09/17/12	#1	9.7	126.5	8.9	122.4	97	+/-2%	95	PASS
255	09/17/12	#3	15.3	114.2	13.8	110.3	97	+/-2%	95	PASS
256	09/17/12	#2	8.3	123.2	8.1	118.4	96	+/-2%	95	PASS
257							#DIV/0!			
258							#DIV/0!			
259							#DIV/0!			
260							#DIV/0!			
261							#DIV/0!			

TEST #	LOCATION	ELEVATION
252	N 420632.90 E 1180063.05	1880.8
253	N 420613.15 E 1179979.55	1870.1
254	N 420646.00 E 1179961.30	1864.95
255	N 420670.10 E 1179894.80	1872.05
256	N 420613.40 E 1179840.10	1873.45
257		
258		
259		
260		
261		

NOTES: South Pond Pre-Liner (Finish Subgrade)

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN
TECHNICAL
SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
9105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 09/25/12
ATS TECH: Russell Harwood
GAGE # : 2
BENCHMARK:

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
257	09/22/12	#3	15.3	114.2	14.1	109.2	96	+/-2%	95	PASS
258	09/22/12	#2	8.3	123.2	7.2	118.5	96	+/-2%	95	PASS
259	09/22/12	#2	8.3	123.2	8.0	118.7	96	+/-2%	95	PASS
260	09/22/12	#2	8.3	123.2	7.1	120.7	98	+/-2%	95	PASS
261	09/22/12	#3	15.3	114.2	13.8	110.0	96	+/-2%	95	PASS
262	09/22/12	#2	8.3	123.2	7.9	119.6	97	+/-2%	95	PASS
263	09/22/12	#3	15.3	114.2	13.4	109.4	96	+/-2%	95	PASS
264							#DIV/0!			
265							#DIV/0!			
266							#DIV/0!			

TEST #	LOCATION	ELEVATION
257	N 420679.75 E 1180078.75	1870.1
258	N 420720.90 E 1180029.20	1878.2
259	N 420680.85 E 1179984.50	1870.7
260	N 420614.75 E 1179949.80	1869.95
261	N 420614.40 E 1179901.55	1868.85
262	N 420594.10 E 1179848.15	1877.55
263	N 420592.00 E 1179984.65	1884.6
264		
265		
266		

NOTES: Pond Subgrade After Liner & Finish Grade

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126

ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 10/15/12
ATS TECH: Evan Schultze
GAGE #: 26
BENCHMARK: Atlanta Pad Road

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
264	10/10/12	#1	9.7	126.5	9.3	120.3	95	+/-2%	95	PASS
265	10/10/12	#1	9.7	126.5	9.5	120.9	96	+/-2%	95	PASS
266	10/10/12	#1	9.7	126.5	9.8	122.1	97	+/-2%	95	PASS
267							#VALUE!			
268							#VALUE!			
269							#VALUE!			
270							#VALUE!			
271							#DIV/0!			
272							#DIV/0!			
273							#DIV/0!			

TEST #	LOCATION	ELEVATION
264	N 48D07.125' W 103D44.108'	1.5' Below Top of Subgrade
265	N 48D07.071' W 103D44.106'	1' Below Top of Subgrade
266	N 48D07.053' W 103D44.018'	.5' Below Top of Subgrade
267		
268		
269		
270		
271		
272		
273		

NOTES:

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS # : 12-12165
DATE: 10/15/12
ATS TECH: Evan Schultze
GAGE # : 26
BENCHMARK: Atlanta Pad Road

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
267	10/11/12	#1	9.7	126.5	8.9	123.4	98	+/-2%	95	PASS
268	10/11/12	#1	9.7	126.5	9.2	122.8	97	+/-2%	95	PASS
269	10/11/12	#1	9.7	126.5	8.8	124.3	98	+/-2%	95	PASS
270	10/11/12	#1	9.7	126.5	9.1	123.7	98	+/-2%	95	PASS
271							#VALUE!			
272							#VALUE!			
273							#VALUE!			
274							#DIV/0!			
275							#DIV/0!			
276							#DIV/0!			

TEST #	LOCATION	ELEVATION
267	N. 48D06.762' W. 103D44.019'	.5' Below Top of Subgrade
268	N. 48D07.078' W. 103D44.106'	5' Below Top of Subgrade
269	N. 48D07.101' W. 103D44.020'	1' Below Top of Subgrade
270	N. 48D07.164' W. 103D44.019'	2' Below Top of Subgrade
271		
272		
273		
274		
275		
276		

NOTES:

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
6105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
P.O Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 10/15/12
ATS TECH: Evan Schultze
GAGE #: 26
BENCHMARK: Atlanta Pad Road

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
271	10/12/12	#1	9.7	126.5	9.4	124.8	99	+/-2%	95	PASS
272							#VALUE!			
273							#VALUE!			
274							#VALUE!			
275							#VALUE!			
276							#VALUE!			
277							#VALUE!			
278							#DIV/0!			
279							#DIV/0!			
280							#DIV/0!			

TEST #	LOCATION	ELEVATION
271	N. 48D06.807' W.103D44.019'	1' Below Top of Subgrade
272		
273		
274		
275		
276		
277		
278		
279		
280		

NOTES:

cc:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

AMERICAN TECHNICAL SERVICES, INC.
ENGINEERING • ENVIRONMENTAL • DRILLING • MATERIALS
8105 Black Hawk Rd. • PO Box 558
Black Hawk, SD 57718-0558

REPORT OF SOIL DENSITY TESTING - NUCLEAR METHOD

ASTM D6938

CLIENT: CONTINENTAL RESOURCES, INC.
PO Box 268836
Oklahoma City, OK 73126
ATTENTION: Project Manager
PROJECT: Atlanta Drill Site

ATS #: 12-12165
DATE: 10/17/12
ATS TECH: Evan Schultze
GAGE #: 26
BENCHMARK: Atlanta Pad Road- Cement Stabilized Soil

			LABORATORY		FIELD			SPECIFICATIONS		
TEST #	DATE	PROCTOR # / CLASSIFICATION	% MOIST	DRY DENSITY	% MOISTURE	DRY DENSITY	% COMPACTION	SPEC MOISTURE %	SPEC COMPACTION	PASS
283	10/16/12	#1	9.7	126.5	9.7	123.0	97	+/-2%	95	PASS
284	10/16/12	#1	9.7	126.5	9.5	124.2	98	+/-2%	95	PASS
285	10/16/12	#1	9.7	126.5	9.9	122.3	97	+/-2%	95	PASS
286	10/16/12	#1	9.7	126.5	9.8	123.4	98	+/-2%	95	PASS
287	10/16/12	#1	9.7	126.5	10.3	124.1	98	+/-2%	95	PASS
288	10/16/12	#1	9.7	126.5	10.5	121.9	96	+/-2%	95	PASS
289							#VALUE!			
290							#DIV/0!			
291							#DIV/0!			
292							#DIV/0!			

TEST #	LOCATION	ELEVATION
283	North 48d07.167' West 103d44.014'	1.5' Below Top of Subgrade
284	North 48d07.187' West 103d44.021'	2' Below Top of Subgrade
285	North 48d07.175' West 103d44.017'	1' Below Top of Subgrade
286	North 48d06.217' West 103d44.015'	1' Below Top of Subgrade
287	North 48d07.235' West 103d44.013'	.5' Below Top of Subgrade
288	North 48d07.197' West 103d44.014'	.5' Below Top of Subgrade
289		
290		
291		
292		

NOTES:

RESPECTFULLY SUBMITTED

AMERICAN TECHNICAL SERVICES, INC.

cc:

NORTH DAKOTA
OIL AND GAS DIVISION

Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director
Department of Mineral Resources
Lynn D. Helms - Director
North Dakota Industrial Commission
www.dmr.nd.gov/oilgas

23361
HA

BECKY BARNES
CONTINENTAL RESOURCES, INC.
PO BOX 1032
ENID, OK 73702-1032 USA

Date: **7/23/2012**

RE: CORES AND SAMPLES

Well Name: **ATLANTA 12-6H** Well File No.: **23361**
Location: **NENW 6-153-101** County: WILLIAMS
Permit Type: **Development - HORIZONTAL**
Field: **BAKER** Target Horizon: THREE FORKS

Dear BECKY BARNES:

North Dakota Century Code (NDCC) Section 38-08-04 provides for the preservation of cores and samples and their shipment to the State Geologist when requested. The following is required on the above referenced well:

1) All cores, core chips and samples must be submitted to the State Geologist as provided for the NDCC Section 38-08-04 and North Dakota Administrative Code 43-02-03-38.1.

2) Samples shall include all cuttings from:

Base of the Last Charles Salt

Samples of cuttings shall be taken at 30' maximum intervals through all vertical, build and horizontal sections. Samples must be washed, dried, packed in sample envelopes in correct order with labels showing operator, well name, location and depth, and forwarded in standard boxes to the State Geologist within 30 days of the completion of drilling operations.

3) Cores: ALL CORES cut shall be preserved in correct order, properly boxed, and forwarded to the State Geologist within 90 days of completion of drilling operations. Any extension of time must have written approval from the State Geologist.

4) All cores, core chips, and samples must be shipped, prepaid, to the State Geologist at the following address:

ND Geological Survey Core Library
Campus Road and Cornell
Grand Forks, ND 58202

5) NDCC Section 38-08-16 allows for a civil penalty for any violation of Chapter 38 08 not to exceed $12,500 for each offense, and each day's violation is a separate offense.

Sincerely

Richard A. Suggs
Geologist

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 5749 (09-2006)

RECEIVED
MAY 2012
ND OIL & GAS DIVISION

Well File No. 23361

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

☐ Notice of Intent	Approximate Start Date	☐ Drilling Prognosis	☐ Spill Report
☐ Report of Work Done	Date Work Completed	☐ Redrilling or Repair	☐ Shooting
☐ Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date	☐ Casing or Liner	☐ Acidizing
		☐ Plug Well	☐ Fracture Treatment
		☐ Supplemental History	☐ Change Production Method
		☐ Temporarily Abandon	☐ Reclamation
		☑ Other	Open Hole Log Waiver

Well Name and Number					
Atlanta 12-6H					
Footages		Qtr-Qtr	Section	Township	Range
495 F N L	1395 F W L	NENW	6	153 N	101 W
Field	Pool	County			
	Bakken	Williams			

24-HOUR PRODUCTION RATE

Before		After	
Oil	Bbls	Oil	Bbls
Water	Bbls	Water	Bbls
Gas	MCF	Gas	MCF

Name of Contractor(s)			
Address	City	State	Zip Code

DETAILS OF WORK

Requested variance to not run openhole logs. GR/CBL/CCL will be run from deepest point obtainable to base of surface casing.

Offset logs used will be the Brigham Oil and Gas, LP, Lippert 1-12, Sec 1-153N-102W, Williams County, ND.

The Gamma Ray Log will be run all the way to surface and all mud logs will be submitted as one digital tiff formatted file and one digital LAS formatted file.

Company	Telephone Number		
Continental Resources, Inc.	580-233-8955		
Address			
P O. Box 1032			
City	State	Zip Code	
Enid	OK	73702	
Signature	Printed Name		
Terry L. Olson	Terry L. Olson		
Title	Date		
Regulatory Compliance Specialist	May 8, 2012		
Email Address			
Terry.Olson@clr.com			

FOR STATE USE ONLY

☐ Received	☒ Approved
Date	7-20-2012
By	
Title	Richard A. Suggs Geologist

Approved
David Tabor
7-20-2012

Continental
RESOURCES

Engineering Technician

July 20, 2012

Industrial Commission of North Dakota
Oil & Gas Division
600 East Boulevard, Dept 405
Bismarck, North Dakota 58505

Continental Resources, Inc. (CRI) respectfully requests a waiver to the requirement to delay commencement of operations until three business days following approval of the drilling permit for the Atlanta 1-14-6H.

Township 153N, Range 101W of the 5th P.M.
Section 6, N/2 NW/4 Williams County, North Dakota.

In the event that another owner seeks revocation of the drilling permit, CRI should retain the permit for the following reasons:

1) CRI has the necessary technical ability to drill and complete the well(s).

2) CRI has drilled and completed more than 130 horizontal Bakken wells in North Dakota.

3) CRI operates more than 500 wells in North Dakota and more than 100 in McKenzie County.

4) CRI has a contract with Cyclone Drilling that may require standby payments in the event a location is not ready to move onto. There are no near term lease expirations associated with the subject well.

5) CRI controls a working interest of 55.54% and is the majority working interest owner within the subject spacing unit consisting of 2560 acres of sections 5, 6, 7, 8, 153N – 101W of the 5th P.M.

Chad Newby, Operations Land Coordinator
Continental Resources, Inc.

STATE OF OKLAHOMA)
)ss:
COUNTY OF GARFIELD)

On the 20th day of July 2012, before me, a Notary Public in and for said County and State, personally appeared **Chad Newby**, known to me to be the Operations Land Coordinator of Continental Resources, Inc., the Corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

Becky Barnes
Notary Public

BECKY BARNES NOTARY # 11006023 EXP. 7/5/2015 PUBLIC STATE OF OKLAHOMA

Garfield County, Oklahoma

My Commission Expires: 7/5/2015

Commission No.: 11006023

P.O. Box 1032 • 302 N. Independence • Enid, OK 73702
Voice (580) 233-8955 • Fax (580) 242-4703

Oil and Gas Division

Lynn D. Helms - Director Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.oilgas.nd.gov

July 20, 2012

Terry L. Olson
Regulatory Compliance Specialist
CONTINENTAL RESOURCES, INC.
P.O. Box 1032
Enid, OK 73702

RE: HORIZONTAL WELL
ATLANTA 12-6H
NENW Section 6-153N-101W
Williams County
Well File # 23361

Dear Terry :

Pursuant to Commission Order No. 19840, approval to drill the above captioned well is hereby given. The approval is granted on the condition that all portions of the well bore not isolated by cement, be no closer than the **500' setback** from the north or west boundaries and **200' setback** from the east or south boundaries within the 2560 acre spacing unit consisting of Sections 5, 6, 7, & 8 T153N R101W.

PERMIT STIPULATIONS: A sufficient number of horizontal wells shall be drilled and completed in the 2560-acre spacing unit described as Sections 5, 6, 7, and 8, Township 153 North, Range 101 West, McKenzie and Williams Counties, North Dakota, which reasonably develop all portions of the 2560-acre spacing unit within two years after the first horizontal well is completed. If this condition is not met, the Commission shall schedule the matter for a consideration to reduce the size of the spacing unit THIS WELL IS LOCATED IN A SURFACE WATER PROTECTION AREA: ONSITE INSPECTION REQUIRED (CONTACT NDIC FIELD INSPECTOR FOR SITE SPECIFIC STIPULATIONS). TO INCLUDE BUT NOT LIMITED TO: CLOSED MUD SYSTEM, NO DRILLING PIT, AND IMPERMEABLE LINER IS REQUIRED ON THE ENTIRE LOCATION AND A STRING OF CASING MUST BE PLACED IN THE RAT AND MOUSE HOLE AND CEMENTED TO GROUND LEVEL. FURTHERMORE CONTINENTAL MUST COMPLY WITH ALL AFFIDAVIT'S. LASTLY, AN IMPERMEABLE PERIMETER DIKE MUST BE PLACED AROUND THE ENTIRE LOCATION. CONTINENTAL RESOURCES must contact NDIC Field Inspector John Axtman at 701-770-2564 prior to location construction.

Drilling pit
NDAC 43-02-03-19.4 states that "a pit may be utilized to bury drill cuttings and solids generated during well drilling and completion operations, providing the pit can be constructed, used and reclaimed in a manner that will prevent pollution of the land surface and freshwaters. Reserve and circulation of mud system through earthen pits are prohibited. All pits shall be inspected by an authorized representative of the director prior to lining and use. Drill cuttings and solids must be stabilized in a manner approved by the director prior to placement in a cuttings pit."

Form 1 Changes & Hard Lines
Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. The minimum legal coordinate from the well head at casing point is: 5S. Also, based on the azimuth of the proposed lateral the maximum legal coordinate from the well head is: 8912E.

Location Construction Commencement (Three Day Waiting Period)

Operators shall not commence operations on a drill site until the 3rd business day following publication of the approved drilling permit on the NDIC - OGD Daily Activity Report. If circumstances require operations to commence before the 3rd business day following publication on the Daily Activity Report, the waiting period may be waived by the Director. Application for a waiver must be by sworn affidavit providing the information necessary to evaluate the extenuating circumstances, the factors of NDAC 43-02-03-16.2 (1), (a)-(f), and any other information that would allow the Director to conclude that in the event another owner seeks revocation of the drilling permit, the applicant should retain the permit.

Permit Fee & Notification

Payment was received in the amount of $100 via credit card. It is requested that notification be given immediately upon the spudding of the well. This information should be relayed to the Oil & Gas Division, Bismarck, via telephone. The following information must be included: Well name, legal location, permit number, drilling contractor, company representative, date and time of spudding. Office hours are 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m. Central Time. Our telephone number is (701) 328-8020, leave a message if after hours or on the weekend.

Survey Requirements for Horizontal, Horizontal Re-entry, and Directional Wells

NDAC Section 43-02-03-25 (Deviation Tests and Directional Surveys) states in part (that) the survey contractor shall file a certified copy of all surveys with the director free of charge within thirty days of completion. Surveys must be submitted as one electronic copy, or in a form approved by the director. However, the director may require the directional survey to be filed immediately after completion if the survey is needed to conduct the operation of the director's office in a timely manner. Certified surveys must be submitted via email in one adobe document, with a certification cover page to certsurvey@nd.gov.

Survey points shall be of such frequency to accurately determine the entire location of the well bore.

Specifically, the Horizontal and Directional well survey frequency is 100 feet in the vertical, 30 feet in the curve (or when sliding) and 90 feet in the lateral.

Confidential status

Your request for confidential status of all information furnished to the Director, or his representatives, is hereby granted. Such information, except production runs, shall remain confidential for six months commencing on the date the well is spud.

Confidential status notwithstanding, the Director and his representatives shall have access to all well records wherever located. Your company personnel, or any person performing work for your company shall permit the Director and his representatives to come upon any lease, property, well, or drilling rig operated or controlled by them, complying with all safety rules, and to inspect the records and operation of such wells and to have access at all times to any and all records of wells. The Commission's field personnel periodically inspect producing and drilling wells. Any information regarding such wells shall be made available to them at any time upon request. The information so obtained by the field personnel shall be maintained in strict confidence and shall be available only to the Commission and its staff.

Surface casing cement

Tail cement utilized on surface casing must have a minimum compressive strength of 500 psi within 12 hours, and tail cement utilized on production casing must have a minimum compressive strength of 500 psi before drilling the plug or initiating tests.

Logs

NDAC Section 43-02-03-31 requires the running of (1) a suite of open hole logs from which formation tops and porosity zones can be determined, (2) a Gamma Ray Log run from total depth to ground level elevation of the well bore, and (3) a log from which the presence and quality of cement can be determined (Standard CBL or Ultrasonic cement evaluation log) in every well in which production or intermediate casing has been set, this log must be run prior to completing the well. All logs run must be submitted free of charge, as one digital TIFF (tagged image file format) copy and one digital LAS (log ASCII) formatted copy. Digital logs may be submitted on a standard CD, DVD, or attached to an email sent to digitallogs@nd.gov Thank you for your cooperation.

Sincerely,

Todd L. Holweger
Mineral Resources Permit Manager

APPLICATION FOR PERMIT TO DRILL HORIZONTAL WELL - FORM 1H

INDUSTRIAL COMMISSION OF NORTH DAKOTA
OIL AND GAS DIVISION
600 EAST BOULEVARD DEPT 405
BISMARCK, ND 58505-0840
SFN 54269 (08-2005)

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Type of Work	Type of Well	Approximate Date Work Will Start	Confidential Status
New Location	**Oil & Gas**	**6 / 1 / 2012**	**Yes**

Operator	Telephone Number
CONTINENTAL RESOURCES, INC.	**580-233-8955**

Address	City	State	Zip Code
P.O. Box 1032	**Enid**	**OK**	**73702**

☑ Notice has been provided to the owner of any permanently occupied dwelling within 1,320 feet.

☑ This well is not located within five hundred feet of an occupied dwelling.

WELL INFORMATION **(If more than one lateral proposed, enter data for additional laterals on page 2)**

Well Name	Well Number
ATLANTA	**12-6H**

Surface Footages	Qtr-Qtr	Section	Township	Range	County
495 F **N** L **1395** F **W** L	**NENW**	**6**	**153 N**	**101 W**	**Williams**
Longstring Casing Point Footages	Qtr-Qtr	Section	Township	Range	County
635 F **N** L **1949** F **W** L	**NENW**	**6**	**153 N**	**101 W**	**Williams**
Longstring Casing Point Coordinates From Well Head	Azimuth	Longstring Total Depth			
140 S From WH **554 E** From WH	**104 º**	**10910** Feet MD	**10584** Feet TVD		
Bottom Hole Footages From Nearest Section Line	Qtr-Qtr	Section	Township	Range	County
2390 F **S** L **205** F **E** L	**NESE**	**5**	**153 N**	**101 W**	**McKenzie**
Bottom Hole Coordinates From Well Head	KOP Lateral 1	Azimuth Lateral 1	Estimated Total Depth Lateral 1		
2257 S From WH **8907 E** From WH	**10011** Feet MD	**104 º**	**19526** Feet MD	**10600** Feet TVD	

Latitude of Well Head	Longitude of Well Head	NAD Reference	Description of (Subject to NDIC Approval)
48 ° 06 ' 33.65 "	**-103 ° 43 ' 40.38 "**	**NAD83**	**Spacing Unit: Sec 5, 6, 7, & 8 T153N R101W**

Ground Elevation	Acres in Spacing/Drilling Unit	Spacing/Drilling Unit Setback Requirement	Industrial Commission Order
1945 Feet Above S.L.	**2560**	Feet N/S Feet E/W	**19840**

North Line of Spacing/Drilling Unit	South Line of Spacing/Drilling Unit	East Line of Spacing/Drilling Unit	West Line of Spacing/Drilling Unit
10516 Feet	**10510** Feet	**10422** Feet	**10367** Feet

Objective Horizons	Pierre Shale Top
Three Forks	**1867**

Proposed	Size	Weight	Depth	Cement Volume	
Surface Casing	**9 - 5/8 "**	**36** Lb./Ft.	**1970** Feet	**743** Sacks	**NOTE: Surface hole must be drilled with fresh water and surface casing must be cemented back to surface.**

Proposed	Size	Weight(s)	Longstring Total Depth		Cement Volume	Cement Top	Top Dakota Sand
Longstring Casing	**7 - "**	**26-32** Lb./Ft.	**10910** Feet MD	**10584** Feet TVD	**839** Sacks	**0** Feet	**4925** Feet

Base Last Charles Salt (If Applicable)	
9011 Feet	**NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.**

Proposed Logs
CBL/GR from deepest depth obtainable to ground surface/mud

Drilling Mud Type (Vertical Hole - Below Surface Casing)	Drilling Mud Type (Lateral)
Invert	**Brine**

Survey Type in Vertical Portion of Well	Survey Frequency: Build Section	Survey Frequency: Lateral	Survey Contractor
MWD Every 100 Feet	**30** Feet	**90** Feet	**Baker Hughes**

NOTE: A Gamma Ray log must be run to ground surface and a CBL must be run on intermediate or longstring casing string if set.

Surveys are required at least every 30 feet in the build section and every 90 feet in the lateral section of a horizontal well. Measurement inaccuracies are not considered when determining compliance with the spacing/drilling unit boundary setback requirement except in the following scenarios: 1) When the angle between the well bore and the respective boundary is 10 degrees or less; or 2) If Industry standard methods and equipment are not utilized. Consult the applicable field order for exceptions.

If measurement inaccuracies are required to be considered, a 2° MWD measurement inaccuracy will be applied to the horizontal portion of the well bore. This measurement inaccuracy is applied to the well bore from KOP to TD.

REQUIRED ATTACHMENTS: Certified surveyor's plat, horizontal section plat, estimated geological tops, proposed mud/cementing plan, directional plot/plan, $100 fee.

See Page 2 for Comments section and signature block.

COMMENTS, ADDITIONAL INFORMATION, AND/OR LIST OF ATTACHMENTS

Proposed FW casing: 13 3/8, 48#, 0-500', 189 sks cmt. Setbacks: 500' N&W 200' E&S

Lateral 2

KOP Lateral 2 Feet MD	Azimuth Lateral 2 °	Estimated Total Depth Lateral 2 Feet MD	Feet TVD	KOP Coordinates From Well Head From WH	From WH
Formation Entry Point Coordinates From Well Head From WH	From WH	Bottom Hole Coordinates From Well Head From WH	From WH		
KOP Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County
Bottom Hole Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County

Lateral 3

KOP Lateral 3 Feet MD	Azimuth Lateral 3 °	Estimated Total Depth Lateral 3 Feet MD	Feet TVD	KOP Coordinates From Well Head From WH	From WH
Formation Entry Point Coordinates From Well Head From WH	From WH	Bottom Hole Coordinates From Well Head From WH	From WH		
KOP Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County
Bottom Hole Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County

Lateral 4

KOP Lateral 4 Feet MD	Azimuth Lateral 4 °	Estimated Total Depth Lateral 4 Feet MD	Feet TVD	KOP Coordinates From Well Head From WH	From WH
Formation Entry Point Coordinates From Well Head From WH	From WH	Bottom Hole Coordinates From Well Head From WH	From WH		
KOP Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County
Bottom Hole Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County

Lateral 5

KOP Lateral 5 Feet MD	Azimuth Lateral 5 °	Estimated Total Depth Lateral 5 Feet MD	Feet TVD	KOP Coordinates From Well Head From WH	From WH
Formation Entry Point Coordinates From Well Head From WH	From WH	Bottom Hole Coordinates From Well Head From WH	From WH		
KOP Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County
Bottom Hole Footages From Nearest Section Line F L	F L	Qtr-Qtr	Section	Township N	Range W	County

I hereby swear or affirm the information provided is true, complete and correct as determined from all available records.	Date 5 / 8 / 2012
ePermit	Printed Name **Terry L. Olson**	Title **Regulatory Compliance Specialist**

FOR STATE USE ONLY

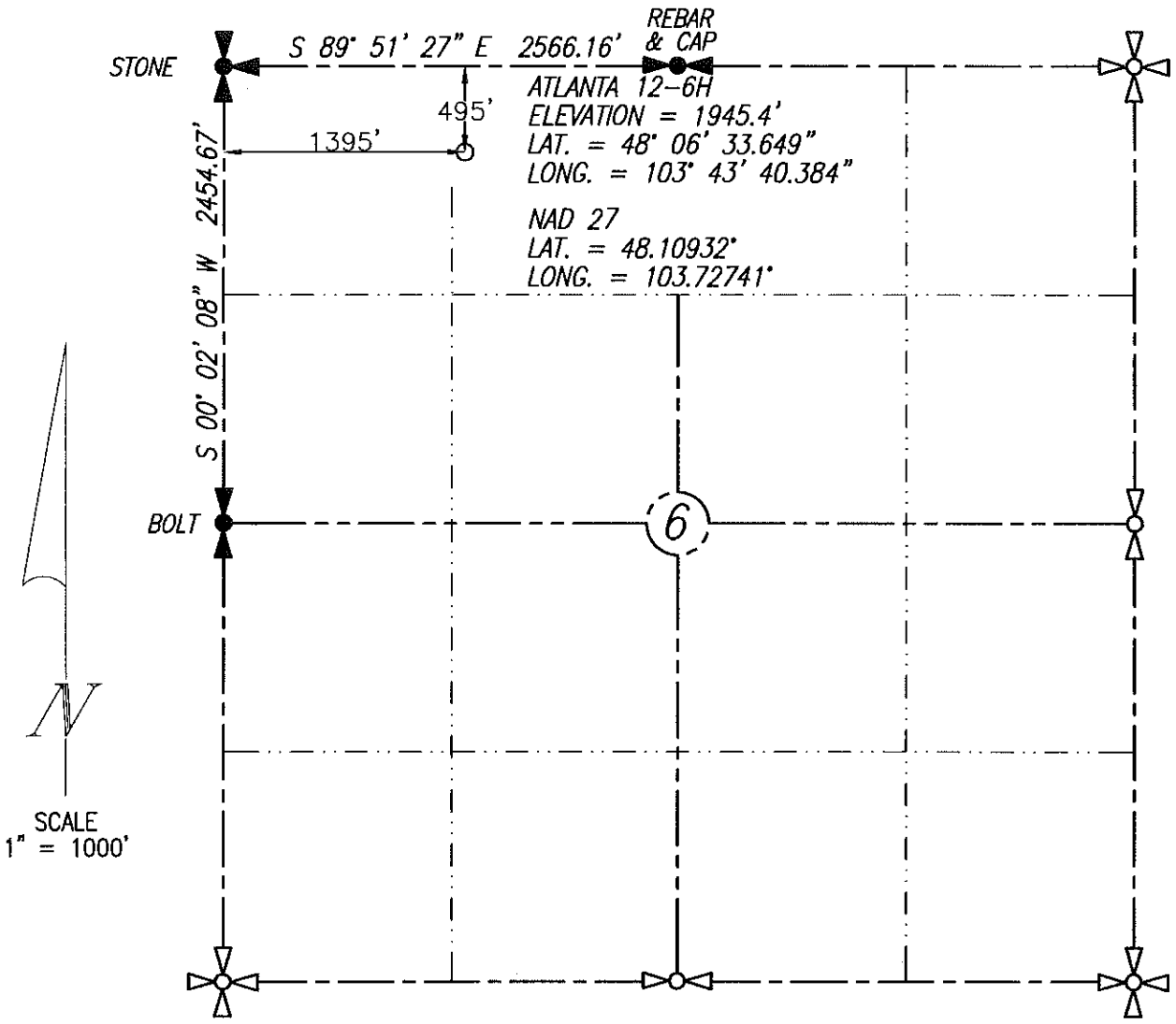
Permit and File Number 23361	API Number 33 - 105 - 02721
Field BAKER	
Pool BAKKEN	Permit Type DEVELOPMENT

FOR STATE USE ONLY

Date Approved 7 / 20 / 2012
By Todd L. Holweger
Title Mineral Resources Permit Manager

REVISED: 4-23-2012

WELL LOCATION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 12-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
495' FNL & 1395' FWL



I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

4-23-12

JOHN PAULSON R.L.S. 3366

REGISTERED LAND SURVEYOR L.S. 3366 NORTH DAKOTA

DATE STAKED: 2-9-2012

BASIS OF VERTICAL DATUM: NAVD 1988 GEOID 09

PERSON AUTHORIZING SURVEY: CHAD NEWBY

EXPLANATION AREA: NAD83(CORS96)

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

Continental Resources, Inc. (CRI) respectfully submits the following information concerning the drilling of the Atlanta 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 -- 6H, N/2 NW/4 Sec. 6, T153N, R101W, Williams County, North Dakota.

The Atlanta well(s) are located in a Well Head Protection Area. CRI would like to propose the following safeguards and precautions to be taken to prevent any contamination to freshwater sources during the drilling and completion of the well.

1) During construction of the location, the entire location will be constructed per NDIC permit stipulations, and to ensure any spills or runoff which occur on location do not penetrate the fresh ground water and are contained on surface of the location.
2) Drainage will be re-routed to avoid the location and fiber rolls will be employed around the site to reduce sediment contamination to freshwater runoff due to weather events.
3) The earthen berm constructed to keep any freshwater runoff off the location will also eliminate any spills from leaving the location
4) No reserve pit or dry cuttings pit will be utilized on location.
5) The conductor will be drilled to a depth of 80' and 20" pipe will be run to depth and cemented to surface.
6) During drilling operations, a freshwater protection string of 13-3/8" 48# H40 casing will be set to a depth of 500' and cemented to surface to protect the shallow freshwater zones. Standard 9-5/8" 36# J-55 surface casing will be set 100' into the Pierre Shale to a depth of 1970' and cemented to surface.
7) A frac string will be used to protect the intermediate casing during hydraulic fracturing of the well.
8) CRI is submitting a comprehensive; site specific Spill Contingency Plan to prepare for any event which may occur during drilling and completion operations.
9) CRI believes a Flood Prevention plan is not necessary for this site due to the Army Corps of Engineers documentation that the high water level for Lake Sakakawea will not affect any elevation 1855' above sea level or higher. The finished rig grade elevation for Atlanta location is 1959.6' above sea level.
10) The Atlanta wells will be drilled continuously. They will be batch drilled. The order of drilling for all wells on the pad will be:
    a. 1, 2, 3, 4,
    b. 11, 12, 13, 14,
    c. 9, 10,
    d. 5, 6, 7, 8.

CRI believes adequate planning and precautions are being taken to prevent any contamination to ground water, shallow aquifers, and fresh water reservoirs.

Chad B. Newby

Chad Newby, Operations Land Coordinator
Continental Resources, Inc.

STATE OF OKLAHOMA)
)ss:
COUNTY OF GARFIELD)

On the 8th day of June 2012, before me, a Notary Public in and for said County and State, personally appeared **Chad Newby**, known to me to be the Operations Land Coordinator of Continental Resources, Inc., the Corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

Becky Barnes

Notary Public

Garfield County, Oklahoma

My Commission Expires: 7/5/2015

Commission No.: 11006023

Continental Resources Atlanta Site Contact List

Drilling & Completions / Production

		phone	mobile
Construction / Reclaim & ROW	Title		
Terry Chapman	Construction foreman		970.673.2411
Chad Newby	Operations Land Coordinator - Office		405.574.2172
Drilling			
Company man Cyclone 2 Rig Phone		701.570.8834	
Jared Miller	Lead Compny Man Cyclone 2		701.290.0443
Brandon Simkins	Relief Company Man Cyclone 2		307.231.6420
Don Radke	Drilling Superintendent - Field		701.570.6326
Kyle Davis	Drilling Engineer - Office	580.249.4750	
Bryan George	Drilling Superintendent - Office	580.249.4757	
Alan McNally	Drilling Manager - Office	580.249.4792	
Completions			
Jason Walters	Production Superintendent		406.489.1456
Gene Dowhaniuk	Production Superintendent		701.770.8358
Chris Nichols	Area Completions Manager - Office	580.249.4711	580.278.9003
Production			
Howard Hill	Operator		406.489.2832
Brent Bowlds	Production Foreman	406.433.3006	406.489.3029
Donald Kennedy	Senior Production Engineer - Office	580.249.4788	
Russ Atkins	Area Production Manager		406.433.3006
Brad Aman	VP Production Northern Region	580.548.5283	

Health Safety Environmental

Dusty Grosulak	Safety Supervisor		701.260.1138
Zach Laird	Safety Manager		405.742.2696
Mike White	Northern Region Senior Environment Specialist		406.941.2521
Stacy Aguirre	Northern Region Environmental Supervisor		406.478.4450
Andy Truhan	Director of Environmental Compliance		405.535.8967

Public Relations & Media Contact Information			
Kristin Miskovsky	VP Public Relations	405.234.9480	

Burns, David J.

From: Shawn Svob <ShawnSvob@contres.com>
Sent: Tuesday, March 13, 2012 3:23 PM
To: Burns, David J.
Cc: Holweger, Todd L.; Becky Barnes; Nicole Caddell; Terry Olson
Subject: Clarification of Drilling and Mud program

Continental Resources respectfully submits this memo as clarification on previously submitted permits.

In the Drilling Program, sub-section Mud Program, Surface Holes will be drilled with Fresh Water. Current Drilling Programs state "Native" as the current mud system. Future permits will reflect Fresh Water as the mud system.

Please contact me if you have further questions or require more clarification.

Respectfully,

Shawn Svob
580-747-6678

Shawn

PRELIMINARY DRILLING PROGRAM

5/7/2012

Lease and Well No. Atlanta 12-6H

MUD PROGRAM

Depth	Type	Weight	Remarks
0 ' - 1970 '	Native Freshwater	8.4-8.8	Add Soap Sticks for Mud Rings
1970 ' - 6500 '	Invert	9.3-9.5	35-50 sec, 10-30 cc's
6500 ' - 10910 '	Invert	9.6-10.0	40-55 sec, 10-15 cc's O/W 70/30 to 80/20
10910 ' - TD	Brine	8.7-10.0	Cuttings Pit

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight, Grade, Connection	ERW/ Seamless	Critical Inspection
FW	17 1/2 "	500 '	500 '	13-3/8 "	13-3/8", 48 #, H-40, STC	ERW	BCI & Drift
	Float shoe, shoe joint & float collar. Centralize bottom 3 jts and every 4th jt to surface.						
Surf	12 1/4 "	1970 '	1970 '	9 5/8 "	9-5/8", 36 #, J-55, STC	ERW	BCI & Drift
	Float shoe, shoe joint & float collar. Centralize bottom joint then 5 more every other, 1 at conductor						
Int	8 3/4 "	80 '	80 '	7 "	7", 32#, P-110 IC, LTC	ERW	BCI & Drift
		4000 '	3920 '	7 "	7", 26#, P-110 IC, LTC	ERW	BCI & Drift
		8100 '	4100 '	7 "	7", 29#, P-110 IC, LTC	ERW	BCI & Drift
		9210 '	1110 '	7 "	7", 32#, P-110 IC, LTC	Seamless	BCI & Drift
		10910 '	1700 '	7 "	7", 29#, P-110 IC, LTC	ERW	BCI & Drift
	Float shoe, shoe joint & float collar. Centralize bottom 3 joints. Centralize thru curve and across all salts.						
Liner	6 "	19350 '	9380 '	4 1/2 "	4-1/2", 11.6 #, P-110, BTC		
Tubing		10010 '	10010 '	2 7/8 "	2-7/8", 6.5 #, L-80, EUE		

Notes: Pipe to end up in hole from top to bottom as shown.

CEMENT PROGRAM

String Type	SHOE/DV Depth	Stage Lead/Tail	Cement Bottom	Cement Top	No Sacks	Cement System	Cement Yield	Cement Weight
		Lead	350 '	0 '	111	35/65 Poz/Class "C", 3% CaCl, 12% gel	2.39	12
FW	500	Tail	500 '	350 '	77.8	Class "C", 2% CaCl	1.46	14.3
(Basis: Guage hole + 55% excess, tail 30% of length, lead to surface.)								
		Lead	1380 '	0 '	437	35/65 Poz/Class "C", 3% CaCl, 12% gel	2.39	12
Surf	1970	Tail	1970 '	1380 '	306	Class "C", 2% CaCl	1.46	14.3
(Basis: Guage hole + 55% excess, tail 30% of length, lead to surface.)								
Int	10910	Lead	7800 '	0 '	457	35/65 Poz/Class "C", 3% KCl, 5 #/sk Silica	3.21	11.3
		Tail	10910 '	7800 '	382	Class "G", 3% KCl, 35% Silica	1.59	15.6
(Basis: Gauge hole + 30% excess, Tail to 500 ft above top of Charles Salt, Lead to Surface)								

5/7/2012

GEOLOGIC PROGNOSIS

Well Name: Atlanta 12-6H
Rig: Cyclone 02
Prospect: Williston
Target: Three Forks
Spacing: 2560

☐ Pre-Staked
☑ Staked

SHL: 495' FNL & 1395' FWL
Sec. 6 - 153N - 101W
Williams , ND

BHL: 2342' FSL & 200' FEL
Sec. 5 - 153N - 101W
Williams , ND

Rig Grade Elevation: 1945'
KB: **22'**
RKB: **1967'**

FORMATION	SUBSEA	TVD
Pierre Shale	100	**1,867**
Greenhorn	-2,582	**4,549**
Dakota Group (fka Mowry)	-2,958	**4,925**
Basal Dakota Sand	-3,657	**5,624**
Dunham Salt Top	NA	
Dunham Salt Base	NA	
Pine Salt Top	-5,189	**7,156**
Pine Salt Base	-5,216	**7,183**
Minnekahta	-5,235	**7,202**
Opeche Salt Top	NA	
Opeche Salt Base	NA	
Minnelusa Group	-5,464	**7,431**
Tyler	-5,650	**7,617**
Kibby	-6,186	**8,153**
Top Charles	-6,333	**8,300**
Base Last Charles Salt	-7,044	**9,011**
Mission Canyon	-7,267	**9,234**
Lodgepole	-7,820	**9,787**
Upper Bakken Shale	-8,529	**10,496**
Middle Bakken Member	-8,543	**10,510**
Lower Bakken Shale	-8,574	**10,541**
Three Forks/Base of Shale	-8,602	**10,569**
Three Forks Target	-8,617	**10,584**
End of Lateral	-8,633	**10,600**

Continental
RESOURCES

To: Todd Holweger, NDIC

From: Shawn Svob

Date: 4/5/2012

Re: Continental Resources standard CCL, CBL, 4-1/2" liner running and testing procedures

---

Continental Resources' standard practice for running the cement bond log and casing caliper log is to run both logs immediately after coming out of the hole after TD, prior to running the 4-1/2" liner, to the deepest depth obtainable; however, if there are well control concerns that require us to run the liner sooner, only the CBL will be run and the CCL will be run after setting the liner.

Based on the CCL results, we determine the actual API minimum burst allowance for the 7" casing. If the downgraded API burst pressure is below our minimum required frac pressures, we will run a 4-1/2" frac string; if severe wear or holes are found in the casing, we will run a 5" cemented, to surface, tie back string.

The CBL log is run in order to determine the top of cement, as required by the NDIC. Our current 4-1/2" liner program for a 1280 unit is 30, evenly spaced, stages with 29 swellable packers. The liner shoe is set approximately 180 feet off bottom. The shoe stage below the last packer has 2 joints, a double valved float, one joint, and a ported guide shoe – appx 130 ft. The liner is run using a running tool on the end of 4" DP. The 7" packer/hanger is set about 40 ft above KOP between two casing collars but conditions occasionally occur that require setting higher, either through unexpected failure or in order to isolate casing wear close to KOP. Recently we have tried 40 stage liners and the trend to explore the optimum stage count will continue.. Once the liner is at depth, a ball is dropped through the DP, the ball is pressured up against the setting tool to approximately 2500 psi, and the 7" packer/hanger is set.

A push pull test is done to confirm the hanger has set. Then, a 4500 psi pressure test is completed on the back side of the 4" DP to confirm the packer has set. The setting tool is then backed off and the 4" DP/running tool is laid down.

Immediately after the rotary rig has been moved off the well location, the 7" csg and liner packer/ hanger are tested to the frac pressure. The testers will rig up and test the tubing head to 5000 psi. Next a test plug will be run and set, using wire line, in the top of the 7" packer/hanger. Testers will pressure up to our frac pressure, typically 8500 psi, to confirm the 7" is ready for completion.

Shawn Svob
Drilling Operations Coordinator

302 N. Independence
P. O. Box 1032 Enid, Oklahoma 73702
(580) 233-8955

CONTINENTAL RESOURCES

Location: NORTH DAKOTA Slot: SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Field: WILLIAMS COUNTY Well: ATLANTA 12-6H
Facility: SEC.06-T153N-R101W Wellbore: ATLANTA 12-6H PWB

Plot reference wellpath is ATLANTA 12-6H (REV-D.0) PWP

True vertical depths are referenced to CYCLONE 2 (RKB)	Grid System: NAD83 / Lambert North Dakota SP, Northern Zone (3301), US feet
Measured depths are referenced to CYCLONE 2 (RKB)	North Reference: True north
CYCLONE 2 (RKB) to Mean Sea Level: 1967 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsenr on 5/7/2012

Location Information

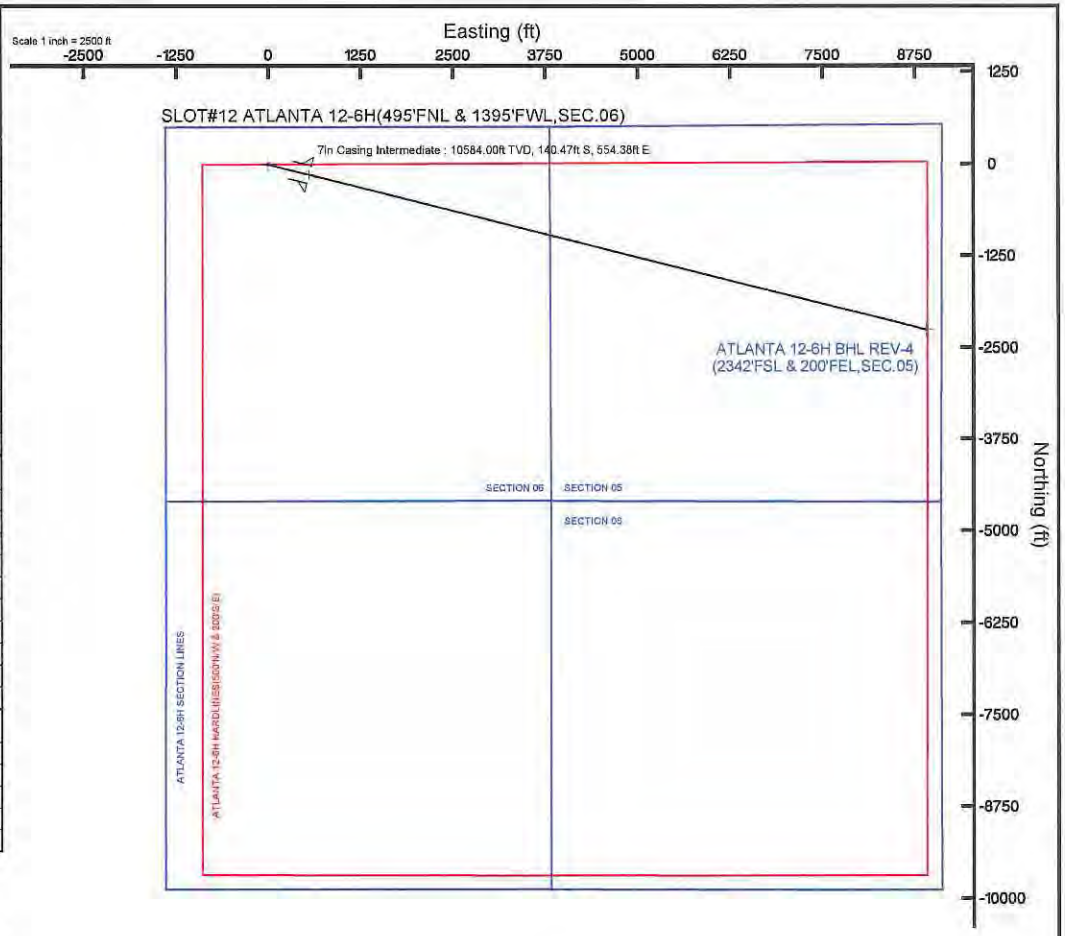
Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.06-T153N-R101W			1179034.199	421199.095	48°06'33.379"N	103°43'56.980"W
Slot	**Local N (ft)**	**Local E (ft)**	**Grid East (US ft)**	**Grid North (US ft)**	**Latitude**	**Longitude**
SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)	27.39	1124.94	1180159.223	421179.252	48°06'33.649"N	103°43'40.384"W
CYCLONE 2 (RKB) to Mud line (At Slot: SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06))					1967ft	
Mean Sea Level to Mud line (At Slot: SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06))					0ft	
CYCLONE 2 (RKB) to Mean Sea Level					1967ft	

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
ATLANTA 12-6H SECTION 05		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W
ATLANTA 12-6H SECTION 06		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W
ATLANTA 12-6H SECTION 08		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W
ATLANTA 12-6H SECTION LINES		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W
ATLANTA 12-6H BHL ON PLAT REV-1(2342'FSL & 500'FEL,SEC.05)		10586.00	-2442.98	8665.04	1188713.70	418375.47	48°06'09.521"N	103°41'32.721"W
ATLANTA 12-6H BHL REV-2(2342'FSL & 200'FEL,SEC.05)		10586.00	-2443.04	8965.00	1189013.57	418382.82	48°06'09.519"N	103°41'28.303"W
ATLANTA 12-6H BHL REV-3(2342'FSL & 200'FEL,SEC.05)		10600.00	-2256.70	8906.50	1188957.14	416551.67	48°06'11.358"N	103°41'29.245"W
ATLANTA 12-6H BHL REV-4(2342'FSL & 200'FEL,SEC.05)	19526.05	10600.00	-2256.70	8906.50	1188957.74	416551.44	48°06'11.358"N	103°41'29.162"W
ATLANTA 12-6H HARDLINES(500'N/W & 200'S/E)		10600.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W

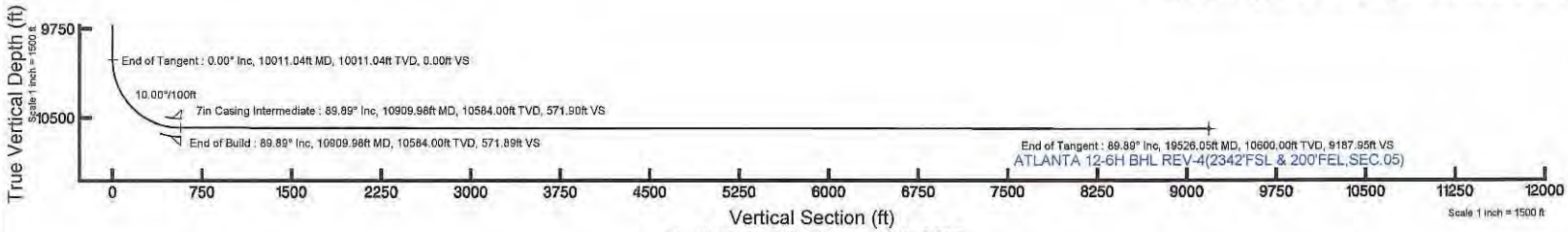
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	22.00	0.000	104.218	22.00	0.00	0.00	0.00	0.00
End of Tangent	10011.04	0.000	104.218	10011.04	0.00	0.00	0.00	0.00
End of Build	10909.98	89.894	104.218	10584.00	-140.47	554.38	10.00	571.89
End of Tangent	19526.05	89.894	104.218	10600.00	-2256.70	8906.50	0.00	9187.95



BGGM (1945.0 to 2013.0) Dip: 73.08° Field: 56635.5 nT
Magnetic North is 8.76 degrees East of True North (at 2/10/2012)

To correct azimuth from Magnetic to True add 8.76 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the True North Azimuth = 90 + 8.76 = 98.76



Azimuth 104.22° with reference 0.00 N, 0.00 E

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H PWB**
Facility	**SEC.06-T153N-R101W**		

REPORT SETUP INFORMATION			
Projection System	**NAD83 / Lambert North Dakota SP, Northern Zone (3301), US feet**	Software System	**WellArchitect® 3.0.2**
North Reference	**True**	User	**Painsetr**
Scale	**0.999936**	Report Generated	**5/7/2012 at 10:42:24 AM**
Convergence at slot	**2.40° West**	Database/Source file	**WA_Denver/ATLANTA_12-6H_PWB.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	27.39	1124.94	1180159.22	421179.25	**48°06'33.649"N**	**103°43'40.384"W**
Facility Reference Pt			1179034.20	421199.10	**48°06'33.379"N**	**103°43'56.960"W**
Field Reference Pt			1379474.78	594749.03	**48°36'17.680"N**	**102°56'05.560"W**

WELLPATH DATUM			
Calculation method	**Minimum curvature**	CYCLONE 2 (RKB) to Facility Vertical Datum	**1967.00ft**
Horizontal Reference Pt	**Slot**	CYCLONE 2 (RKB) to Mean Sea Level	**1967.00ft**
Vertical Reference Pt	**CYCLONE 2 (RKB)**	CYCLONE 2 (RKB) to Mud Line at Slot (SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06))	**1967.00ft**
MD Reference Pt	**CYCLONE 2 (RKB)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**104.22°**

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	104.218	0.00	0.00	0.00	0.00	0.00	
22.00	0.000	104.218	22.00	0.00	0.00	0.00	0.00	Tie On
122.00†	0.000	104.218	122.00	0.00	0.00	0.00	0.00	
222.00†	0.000	104.218	222.00	0.00	0.00	0.00	0.00	
322.00†	0.000	104.218	322.00	0.00	0.00	0.00	0.00	
422.00†	0.000	104.218	422.00	0.00	0.00	0.00	0.00	
522.00†	0.000	104.218	522.00	0.00	0.00	0.00	0.00	
622.00†	0.000	104.218	622.00	0.00	0.00	0.00	0.00	
722.00†	0.000	104.218	722.00	0.00	0.00	0.00	0.00	
822.00†	0.000	104.218	822.00	0.00	0.00	0.00	0.00	
922.00†	0.000	104.218	922.00	0.00	0.00	0.00	0.00	
1022.00†	0.000	104.218	1022.00	0.00	0.00	0.00	0.00	
1122.00†	0.000	104.218	1122.00	0.00	0.00	0.00	0.00	
1222.00†	0.000	104.218	1222.00	0.00	0.00	0.00	0.00	
1322.00†	0.000	104.218	1322.00	0.00	0.00	0.00	0.00	
1422.00†	0.000	104.218	1422.00	0.00	0.00	0.00	0.00	
1522.00†	0.000	104.218	1522.00	0.00	0.00	0.00	0.00	
1622.00†	0.000	104.218	1622.00	0.00	0.00	0.00	0.00	
1722.00†	0.000	104.218	1722.00	0.00	0.00	0.00	0.00	
1822.00†	0.000	104.218	1822.00	0.00	0.00	0.00	0.00	
1922.00†	0.000	104.218	1922.00	0.00	0.00	0.00	0.00	
2022.00†	0.000	104.218	2022.00	0.00	0.00	0.00	0.00	
2122.00†	0.000	104.218	2122.00	0.00	0.00	0.00	0.00	
2222.00†	0.000	104.218	2222.00	0.00	0.00	0.00	0.00	
2322.00†	0.000	104.218	2322.00	0.00	0.00	0.00	0.00	
2422.00†	0.000	104.218	2422.00	0.00	0.00	0.00	0.00	
2522.00†	0.000	104.218	2522.00	0.00	0.00	0.00	0.00	
2622.00†	0.000	104.218	2622.00	0.00	0.00	0.00	0.00	
2722.00†	0.000	104.218	2722.00	0.00	0.00	0.00	0.00	
2822.00†	0.000	104.218	2822.00	0.00	0.00	0.00	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2922.00†	0.000	104.218	2922.00	0.00	0.00	0.00	0.00	
3022.00†	0.000	104.218	3022.00	0.00	0.00	0.00	0.00	
3122.00†	0.000	104.218	3122.00	0.00	0.00	0.00	0.00	
3222.00†	0.000	104.218	3222.00	0.00	0.00	0.00	0.00	
3322.00†	0.000	104.218	3322.00	0.00	0.00	0.00	0.00	
3422.00†	0.000	104.218	3422.00	0.00	0.00	0.00	0.00	
3522.00†	0.000	104.218	3522.00	0.00	0.00	0.00	0.00	
3622.00†	0.000	104.218	3622.00	0.00	0.00	0.00	0.00	
3722.00†	0.000	104.218	3722.00	0.00	0.00	0.00	0.00	
3822.00†	0.000	104.218	3822.00	0.00	0.00	0.00	0.00	
3922.00†	0.000	104.218	3922.00	0.00	0.00	0.00	0.00	
4022.00†	0.000	104.218	4022.00	0.00	0.00	0.00	0.00	
4122.00†	0.000	104.218	4122.00	0.00	0.00	0.00	0.00	
4222.00†	0.000	104.218	4222.00	0.00	0.00	0.00	0.00	
4322.00†	0.000	104.218	4322.00	0.00	0.00	0.00	0.00	
4422.00†	0.000	104.218	4422.00	0.00	0.00	0.00	0.00	
4522.00†	0.000	104.218	4522.00	0.00	0.00	0.00	0.00	
4622.00†	0.000	104.218	4622.00	0.00	0.00	0.00	0.00	
4722.00†	0.000	104.218	4722.00	0.00	0.00	0.00	0.00	
4822.00†	0.000	104.218	4822.00	0.00	0.00	0.00	0.00	
4922.00†	0.000	104.218	4922.00	0.00	0.00	0.00	0.00	
5022.00†	0.000	104.218	5022.00	0.00	0.00	0.00	0.00	
5122.00†	0.000	104.218	5122.00	0.00	0.00	0.00	0.00	
5222.00†	0.000	104.218	5222.00	0.00	0.00	0.00	0.00	
5322.00†	0.000	104.218	5322.00	0.00	0.00	0.00	0.00	
5422.00†	0.000	104.218	5422.00	0.00	0.00	0.00	0.00	
5522.00†	0.000	104.218	5522.00	0.00	0.00	0.00	0.00	
5622.00†	0.000	104.218	5622.00	0.00	0.00	0.00	0.00	
5722.00†	0.000	104.218	5722.00	0.00	0.00	0.00	0.00	
5822.00†	0.000	104.218	5822.00	0.00	0.00	0.00	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5922.00†	0.000	104.218	5922.00	0.00	0.00	0.00	0.00	
6022.00†	0.000	104.218	6022.00	0.00	0.00	0.00	0.00	
6122.00†	0.000	104.218	6122.00	0.00	0.00	0.00	0.00	
6222.00†	0.000	104.218	6222.00	0.00	0.00	0.00	0.00	
6322.00†	0.000	104.218	6322.00	0.00	0.00	0.00	0.00	
6422.00†	0.000	104.218	6422.00	0.00	0.00	0.00	0.00	
6522.00†	0.000	104.218	6522.00	0.00	0.00	0.00	0.00	
6622.00†	0.000	104.218	6622.00	0.00	0.00	0.00	0.00	
6722.00†	0.000	104.218	6722.00	0.00	0.00	0.00	0.00	
6822.00†	0.000	104.218	6822.00	0.00	0.00	0.00	0.00	
6922.00†	0.000	104.218	6922.00	0.00	0.00	0.00	0.00	
7022.00†	0.000	104.218	7022.00	0.00	0.00	0.00	0.00	
7122.00†	0.000	104.218	7122.00	0.00	0.00	0.00	0.00	
7222.00†	0.000	104.218	7222.00	0.00	0.00	0.00	0.00	
7322.00†	0.000	104.218	7322.00	0.00	0.00	0.00	0.00	
7422.00†	0.000	104.218	7422.00	0.00	0.00	0.00	0.00	
7522.00†	0.000	104.218	7522.00	0.00	0.00	0.00	0.00	
7622.00†	0.000	104.218	7622.00	0.00	0.00	0.00	0.00	
7722.00†	0.000	104.218	7722.00	0.00	0.00	0.00	0.00	
7822.00†	0.000	104.218	7822.00	0.00	0.00	0.00	0.00	
7922.00†	0.000	104.218	7922.00	0.00	0.00	0.00	0.00	
8022.00†	0.000	104.218	8022.00	0.00	0.00	0.00	0.00	
8122.00†	0.000	104.218	8122.00	0.00	0.00	0.00	0.00	
8222.00†	0.000	104.218	8222.00	0.00	0.00	0.00	0.00	
8322.00†	0.000	104.218	8322.00	0.00	0.00	0.00	0.00	
8422.00†	0.000	104.218	8422.00	0.00	0.00	0.00	0.00	
8522.00†	0.000	104.218	8522.00	0.00	0.00	0.00	0.00	
8622.00†	0.000	104.218	8622.00	0.00	0.00	0.00	0.00	
8722.00†	0.000	104.218	8722.00	0.00	0.00	0.00	0.00	
8822.00†	0.000	104.218	8822.00	0.00	0.00	0.00	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8922.00†	0.000	104.218	8922.00	0.00	0.00	0.00	0.00	
9022.00†	0.000	104.218	9022.00	0.00	0.00	0.00	0.00	
9122.00†	0.000	104.218	9122.00	0.00	0.00	0.00	0.00	
9222.00†	0.000	104.218	9222.00	0.00	0.00	0.00	0.00	
9322.00†	0.000	104.218	9322.00	0.00	0.00	0.00	0.00	
9422.00†	0.000	104.218	9422.00	0.00	0.00	0.00	0.00	
9522.00†	0.000	104.218	9522.00	0.00	0.00	0.00	0.00	
9622.00†	0.000	104.218	9622.00	0.00	0.00	0.00	0.00	
9722.00†	0.000	104.218	9722.00	0.00	0.00	0.00	0.00	
9822.00†	0.000	104.218	9822.00	0.00	0.00	0.00	0.00	
9922.00†	0.000	104.218	9922.00	0.00	0.00	0.00	0.00	
10011.04	0.000	104.218	10011.04	0.00	0.00	0.00	0.00	End of Tangent
10022.00†	1.096	104.218	10022.00	0.10	-0.03	0.10	10.00	
10122.00†	11.096	104.218	10121.31	10.71	-2.63	10.38	10.00	
10222.00†	21.096	104.218	10217.27	38.40	-9.43	37.22	10.00	
10322.00†	31.096	104.218	10306.96	82.33	-20.22	79.81	10.00	
10422.00†	41.096	104.218	10387.66	141.17	-34.67	136.85	10.00	
10522.00†	51.096	104.218	10456.92	213.13	-52.35	206.60	10.00	
10622.00†	61.096	104.218	10512.62	296.02	-72.71	286.95	10.00	
10722.00†	71.096	104.218	10553.09	387.33	-95.13	375.46	10.00	
10822.00†	81.096	104.218	10577.09	484.28	-118.95	469.44	10.00	
10909.98	89.894	104.218	10584.00	571.89	-140.47	554.38	10.00	End of Build
10922.00†	89.894	104.218	10584.02	583.92	-143.42	566.03	0.00	
11022.00†	89.894	104.218	10584.20	683.92	-167.98	662.97	0.00	
11122.00†	89.894	104.218	10584.39	783.92	-192.54	759.90	0.00	
11222.00†	89.894	104.218	10584.58	883.92	-217.10	856.84	0.00	
11322.00†	89.894	104.218	10584.76	983.92	-241.66	953.78	0.00	
11422.00†	89.894	104.218	10584.95	1083.92	-266.23	1050.71	0.00	
11522.00†	89.894	104.218	10585.13	1183.92	-290.79	1147.65	0.00	
11622.00†	89.894	104.218	10585.32	1283.92	-315.35	1244.59	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11722.00†	89.894	104.218	10585.51	1383.92	-339.91	1341.52	0.00	
11822.00†	89.894	104.218	10585.69	1483.92	-364.47	1438.46	0.00	
11922.00†	89.894	104.218	10585.88	1583.92	-389.03	1535.40	0.00	
12022.00†	89.894	104.218	10586.06	1683.92	-413.60	1632.33	0.00	
12122.00†	89.894	104.218	10586.25	1783.92	-438.16	1729.27	0.00	
12222.00†	89.894	104.218	10586.43	1883.92	-462.72	1826.21	0.00	
12322.00†	89.894	104.218	10586.62	1983.92	-487.28	1923.14	0.00	
12422.00†	89.894	104.218	10586.81	2083.92	-511.84	2020.08	0.00	
12522.00†	89.894	104.218	10586.99	2183.92	-536.40	2117.02	0.00	
12622.00†	89.894	104.218	10587.18	2283.91	-560.96	2213.95	0.00	
12722.00†	89.894	104.218	10587.36	2383.91	-585.53	2310.89	0.00	
12822.00†	89.894	104.218	10587.55	2483.91	-610.09	2407.83	0.00	
12922.00†	89.894	104.218	10587.73	2583.91	-634.65	2504.76	0.00	
13022.00†	89.894	104.218	10587.92	2683.91	-659.21	2601.70	0.00	
13122.00†	89.894	104.218	10588.11	2783.91	-683.77	2698.64	0.00	
13222.00†	89.894	104.218	10588.29	2883.91	-708.33	2795.57	0.00	
13322.00†	89.894	104.218	10588.48	2983.91	-732.89	2892.51	0.00	
13422.00†	89.894	104.218	10588.66	3083.91	-757.46	2989.45	0.00	
13522.00†	89.894	104.218	10588.85	3183.91	-782.02	3086.38	0.00	
13622.00†	89.894	104.218	10589.03	3283.91	-806.58	3183.32	0.00	
13722.00†	89.894	104.218	10589.22	3383.91	-831.14	3280.25	0.00	
13822.00†	89.894	104.218	10589.41	3483.91	-855.70	3377.19	0.00	
13922.00†	89.894	104.218	10589.59	3583.91	-880.26	3474.13	0.00	
14022.00†	89.894	104.218	10589.78	3683.91	-904.82	3571.06	0.00	
14122.00†	89.894	104.218	10589.96	3783.91	-929.39	3668.00	0.00	
14222.00†	89.894	104.218	10590.15	3883.91	-953.95	3764.94	0.00	
14322.00†	89.894	104.218	10590.33	3983.91	-978.51	3861.87	0.00	
14422.00†	89.894	104.218	10590.52	4083.91	-1003.07	3958.81	0.00	
14522.00†	89.894	104.218	10590.71	4183.91	-1027.63	4055.75	0.00	
14622.00†	89.894	104.218	10590.89	4283.91	-1052.19	4152.68	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
14722.00†	89.894	104.218	10591.08	4383.91	-1076.76	4249.62	0.00	
14822.00†	89.894	104.218	10591.26	4483.91	-1101.32	4346.56	0.00	
14922.00†	89.894	104.218	10591.45	4583.91	-1125.88	4443.49	0.00	
15022.00†	89.894	104.218	10591.63	4683.91	-1150.44	4540.43	0.00	
15122.00†	89.894	104.218	10591.82	4783.91	-1175.00	4637.37	0.00	
15222.00†	89.894	104.218	10592.01	4883.91	-1199.56	4734.30	0.00	
15322.00†	89.894	104.218	10592.19	4983.91	-1224.12	4831.24	0.00	
15422.00†	89.894	104.218	10592.38	5083.91	-1248.69	4928.18	0.00	
15522.00†	89.894	104.218	10592.56	5183.91	-1273.25	5025.11	0.00	
15622.00†	89.894	104.218	10592.75	5283.91	-1297.81	5122.05	0.00	
15722.00†	89.894	104.218	10592.93	5383.91	-1322.37	5218.99	0.00	
15822.00†	89.894	104.218	10593.12	5483.91	-1346.93	5315.92	0.00	
15922.00†	89.894	104.218	10593.31	5583.91	-1371.49	5412.86	0.00	
16022.00†	89.894	104.218	10593.49	5683.91	-1396.05	5509.80	0.00	
16122.00†	89.894	104.218	10593.68	5783.91	-1420.62	5606.73	0.00	
16222.00†	89.894	104.218	10593.86	5883.91	-1445.18	5703.67	0.00	
16322.00†	89.894	104.218	10594.05	5983.91	-1469.74	5800.61	0.00	
16422.00†	89.894	104.218	10594.23	6083.91	-1494.30	5897.54	0.00	
16522.00†	89.894	104.218	10594.42	6183.91	-1518.86	5994.48	0.00	
16622.00†	89.894	104.218	10594.61	6283.91	-1543.42	6091.42	0.00	
16722.00†	89.894	104.218	10594.79	6383.91	-1567.98	6188.35	0.00	
16822.00†	89.894	104.218	10594.98	6483.91	-1592.55	6285.29	0.00	
16922.00†	89.894	104.218	10595.16	6583.91	-1617.11	6382.23	0.00	
17022.00†	89.894	104.218	10595.35	6683.91	-1641.67	6479.16	0.00	
17122.00†	89.894	104.218	10595.53	6783.91	-1666.23	6576.10	0.00	
17222.00†	89.894	104.218	10595.72	6883.91	-1690.79	6673.04	0.00	
17322.00†	89.894	104.218	10595.91	6983.91	-1715.35	6769.97	0.00	
17422.00†	89.894	104.218	10596.09	7083.91	-1739.91	6866.91	0.00	
17522.00†	89.894	104.218	10596.28	7183.91	-1764.48	6963.84	0.00	
17622.00†	89.894	104.218	10596.46	7283.91	-1789.04	7060.78	0.00	

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

WELLPATH DATA (200 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
17722.00†	89.894	104.218	10596.65	7383.91	-1813.60	7157.72	0.00	
17822.00†	89.894	104.218	10596.83	7483.91	-1838.16	7254.65	0.00	
17922.00†	89.894	104.218	10597.02	7583.91	-1862.72	7351.59	0.00	
18022.00†	89.894	104.218	10597.21	7683.91	-1887.28	7448.53	0.00	
18122.00†	89.894	104.218	10597.39	7783.91	-1911.85	7545.46	0.00	
18222.00†	89.894	104.218	10597.58	7883.91	-1936.41	7642.40	0.00	
18322.00†	89.894	104.218	10597.76	7983.91	-1960.97	7739.34	0.00	
18422.00†	89.894	104.218	10597.95	8083.90	-1985.53	7836.27	0.00	
18522.00†	89.894	104.218	10598.14	8183.90	-2010.09	7933.21	0.00	
18622.00†	89.894	104.218	10598.32	8283.90	-2034.65	8030.15	0.00	
18722.00†	89.894	104.218	10598.51	8383.90	-2059.21	8127.08	0.00	
18822.00†	89.894	104.218	10598.69	8483.90	-2083.78	8224.02	0.00	
18922.00†	89.894	104.218	10598.88	8583.90	-2108.34	8320.96	0.00	
19022.00†	89.894	104.218	10599.06	8683.90	-2132.90	8417.89	0.00	
19122.00†	89.894	104.218	10599.25	8783.90	-2157.46	8514.83	0.00	
19222.00†	89.894	104.218	10599.44	8883.90	-2182.02	8611.77	0.00	
19322.00†	89.894	104.218	10599.62	8983.90	-2206.58	8708.70	0.00	
19422.00†	89.894	104.218	10599.81	9083.90	-2231.14	8805.64	0.00	
19522.00†	89.894	104.218	10599.99	9183.90	-2255.71	8902.58	0.00	
19526.05	89.894	104.218	10600.00[1]	9187.95	-2256.70	8906.50	0.00	End of Tangent

HOLE & CASING SECTIONS - Ref Wellbore: ATLANTA 12-6H PWB Ref Wellpath: ATLANTA 12-6H (REV-D.0) PWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
7in Casing Intermediate	22.00	10909.98	10887.98	22.00	10584.00	0.00	0.00	-140.47	554.38

Continental RESOURCES

Planned Wellpath Report

ATLANTA 12-6H (REV-D.0) PWP

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CONTINENTAL RESOURCES	Slot	SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)
Area	NORTH DAKOTA	Well	ATLANTA 12-6H
Field	WILLIAMS COUNTY	Wellbore	ATLANTA 12-6H PWB
Facility	SEC.06-T153N-R101W		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
ATLANTA 12-6H SECTION 05		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION 06		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION 08		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H SECTION LINES		0.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon
ATLANTA 12-6H BHL ON PLAT REV-1 (2342'FSL & 500'FEL,SEC.05)		10586.00	-2442.96	8665.04	1188713.70	418375.47	48°06'09.521"N	103°41'32.721"W	point
ATLANTA 12-6H BHL REV-2(2342'FSL & 200'FEL,SEC.05)		10586.00	-2443.04	8965.00	1189013.37	418362.82	48°06'09.519"N	103°41'28.302"W	point
ATLANTA 12-6H BHL REV-3(2342'FSL & 200'FEL,SEC.05)		10600.00	-2256.70	8900.90	1188957.14	418551.67	48°06'11.358"N	103°41'29.245"W	point
1) ATLANTA 12-6H BHL REV-4 (2342'FSL & 200'FEL,SEC.05)	19526.05	10600.00	-2256.70	8906.50	1188962.74	418551.44	48°06'11.358"N	103°41'29.162"W	point
ATLANTA 12-6H HARDLINES(500'N/W & 200'S/E)		10600.00	0.00	0.00	1180159.22	421179.25	48°06'33.649"N	103°43'40.384"W	polygon

SURVEY PROGRAM - Ref Wellbore: ATLANTA 12-6H PWB Ref Wellpath: ATLANTA 12-6H (REV-D.0) PWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.00	21000.00	NaviTrak (Standard)		ATLANTA 12-6H PWB

Planned Wellpath Report

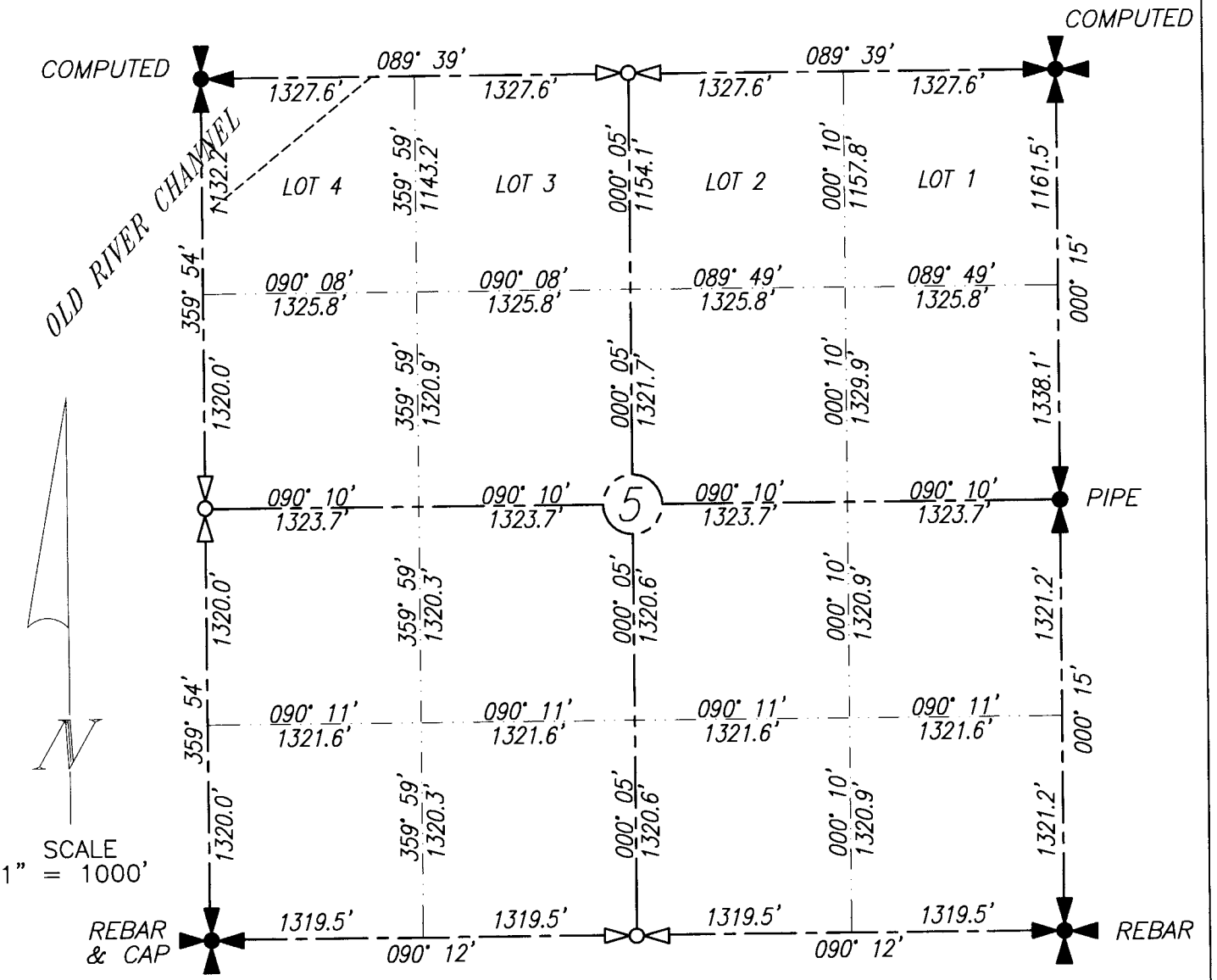
ATLANTA 12-6H (REV-D.0) PWP

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CONTINENTAL RESOURCES**	Slot	**SLOT#12 ATLANTA 12-6H(495'FNL & 1395'FWL,SEC.06)**
Area	**NORTH DAKOTA**	Well	**ATLANTA 12-6H**
Field	**WILLIAMS COUNTY**	Wellbore	**ATLANTA 12-6H PWB**
Facility	**SEC.06-T153N-R101W**		

DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
22.00	0.000	104.218	22.00	Tie On
10011.04	0.000	104.218	10011.04	End of Tangent
10909.98	89.894	104.218	10584.00	End of Build
19526.05	89.894	104.218	10600.00	End of Tangent

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 14-6H
SECTION 5, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
MCKENZIE COUNTY, NORTH DAKOTA



ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD
DISTANCES TO ALL OTHERS ARE CALCULATED.
ALL BEARINGS SHOWN ARE ASSUMED.

JOHN PAULSON
REGISTERED
LAND
SURVEYOR
L.S. 3366

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

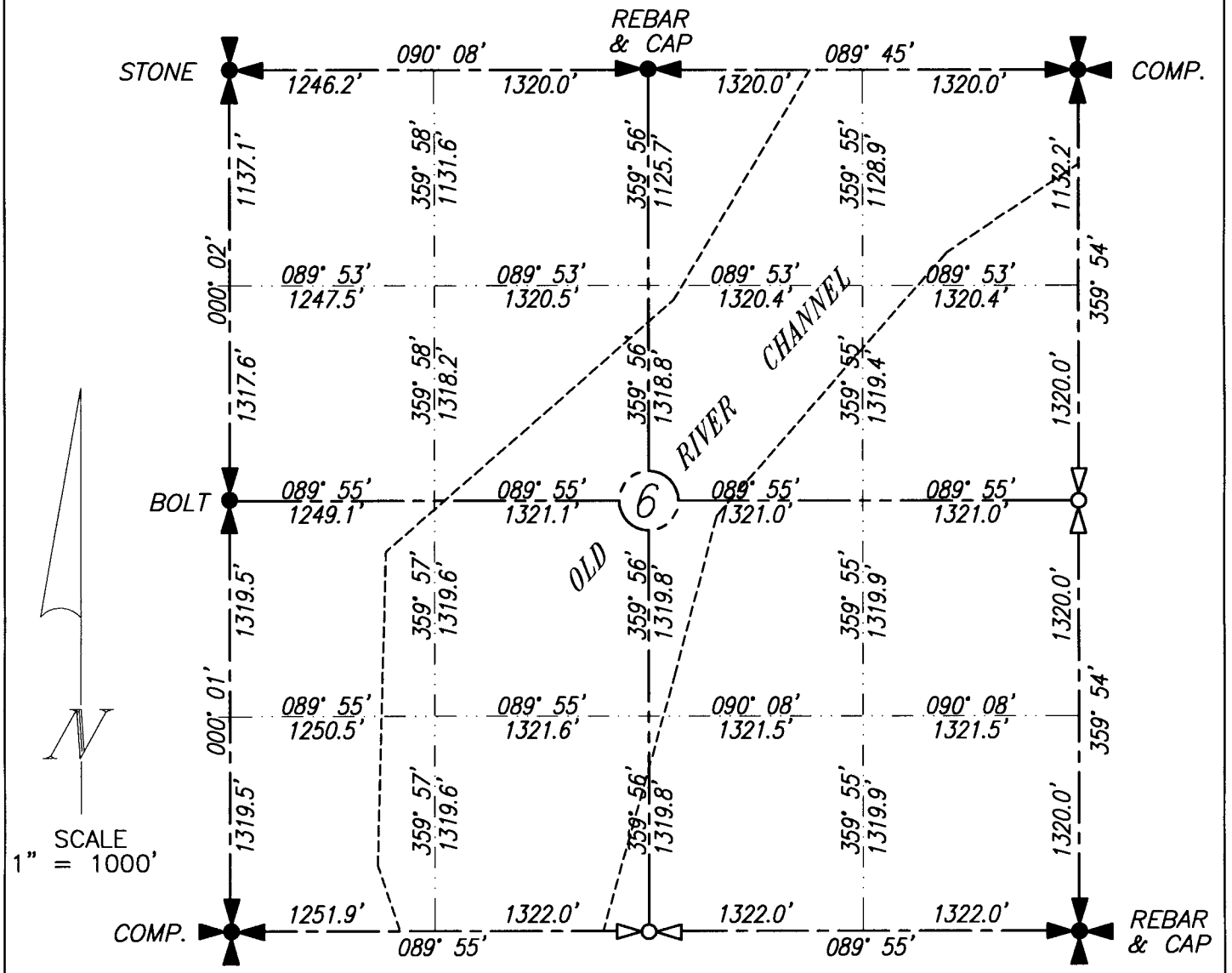
4/11-12

JOHN PAULSON R.L.S. 3366

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
MCKENZIE COUNTY, NORTH DAKOTA



MOST OF THE SECTION IS LOTTED DUE TO THE MISSOURI RIVER.

ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD
DISTANCES TO ALL OTHERS ARE CALCULATED.
ALL BEARINGS SHOWN ARE ASSUMED.

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN PAULSON
REGISTERED
NORTH DAKOTA
3366

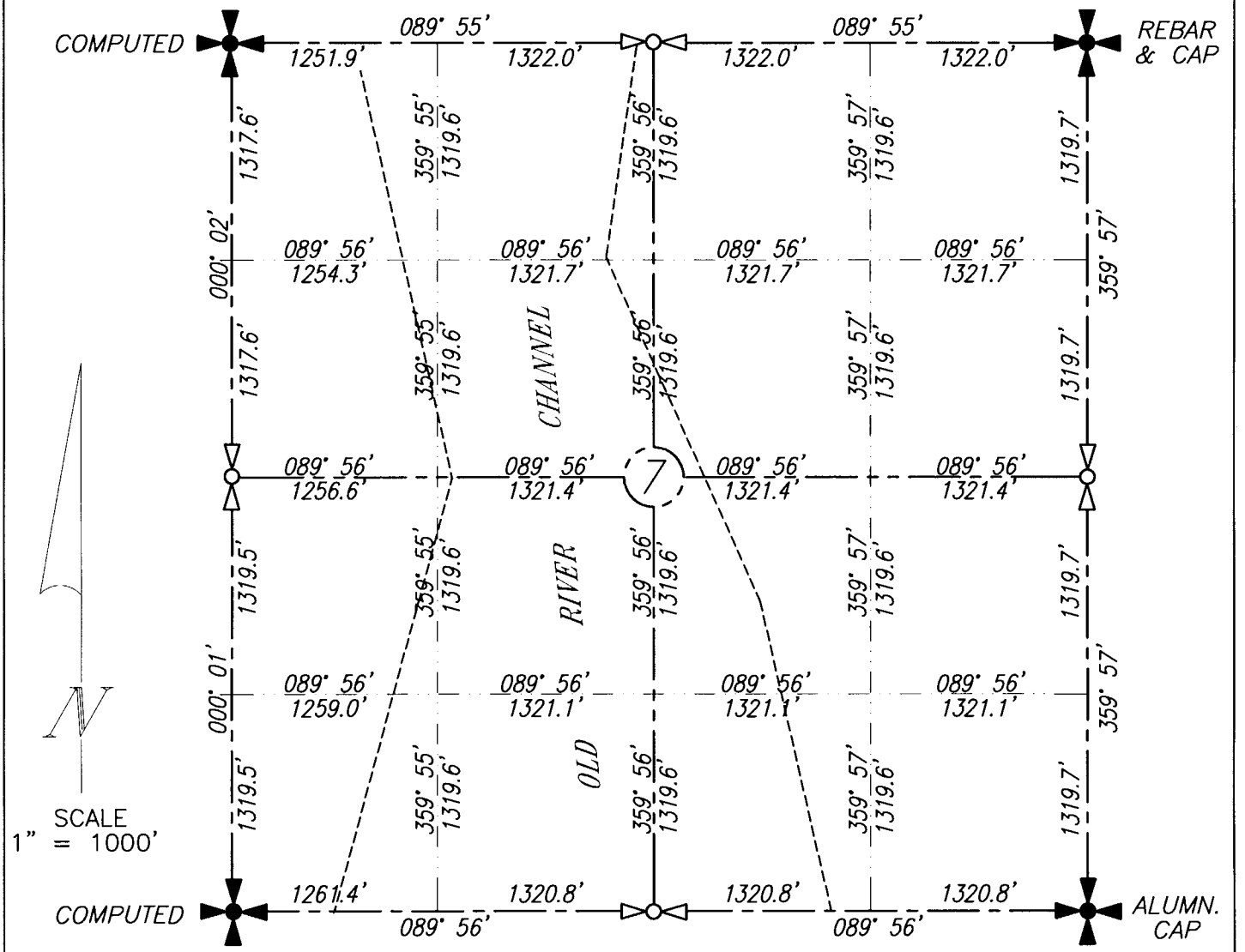
12-12

JOHN PAULSON R.L.S. 3366

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 4-6H
SECTION 7, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA



MOST OF THE SECTION IS LOTTED DUE TO THE MISSOURI RIVER.

ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD DISTANCES TO ALL OTHERS ARE CALCULATED. ALL BEARINGS SHOWN ARE ASSUMED.

JOHN PAULSON REGISTERED LAND SURVEYOR L.S. 3366 NORTH DAKOTA

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

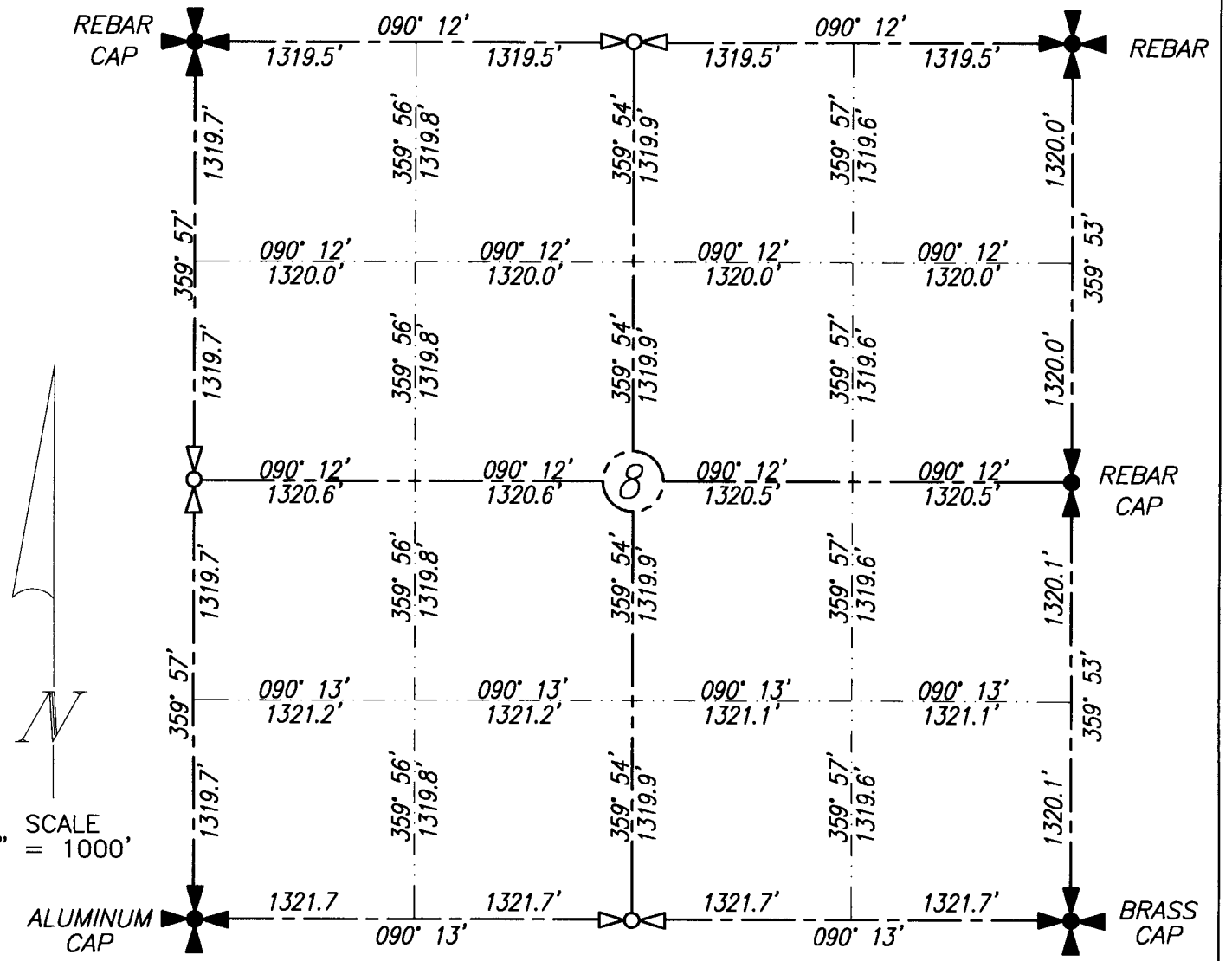
JOHN PAULSON R.L.S. 3366

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

REVISED: 5-2-2012

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 8, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA



ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD
DISTANCES TO ALL OTHERS ARE CALCULATED.
ALL BEARINGS SHOWN ARE ASSUMED.

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN PAULSON REGISTERED LAND SURVEYOR L.S. 3366 5-3-12 NORTH DAKOTA

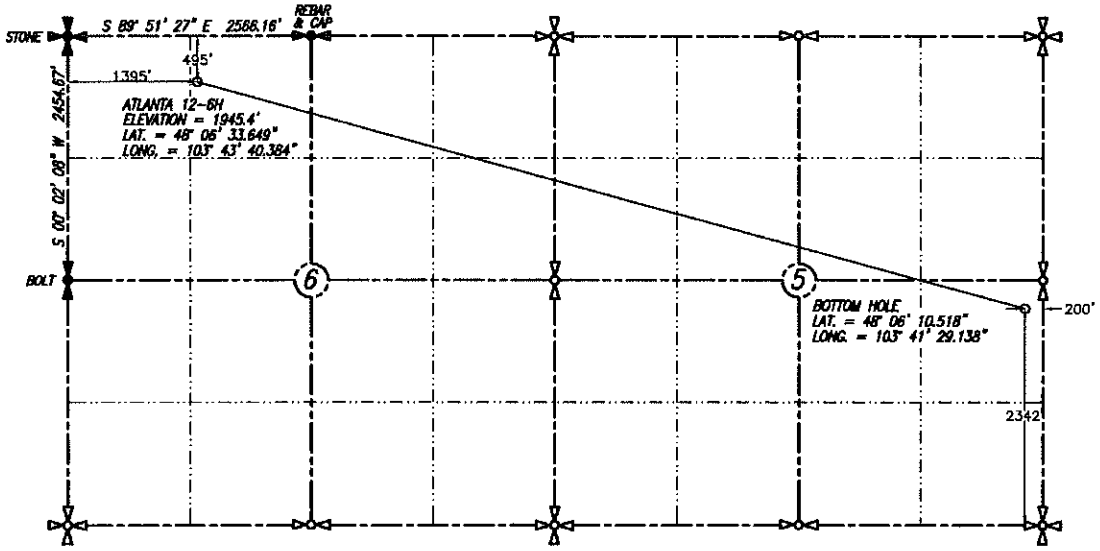
JOHN PAULSON R.L.S. 3366

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

REVISED: 5-4-2012

BOTTOM HOLE LOCATION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 12-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
495' FNL & 1395' FWL



N

SCALE
1" = 2000'

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

JOHN PAULSON REGISTERED LAND SURVEYOR L.S. 3366 NORTH DAKOTA

5-4-12

JOHN PAULSON R.L.S. 3366

DATE STAKED: 2-9-2012

BASIS OF VERTICAL DATUM:
NAVD 1988 GEOID 09

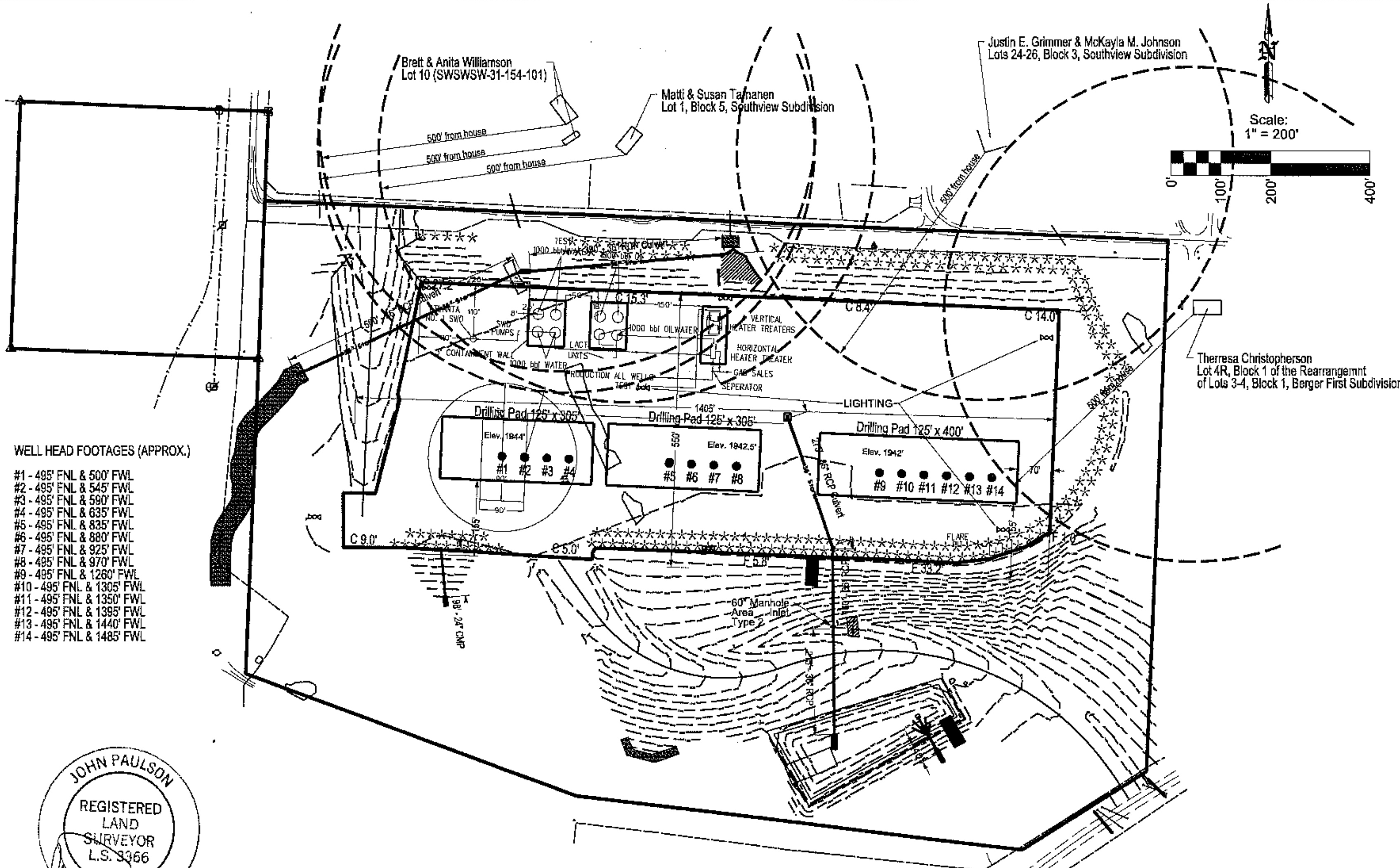
PERSON AUTHORIZING SURVEY;
CHAD NEWBY

EXPLANATION AREA: NAD83(CORS96)

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10



WELL HEAD FOOTAGES (APPROX.)

#1 - 495' FNL & 500' FWL
#2 - 495' FNL & 545' FWL
#3 - 495' FNL & 590' FWL
#4 - 495' FNL & 635' FWL
#5 - 495' FNL & 835' FWL
#6 - 495' FNL & 880' FWL
#7 - 495' FNL & 925' FWL
#8 - 495' FNL & 970' FWL
#9 - 495' FNL & 1260' FWL
#10 - 495' FNL & 1305' FWL
#11 - 495' FNL & 1350' FWL
#12 - 495' FNL & 1395' FWL
#13 - 495' FNL & 1440' FWL
#14 - 495' FNL & 1485' FWL

JOHN PAULSON
REGISTERED LAND SURVEYOR
L.S. 3366
NORTH DAKOTA

JOHN PAULSON R.L.S. 3366 — 6-29-12
DATE

NOTE: THE 500' RADIUS SHOWN ON THIS DRAWING ARE DRAWN FROM THE NEAREST BUILDING CORNER.

DESIGNED BY:
DRAWN BY: JWH
DATE PRINTED: 5/16/12

REVISION	DATE
1	6/29/12
2	
3	
4	

SHEET DESCRIPTION: Production Facility Layout
PROJECT NAME: Atlanta Site
PROJECT NO.: N12B10

BROSZ ENGINEERING, INC.
ARCHITECTURE, ENGINEERING, SURVEYING
109 S. Main, Box 357
Bowman, ND 58623
PH: 701.523.3340

Spill Trail[illegible]nventory

(To be Checked After Each Use)

Supplies	Quantity	Actual
Personal Protection		
Trauma/1st Aid Kit	1	
Eye Wash	1	
Hand Cleaner	2	
Nitrile Gloves (L & XL Case)	2	
FRC Rain Coat - Extra Large	3	
FRC Rain Coat - Large	3	
Rubber Safety Toed Boots - Size 10	2	
Rubber Safety Toed Boots - Size 11	2	
Rubber Safety Toed Boots - Size 12	2	
FRC Tyvex Suits - Case XL	1	
Neoprene Chest Waders - L	1	
Neoprene Chest Waders - L	1	
Containment		
Absorbent (sphag)	10	
Absorbent Boom 3" x 10'	2	
Absorbent Boom 5" x 10'	10	
Absorbent Boom 8" x 10'	8	
Containment Boom - Fast Water	3	
Absorbent Pads (Hydrocarbon)	10	
Absorbent Pads (Universal)	5	
Absorbent Pillows 18" x 18" box	3	
Absorbent Pom Pom Cube	7	
Absorbent Sweep - 16" x 100' - Bag	5	
Miscellaneous		
Antifreeze	2	
Push Broom	2	
Shovels	2	
Rake	5	
Squeegees	2	
Scoop	2	
Spark Resistant Scoop	1	

Supplies	Quantity	Actual
Miscellaneous		
EnviroClean (5-gal units of concentrate)	2	
Duct Tape (Case)	3	
Flashlights	6	
Flood Lights	2	
Extension Cord 50' 12-gauge	5	
55-gal. Drums w/lids	2	
Large Trash Cans	2	
HD Drum Liners - boxes	2	
Hoses - Kit (Blue & Green)	5	
Plastic Buckets	5	
Propane Cylinders - 20-lb.	2	
Propane Weed Burner W/Hose	1	
Pump - Trash	2	
Pump - 115V Water Transfer	2	
Gas Powered Generator (3-5K Watt)	1	
Misc. Ratchet Straps	6	
Rope 1/2" x 100'	2	
Rope 1/4" x 50'	4	
Rope 3/8" x 100'	2	
Shop Towels - box	2	
Caulking Gun	2	
Silicon Tubes	10	
Metal Stakes/Spikes	8	
Metal T-Posts	6	
Bungee Cords	3	
Wire - 25' roll - smooth	1	
Fire Extinguisher	1	
Equipment Hooks	6	
Shelving	4	
Drawers	1	
Misc. Building Supplies	1	

Tabor, David

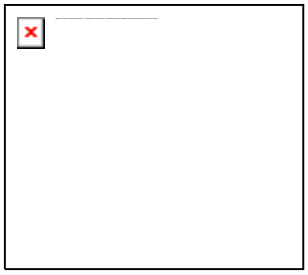
From: Becky Barnes <Becky.Barnes@clr.com>
Sent: Wednesday, June 06, 2012 1:46 PM
To: Tabor, David
Subject: Atlanta Pad Wells

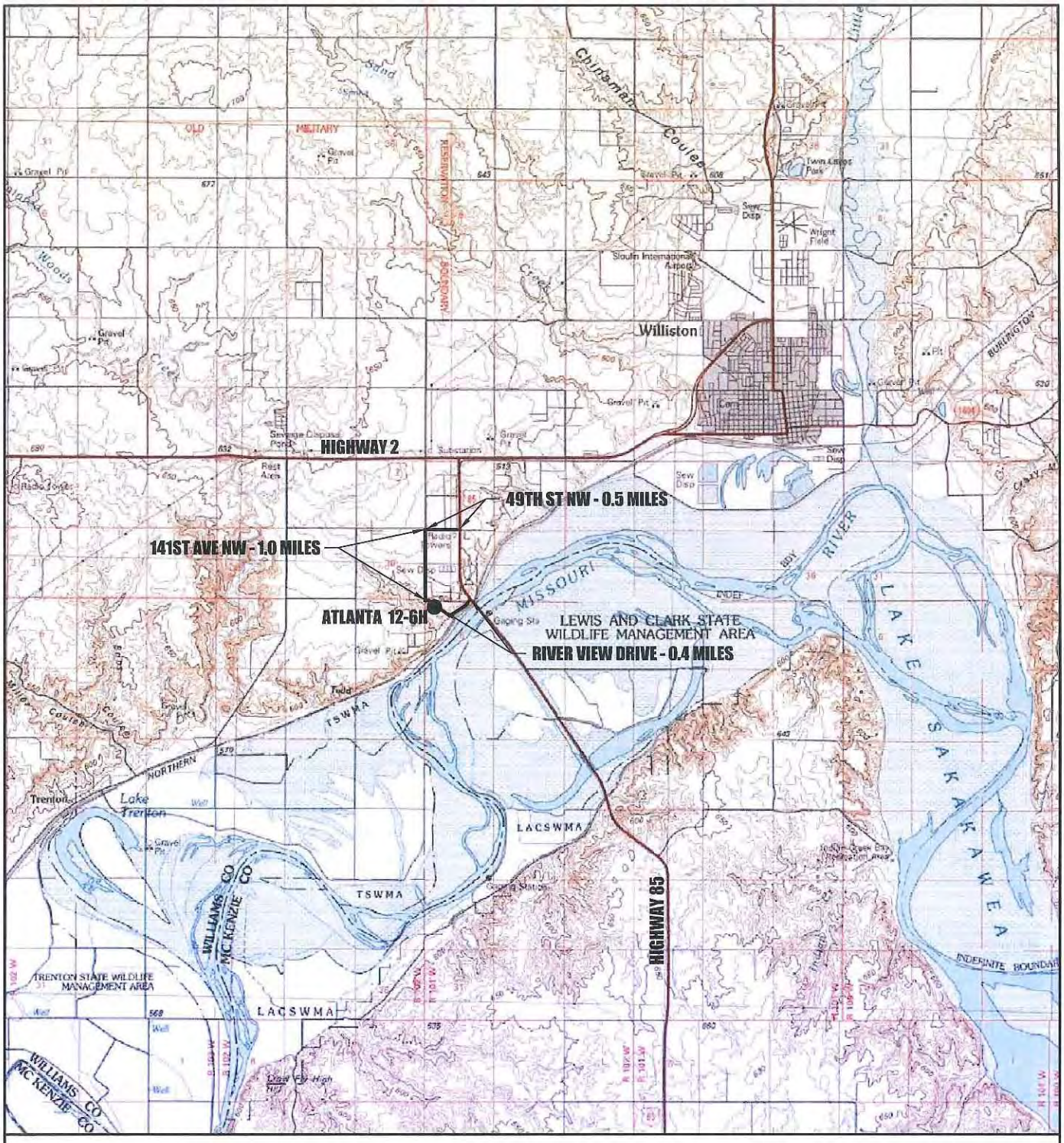
All cuttings for the Atlanta Pad wells will be hauled to the Tioga Prairie disposal.

Prairie Disposal for Cuttings
102C10 52nd St NW
Tioga ND 58852

Let me know if there is anything else that you need.
Thanks.
Bb

Becky Barnes
Regulatory Compliance Specialist
Continental Resources, Inc.
Office 405-234-9161
Fax 580-548-5293



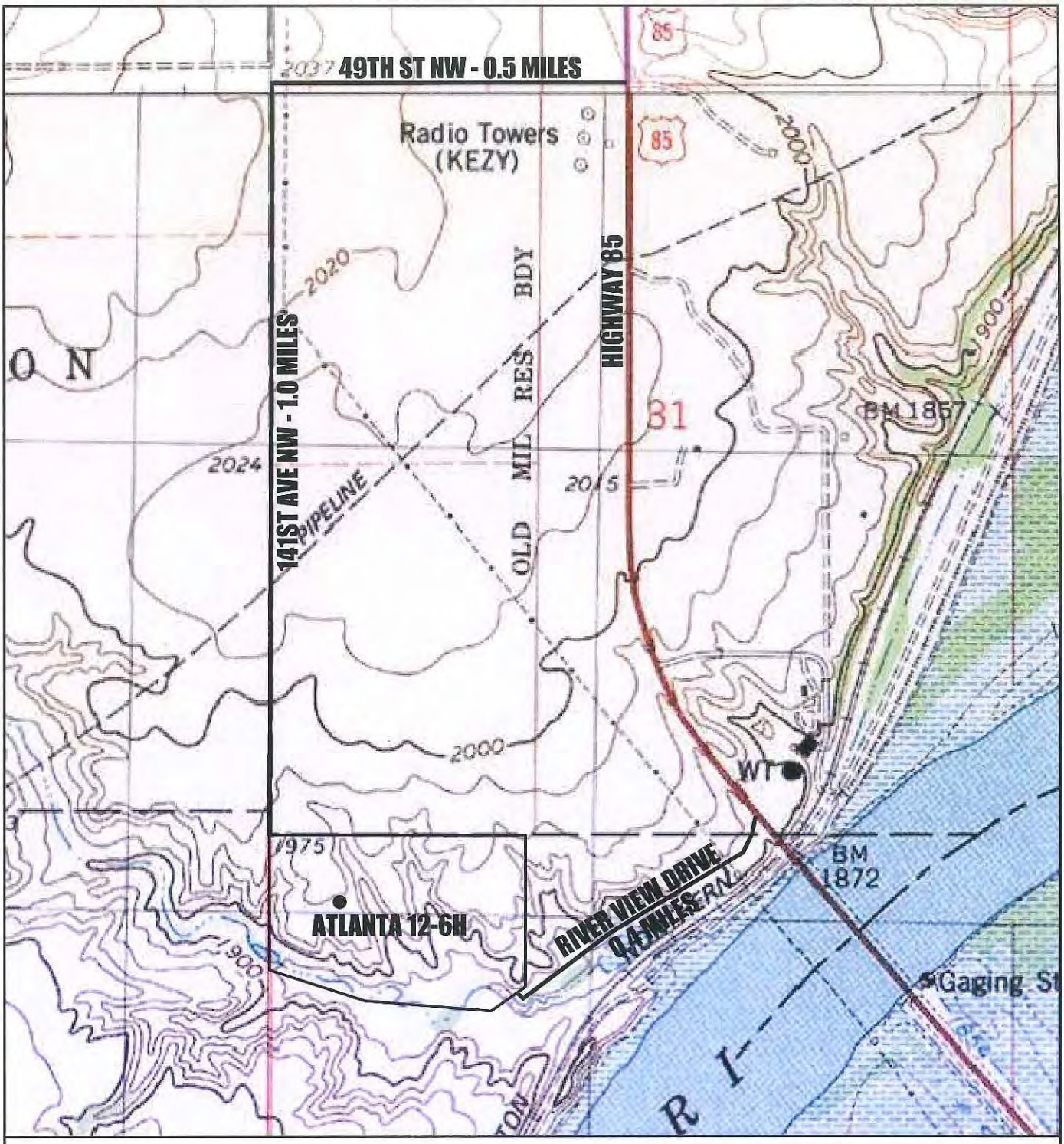


CONTINENTAL RESOURCES INC.

EXHIBIT 1

VICINITY MAP
PROPOSED ACCESS ROUTE

ATLANTA 12-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA



CONTINENTAL RESOURCES INC.

EXHIBIT 2

QUAD ACCESS

ATLANTA 12-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA

N

Continental Resources, Inc. (CRI) respectfully submits the following information concerning the drilling of the Atlanta 1 through 14-H, NWNW Sec. 6, T153N, R101W, Williams County, North Dakota.

The Atlanta site is located in an area with neighboring occupied dwellings located within 500 feet of the production equipment and is therefore subject to the provisions of:

NORTH DAKOTA ADMINISTRATIVE CODE § 43-02-03-28.

1. To illustrate more clearly the proximity of the occupied dwellings, the Atlanta Site Production Facility Layout, page 7 of 19 revised 6/29/12 of the plan set has been attached with this affidavit.

2. To comply with the provisions of NORTH DAKOTA ADMINISTRATIVE CODE § 43-02-03-28, waivers from the affected homeowners have been executed and are attached with this affidavit and illustrated on the attached .

    a. Homeowners affected: Brett and Anita Williamson in Lot 10(SWSWSW-31-154-101).
    b. Homeowners affected: Matti & Susan Tarnanen in Lot 1, Block 5, Southview Subdivision.

3. Shown on the Atlanta Site Production Facility Layout, page 7 of 19 revised 6/29/12, but not subject to the provisions of NORTH DAKOTA ADMINISTRATIVE CODE § 43-02-03-28 are the homes of:
    a. Justin E. Grimmer & McKayla M. Johnson in Lots 24-26, Block 3, Southview Subdivision.
    b. Therresa Christopherson in Lot 4R, Block 1 of the Rearrangement of Lots 3-4, Block 1, Berger First Subdivision.
        i. Waivers from these homeowners have not been executed.

CRI believes adequate planning and precautions are being taken to limit the impact to the affected homeowners through enhanced drilling and completion techniques such as electric line fed drilling and supplying water pipelined to the site instead of trucking along with visual mitigation via landscaping and privacy fencing to be installed as part of the construction of the site. Fire suppression and other safety equipment will be employed on the site to ensure the safety of these homeowners and their property.

Alan McNally, Drilling Manager
Continental Resources, Inc.

STATE OF OKLAHOMA)
)ss:
COUNTY OF GARFIELD)

On the 29th day of June 2012, before me, a Notary Public in and for said County and State, personally appeared **Alan McNally**, known to me to be the Drilling Manager of Continental Resources, Inc., the Corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

Becky Barnes
Notary Public

Garfield County, Oklahoma

My Commission Expires: 7/5/2015

Commission No.: 11006023

BECKY BARNES NOTARY # 11006023 EXP. 7/5/2015 PUBLIC STATE OF OKLAHOMA

AFFIDAVIT WAIVING PROVISIONS OF
NORTH DAKOTA ADMINISTRATIVE CODE § 43-02-03-28

STATE OF NORTH DAKOTA)
)ss:
COUNTY OF WILLIAMS)

Brett M. Williamson and Anita J. Williamson, being duly sworn deposes and states as follows:

1. That we are the owners of two houses located on a parcel of land in SW¼SW¼SW¼ (Lot 10) MFD in Document #720523 containing 5.0 acres more or less in TWN 154 RNG 101 SEC 31 of the Williston Township.

2. That we are aware of the proposed location for Continental Resources, Inc.'s Atlanta multi well pad, which is less than 500 feet from the location of our houses which are located on the above parcel of land.

3. That Section 43-02-03-28 of the North Dakota Administrative Code provided in pertinent part "no well shall be drilled nor production equipment installed less than five hundred feet [152.40 meters] from an occupied dwelling unless agreed to in writing by the surface owner or authorized by order of the commission."

4. I hereby agree to the location of the Continental Resources, Inc.'s Atlanta multi well pad which is less than 500 feet from our houses. Further, I waive any rights that I might otherwise have to protest or contest such location.

Dated this 22nd day of June, 2012.

Affiant:

x Brett M. Williamson
Brett M. Williamson

Affiant:

x Anita J. Williamson
Anita J. Williamson

STATE OF NORTH DAKOTA)
)ss:
COUNTY OF WILLIAMS)

The foregoing instrument was acknowledged before me this 22nd day of June, 2012, by Brett M. Williamson and Anita J. Williamson.

Michael J. Kuhn
Notary Public
My Commission Expires: OCT 4th - 2017

MICHAEL J. KUHN
Notary Public
State of North Dakota
My Commission Expires Oct. 4, 2017

640.825

AFFIDAVIT WAIVING PROVISIONS OF
NORTH DAKOTA ADMINISTRATIVE CODE § 43-02-03-28

STATE OF NORTH DAKOTA)
)ss:
COUNTY OF WILLIAMS)

Matti K. Tarnanen and Susan V. Tarnanen, being duly sworn deposes and states as follows:

1. That we are the owners of the house located on a parcel of land in Lot 1 Block 5 of Southview Subdivision in TWN 154 RNG 101 SEC 31 of the Williston Township.

2. That we are aware of the proposed location for Continental Resources, Inc.'s Atlanta multi well pad, which is less than 500 feet from the location of our house which is located on the above parcel of land.

3. That Section 43-02-03-28 of the North Dakota Administrative Code provided in pertinent part "no well shall be drilled nor production equipment installed less than five hundred feet [152.40 meters] from an occupied dwelling unless agreed to in writing by the surface owner or authorized by order of the commission."

4. I hereby agree to the location of the Continental Resources, Inc.'s Atlanta multi well pad which is less than 500 feet from our house. Further, I waive any rights that I might otherwise have to protest or contest such location.

Dated this 20th day of June, 2012.

Affiant: **Affiant:**

X Matti K. Tarnanen X Susan V. Tarnanen
Matti K. Tarnanen Susan V. Tarnanen

STATE OF NORTH DAKOTA)
)ss:
COUNTY OF WILLIAMS)

The foregoing instrument was acknowledged before me this 20th day of June, 2012, by Matti K. Tarnanen and Susan V. Tarnanen.

Notary Public
My Commission Expires: Jan 31, 2016

SPRING CHASTEEN
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/16

651.825

Continental
RESOURCES

July 19, 2012

Industrial Commission of North Dakota
Oil & Gas Division
600 East Boulevard, Dept 405
Bismarck, North Dakota 58505

Continental Resources, Inc. (CRI) respectfully submits the following information concerning the drilling of the Atlanta 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 -- 6H,

Township 153N, Range 101W of the 5th P.M.
Section 6, N/2 NW/4 Williams County, North Dakota.

Continental Resources Inc. is currently conducting or planning to conduct the following work in the following manner in accordance with NDIC requirements:

1) Testing of water well(s)
   a. The water well on the Atlanta property will be kept operable and has had baseline testing conducted including, hydrocarbon, salinity etc. These results will be kept on record and the well tested from time to time or as requested.
   b. Currently, the environmental and operations teams are researching other wells in the area to sample.
2) CEMENT STABILIZATION:
   a. Per NDIC requirement, samples will be taken for stabilized areas at pad grade and will be tested for current levels of: pH / EC / CEC / SAR / Soil Permeability.
   b. These test results will be submitted before cement stabilization work begins and submitted via the appropriate NDIC Form 4 sundry
3) The contractor on the project is OE Construction - 16702 West 56th Drive Golden, CO 80403
   a. Cement soil stabilization will be conducted in accordance NDIC requirements and project specifications stated on:
      Plan Page 3, of the construction plan set, section 4. B. Cement Application and Blending:
      Portland cement shall be added to the top 8 inches of the final subgrade at a rate of 5 percent by weight of material or as otherwise indicated in the basis of estimate. The specified manner that allows for uniform distribution of cement over the entire area. The contractor shall supply and use a computer controlled vane feeder to place the cement on the sub-grade prior to mixing. The vane feeder will spread the cement uniformly in the quantity specified. Dumping or blowing cement directly on the ground will not be accepted. The contractor shall apply the cement in a way that minimizes dust and is satisfactory to the Owner.
4) RECLAMATION PLAN for the stabilized portion of the drilling pad will be to rip and till the soil adding soil amendments as applicable to reach the original pH, permeability, and other test levels identified above.
5) REASON FOR CEMENT STABILIZATION: Cement stabilization will be conducted on this drilling pad to produce the most serviceable and least permeable surface possible so that water that falls on site will sheet directly to the planned site drainage system where it can be disposed of in a controlled fashion.

P.O. Box 1032 • 302 N. Independence • Enid, OK 73702
Voice (580) 233-8955 • Fax (580) 242-4703

6) LINING OF THE SITE: Soil stabilization will be conducted in conjunction with permanently lining with a poly liner, the area around the wellheads, the trenches containing the flow lines from the well heads to the production equipment and the area under the production equipment itself inside the steel containment berms along with the detention pond. Under these systems, a minimum of 1ft. compacted clay liner of native and / or engineered fill material will be placed in 6" lifts maximum and density tested to 95% proctor per specifications provided in the Geotechnical Engineering Analysis for the project dated June 12, 2012 from American Technical Services.
7) As the land owner of the property in question, CRI is fully aware and approves of this system. This will also be identified on the sundry form 4 to be provided with the testing data listed above prior to beginning stabilization work.

Chad Newby, Operations Land Coordinator
Continental Resources, Inc.

STATE OF OKLAHOMA)
)ss:
COUNTY OF GARFIELD)

On the 19th day of July 2012, before me, a Notary Public in and for said County and State, personally appeared **Chad Newby**, known to me to be the Operations Land Coordinator of Continental Resources, Inc., the Corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

Notary Public

Garfield County, Oklahoma

My Commission Expires: 7/5/2015

Commission No.: 11006023

BECKY BARNES NOTARY # 11006023 EXP. 7/5/2015 PUBLIC STATE OF OKLAHOMA

Sincerely,

CONTINENTAL RESOURCES, INC.

Becky Barnes
Regulatory Compliance Specialist

OILFIELD SAFETY INC
A Total Safety Company

CONTINGENCY PLAN

This Contingency Plan was written

Specifically for:

Continental Resources Inc.
P.O. Box 1032
Enid, Oklahoma 73702

SAFETY PROGRAM & EMERGENCY EVACUATION PLAN

Continental Resources Inc.

Williams County, North Dakota

Oilfield Safety Inc.
A Total Safety Company
2523 2nd Street West
Williston, ND 58801

TABLE OF CONTENTS

THIS PLAN IS SUBJECT TO UPDATING

PURPOSE OF PROGRAM

It is Continental Resources Inc. practice, to provide for the safety of its employees and contractor's employees at the job site, and to provide for the protection of the environment in accordance with applicable laws and regulations.

The primary purpose of this contingency plan is to guide location personnel in the responses expected of them in the event that hydrogen sulfide (H2S) is liberated during the drilling program.

Hydrogen Sulfide is extremely hazardous to normal oil field operations due to its capability (1) of destroying life at very low concentrations and (2) of causing instantaneous failure of high strength metals. Drilling and producing operations of hydrocarbons containing toxic gases can, however, be performed safety and without incident when the necessary precautions are taken and the outlined safety procedures are followed. It is imperative that sulfide resistant materials be used, that the proper safety equipment be used, that this equipment be properly maintained, and that all safety regulations be complied with.

The procedures outlined are for your safety and the safety of all others: therefore, it is mandatory that each individual give his one hundred percent cooperation.

RESPONSIBILITIES AND DUTIES

ALL PERSONNEL

1. It is the responsibility of all personnel on location to familiarize themselves with the safety procedures.

2. All personnel will attend to their personal safety first.

3. Help anyone who may be injured or overcome by toxic gases. The Drilling Foreman will assign someone to administer first aid to unconscious person (s).

4. Report to the designated "SAFE BRIEFING AREA" and follow the instructions of the Drilling Foreman.

DRILLING FOREMAN

1. It is the responsibility of the Drilling Foreman to see that these safety and emergency procedures are observed by all personnel on location.

2. The Drilling Foreman will advise Oilfield Safety Inc. whenever the procedures as specified herein are complied with or cannot be followed.

3. The Drilling Foreman will notify the Safety Advisor at least two weeks before the safety equipment specified herein is needed.

4. The Drilling Foreman will keep the number of personnel on location to a minimum during hazardous operations.

5. The Drilling Foreman is responsible for designating the "SAFE BRIEFING AREA". This "SAFE BRIEFING AREA" will change depending upon wind direction and must be redesignated as soon as a wind change occurs.

6. If an unexpected emergency occurs or the H2S alarm sounds, the Drilling Foreman will assess the situation and will advise all personnel what condition exists.

7. When it is necessary to secure the location, the access road to location will be blocked; personnel from the rig crew will be used to guard same.

TEMPORARY SERVICE PERSONNEL

All service personnel such as cementing crews, logging crews, specialists, mechanics, and welders will furnish their own safety equipment as required, to comply with OSHA and the DRILLING FOREMAN for CONTINENTAL RESOURCES INC.

VISITORS

1. VISITORS will be restricted when Hydrogen Sulfide might be unless accompanied by the DRILLING FOREMAN for CONTINENTAL RESOURCES INC.

2. VISITORS and non-essential personnel will be prohibited from remaining in or entering contaminated areas where Hydrogen Sulfide concentration in the atmosphere exceeds 10 ppm.

NOTE: WHEN HYDROGEN SULFIDE MIGHT BE ENCOUNTERED NO PERSONNEL ON LOCATION WILL BE PERMITTED TO SLEEP IN VEHICLES.

DIRECTIONS TO: Atlanta 5-6H Federal

From Williston, ND head West on E Broadway toward 2nd Ave E; turn left onto Main St; Take the first right onto N Dakota 1804 W/2nd St W; continue to follow N Dakota 1804 W for 4.8 miles; Turn left onto US-85 S for 2 miles; Turn right onto 47th Ln NW; Turn right onto 48th St NW ; Continue onto 141st Ave NW and your destination will be ahead.

THE DRILL SITE

The location as shown in Figure 2 is planned in order to obtain the maximum safety benefits consistent with the rig configuration, well depth, and prevailing winds.

1. Through the use of several maps, the area within a One mile radius of the location has been surveyed and contacts with all permanent residents have been made. Except in a dead calm and a tremendous release of high concentration gases, the probability of lethal dosages beyond one mile is extremely unlikely. Note on the rig layout plat, Figure 2, the direction of prevailing winds.

2. The location of houses, schools, roads, and anything where people may be present and who might need to be warned or evacuated in a crisis have been surveyed. This information with names and telephone numbers are keyed and listed on page 11 and Figure 3 for use if evacuation might be necessary should an emergency develop.

3. The drilling rig, see Figure 2, should be situated at such a location that prevailing winds blow across the rig toward the flare pit.

4. Two (2) SAFETY BRIEFING AREAS will be established not less than 200 feet from the wellhead and in locations so that at least one SAFE BRIEFING AREA will be up-wind of the well at all times.

5. Protective equipment will be stored in strategic locations around the wellsite and each of the SAFE BRIEFING AREAS. Such equipment will include Self Contained Breathing Apparatus (SCBA), First Aid Kits, Stretchers, and Hydrogen Sulfide Hand Operated Detectors. In the event of an emergency, personnel should assemble at the up-wind SAFE BRIEFING AREA for instructions from their supervisor.

6. Windsocks or streamers will be utilized to give wind directions at several elevations; i.e., tree top, derrick floor level, and 6 to 8 feet above ground level. PERSONNEL SHOULD DEVELOP THE PRACTICE OF ROUTINE OBSERVATION OF WIND DIRECTION.

7. Windbreakers and rig curtains can be removed from around the derrick floor and monkey board, if hazardous amounts of H2S encountered.

8. Explosion proof ventilating fans if required will be positioned to ensure adequate circulation at the derrick floor, cellar area and any other location where hydrogen sulfide is accumulating in excess of 10 PPM.

9 A kill line of ample strength and securely staked should be laid to the well head from a safe location to permit pumping into the well in an emergency.

10. When approaching a depth where Hydrogen Sulfide may be encountered, the MUD SHOULD BE MAINTAINED IN AN OVER BALANCED CONDITION TO restrict the Hydrogen Sulfide to be treated to that contained in the formation drilled.

11. When approaching a depth where Hydrogen Sulfide may be encountered, appropriate operational danger or caution sign(s) shall be displayed along all controlled accesses to the site.

12. When available 24-hour radio or telephone communication will be provided at the rig. Emergency telephone numbers will be prominently posted: SHERIFF'S DEPARTMENT, AMBULANCE, HOSPITALS, DOCTORS, AND OPERATORS' SUPERVISORY PERSONNEL.

13. Filter-type gas masks are not suitable for protection from Hydrogen Sulfide on drilling rigs. Pressure demand, SCBA'S will be provided for use in any Hydrogen Sulfide concentration. They are not physically exhausting to use, are rugged and dependable, and require little maintenance.

14. SCBA'S will be stored on racks and protected from the weather. Rig crew equipment will be located at readily accessible location on the rig floor. For hygienic reasons, SCBA'S are to be cleaned and sterilized at regular intervals. A six outlet air supply manifold will be installed on the rig floor for continuous use by crews and supervisory personnel working in a "Mask On" situation. The multi-bottle supply cylinders are to be located approximately 200 feet from the well. A minimum of 3,600 cu. ft. compressed breathing air will be on location at all times.

15. An alarm system which can be heard during operations and which can be activated from several points if gas is detected will be installed. When the alarm is sounded, personnel must assemble at the BRIEFING AREA designated SAFE. However, your company may have steps different from these, so pay heed to the requirements on your rig.

16. There will be No Smoking on rig floor or near wellhead. Designated Smoking Areas will be provided by your Supervisor.

17. Safety meetings and training sessions will be held at frequent intervals by the Safety Advisor, the Drilling Supervisor, or the Rig Supervisor. All persons required to work on location will be thoroughly familiar with the use, care and servicing of the following: Personal protective equipment such as respirators, and gas detection equipment.

18. All electric lighting, wiring and electrical devices within 100 feet of the well will be put in vapor-proof condition to minimize the possibility of explosion.

19. Blowout preventers should meet or exceed the recommendations for hydrogen sulfide service (API RP 53). Choke manifolds will be of similar materials.

20. Inspection of installation, operation, and testing of blowout preventers, choke manifolds, etc., dressed for Hydrogen Sulfide services, will be conducted regularly.

21. Every person involved in the operation will be informed of the characteristics of Hydrogen Sulfide and its dangers, safe procedures to use when it is encountered, and recommended first aid procedures. This will be done through frequent safety talks and training sessions.

NAMES AND DUTIES OF PERSONS WITH PRIME RESPONSIBILITIES

A. Continental Resources Inc.
P.O. Box 1032
Enid, Oklahoma 73702

B. OILFIELD SAFETY INC.
2523 2nd Street West
Williston, ND 58802

Terrie Turbiville
District Manager
Office: 701-774-3014
Cell: 701-580-2912

EMERGENCY NOTIFICATION

LOCAL OFFICIALS AND MEDICAL

WILLISTON, NORTH DAKOTA	WILLIAMS COUNTY
AMBULANCE	911
FIRE	911
NON-EMERGENCY	701-627-3903
POLICE	911
THREE AFFILIATED TRIBES	701-627-3244
MOUNTRAIL COUNTY SHERIF	701-628-2975
MOUNTRAIL COUNTY SHERIFF DISPATCH	911

WATFORD CITY, NORTH DAKOTA	McKenzie COUNTY
AMBULANCE	911
FIRE	911
POLICE	911 OR 701-842-2400
McKenzie COUNTY SHERIFF DISPATCH	911

BUREAU OF LAND MANAGEMENT	DICKINSON, ND
OFFICE REPRESENTATIVE	701-225-9148

NORTH DAKOTA HIGHWAY EMERGENCY ASSISTANCE 1-800-472-2121

PHYSICAL AND CHEMICAL PROPERTIES

1. Extremely toxic (almost as toxic as Hydrogen Cyanide and 5 to 6 times toxic as Carbon Monoxide).

2. Colorless.

3. Offensive odor, often described as that of rotten eggs.

4. Heavier than air - specific gravity 1.189 (Air = 1.000 @ 60° F.). Vapors may travel considerable distance to a source of ignition and flash back.

5. Forms an explosive mixture with a concentration between 4.3 and 46 percent by volume with auto-ignition occurring at 500° F.

6. Burns with a blue flame and produces Sulfur Dioxide (S02), which is less toxic than Hydrogen Sulfide but very irritating to eyes and lungs and causes serious injury.

7. Soluble in both water and liquid hydrocarbons.

8. Produces irritation to eyes, throat and respiratory system.

9. Threshold Limit Valve (TLV) - Maximum of eight hours exposure.

10. Corrosive to all electrochemical series metals.

11. Boiling Point (-79° F).

12. Melting Point (-177° F).

PHYSICAL EFFECTS OF HYDROGEN SULFIDE POISONING

THE PRINCIPAL HAZARD IS DEATH BY INHALATION. When the amount of gas absorbed into the blood stream exceeds that which is readily oxidized, systemic poisoning results, with a general action on the nervous system. Labored respiration occurs shortly, and respiratory paralysis may follow immediately at concentrations of 700 ppm and above. This condition may be reached almost without warning as the originally detected odor of Hydrogen Sulfide may have disappeared due to olfactory paralysis. Death then occurs from asphyxiation unless the exposed person is removed immediately to fresh air and breathing stimulated by artificial respiration. Other levels of exposure may cause the following symptoms individually or in combinations:

a. Headache

b. Dizziness

c. Excitement

d. Nausea or gastro-intestinal disturbances

e. Dryness and sensation of pain in nose, throat and chest

f. Coughing

g. Drowsiness

All personnel should be alerted to the fact that detection of Hydrogen Sulfide solely by smell is highly dangerous as the sense of smell is rapidly paralyzed by the gas.

H2S TOXICITY TABLE

1 ppm	=	.0001%	(1/10,000 of 1%)	Can smell
10 ppm	=	.001%	(1/1000 of 1%)	Allowable for 8 hours' exposure. OVER THE ALLOWABLE CONCENTRATION, PROTECTIVE EQUIPMENT WILL BE NECESSARY.
100 ppm	=	.01%	(1/100 of 1%)	Kills smell in 3 to 15 minutes. May burn eyes and throat.
200 ppm	=	.02%	(2/100 of 1%)	Kills smell rapidly. Burns eyes and throat.
500 ppm	=	.05%	(5/100 of 1%)	Loses sense of reasoning and balance. Respiratory disturbances in 2 to 15 minutes. Needs prompt artificial resuscitation.
700 ppm	=	.07%	(7/100 of 1%)	Will become unconscious quickly. Breathing will stop and death result if not rescued promptly. Immediate artificial resuscitation.
1,000 ppm	=	.10%	(1/10 of 1%)	Unconscious at once. PERMANENT BRAIN DAMAGE MAY RESULT UNLESS RESCUED PROMPTLY.

Ppm= Parts of gas per million parts of air by volume.
1%= 10,000 ppm

RESUSCITATION CHART

DID YOU KNOW?

THERE IS NO TIME TO WASTE
WHEN BREATHING STOPS!

ARTIFICIAL RESUSCITATION MUST BE STARTED IMMEDIATELY!!!

After Breathing is stopped for:	The Chances for Life are:
1 Minute	98 out of 100
2 Minutes	92 out of 100
3 Minutes	72 out of 100
4 Minutes	50 out of 100
5 Minutes	25 out of 100 *
6 Minutes	11 out of 100 *
7 Minutes	8 out of 100 *
8 Minutes	5 out of 100 *
9 Minutes	2 out of 100 *
10 Minutes	1 out of 100 *
11 Minutes	1 out of 1,000 *
12 Minutes	1 out of 10,000 *

* Irreparable brain damage starts at about the fifth minute.

COOL-HEADED ACTION IN RESCUE IS CRITICAL.

TREATMENT FOR HYDROGEN SULFIDE POISONING

INHALATION

As Hydrogen Sulfide in the blood oxidizes rapidly, symptoms of acute poisoning pass off when inhalation of the gas ceases. It is important, therefore, to get the victim of poisoning to fresh air as quickly as possible. He should be kept at rest and chilling should be prevented. If respiration is slow, labored, or impaired, artificial respiration may be necessary. Most persons overcome by Hydrogen Sulfide may be revived if artificial respiration is applied before the heart action ceases. Victims of poisoning should be under the care of a physician as soon as possible. Irritation due to sub-acute poisoning may lead to serious complications such as pneumonia. Under those conditions, treatment by the physician necessarily would be symptomatic. The patient should be kept in fresh air, and hygienic conditions should be watched carefully.

CONTACT WITH EYES

Eye contact with liquid and/or gas containing Hydrogen Sulfide will cause painful irritation (conjunctivitis). Keep patient in a darkened room, apply ice compresses to eyes, put ice on forehead, and send for a physician. Eye irritation caused by exposure to Hydrogen Sulfide requires treatment by a physician, preferably an eye specialist. The progress to recovery in these cases is usually good.

CONTACT WITH SKIN

Skin absorption is very low. Skin discoloration is possible after contact with liquids containing Hydrogen Sulfide. If such skin contact is suspected, the area should be thoroughly washed.

EFFECTS OF HYDROGEN SULFIDE ON METAL

Hydrogen Sulfide dissolves in water to form a weak acid that can cause some pitting, particularly in the presence of oxygen and/or carbon dioxide. However, the most significant action of H2S is its contribution to a form of hydrogen embrittlement known as sulfide stress cracking. Sulfide stress cracking is a result of metals being subjected to high stress levels in a corrosive environment where H2S is present. The metal will often fail catastrophically in a brittle manner. Sulfide stress cracking of steel is dependent upon and determined by:

a. Strength (hardness) of the steel - the higher the strength, the greater the susceptibility to sulfide stress cracking. Steels having yield strengths up to 95,UOO psi and hardness up to Rc22 are generally resistant to sulfide stress cracking. These limitations can be extended slightly higher for properly quenched and tempered materials.

b. Total member stress (load) - the higher the stress level (load) the greater the susceptibility to sulfide stress cracking.

c. Corrosive environment - corrosive reactions, acids, bacterial action, thermal degradation, or low PH fluid environment.

Use as protection against sulfide stresses cracking, all casing, BOP and safety equipment should be of H2S resistant material.

CASING GRADES ACCEPTABLE FOR H2S SERVICE

CASING GRADE	H2S SERVICE	COMMENTS **	
H-40	YES		
K-55	YES		
C-75	YES		
N-80	CONDITIONAL	ABOVE	200° F
L-80	YES		
MN-80	YES		
C-90	YES		
C-95	YES		
S-95	NO	ABOVE	200° F
SOO-95	NO	ABOVE	200° F
S-105	NO	ABOVE	200° F
SOO-90	YES	ABOVE	200° F
P-110	NO	ABOVE	200° F
S-135	NO	ABOVE	200° F
V-150	NO	ABOVE	200° F

* Service conditions for any H2S environment.

** Denotes usable grades above 200° F.

DRILL PIPE GRADES FOR H2S SERVICE

GRADE	H2S SERVICE
D	YES
E	YES
X-95	YES
G-105	NO
S-135	YES
ALUMINUM	YES

DRILL STEM TEST

1. Drill Stem testing shall be done during daylight hours whenever practical. If it is necessary to work under artificial light, levels shall be sufficient to allow employees to conduct the test safely.

2. Ammine Corrosion Inhibitor should be used to coat inside of drill pipe prior to conducting Drill Stem Test in order to prevent Sulfide Stress Cracking.

3. If warranted, the use of Ammonia Hydroxide (26 Degree B'eaume Aqua Ammonia) for neutralizing Hydrogen Sulfide from tubing or drill pipe can be used.

H2S SAFETY EQUIPMENT ON LOCATION

(PROVIDED BY SAFETY CONTRACTOR)

1. One safety trailer with a cascade system of cylinders of compressed GRADE D breathing air, complete with high pressure regulator.

2. Low pressure breathing air line (approximately 1,000 feet depending on the location). Equipped with quick connects.

3. Two low pressure manifold systems.

4. Eight pressure-demand type breathing apparatus (SCBA) 30 minute duration, NIOSH, and MSHA approved.

5. Eight airline breathing apparatus c/w 7 cu. ft. egress cylinders.

6. One four (4) channel fixed electronic monitoring system with sensors and alarms (explosion proof light and siren).

7. One hand operated portable pump type (with low and high range H2S detector tubes.

8. One first aid kit.

9. One stretcher (Ferro folding).

10. Three luminous wind socks with frames and extension poles. Windsocks must be placed so that they are visible by day and by night from all points on location.

11. One Flare Piston with 12 gauge meteor flares for igniting well.

12. One operating condition sign with flags at well entrance.
    Condition I - Normal Operating Conditions (green flag);
    Condition II - Potential to Moderate Danger to Life (yellow flag);
    Condition III - Moderate to Extreme Danger to Life (red flag).

13. One fire blanket.

14. One warning light.

15. One warning siren.

H2S SAFETY EQUIPMENT ON LOCATION

(PROVIDED BY THE SAFETY CONTRACTOR)

16. Two traffic cones.

17. Two compressed breathing air cylinders for briefing area number 2.

18. Briefing area stand

19. Briefing area number 2 sign.

NOTE: ADDITIONAL EQUIPMENT WILL BE ADDED IF WELL CONDITIONS REQUIRE OR UPON REQUEST

NOTE: Equipment for a maximum of sixteen (16) people on location.

Equipment will be rigged up and operational when drilling reaches a depth of 500 ft. above, or three days, whichever is sooner, prior to penetrating the first zone containing or reasonably expected to contain H2S.

IGNITING THE WELL

RESPONSIBILITY

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF THE DRILLING FOREMAN. In the event he is incapacitated, it becomes the responsibility of the Rig Tool Pusher. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.

2. No hope exists for controlling the blowout under prevailing conditions at the well.

Notify the Oilfield Safety Inc. office, if time permits, but do not delay if human life is in danger. Initiate first phase of evacuation plan.

INSTRUCTIONS FOR IGNITING THE WELL

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man will check the atmosphere for explosive gases with the Explosimeter. The other man is responsible for igniting the well.

2. Primary method to ignite: Meteor-type Flare Gun.

3. Ignite upwind and do not approach any closer than is warranted.

4. Select the ignition site which is best for protection.

5. Select area for hasty retreat.

6. BEFORE FIRING, check regarding combustible gases.

7. Since Hydrogen Sulfide converts to Sulfur Dioxide, the area is not safe after igniting the well.

8. After igniting, continue emergency action and procedure as before.

9. All unassigned personnel will limit their actions to only those directed by the Drilling Foreman.

REMEMBER: AFTER WELL IS IGNITED, BURNING HYDROGEN SULFIDE WILL CONVERT TO SULFUR DIOXIDE, WHICH IS ALSO HIGHLY TOXIC. DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED.

BLOWOUT PREVENTION EQUIPMENT

1. A kill line of ample strength and length should be laid to a safe point to allow pumping into the well in an emergency situation.

2. The closing unit should be located a safe distance from the wellbore and positioned for maximum utilization based on the prevailing wind direction.

3. BOP equipment will be tested in accordance with standard company practice.

4. All equipment should be H2S trimmed for service in sour gas environments.

5. All drill pipe and casing will be of a grade acceptable for H2S service.

SPECIAL EQUIPMENT

1 If a MUD-GAS SEPARATOR is installed, it will be installed with one or more flare lines.

2. Flare lines should be as long as practical and securely staked.

3. Flare Systems must be equipped with a safe and suitable means of ignition. The ignition system must either be electrically or gas operated. Buckets of diesel fuel and torches are no longer acceptable.

4. An automatic Hydrogen Sulfide monitor will be installed with a combination visual and audible alarm system located where it can be seen and/or heard throughout the drilling location. This system will have the capabilities of being activated from several points, which are the rig floor, cellar, and shale shaker.

5. The automatic monitor should be set to trigger the drilling location visual/audible alarms when the Hydrogen Sulfide concentration in the atmosphere reaches 10 ppm. Explosion proof lights and sirens will be provided at or near the rig floor and such that all personnel will be subject to visual and audible warnings.

MUD ADDITIVES

DRILLING FLUID RECOMMENDATION

MUD TYPE

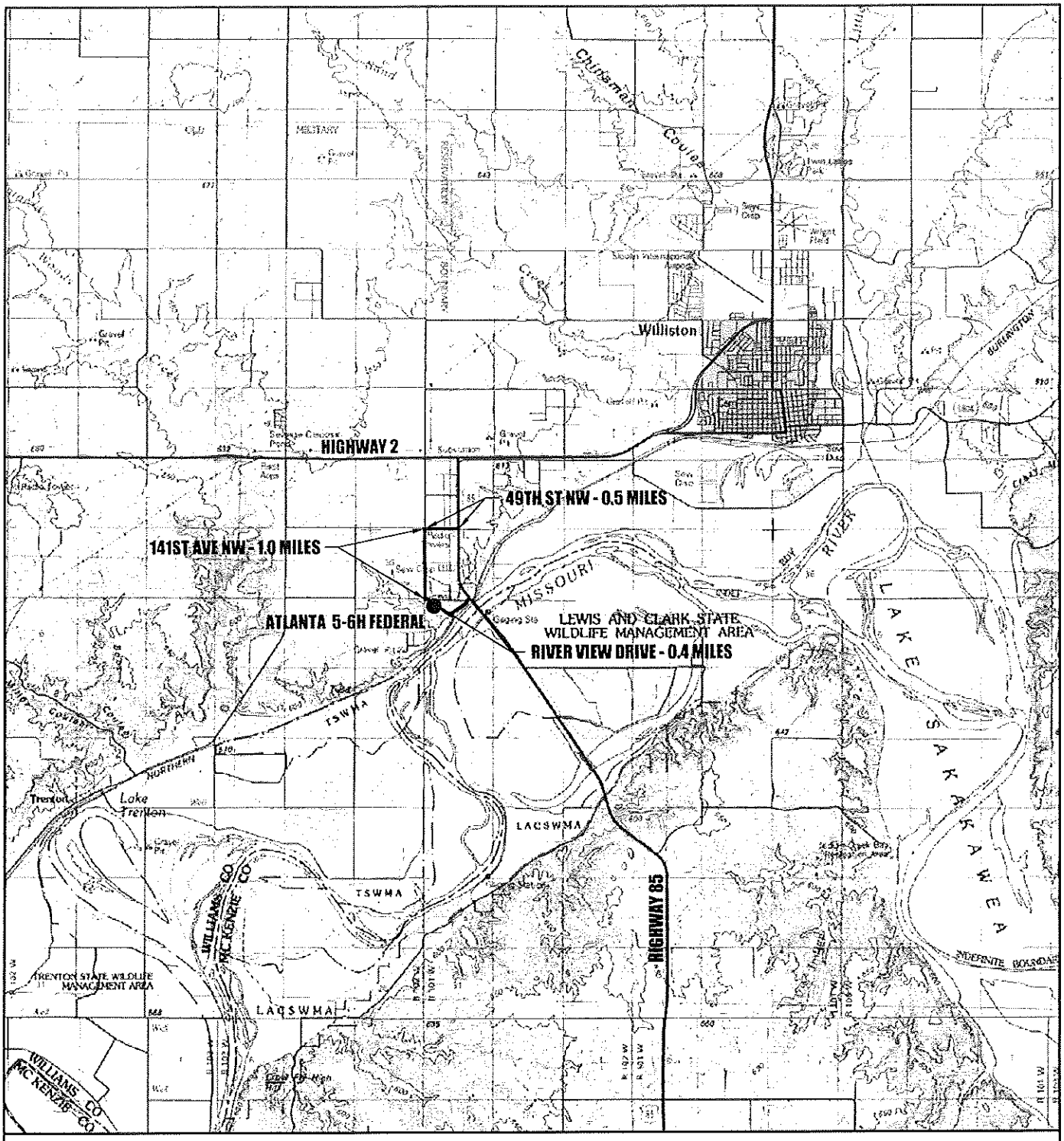
An overbalanced mud should be used to drill potential pay zone with necessary additives for all stabilization.

In the event of H2S contamination of the mud system, Hydrogen Sulfide scavengers should be added to the mud.

EMERGENCY DRILLS

Hydrogen Sulfide Alarm Drills

The Safety Advisor will conduct frequent H2S emergency drills for each crew by manually activating the H2S detector. When the lights flash, all personnel on location will assemble at the Upwind Briefing Area. A head count will be taken at this time to determine if rescue operations are indicated. The Safety Advisor must be notified if more personnel are on location than during normal operations. A "Masks On" policy will prevail until the all clear is sounded. These drills will be implemented as frequently as required to familiarize all personnel with the procedures to be followed in the event an actual emergency occurs.

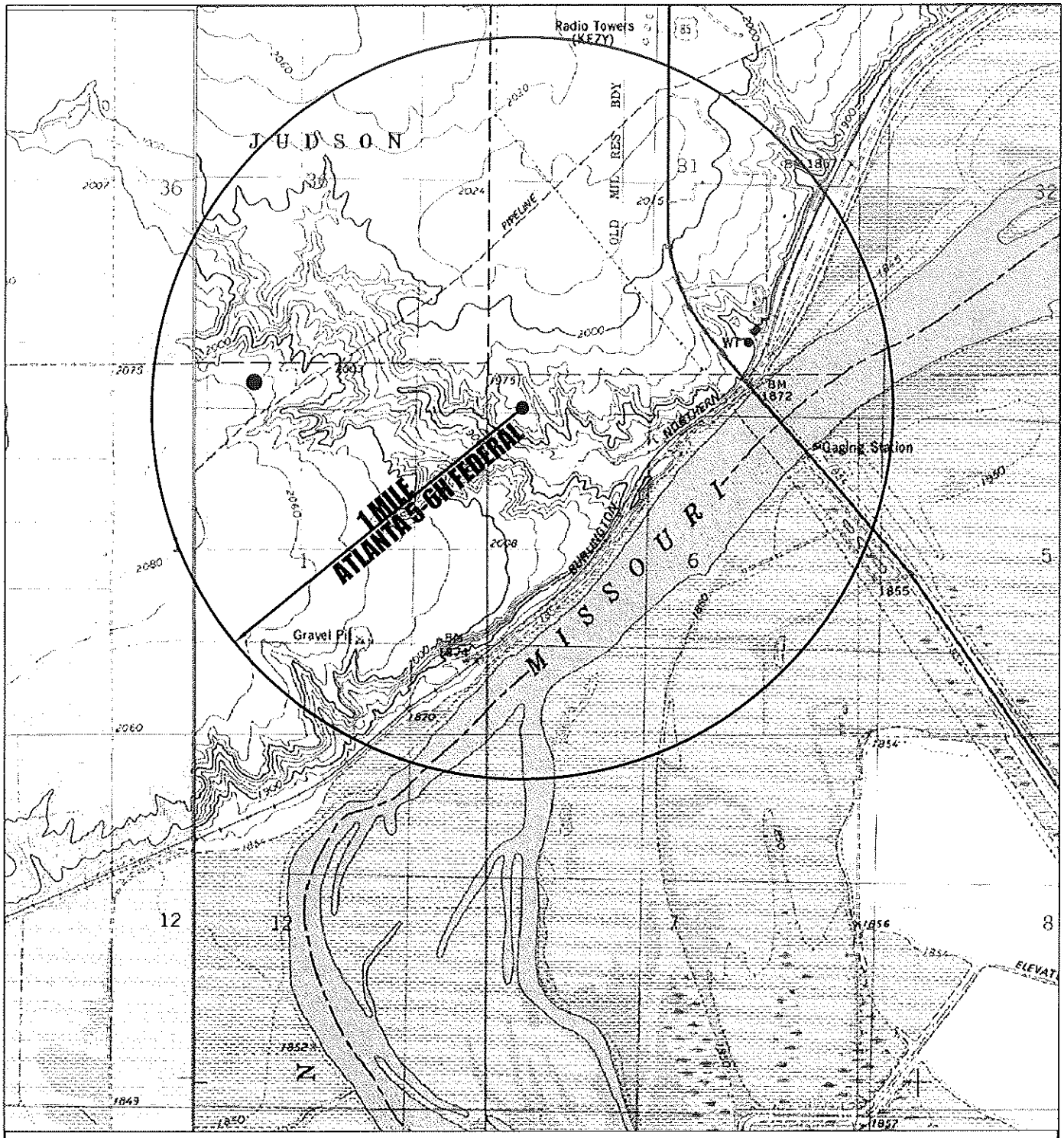


CONTINENTAL RESOURCES INC.

EXHIBIT 1

VICINITY MAP
PROPOSED ACCESS ROUTE

ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA



● = OIL WELL

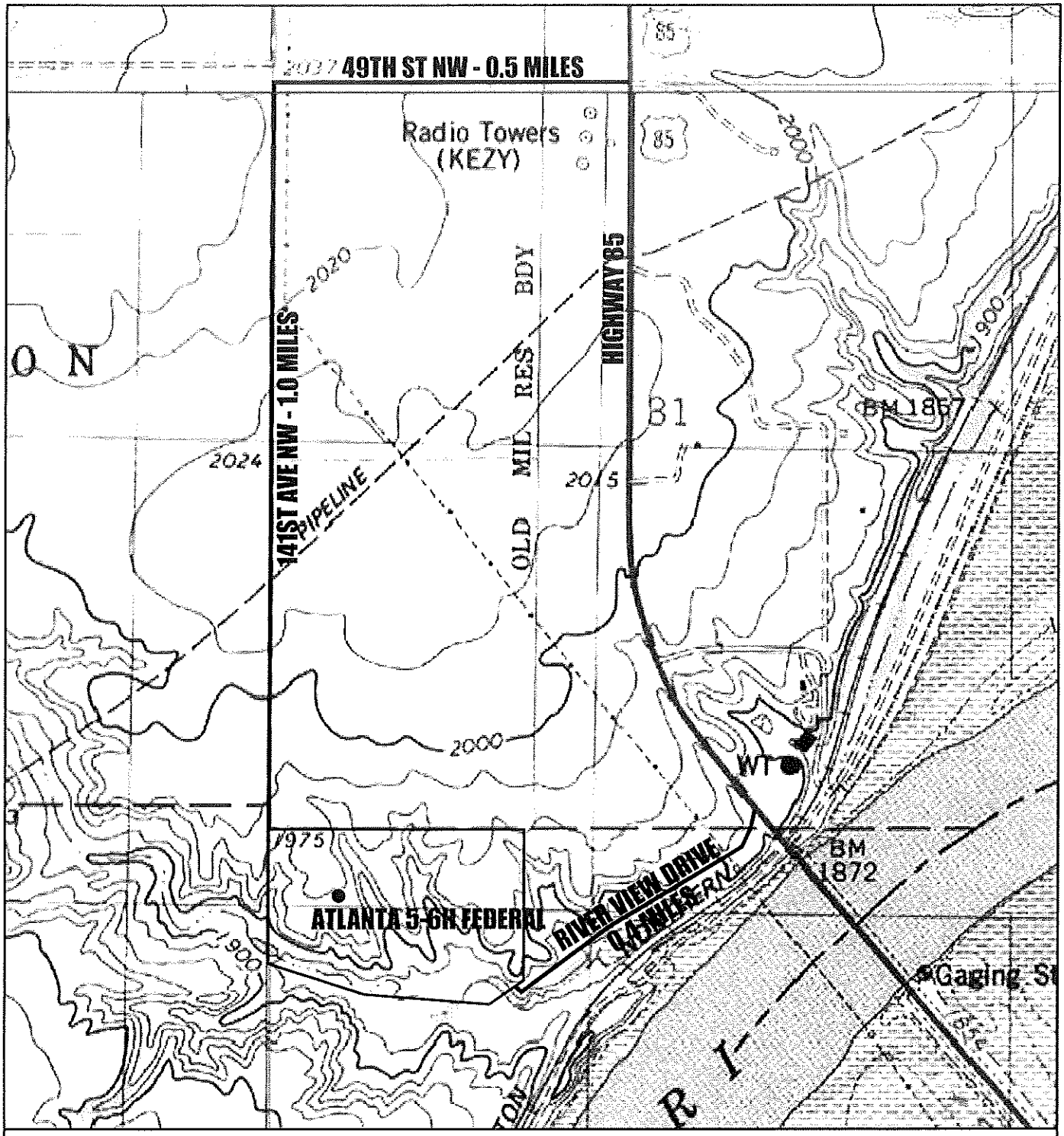
N

CONTINENTAL RESOURCES INC.

EXHIBIT 3

ONE-MILE RADIUS MAP

ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA



CONTINENTAL RESOURCES INC.

EXHIBIT 2

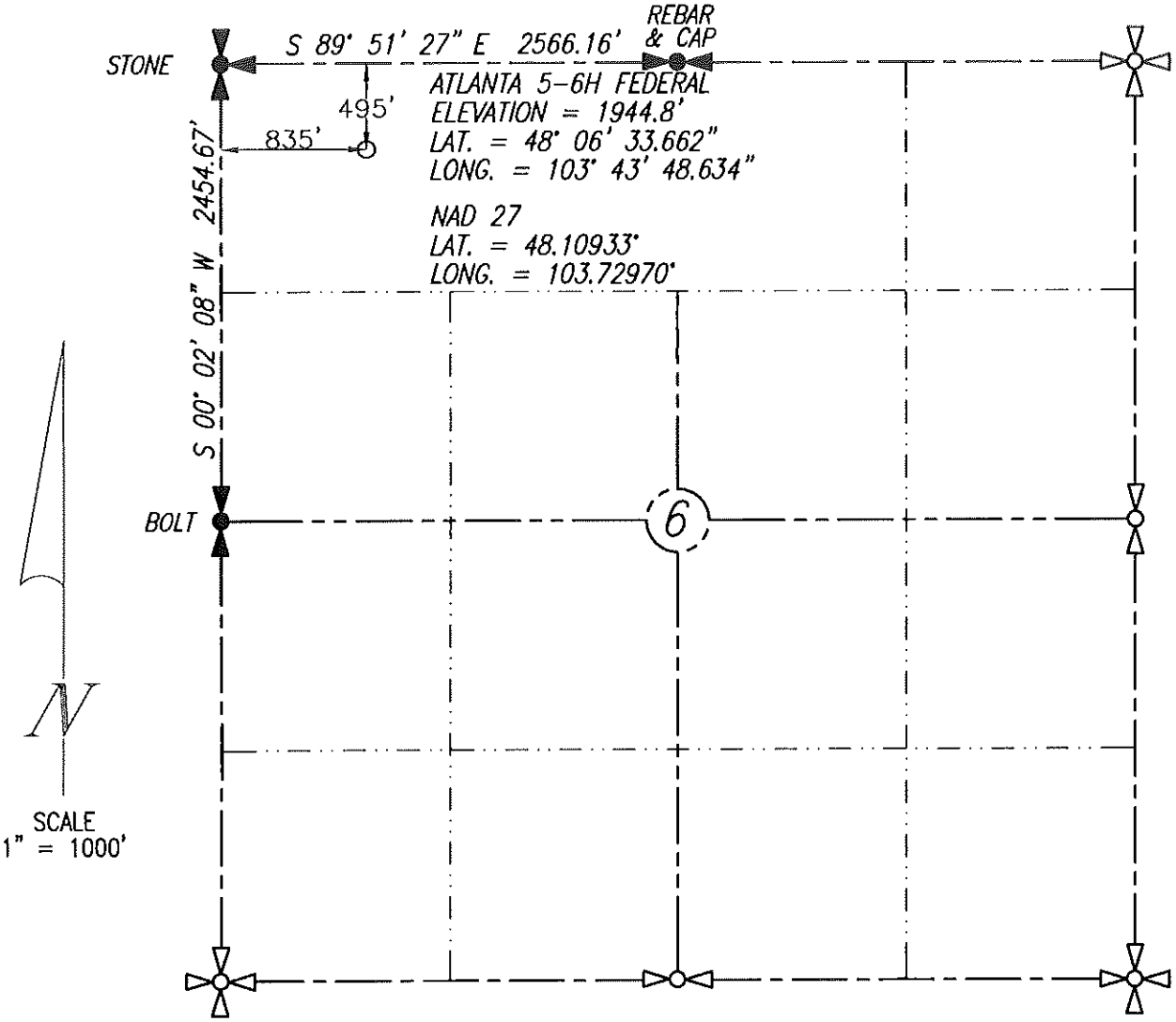
QUAD ACCESS

ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA

N

REVISED: 4-23-2012

WELL LOCATION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
495' FNL & 835' FWL



I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

4-23-12

JOHN P. BROSZ, N.D. R.L.S. 3366

JOHN P. BROSZ
REGISTERED
LAND
SURVEYOR
L.S. 3366
NORTH DAKOTA

DATE STAKED: 2-9-2012

BASIS OF VERTICAL DATUM:
NAVD 1988 GEOID 09

PERSON AUTHORIZING SURVEY;
CHAD NEWBY

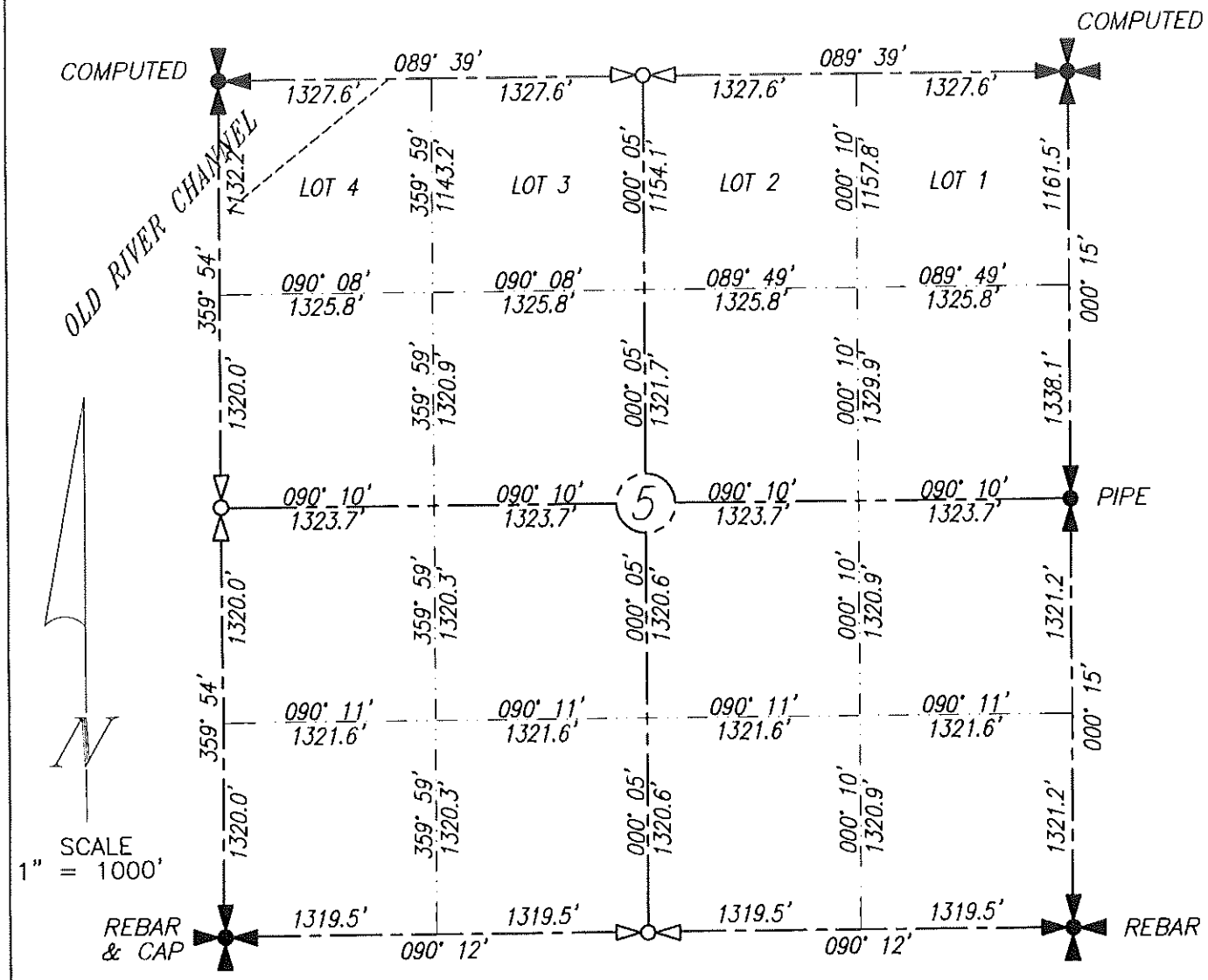
EXPLANATION AREA: NAD83(CORS96)

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 5, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
MCKENZIE COUNTY, NORTH DAKOTA



ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD
DISTANCES TO ALL OTHERS ARE CALCULATED.
ALL BEARINGS SHOWN ARE ASSUMED.

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

JOHN PAULSON REGISTERED SURVEYOR L.S. 3366 NORTH DAKOTA

4-9-12

JOHN PAULSON R.L.S. 3366

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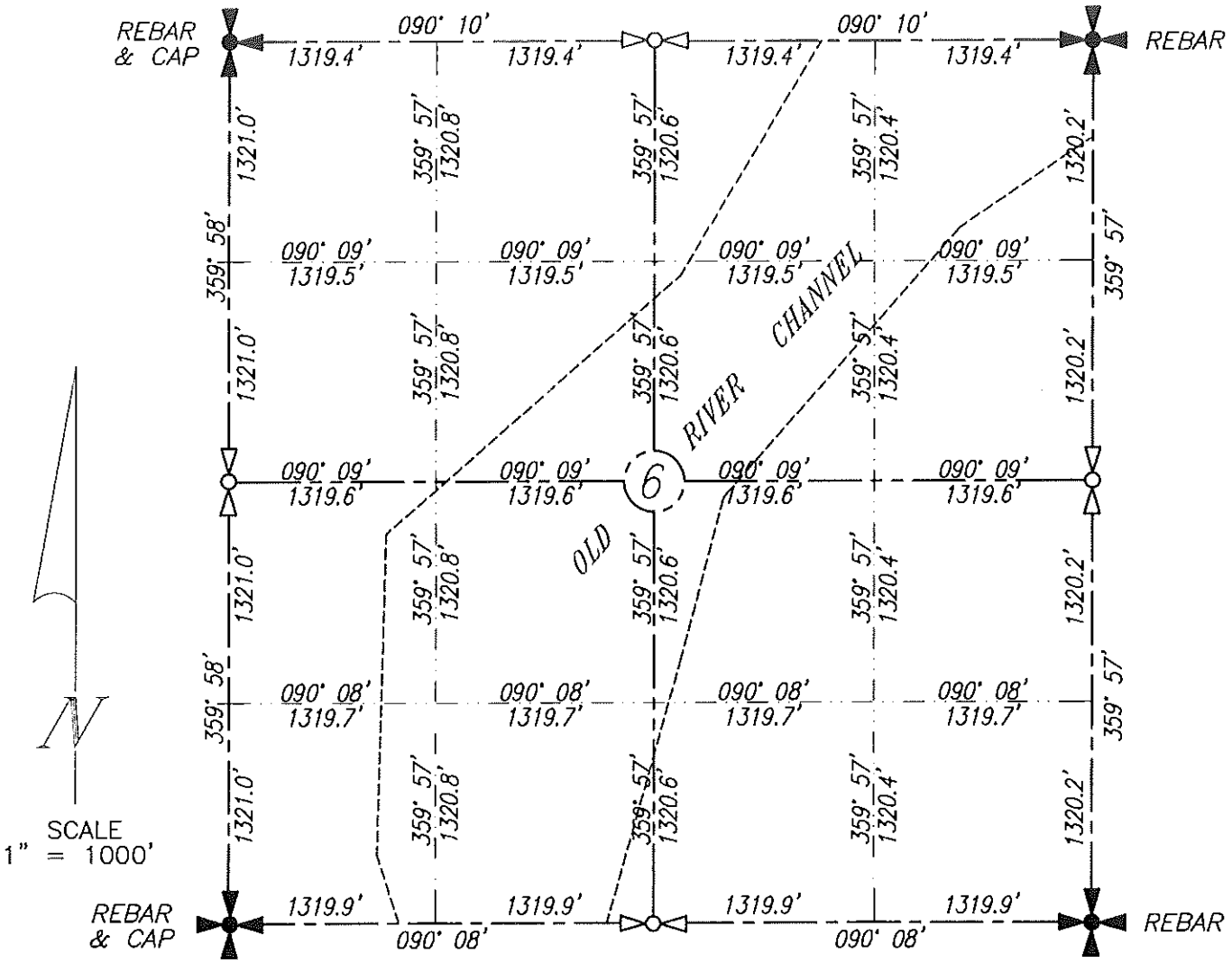
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
MCKENZIE COUNTY, NORTH DAKOTA



MOST OF THE SECTION IS LOTTED DUE TO THE MISSOURI RIVER.

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JOHN PAULSON
REGISTERED
LAND
SURVEYOR
NORTH DAKOTA

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L.S. 3366

4-9-12

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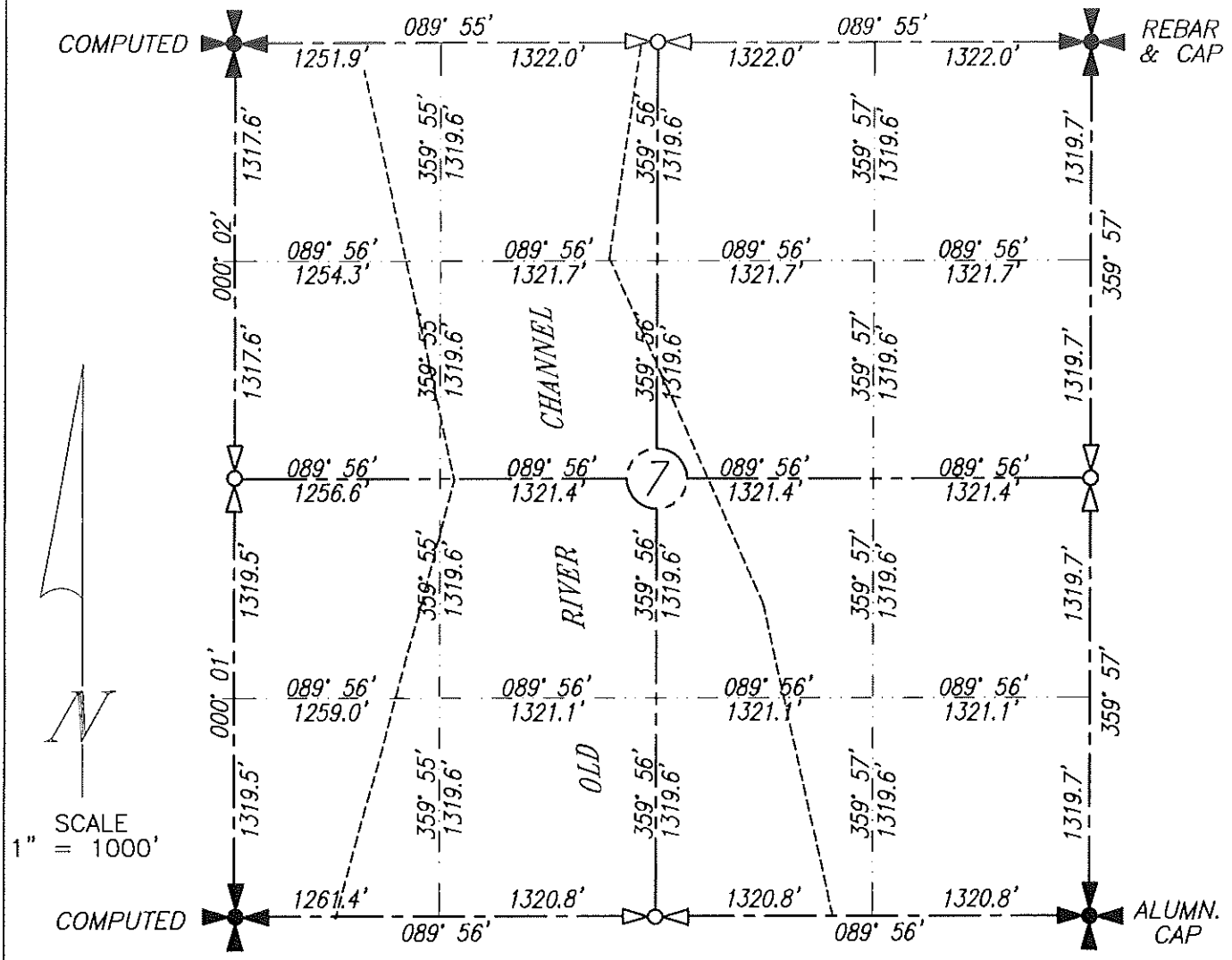
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 7, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA



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JOHN PAULSON
REGISTERED
LAND SURVEYOR
3366
NORTH DAKOTA

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BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
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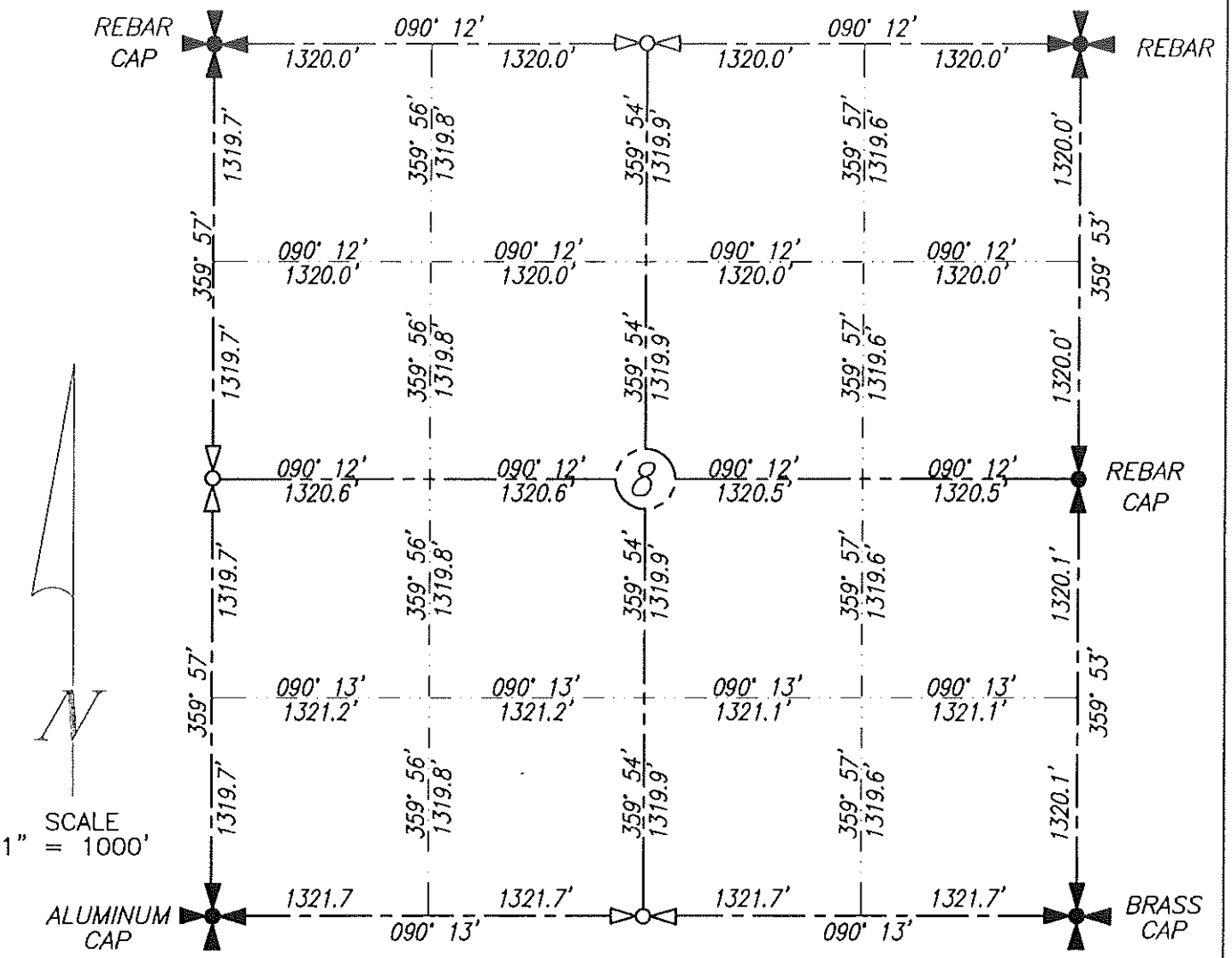
PROJECT NO. 12-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 8, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA



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JOHN PAULSON
REGISTERED LAND SURVEYOR
L.S. 3366

4-9-12

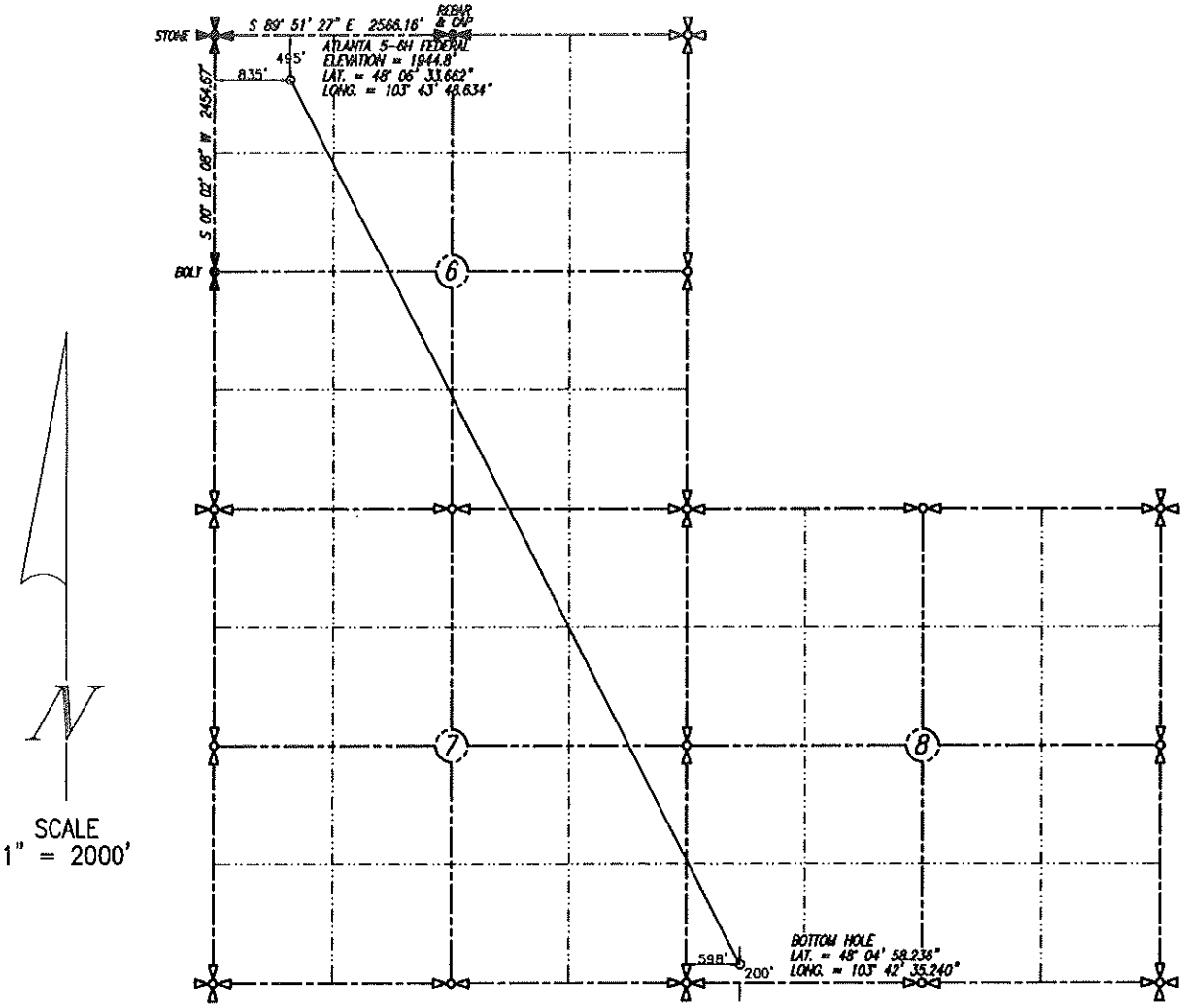
JOHN PAULSON, PLS, NORTH DAKOTA 3366

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 12-10

REVISED: 4-23-2012

BOTTOM HOLE LOCATION PLAT
CONTINENTAL RESOURCES INC.
ATLANTA 5-6H FEDERAL
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA
495' FNL & 835' FWL



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4-23-12

JOHN PAUL STROH L.S. 3366

JOHN PAUL STROH
REGISTERED
LAND
SURVEYOR
L.S. 3366
NORTH DAKOTA

DATE STAKED: 2-9-2012

BASIS OF VERTICAL DATUM:
NAVD 1988 GEOID 09

PERSON AUTHORIZING SURVEY;
CHAD NEWBY

EXPLANATION AREA: NAD83(CORS96)

BASIS OF BEARING: TRUE NORTH

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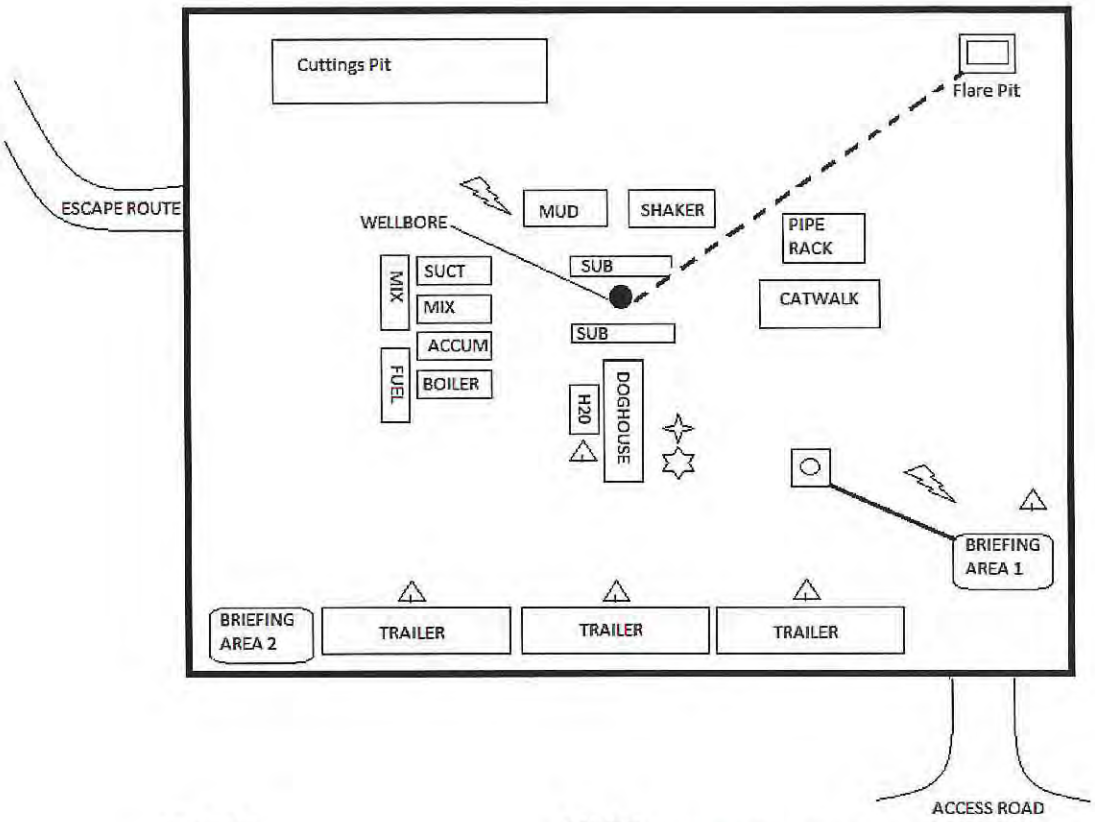


LEGEND

- WINDSOCK
- ALARM FLASHING LIGHT
- ALARM SIREN
- 30 MIN AIRPACK
- AIRLINE BREATHING APPARATUS W/MANIFOLD
- WELLBORE
- 1/2" LOW PRESSURE HOSE CONNECTED TO BREATHING AIR TRAILER
- SAFETY TRAILER W/ CASCADE AIRSYSTEM

NOTE: Continous H2S monitoring heads located:

A. Return airline while air drilling
B. Shaker while mud drilling
C. Floor
D. Substructure, Bell Nipple

READOUT INSTRUMENT IN DOGHOUSE

Continental Resources, Inc	
Name: Atlanta Federal 5-6H Location: Sec 6-T153N-R101W State: ND County: Williams	Site Plan of Safety Equipment

Continental
RESOURCES

July 20, 2012

Industrial Commission of North Dakota
Oil & Gas Division
600 East Boulevard, Dept 405
Bismarck, North Dakota 58505

Continental Resources, Inc. (CRI) respectfully submits the following information concerning the drilling of the Atlanta 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 -- 6H,
Township 153N, Range 101W of the 5th P.M.
Section 6, N/2 NW/4 Williams County, North Dakota.

Continental Resources Inc. would like to propose the following automatic shut down equipment and level sensing monitoring equipment be installed on the site to aid in the prevention of any accidental release or safety issue. One-line schematic diagrams, flowchart model, and general product information are attached for your review and approval with this affidavit.

1) Tank Side – i) K-Tek Guided Wave Radar and Z-Bend High Level Switch Level Detectors ii) High level switches for oil and water tanks ii) Battery box with solar backup
2) Treater / Separator – i) Buffer Switch ii) U003 Gap Switch iii) 2 - AST 4600 pressure transducers – monitor pressure & liquid content of flare / gas sales lines iv) Battery box with solar backup
3) Wellhead – i) TotalFlow Controller ii) Emergency ShutDown Valve package iii) Battery box with solar backup
4) System Automation through the proposed equipment will provide an independent control system on all equipment on site which will be able to shut the well(s) in should any of the other equipment be incapacitated or functioning improperly.
5) Once the system is operational and linked to the CRI Williston Basin SCADA system, a notification will be sent directly to the (Sidney, MT) field office, and field personnel in charge of the site's operation. This system will also provide the capability for remote shutdown from a computer terminal on the system at another location. In the event that an alert was sent from the site, or a call received, CRI estimates that personnel would be able to respond to an incident through the remote system within minutes and be present at the site within 15 to 30 minutes.

Chad Newby, Operations Land Coordinator
Continental Resources, Inc.

STATE OF OKLAHOMA)
)ss:
COUNTY OF GARFIELD)

On the 20th day of July 2012, before me, a Notary Public in and for said County and State, personally appeared **Chad Newby**, known to me to be the Operations Land Coordinator of Continental Resources, Inc., the Corporation that executed the within instrument, and acknowledged to me that such Corporation executed the same.

Becky Barnes
Notary Public

Garfield County, Oklahoma

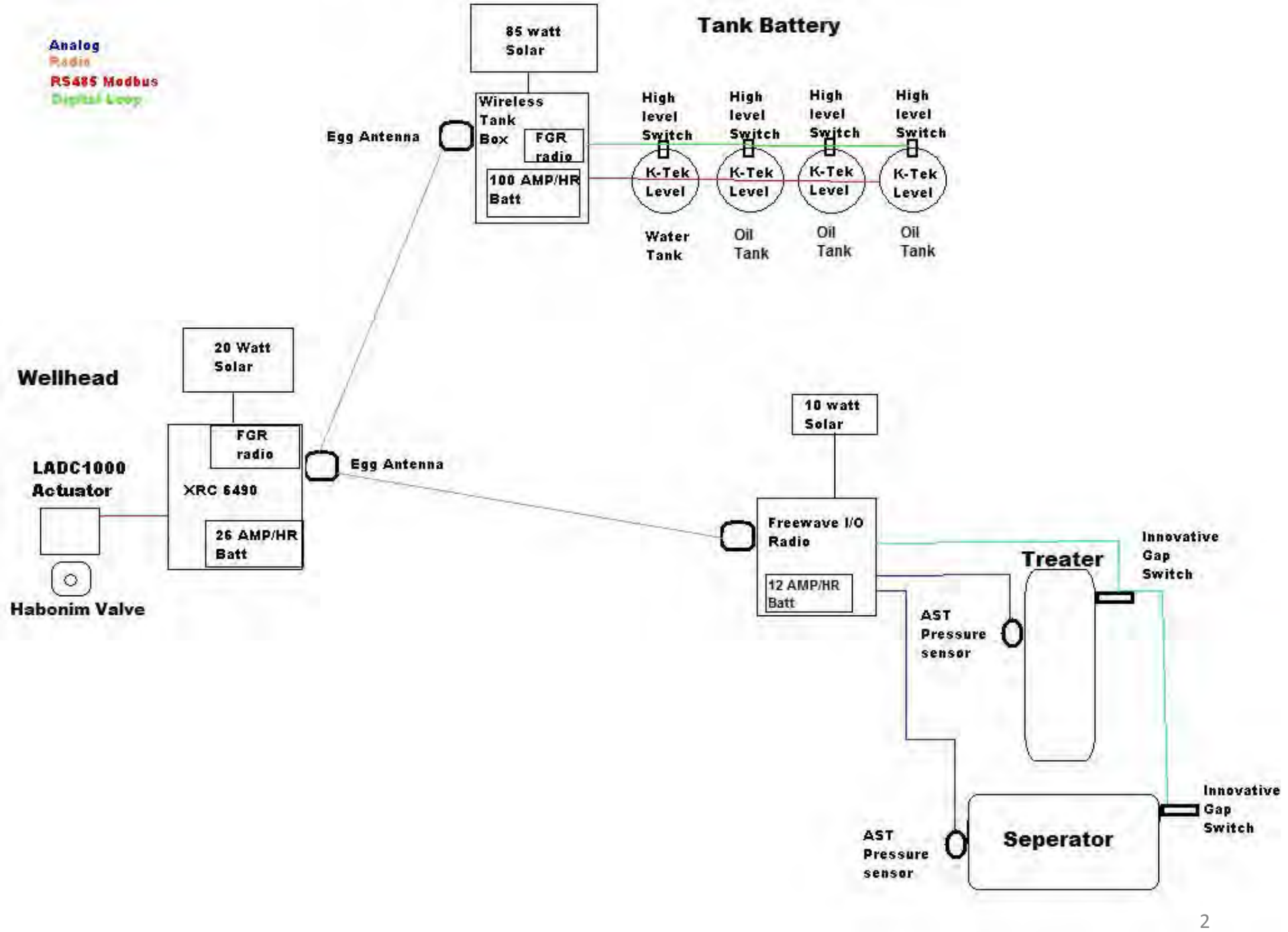
My Commission Expires: 7/5/2015

Commission No.: 11006023

BECKY BARNES NOTARY # 11006023 EXP. 11006023 PUBLIC STATE OF OKLAHOMA

P.O. Box 1032 • 302 N. Independence • Enid, OK 73702
Voice (580) 233-8955 • Fax (580) 242-4703

Continental Resources Wellhead Automation


Analog
Radio
RS485 Modbus
Digital Loop
85 watt Solar
Tank Battery
Wireless Tank Box
FGR radio
100 AMP/HR Batt
Egg Antenna
High level Switch
High level Switch
High level Switch
High level Switch
K-Tek Level
K-Tek Level
K-Tek Level
K-Tek Level
Water Tank
Oil Tank
Oil Tank
Oil Tank
Wellhead
20 Watt Solar
FGR radio
XRC 6490
26 AMP/HR Batt
LADC1000 Actuator
Habonim Valve
Egg Antenna
10 watt Solar
Freewave I/O Radio
12 AMP/HR Batt
Treater
Innovative Gap Switch
AST Pressure sensor
Seperator
Innovative Gap Switch
AST Pressure sensor

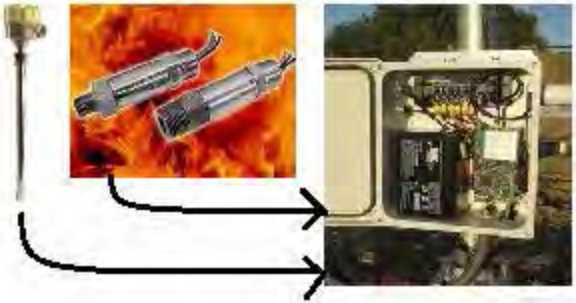
U003 Gap Switch and AST 4600 Transducer monitor pressures and liquid content of Flare and Sales Lines, transmitted to XRC via FreeWave Radio.

ABB TotalFlow XRC 6490

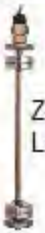
All well information is passed to your SCADA system via FreeWave Network (Future)

Winn-Marion's Well Head Kit with FGRIO Radio and DC Power Supply

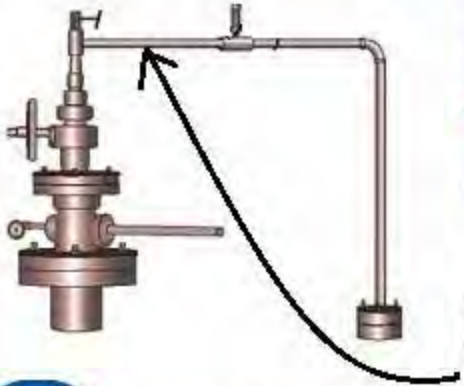
Tank Level information is passed from Tank Battery to XRC via FreeWave Radio



K-Tek MT5100 Guided Wave Radar



Z-Bend High Level Switch



ESD Valve Package
Standard Port Ball Valve rated to 6000 psi topped with a 12 VDC Actuator w/ Battery Backup

Winn-Marion, Inc.

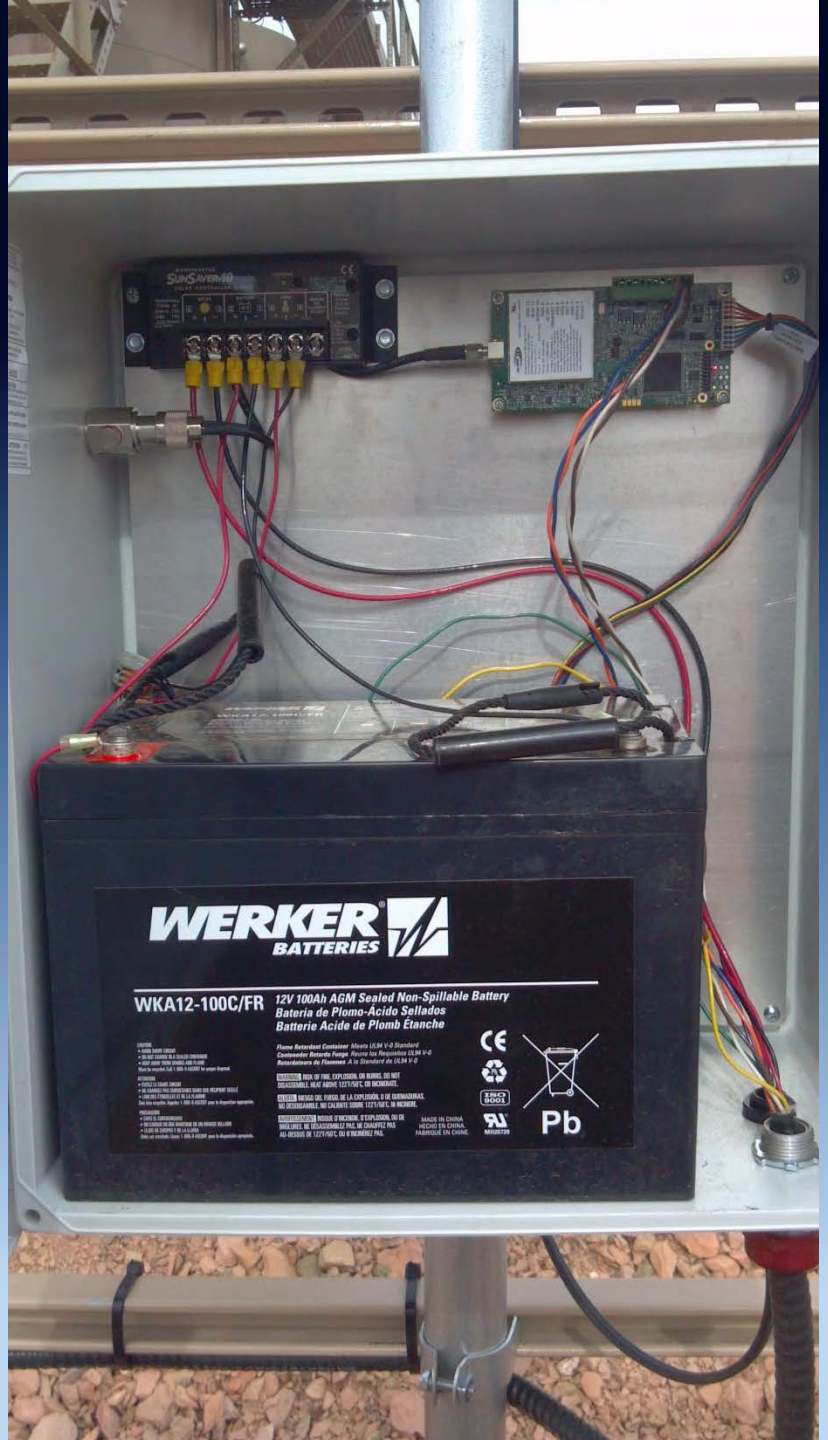
Tank Side

Contains the following Equipment

-4 K-Tek Guided Wave Radar Level Detectors
-3 High Level Switches (Oil Tanks)
-1 Side Level Switch (Water Tank)
-Battery box with 100 AH Battery and 90 W Solar

WM Automation Service, LLC

WM Automation Service, LLC



WM Automation Service, LLC

WM Automation Service, LLC

WM Automation Service, LLC

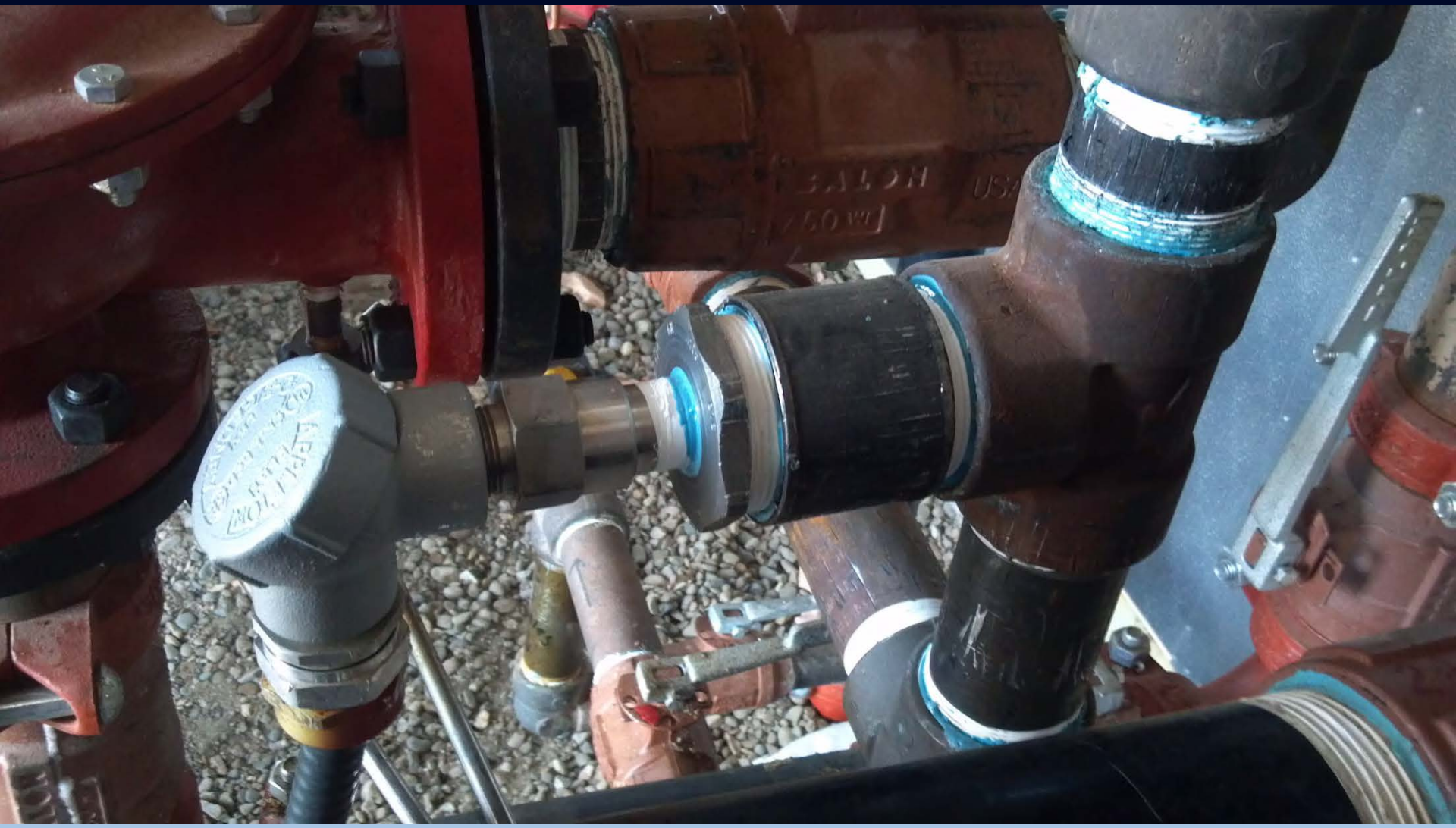
WM Automation Service, LLC

Treater Shack

Contains the following Equipment

-1 Buffer Switch (Short Gap Switch)
-1 Gap Switch
-2 Pressure Transducers
-Battery box with 35 AH Battery and 10 W Solar

WM Automation Service, LLC



WM Automation Service, LLC

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WM Automation Service, LLC

WM Automation Service, LLC

Wellhead

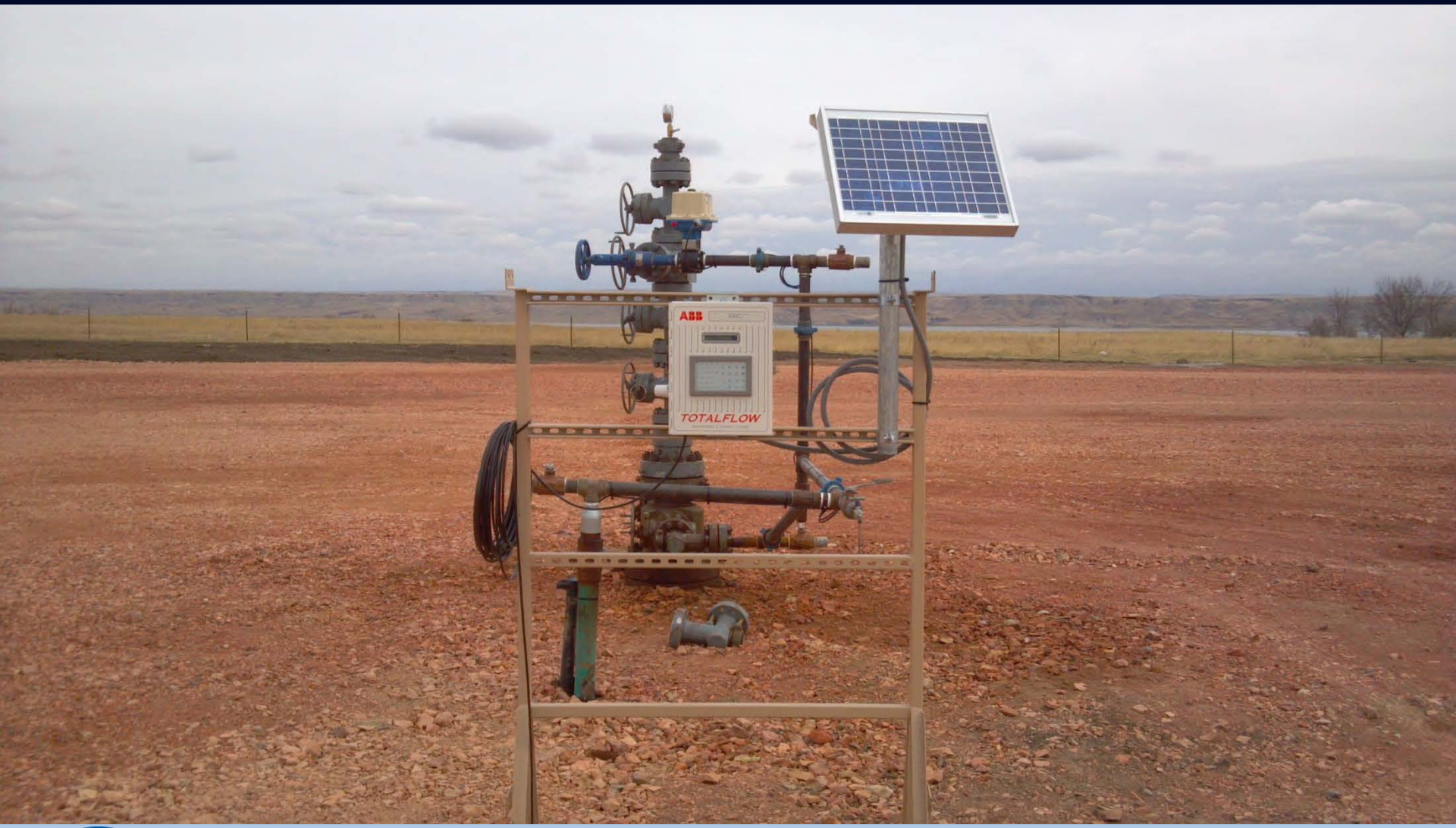
Contains the following Equipment

-TotalFlow
-ESD Valve
-Battery box with 100 AH Battery and 50 W Solar

WM Automation Service, LLC

WM Automation Service, LLC

WM Automation Service, LLC



WM Automation Service, LLC

Cyclone Drilling Rig No. 20
Contingency Plan
For Drilling Activities Conducted at
Continental Resources, Inc.'s
Atlanta 1-6H
Located in Williams County, ND

November 2011

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LIST OF FIGURES

1. INTRODUCTION

The purpose of this Contingency Plan is to outline the procedures that will be implemented by Cyclone Drilling, Inc.'s Rig No. 20 personnel should a spill or flood occur during drilling activities conducted at the Continental Resources, Inc. Atlanta 1-6H lease located in Section 6, 153N, 101W in Williams County, North Dakota. Such procedures are designed to minimize the effects of spills and potential flooding on Cyclone field personnel, Continental facilities, the surrounding community, and the environment in general.

2. GENERAL INFORMATION

2.1 Equipment Description. Cyclone Drilling, Inc. operates drilling rigs that are moved from site to site therefore, the exact equipment layout will vary slightly. The Atlanta 1-6H location encompasses 3.1-acres and the standard equipment for most drilling jobs is as follows:

- **r** Mobile Rig (w/integrated fuel/oil storage tanks)
- **r** Storage Facilities
- **r** Mud Pumps (diesel-powered pumps w/integrated fuel storage tanks)
- **r** Generators (w/integrated fuel storage tanks)
- **r** Water Tanks
- **r** Pipe Racks

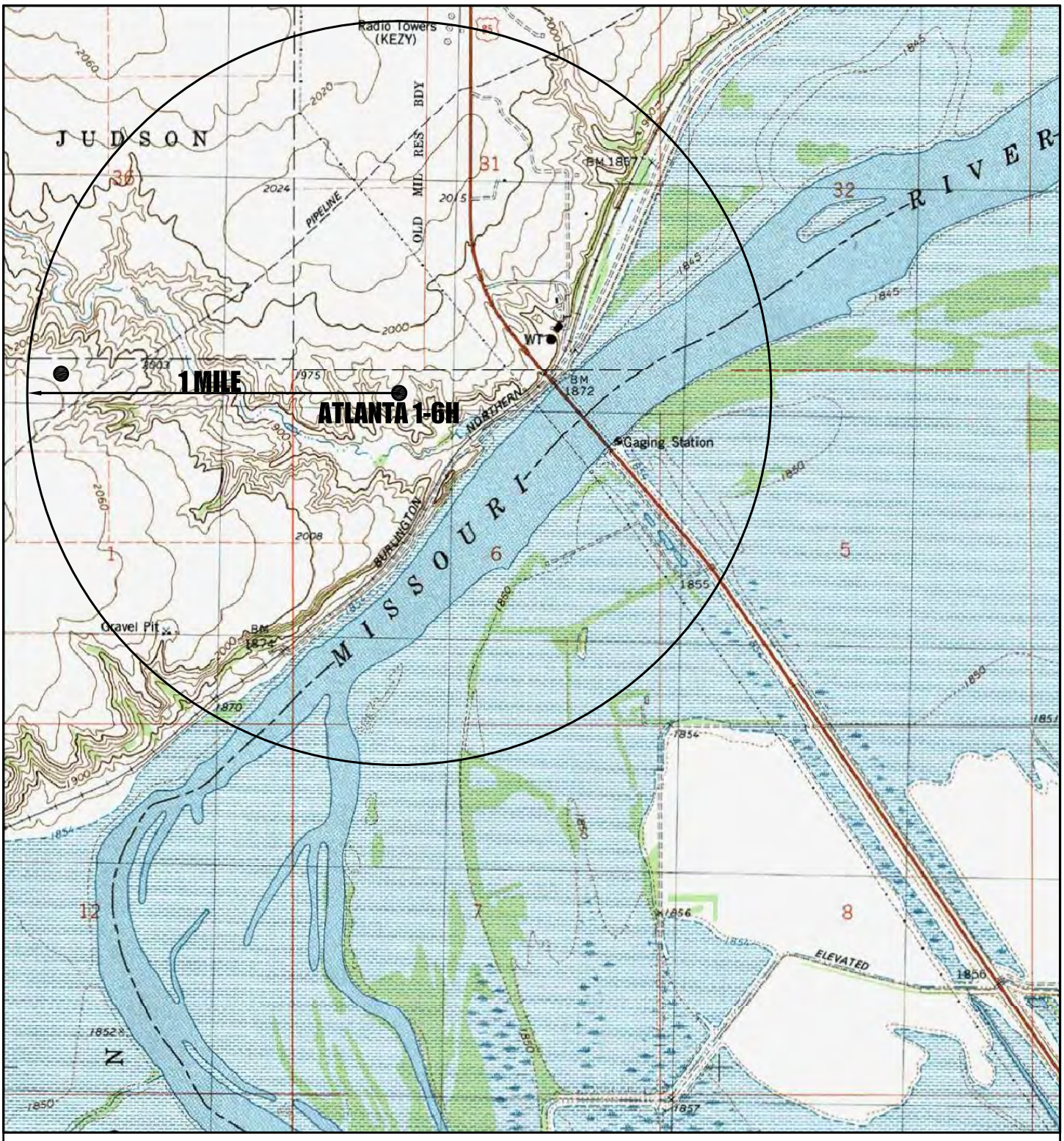
2.2 Proximity of Rigs to Navigable Waters. According to 40 CFR 112.7(e)(6)(i), mobile drilling equipment should be positioned or located so as to prevent spilled oil from reaching navigable waters. Depending on the location, catch basins or diversion structures may be necessary to intercept and contain fuel, crude oil, or oily drilling fluid spills.

The nearest potential receiving water for an oil spill is unnamed intermittent tributary of the Missouri River located approximately 500-ft. south of the Atlanta 1-6 lease. A One-Mile Radius Map indicating the location of Continental's Atlanta 1-6H lease is included herein as *Figure 1.*

Cyclone personnel will locate Rig No. 20 and its associated equipment to best prevent a potential release to waterways and provide drainage and containment, as discussed in *Section 3.4* of this Plan. A Drilling Rig Layout Map is included herein as Figure 2.

2.3 Potential Spills and Releases. The spill prevention system includes visual inspections and containment structures to help reduce the potential for releases to the off-site soil or surface waters. Generally, minor spills or leaks within the work site will be contained by drip pans located on skid-mounted equipment and cleaned-up using an absorbent (i.e., granular or pads). A list of activities that represent the greatest potential for a release of oil to the environment is as follows:

- **r** Loading/unloading fuel, oil, and used oil to/from storage tanks and containers.
- **r** Temporary storage of oil containers outside of secondary containment.



= OIL WELL

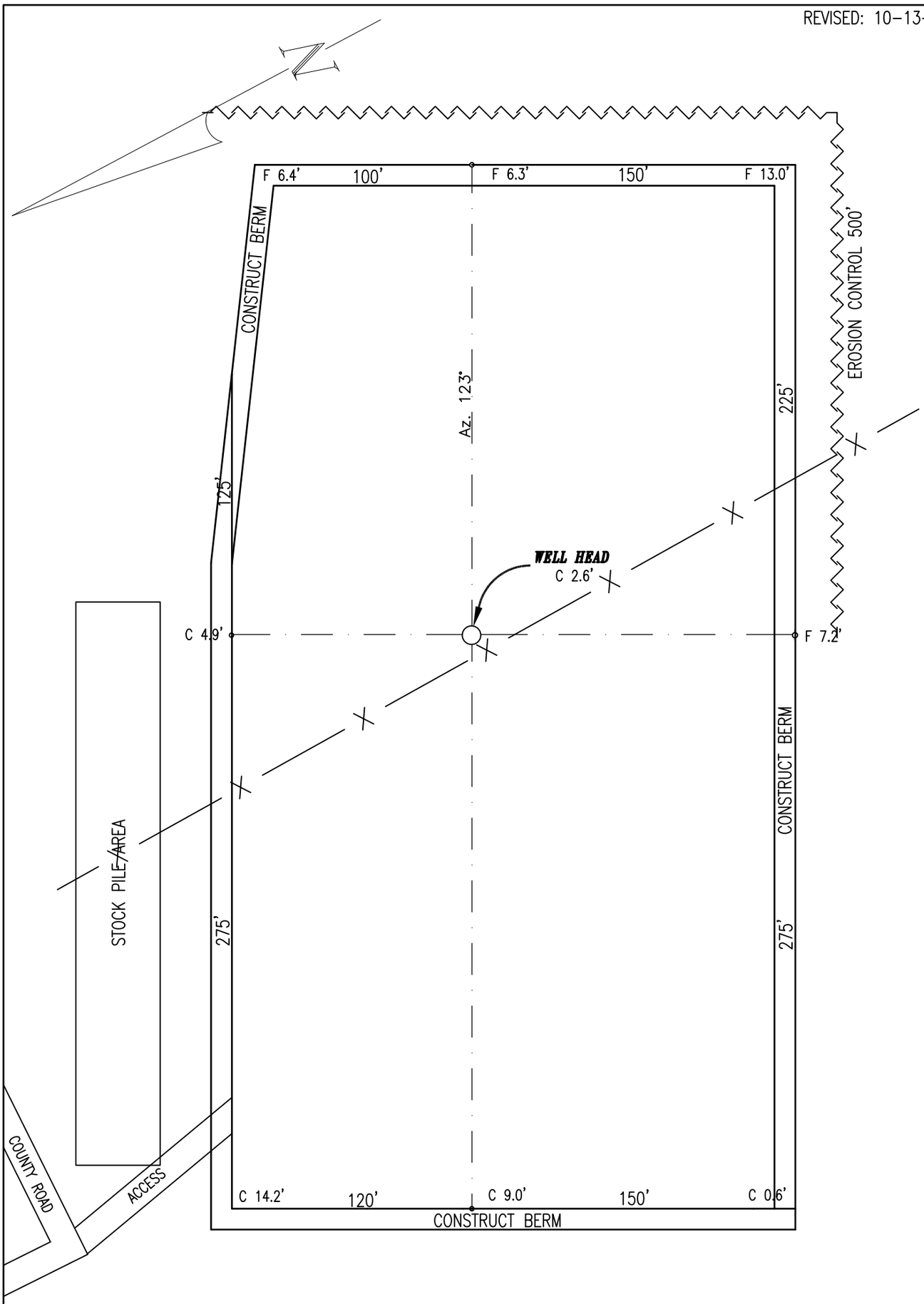
SCALE 1" = 2000'

CONTINENTAL RESOURCES INC.

ONE-MILE RADIUS MAP

ATLANTA 1-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA

REVISED: 10-13-2011



CONTINENTAL RESOURCES INC.
PO BOX 1032
ENID, OKLAHOMA 73702

DRILLING RIG LAYOUT
ATLANTA 1-6H
SECTION 6, T153N, R101W
WILLIAMS COUNTY, NORTH DAKOTA

ESTIMATED EARTH QUANTITIES

TOP-SOIL:	2,500	CUBIC YARDS
SUB-SOIL:	14,531	CUBIC YARDS
TOTAL CUT:	17,031	CUBIC YARDS
TOTAL FILL:	12,769	CUBIC YARDS

Use excess materials in acess road fill

ALL INDICATED CUTS & FILLS ARE STAKED GRADE ELEVATIONS.

BACKSLOPES ASSUMED AT 1 1/2 : 1 %

Ground Elevation at Well Head: 1955.6 ft. ASL
Finished Rig Grade Elevation: 1953.0 ft. ASL

DRAFT: PAULSON	SCALE 1" = 60'	DATE: MAY 29, 2010	PROJECT NO. 10-10

- **r** Rigs that are operated without a fresh water or well fluids pit.

3. OIL/FUEL STORAGE

3.1 Oil, Fuel, and Used Oil Storage Tanks. The materials stored on-site are mainly used to operate the drilling rig's generators and pumps and generally included the following:

- **r** Diesel Fuel
- **r** Engine Oil
- **r** Hydraulic Oil
- **r** Gear Oil
- **r** Used Oil

3.2 Container Storage. Multi-compartment storage containers are used to store hydraulic, motor and gear oil in approximate 100- to 150-gal. capacities. These container is generally located within the operating area near the accumulator valve skid. In lieu of such a multi-compartment storage container, fresh oil may be stored in 55-gal. drums.

Used oil is stored in 55-gal. drums prior to contractor removal. Because of limited available space within the rig's operating area, these drums are usually stored outside the operating area. In this event, these drums will be placed in a spill containment pan or within an earthen berm.

Containers stored within the trenched operating area would be contained by drainage to the well fluids pit. Containers used at sites that do not use pits are provided with earthen dike containment or other containment (i.e., metal containment pan.) The containment volume for containers located outside of the trenched operating area will be approximately 10% of the total volume of all containers within the containment area.

3.3 Transfer Facilities. Fuel is transferred from bulk tanks into smaller day tanks located on the drilling rig, pump skids, and generator skids. Most bulk fuel tanks are equipped with a fuel pump attached to the skid. The fuel level in the day tanks is usually monitored until the tank is full.

Personnel transfer fresh oil from bulk storage tanks or drums into smaller tanks located on the drilling rig by filling 5-gal. buckets and manually filling the smaller tanks. Personnel transfer used equipment oil into 55-gal. drums using 5-gal. buckets.

Cyclone personnel are present at all times during oil and diesel transfer operations to ensure quick response in the event of a release. In addition, all pumps are securely grounded for static electricity for safety and personnel protection purposes.

3.4 Drainage and Containment Facilities. The drains on containment systems will be closed and sealed except during water drainage. Prior to draining water the following steps will be taken:

- **r** Visually inspect the diked areas around tanks to ensure that the water does not exhibit an oily sheen and will not result in a harmful discharge.

- **r** Opening, closing, and locking the bypass valve under responsible supervision following drainage activities.

- **r** Maintain adequate drainage operation records.

3.5 Bulk Storage Tanks. The bulk storage tanks are located within a trenched area where releases drain into the well fluids pit. The well fluids pit will be sized to provide containment volume to accommodate the largest tank within the containment area as well as sufficient volume for stormwater accumulation and the volume required for well fluid storage. Bulk storage tanks at sites that do not use pits are contained by an earthen containment dike constructed around the tank.

Stormwater that collects within the trenched area flows into the well fluids pit. Stormwater that collects within the earthen dike containment structures is inspected and if no free oil or oil sheen is observed, Continental field personnel or their on-site representatives may pump the water outside of the containment structure. In the event oil is observed in the stormwater within the earthen dike containment structures, it is pumped into a temporary container or storage tank for off-site disposal.

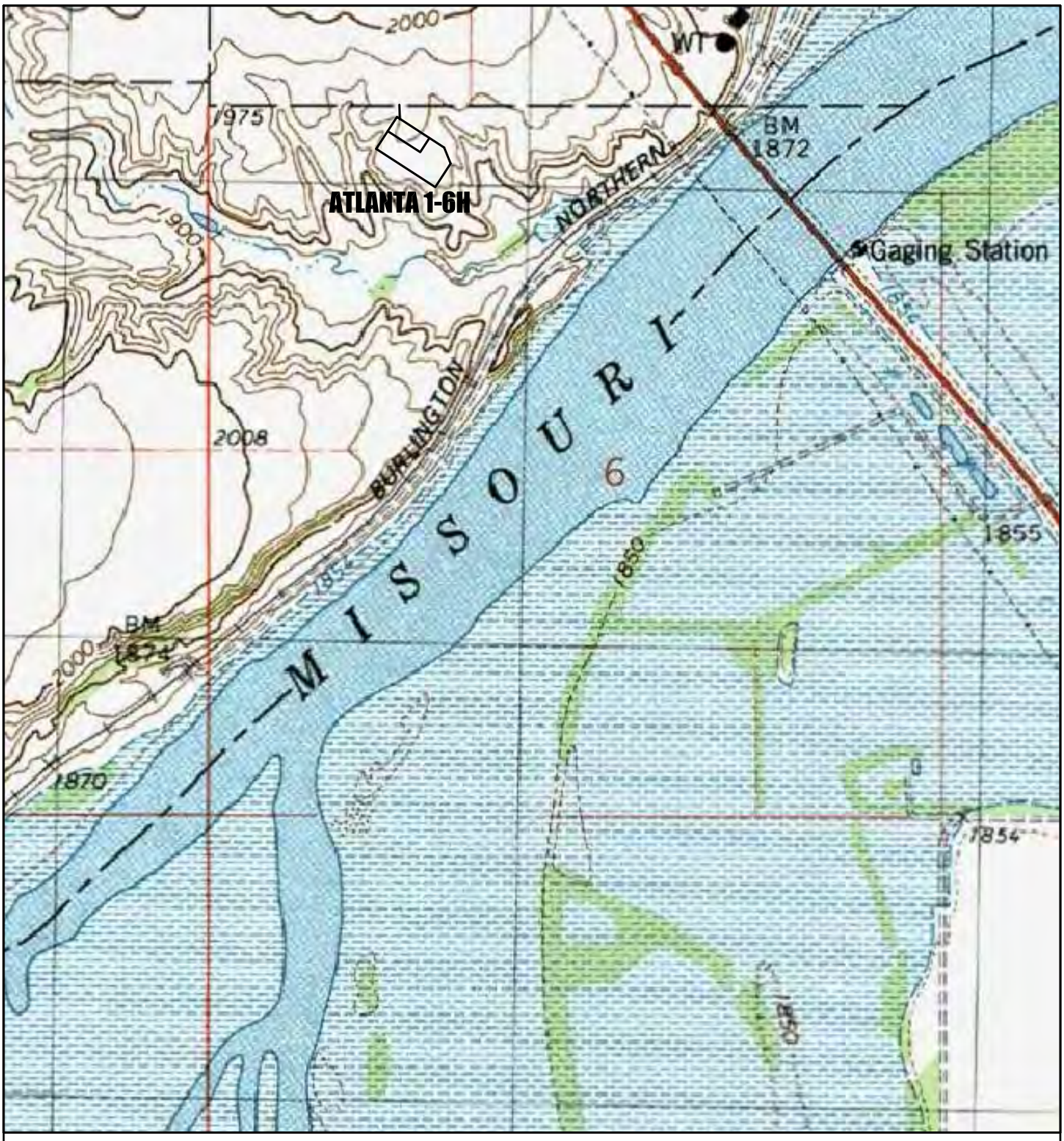
3.6 Truck Loading/Unloading Areas. Cyclone personnel will use spill containment booms to contain a release from a truck during loading/unloading operations or hand shovels and containment booms to direct the release to a containment trench or pit. Collected oil from such a release will be pumped into a temporary container or storage tank for off-site disposal.

4. FLOOD CONTINGENCY

Floods can develop slowly during an extended period of rain, or in a warming trend following a heavy snow. Others, such as flash floods, can occur quickly, even without any visible signs of rain. It's important to be prepared for flooding when working in a low-lying area, near water or downstream from a dam. The Atlanta 1-6H lease is located approximately 500-ft. north of an unnamed intermittent tributary of the Missouri River at an approximate elevation of 1,953-ft. above Mean Sea Level (MSL). A Well Location Map reflecting the topography of the subject site is presented herein as *Figure 3.*

4.1 Flood Watch. A Flood Watch indicates flooding is possible. Tune in to NOAA Weather Radio, commercial radio, or television for information regarding potential timing of flooding. Begin preparing to move portable equipment and storage tanks to higher ground. Anchor equipment and storage tanks that cannot be readily moved.

4.2 Flash Flood Watch. A Flash Flood Watch indicates flooding may occur without warning. Be prepared to move personnel, equipment, and portable storage tanks to higher ground; listen to NOAA Weather Radio, commercial radio, or television for information.



CONTINENTAL RESOURCES

WELL LOCATION

N

ATLANTA 1-6H
SECTION 6, T153N, R101W
WILLIAMS CO., NORTH DAKOTA

4.3 **Flood Warning.** A Flood Warning indicates flooding is occurring or will occur soon; if advised to evacuate, do so immediately, if safe to do so move equipment and portable storage tanks to higher ground.

4.4 **Flash Flood Warning.** A Flash Flood Warning indicates flash flood is occurring; personnel should seek higher ground on foot immediately.

4.5 **Flood Evacuation Plan.** In the event the Cyclone Drilling Foreman determines that the facility must be evacuated due to flooding, they will notify the personnel concerned by verbally announcing an evacuation or using internal two-way radios. All personnel will be required to meet at the designated evacuation assembly area.

The Cyclone Drilling Foreman will account for all employees at the work site. In the event any employees are missing, an immediate report will be made to the Safety Department. Good judgment must be used in evacuation procedures to avoid placing people in greater danger.

5. PREPAREDNESS AND PREVENTION REQUIREMENTS

Preparedness and prevention is required for all spills and potential flooding. The Cyclone Drilling Foreman will function as Emergency Coordinator and be responsible for establishing and implementing the preparedness and prevention measures discussed in the following sections of this Plan.

5.1 **Emergency Equipment.** Cyclone Rig No. 20 located at the Atlanta 1-6H will be properly equipped so that Cyclone personnel can immediately respond to an emergency during working hours utilizing emergency equipment. Typical emergency equipment includes but is not limited to fire extinguishers, eyewash stations, first-aid stations, and spill response equipment. Employees will be trained and familiarized with the use and location of all emergency equipment prior to beginning operations at a work site

5.2 **Internal Communication.** For larger jobs, Cyclone personnel use two-way radios to communicate between the rig personnel and supervisor. For smaller jobs, verbal communication is sufficient. During emergency situations, verbal communication and two-way radios (if available) will be used to provide immediate instructions to emergency response personnel. These systems are maintained, as necessary, to ensure proper operation during an emergency.

5.3 **External Communication.** Telephones (available on some larger jobs) and cell phones are used to notify Continental's office in the event of an emergency. The office would telephone for assistance from local emergency response personnel, if necessary. The phones are routinely used to ensure proper operation.

5.4 **Inspections.** Inspections of oil storage units, containment, and emergency equipment are conducted routinely to detect malfunctions and deterioration, operator errors, and/or

discharges that may lead to, or cause a release of, oil from containment units or from the work site.

5.5 Training. Cyclone personnel that are likely to respond to an incident are trained at least annually in solid waste management, spill response procedures, and stormwater management according to the procedures contained in this Plan. These employees are trained to perform in a manner that emphasizes accident and pollution prevention in an effort to safeguard human health and the environment.

The Cyclone Drilling Foreman is responsible for instructing appropriate personnel in the operation and maintenance of spill response equipment as well as all applicable spill control procedures. When employees are assigned to areas where oil spills may occur, it is required that a review of this Contingency Plan be conducted during on-the-job training sessions.

5.6 Emergency Evacuation Plan. In the event the Cyclone Drilling Foreman determines that the facility has experienced a release, fire, or explosion that could threaten human health, they will notify the personnel concerned by verbally announcing an evacuation or using internal two-way radios. All personnel in the immediate vicinity of the emergency will be required to leave the area and report to his/her immediate supervisor at the designated evacuation assembly area. The assembly area will be determined prior to beginning operations at a work site, but may change based on wind direction during an actual emergency. The assembly area should be upwind of the work site.

The Cyclone Drilling Foreman will account for all employees at the work site. In the event any employees are missing, an immediate report will be made to the Safety Department. Good judgment must be used in evacuation procedures to avoid placing people in greater danger.

6. EMERGENCY RESPONSE PROCEDURES

Emergency Response Procedures have been established for Cyclone's work sites in the event of a spill. All spills, major and minor, will be reported to the Cyclone Drilling Foreman and Continental's Environmental Specialist. The emergency response procedures are included in *Appendix A*. The responsibilities of the First Responder, Cyclone Drilling Foreman, and Continental's Environmental Specialist are addressed in the following sections of this Plan.

6.1 First Responder. When a spill occurs, the employee observing the incident will immediately notify the Cyclone Drilling Foreman and proceed to eliminate the spill source, if possible.

6.2 Emergency Coordinator Responsibilities. The Cyclone Drilling Foreman will **(a)** be responsible for determining whether the release could reach navigable waters or threaten human health and/or the environment; **(b)** assess the hazard, make immediate notifications, and implement spill response procedures; **(c)** collect the necessary information for regulatory notifications and reports; and **(d)** provide the reporting information to Continental's Environmental Specialist.

Continental's Environmental Specialist will make immediate verbal notifications and prepare and submit all required written spill reports.

Material Safety Data Sheets (MSDS) for the hazardous materials used at the work site are maintained on-site in the "doghouse" and provide information on the chemical hazards at the work site. Most releases will be minor and require only clean-up and disposal of small quantities of material. However, in the event the assessment indicates that evacuation of local areas may be advisable, they will immediately notify appropriate local authorities, as necessary. Appropriate authorities may include local police and fire departments, hospitals, and state and local emergency response teams, as identified in *Table 1.*

The Cyclone Drilling Foreman will immediately notify Continental's Environmental Specialist who will make initial verbal notifications to regulatory agencies and prepare written follow-up reports, as required. In the event the release has impacted the environment, the Cyclone Drilling Foreman and Continental's Environmental Specialist will determine clean-up requirements. In addition, the Cyclone Drilling Foreman and Environmental Specialist will coordinate the appropriate disposal of waste material generated during the response activities.

7. SPILL NOTIFICATION REPORTING

7.1 Spill Notification and Reporting. Upon receiving spill information, the Emergency Coordinator will notify Continental's Environmental Specialist who will determine if the spill requires notification and/or reporting to regulatory agencies, as outlined below:

7.1.1 North Dakota Industrial Commission (NDIC). According to the North Dakota Industrial Commission's (NDIC) General Rules and Regulations North Dakota Administrative Code (NAC) Chapter 43-02-03 Section C. Drilling:

All persons controlling or operating any well, pipeline, receiving tank, storage tank, or production facility into which oil, gas, or water is produced, received, stored, processed, or through which oil, gas, or water is injected, piped, or transported, shall verbally notify the director within 24-hrs. after discovery of any fire, leak, spill, blowout, or release of fluid. If any such incident occurs or travels offsite of a facility, the persons, as named above, responsible for proper notification shall within a reasonable time also notify the surface owners upon whose land the incident occurred or traveled. Notification requirements prescribed by this section do not apply to any leak, spill or release of fluid that is less than 1-bbl total volume and remains onsite of a facility. The verbal notification must be followed by a written report within 10-days after cleanup of the incident, unless deemed unnecessary by the director.

7.1.2 National Response Center (NRC). *Any discharge to water must be reported immediately to the National Response Center.* Therefore, the Cyclone Drilling Foreman must immediately Continental's Environmental Specialist with details regarding the spill so that official notifications can be made to the National Response Center.

8. PLAN AMENDMENT

In the event that a reportable spill or flooding occurs, Cyclone personnel will review the event to determine if an amendment to this Plan is necessary. In addition, Cyclone personnel will amend the Plan whenever there is a modification in the facility design, construction, storage capacity, operation, or maintenance that renders the existing Plan inadequate.

9. MANAGEMENT APPROVAL

This Contingency Plan has been prepared for operation of Cyclone Drilling, Inc.'s Rig No. 20 to be reviewed prior to beginning operations at the Continental Resources, Inc. Atlanta 1-6 lease. The Plan will be implemented as herein described.

(Signature)

Ryan Nelson Drilling Engineer

(Name and Title - Please Print)

Continental
RESOURCES

May 8, 2012

Industrial Commission of North Dakota
Oil & Gas Division
600 East Boulevard, Dept 405
Bismarck, North Dakota 58505

Re: Atlanta 12-6H

Continental Resources, Inc., would like to request all filings and information regarding the above captioned well be considered "Tight Hole".

Please charge the Continental Resources, Inc., credit card that is on file with your agency for the application fee of this well.

Thank you for your prompt attention to this matter. If you have any questions, you may contact me at 580-548-5139 or email the following Terry.Olson@clr.com.

Sincerely,

CONTINENTAL RESOURCES, INC.

Terry L. Olson
Regulatory Compliance Specialist

P.O. Box 1032 • 302 N. Independence • Enid, OK 73702
Voice (580) 233-8955 • Fax (580) 242-4703